

**NATURAL RESOURCES CONTROL TRAJECTORY: CUSTOMARY
RIGHTS, COERCIVE CONSERVATION AND COAL MINING IN THE YAYO
DISTRICT, SOUTHWEST ETHIOPIA**

By

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Thesis submitted to the Institute for Social Development, Faculty of Economics and
Management Sciences, University of the Western Cape, in fulfillment of the requirement
for the Doctor of Philosophy (PhD) Degree in Development Studies

The logo of the University of the Western Cape, featuring a classical building facade with columns and a pediment.

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March 2016

Supervisor: Professor Julian May

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Declaration

I declare that this dissertation titled: **Natural Resources Control Trajectory: Customary Right, Coercive Conservation and Coal Mining in the Yayo District, Southwest Ethiopia**, is my own work and that I have not submitted it, in part or its entirety, to any university for the award of a degree or examination. All sources that I have used or quoted have been acknowledged and indicated in the references.

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Signed


.....
Kassahun KELIFA

Date: 16th March 2016



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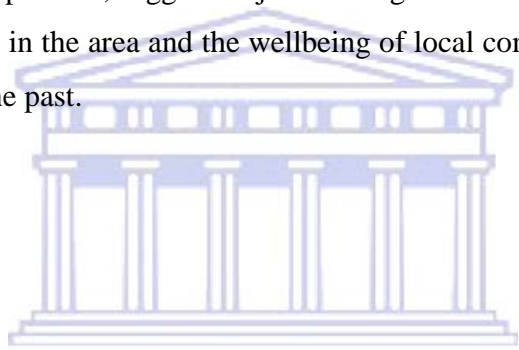
Abstract

The Yayo district in southwest Ethiopia is a biodiversity hotspot area historically containing a rich diversity of wild *coffea arabica* cultivars and Afromontane forest species of commercial and scientific value. Informed by political ecology and using qualitative research methods, notably participant observation, personal interviews, transect walks and analysis of secondary literature and videos, the study documents three major shifts in access, use, control and management of wild coffee and other natural resources in the Yayo district: first, village-level small-scale wild coffee cultivation and forest product harvesting; second, conservation and designation of protected forest areas and use zones, and most recently, coal mining and the future development of a fertiliser plant. The study details in depth how these three resource control regimes came to be and especially the social impacts they entailed on local (indigenous) communities residing in four villages in the Yayo district: *Achebo*, *Gechi*, *Wabo* and *Wutete*. It concludes with a discussion on the local socio-ecological impact and challenges facing the long-term survival of the local communities and wild *coffea arabica* forest biodiversity in the area.

Since the early 1900s, the wild coffee forests were managed and used by local, indigenous communities based on customary social institutions including *Abbaa lafaa*, *Ciiqaashuum*, *Qoroo*, *Tullaa*, *Xuxxee*, and *Shaanee*. These institutions eroded overtime as the Ethiopian state working in tandem with professional conservationists valued the wild coffee forests for their forest biodiversity and strove to control historic wild coffee use through protectionist approaches. The thesis discusses how the restriction of access not only resulted in a range of negative social effects (such as displacement, joblessness, and landlessness) but also gave rise to occasional local conflicts and formal and informal resistance towards the conservationists and their programmes. As such, the protectionist approach did not succeed in safeguarding the wild coffees or the livelihoods of the local communities.

Threats to the wild coffee forests were subsequently raised again with the rise of large-scale coal mining operations in the forest. Driven by concern for economic growth, the state has shifted its attention from biodiversity preservation to supporting a coal mining

operation in the area and the construction of the first-ever in country fertiliser factory in Yayo. With the advent of coal mining interests, not only have the historic customary rights and livelihoods of local communities been further weakened but also those of the power of the conservation regime. The early construction phases of the fertiliser factory have led to involuntary displacements, unfair expropriation of villagers' properties, forest and wild coffee clearance, emergence of new diseases such as malaria, and damage to physical infrastructure. Overall, the study shows that the progressive shifts in resource access, control and use have occurred as a result of changing ecologies, ecological knowledge and values, community dynamics, economies, and the shifting policies and strategies of the government of Ethiopia. These changes, especially the control of resources by mining proponents, suggest major challenges for the future existence of wild *coffea arabica* cultivars in the area and the wellbeing of local communities who had used and managed them in the past.



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Key Words

Coal mining

Customary right

Conservation

Ethiopia

Forest Biodiversity

Fertiliser

Mapping

Political ecology

Protectionism

Resource control

Territorialisation

Wild *coffea arabica*



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Dedication

The thesis is dedicated to Kidus and Feluye, each equally my pride and joy.



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Acknowledgment

Though only my name appears on the cover of the thesis, a great many people have contributed to its production. I owe my gratitude to all those people who have made the thesis possible and because of whom my graduate experience has been one that I will cherish forever.

First and foremost, I would like to express my deepest appreciation and gratitude to my advisor, Professor Julian May, for the patient guidance and mentorship he provided to me, all the way from the start through to completion of this degree. Professor May's intellectual heft is matched only by his genuinely good nature and down-to-earth humility. I have been amazingly fortunate to have the opportunity to work and make occasional travels with him. I could not have imagined having a better advisor and mentor for my Ph.D. study.

I gratefully acknowledge the funding sources that made my Ph.D. work possible. A generous scholarship from the German Academic Exchange Service (DAAD) funded the first three years and of course, the major part of the PhD study. As the 2015/16 fellow of the Norman E. Borlaug Leadership Enhancement in Agriculture Program (Borlaug LEAP), financial support was also partly provided by the Borlaug LEAP through a grant to the University of California, Davis, by the United States Agency for International Development (USAID).

My special words of thanks go to my Borlaug LEAP fellowship mentors, Professor Jill Belsky, University of Montana /USA/, and Dr. Ehsan Dulloo, Bioversity International /Italy/, for their insightful comments, thought provoking question which incited me to widen my research from various perspectives and the general collegiality that each of them offered to me at the completion phase of the thesis. I am grateful to the leadership of Bioversity International who were willing to hire me as a research fellow in their beautiful office in Rome, Italy.

I am also indebted to the research informants in the four study villages, the Yayo district, *Illu Abbaa Bora* Zone, Oromia Regional State and the federal-level government bureaus and NGOs. Particularly, I would like to acknowledge Dr. Tadesse Woldemariam and Takele Alebachew for the many valuable discussions that helped me understand my research area better.

A special mention of thanks to all the academic and support staff at the Institute for Social Development, especially Dr. Abdulrazack Karriem, Dr. Ina Conradie, Belinda Du Plessis, Priscilla Kippie and Elaine Peterson whose support made my stay at the UWC comfortable. My friends in Cape Town, Solomon, Tamrat, Abraham, Yemataw, Mekoya, Temesgen, Rasta, Meselu, Coretta, and Ali, have also helped me to stay sane through these years. Their support and encouragement was a key factor in overcoming setbacks and staying focused on my doctoral study. I also owe big thanks to Louise Hamlyn for proof reading and editing the thesis.

I express my heart-felt gratitude to Dr. Mulugeta F. Dinbabo and his family for being with me as an elderly figure throughout. His scientific input, personal help and friendly nature has always made me feel at ease with him and I could always look to him for any support during the course of my Ph.D. study. Mule, thank you for being there for me with your supporting hands whenever I needed it the most.

I would be remiss if I do not acknowledge my beloved mother, Felekech, and my father, Kelifa, who have been a constant source of love, concern, and strength all these years. Your prayer for me was what sustained me thus far. I would also like to express my heart-felt gratitude to my brothers and sister for their innumerable support, advice, and encouragement. I next turn to my son, Kidus. Son, you are the ultimate reason for finishing this project. It is a small but heart-felt acknowledgment: I dedicate this thesis to you and your grandmother (Feluye). Finally, and above anybody else, however, I want to thank Almighty God for His Unconditional Love and Everlasting Mercy!

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List of Acronyms and Abbreviations

ADLI	Agriculture Development Led Industrialization
APF	African Parks Foundation
ARDO	Agriculture and Rural Development Office
a.s.l	Above Sea Level
BMBF	German Federal Ministry of Education and Research
BR	Biosphere Reserve
CAQDAS	Computer Assisted Qualitative Data Analysis
CBD	Convention on Biological Diversity
CEO	Chief Executive Officer
CIP	Coffee Improvement Project
CoCE	Conservation and use of wild populations of <i>coffea arabica</i> in the montane rainforests of Ethiopia
COFCOP	Coal Phosphate Fertiliser Complex Project
COMPLANT	China National Complete Plant Import and Export Corporation
DAP	Di-ammonium phosphate
EC	European Commission
ECFF	Environment and Coffee Forest Forum
ECU	European Currency Unit
EEPCo	Ethiopian Electric Power Corporation
EITI	Extractive Industries Transparency Initiative
EPRDF	The Ethiopian People's Revolutionary Democratic Front
ESIA	Environment and Social Impact Assessment
ETB	Ethiopian Birr
EURO	Euro Currency
FAO	Food and Agriculture Organisation
FGD	Focus Group Discussion
GIS	Geographic Information System

GoE	Government of Ethiopia
GTP	Growth and Transformation Plan
Ha	Hectare
HIV/AIDS	Human Immunodeficiency Virus /Acquired Immune Deficiency Syndrome
IBA	Important Birds Area
IBC	Institute for Biodiversity Conservation
IEE	Institute of Development Research and Development Policy
ISD	Institute for Social Development
IUCN	International Union for Conservation of Nature
IZLEPB	<i>Illu Abbaa Bora</i> Zone Land and Environmental Protection Bureau
KM	Kilometer
MAB	Man and Biosphere Reserve Program
MDG	Millennium Development Goals
MetEC	Metal and Engineering Corporation
MoA	Ministry of Agriculture
MoFED	Ministry Of Finance and Economic Development
MoME	Ministry of Mines and Energy
MW	Megawatt
NFPA	National Forest Priority Area
NTFP	Non Timber Forest Product
NGO	Non Governmental Organisation
OFWE	Oromia Forest and Wildlife Enterprise
PA	Protected area
PhD	Doctor of Philosophy
SDG	Sustainable Development Goals
SNNPR	Southern Nations, Nationalities, and Peoples' Region
UN	United Nations

UNESCO	United Nations Educational, Scientific, and Cultural Organisation
USD	United States Dollar
USDA	United States Department of Agriculture
UWC	University of the Western Cape
WWF	World-wide Fund for Nature
WDPA	World Database on Protected Areas
YARDO	Yayo Agricultural and Rural Development Office



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Chapter One: Contextualising the research agenda

1.1 Introduction

Poverty and biodiversity are interrelated concerns for development and the link between them runs in both directions. Poverty can undermine biodiversity (Perrings and Gadgil, 1978) and the loss of biodiversity can in turn pose a serious challenge to poverty eradication efforts (Roe and Elliot, 2005). Causes of the extinction of biodiversity species are manifold and complex. Scholars assert that large-scale extractive industries such as mining are amongst the most important human-driven factors that contribute to the loss of biological diversity (Bell et al., 2001; Down and Stock, 1977; Hens and Boon, 2005; UNESCO, 1985). The loss becomes even more politically complex when the spaces considered as new boundaries for extractive industries contain valuable natural resources that are already used and controlled by other social groups (Cuba et al., 2014).

The competing claims over such types of contested spaces might take several forms depending on the type and value of the natural resources and the nature of ownership claims over them. There might be groups claiming *de facto* or *de jure* access and use right to undertake agricultural production, material consumption and/or sociocultural activities on the land resources (Bebbington and Williams, 2008; Burry, 2005; Lynch, 2012). There might also be other powerful actors who compete with existing customary rights to create nationally and internationally recognised protected areas (PAs) (Bebbington, 2011). Gururani and Vandergeest (2014) also empirically illustrate the likelihood of having multiple competing actors in a given ecological setting who attempt to control various resources such as industrial minerals, forest and land, threatened species, and local livelihoods based on the values they attach to them.

In the light of these complex contestations, the past decade witnessed a situation where conservation biologists consistently reminded policy-makers that biodiversity preservation has to be at the centre of the Millennium Development Goals (MDG) and other sustainable development policies and strategies (Brockington and Schmidt-Soltau, 2004). Even today, organisations such as the International Union for Conservation of

Nature (IUCN) are calling for the member states of the UN system to review the Rio+20 thematic discussions on environmental sustainability and pay adequate attention to the issues of biodiversity in the process of formulating and developing the Sustainable Development Goals (SDG)¹. A leading approach suggested by this group to halt the threats to biodiversity has been the creation of strictly protected areas (PAs) free from any form of human intervention (Adams et al., 2004).

The creation and expansion of the PAs has been central to the policies and strategies of many tropical developing countries where human activities are taking a toll on the ecology and thus on biological diversity. The Protected Planet Report by Juffe-Bignoli et al., (2014) estimates that there are in excess of 209 000 PAs worldwide covering 15,4% of the world's terrestrial area and 8,4% of marine areas. The same report reveals that African countries have designated a combined 30 723 PAs (i.e. 14,7% of the total) to preserve the full range of flora and fauna species occurring in their respective regions. The September 2015 version of the World Database on Protected Areas (WDPA) shows that 104 of these PAs, the Yayo coffee forest included, have been identified and designated in Ethiopia covering a total land area of 208 907 km²². This is equivalent to 18% of the total land area of the country, i.e. 1 135 429 km².

There is a plethora of published scientific works that attempted to demonstrate the roles PAs can play in safeguarding endangered biodiversity species (CBD, 2008; Kramer et al., 1997; Lee et al., 2007; Lopoukhine et al., 2012; Naughton-Treves et al., 2005). Yet, only a handful of empirical evidence exists to systematically substantiate the socio-economic costs PAs can have on neighbouring local communities (Ferraro, 2008). Although what has been documented is anecdotal or qualitative, there is a general understanding that the creation of PAs can bring along adverse social, economic, cultural, and political effects to the wellbeing of the people surrounding them (Himmelfarb, 2006; West et al., 2006;

¹ Web links to the IUCN views on the SDGs:

https://cmsdata.iucn.org/downloads/iucn_views_on_the_post_2015_development_agenda_and_the_sdgs.pdf

https://cmsdata.iucn.org/downloads/iucn_policy_brief_aichi_targets_and_sdgs_jan.pdf

² A monthly update of the protected areas of our planet could be obtained from: <http://www.protectedplanet.net/>

Wilkie et al., 2006). As reported by various scholars who argue that most of the costs of establishing PAs are borne by local communities, these effects are incurred in the form of lost or restricted access, damages to agricultural crops, and wild animal attack, among others (Adam and Hutton, 2007; Brockington and Schmidt-Soltau, 2004; Coad et al., 2008).

The idea of protectionism is frequently couched in the non-political language of biodiversity preservation, although it involves the interaction of multiple actors and actor alliances that have differing interests and an unequal power base. In his argument, Buscher (2010) makes use of Ferguson's (1990) 'anti-politics machine' concept and applies this to the politics of conservation in South Africa to portray how conservation endeavours are controlled through the broader neo-liberal thinking of political economy. He thus argues that anti-politics systems are powerful political tools in producing, circulating and executing preferred conservation approaches, irrespective of the nature of interest, or disentangling local communities from these extremely politicised and highly commoditised ecological frontiers.

In Ethiopia, like in most other biodiversity hotspot regions, the creation of strict PAs involves convoluted social, economic, and political processes. This was particularly discernible in the study area, the Yayo district in the southwest of Ethiopia, due to the presence of groups competing for livelihoods, conservation and extraction. Firstly, the area presents an exceptional biological diversity, mainly wild *coffea arabica* and 'undisturbed' Afromontane forests of greater scientific and commercial significance to the country (Gole, 2002). Many ecologists and some social science researchers believe that these resources are diminishing at an alarming rate due to various anthropogenic factors³ taking place in the area (Gole, 2003; Kufa and Burkhardt, 2011; Stellmacher, 2006). As a result, the impetus to save the threatened biodiversity started a few decades ago by local and international actor coalitions who prescribed the notions of strict protectionism as an effective conservation model in the management toolbox. As

³ Anthropogenic factors are any form of human influences that may have a direct or indirect effect on the environment. The list may include, but is not limited to, new settlements, conversion to other land use patterns, forest clearance, setting fire, and timber extraction (Reusing, 1998).

highlighted by Pimbert and Pretty (1995), such conservation approaches are premised on the notion that local people are essentially bad for the preservation of biodiversity and hence local input needs to be excluded from the conservation process. Nonetheless, this ideology has been recently challenged by Siebert and Belsky (2014) who used empirical evidence to justify that certain intermediate-level historical livelihoods and land uses – notably swidden – have contributed to the creation of biodiversity

The second dimension of competition for space and resources is associated with the nature of historic livelihoods of long-term residents of the district. Jotte (2010) estimates that over two-thirds of the total population residing in the district are directly and/or indirectly dependent on the forests and wild coffees for cash income and own consumption. As a primary base, the historic livelihoods, access, use, and control of local communities over these resources determine production, consumption and their cultural interaction with the resources. Although it is yet to be explored in the context of the Yayo district, research has identified a wide array of socio-political complexities stemming from protectionist-oriented conservation approaches. These are, amongst others, disputes over customary resource ownership rights, contestation over access and use of ‘restricted’ natural resources, and resentment and opposition towards restrictive PA enforcement rules (Ghimire and Pimbert, 1997). In fact, these and many other social effects are more likely to occur whenever conservation planners fail to adequately integrate social, economic, and political aspects into the formulation and execution of protected areas (Brecht et al., 2002; Brockington and Schmidt-Soltau, 2004).

The third, yet relatively new source of competing interest and claim in the Yayo district relates to the reported occurrence of industrial mineral, notably coal deposits, in the region. There is a growing concern amongst conservationists working in the area and resource-dependent local communities that the area understood to be containing the coal mineral overlaps with previous land use and management systems, mainly with already existing historic livelihood and strict wild coffee conservation spaces. Recently, the government of Ethiopia (GoE) has shown a growing interest towards exploration, extraction, and processing of coal minerals by making systematically shifting away from

conservation and sustainable local livelihoods. As an example, the construction of the first ever in-country fertiliser manufacturing complex and potentially large-scale coal mineral extraction are already underway in the district. Although no single research has attempted to identify the extent of overlap of these interventions with other land use forms in the district, evidence from other countries such as India and Australia (Mishra, 2009 and Petkova et al., 2009 respectively) suggests that extractive industry can bring both positive and negative consequences to local people and their biophysical environment.

Considering these overlapping interests and claims, the Yayo district can be recognised as ‘a politicised environment’ (Bryant and Bailey, 1997), ‘a contested terrain’ (Bridge, 2004) and/or ‘a frontier ecology’ (Gururani and Vandergeest, 2014) where changing ecological knowledge, policies and practices determine the way the resources are accessed, used, controlled, and managed. Even though both biodiversity conservation and mineral extraction are crucial interventions in fostering economic development and achieving poverty alleviation goals, both are happening in a contentious and complex social, economic, ecological and political context. For example, both local conservationists and long-term village residents have raised concerns over the nature, extent, and scope of resource extraction; yet they seem to have lacked the capacity and power to deal with the new mining actors.

Scholars who had prior exposures to the Yayo district rarely attempted to examine social, ecological and political dimensions of the competing interests and claims over access and use of the forests and forest products and minerals. Instead, much of the focus has been on exploring taxonomic features of selected vegetation species, economic values of plant genetic materials, causes of biodiversity losses as well as the possible models for safeguarding threatened species. The theoretical approaches employed by these groups also tended to follow an apolitical and ahistorical approach that gave little consideration to socio-political facets. For these reasons and against ongoing global debates regarding the nexus across livelihoods, conservation, and extraction, interrogating and delivering additional evidence on issues related to the production of ecological knowledge,

strategies of resource control, and the resultant effect of the extraction and conservation on customary resource use and governance practices are worthwhile. This can be achieved by asking questions such as who has the legal and/or use right over the resources and how these rights are exercised at the local scale, and thereby unpacking the natural resource control trajectory in the district.

Hence, drawing insights from a political ecology approach, this thesis focuses on exploring processes involved in the access, use and governance of economically valuable natural resources. A particular emphasis was given to investigating the strategies adopted by local communities (in this case, long-term village residents), conservationists, and mining officials to control and make use of resources of their choice and how the control of resource by an actor affects the needs and priorities of the other. The overall aim is to understand the complex politics of resource control with regard to wild coffee land and systems and identify politically and practically feasible ways of striking a balance across livelihood, conservation, and extraction.

1.2 Prior interdisciplinary research on local livelihood, conservation, and coal mining nexus

Over the past decades, the majority of methodological and scientific publications on biodiversity and human wellbeing were carried out in very general terms. The focus was on long-term and global scale benefits of biological diversity to human welfare (Blaikie and Jeanrenaud, 1997) instead of specific local scale processes underpinning their use and management. At a conceptual level, several attempts have been made to uncover the dynamic relationship between the two. Some of these include the works of Adams et al., (2004), Agrawal and Redford (2006), Angelsen and Wunder (2003), Edwards and Abivardi (1998), Fisher and Christopher (2006), Roe (2008), Roe and Elliot (2004), Roe and Elliot (2005), Perrings and Gadgil (1978), and Sanderson and Redford (2003). As essential components of the human-environment relationship, the creation, governance, role, and effects of PAs have also been documented by scholars such as Brandon et al., (1998), Brockington (2003), Colchester (1994), Ghimire and Pimbert (1997), McNeely

and Miller (1984), Naughton-Treves et al., (2005), Neumann (2000), Peluso (1993), Ribot (2002), Schmidt-Soltau and Brockington, (2004), West and Brockington (2006), West et al., (2006), Wilkie et al., (2006) and Wilshusen et al., (2002).

Likewise, the politics of energy resource extraction (such as oil, gas, or mineral) has increasingly become the focus of social science research whereby many scholars explored socio-ecological processes, nature of access, use and claim of resources, and the effects of such industries on both the environment and the people. These include, inter alia, the published works of Bebbington (2011), Bebbington and Williams (2008), Bridge (2004), Burry (2005), Cuba et al., (2014), Deininger et al., (2011), Hilson (2002), Lynch (2012), Peluso (1992), Petkova et al., (2009) and Watts (2001).

Developing a conceptual and theoretical tool for understanding socio-political processes involved in global environmental problems has also been central to social science research. In this regard, the early seminal contributions of Blaikie (1985) and Blaikie and Brookfield (1987) have laid a valuable foundation for a comprehensive and methodological analysis of the political economy of the environment. By way of applying a 'regional political ecology approach', for instance, the latter critically explored the causes of environmental degradation in the third world and the possible solutions that need to be considered in addressing the crises. Following this, many other distinguished scientists have contributed to the advancement of the field of political ecology by critique, exploring the human-environment relationship, and also by assessing the politics of access, use, control, and governance of resources. These include, among others, the works of Adam and Hutton (2007), Belsky (2002), Brechin et al., (2002), Brown (1998), Bryant and Bailey (1997), Buscher (2010), Escobar (1995, 1996), Fairhead and Leach (2003), Forsyth (2003, 2005), Paulson et al., (2005), Neumann, (1992, 2000, 2005), Peet and Watts (1996), Robbins (2004), Rocheleau et al., (2013), and Zimmerer (2000). Meanwhile, the most frequently cited literature on the critique against political ecology was produced by Vayda and Walters (1996).

In Ethiopia, although published academic works on the socio-political dimensions of extractive industries are lacking, the links between biodiversity and human welfare have somehow been studied. Taking the Yayo district as a case, for instance, scientific investigations of the specific biodiversity resources in the locality have been carried out in a comprehensive manner by both national and international research groups. The disciplinary focus of this research can be broadly classified into two groups. Firstly, there are those who are based mainly within the natural sciences with expertise drawn from biology, ecology, forestry, taxonomy, and other conservation sciences. The ideas explored and formulated by the scholars in this category tend to focus on in-depth analysis of the vegetation cover, extent and distribution of genetic diversity of *coffea arabica* wild relatives, methods of developing disease-resistant coffee varieties, impacts of climate change and *in situ* measurements of water use efficiency of the wild coffees. Some of these studies include the works of Davis et al., (2012), Gole (2002, 2003), Gole et al., (2002, 2008), Kufa and Burkhardt, (2011), Labouisse et al., (2008), Meyer (1965), and Senbeta (2006).

The second group of researchers is based within the social sciences, although they vary in terms of their disciplinary background. The research in this category comes from scholars who draw insights from anthropology, institutional economics, political economy, natural resource economics, sociology, and agricultural economics. The foci of these studies spread across issues of economic features of wild coffees, incentives and disincentives of biodiversity conservation, economic values of the wild *coffea arabica* relatives, and ecological connections between the forests and wild coffees (e.g. Abebaw and Virchow, 2003; Hein and Gatzweiler, 2006; Seyoum, 2009 and Schmitt and Grote, 2006). Moreover, previous research in the district moved a step further by investigating informal and formal institutions affecting coffee forest use and management (e.g. Jotte, 2010; Gatzweiler, 2005; Stellmacher, 2006; Stellmacher and Mollinga, 2009; and Toli, 2006).

Compared to the comprehensive list of research works and intellectual interest in the biodiversity resources of Ethiopia, scholars have not given adequate attention to the various social aspects of extractive industries, mainly mining interventions, in the

country. This can be partly due to the slow pace of what Gururani and Vandergeest (2014:346) refer to as ‘the proliferation of actors involved in producing ecological knowledge, creating frontiers, and recalibrating governance.’ Thus far, it is only the experts from the Ministry of Mines and Energy (MoME) and the Geological Society of Ethiopia who have undertaken geological surveys of the country’s coal resources. In most cases, the scope of these studies was limited to exploring and reporting the origin, abundance, and characteristics of the coal mineral in various regions. These include, for instance, in the Dilbi-Moye basin (Getahun et al., 1993), in the Mendi district (Getahun and Sebhat, 1988), in the Jiren district (Bisrat and Heemann, 1985; Wolela, 1985), in Wolaita Sodo (Kitachew and Tesfaye, 1978), and in the Yayo district (COMPLANT, 2007; Zerihun et al., 1998).

A systematic review of all the above published and unpublished literature shows that virtually all scholars in the natural and social science disciplines have hardly started to address the socio-political dimensions of coal mining in Ethiopia. The issues of competing actors, overlapping claims and the dynamic interplay between local livelihoods, biodiversity conservation and extraction have not been examined in the same comprehensive manner as they have deliberated on biodiversity related themes. Since implementing extractive activities in existing protected forest areas and historic livelihood spaces is a relatively recent phenomenon in Ethiopia, there is a looming need to interrogate the social, ecological and political processes taking place in these overlapping geographies.

1.3 Justification for the study

Recognised as the ‘backbone’ of the economies of many developing countries, *coffea arabica* is the second most valuable and exported commodity, next to oil (Pendergrast, 1999). The Food and Agricultural Organisation (FAO) estimates that 95 of the 141 third world countries rely on coffee exports for approximately 50 % of their total revenues from any export. Coffee can also be taken as an example of a ‘commodity-dependency’ representing, for example, 80%, 51%, and 30% of the total exports of Burundi, Uganda,

and Honduras respectively (FAO, 2008). Ethiopia, which is the fifth largest producer of coffee in the world and the largest in Africa, produces approximately 400 000 metric tons per annum – all of it arabica (Stanculescu and Scholer, 2011). The sector employs over 16 million poor rural people (Anley et al., 2007) and, according to the 2013 United States Department of Agriculture (USDA) annual coffee progress report, the contribution of this sector to the country's foreign export earning was in the range of 45–50% (USDA, 2013). For this cropping season, it is forecast that total domestic production of coffee could be around 6,508 million bags, i.e. 390 500 metric tons (USDA, 2015). This feeds into a global value chain that includes some 25 million coffee farmers who export approximately 93,4 million bags of coffee per year to an industry that is worth USD 15,44 billion per annum⁴.

The Afromontane rain forests in the south-western highlands of Ethiopia are the primary centre of diversification and the only place in the world where abundant and genetically diverse *coffea arabica* relatives grow in their original habitat (Gole, 2002; Meyer, 1964; Vavilov, 1951). These wild coffees are a source of household subsistence for over two-thirds of the agriculture-dependent communities in the Yayo district (Jotte, 2010). Domestic consumption is exceptionally high and the skill of brewing coffee is usually taken as a source of cultural and social pride amongst long-term residents of the district. Hein and Gatzweiler (2006) assessed the scientific significance of the wild coffee for developing pest- and disease-resistant, high-yielding varieties with low caffeine content. The estimate shows that the economic worth of the indigenous populations of the species to the worldwide coffee industry is within the range of USD 420 million and USD1.45 billion per annum.

Despite the scientific and economic roles of the wild coffee, ecological research has consistently revealed that the forests harbouring the indigenous populations of the crop are fast disappearing, increasing the risk of genetic stock erosion (Gole, 2003; Paulos and Demel, 2000; Tadesse, et al., 2006; Tesfaye and Thomas, 2004). Associating the causes of forest degradation and genetic material erosion with human encroachment (Gole et al.,

⁴ <http://www.thecoffeeguide.org/coffee-guide/world-coffee-trade/>.

2002) and lately with climate change (Davis et al., 2012), various policies, strategies, and programmes have been formulated and implemented to address the ecological crisis and thus save the forest ecosystem.

The first strategy is a PA approach. The Government of Ethiopia (GoE) officially designated a total of 58 National Forest Priority Areas (NFPAs⁵) in the early 1990s (EFAP, 1994). Almost two-thirds of the NFPAs, the Yayo coffee forest included, were, by statute, earmarked for strict conservation (Bekele and Berhanu, 2001), prohibiting human intervention such as settlement and use of forest products within the boundaries (Kubsa et al., 2003). Being a subset of the PA, at least in the case of Yayo, the second conservation strategy was an *in situ* approach. Stellmacher and Mollinga (2009) underscore that this approach allows the natural selection and adaptation of wild coffee species in their centre of origin. It was after introduction of the *in situ* approach that the Yayo district became a globally recognised reservoir of indigenous populations of *coffea arabica*. The third conservation approach is the biosphere reserve model. Under this approach, the coffee forest has been recognised as a United Nations Educational, Scientific, and Cultural Organisation (UNESCO) global heritage⁶ site where the governance style follows a ‘participatory landscape planning model’ of classifying the reserve into distinct management zones.

A couple of key issues can be mentioned as distinguishing characteristics of the combined lifespan of the three conservation approaches in the study area. Firstly, there are serious competing interests and claims over various types of resources (such as coffee, forest and forest products, and coal minerals) occurring within the designated conservation spaces. Secondly, multiple global, national and local interest groups⁷ who have differing motivations and ways of interaction with the natural resources are at play in these contested spaces. The competing groups evoke a range of arguments to legitimise

⁵ NFPAs are nationally designated National Forest Priority Areas in Ethiopia with a total land area coverage of 2.8 million Hectares.

⁶ www.unesco.org

⁷ Some of the groups who are interested in various types of resources of the area include the state actors, the local community, scientists, coal mining companies, aid workers, private corporates, international research organisations and NGOs.

the importance of their action, interest, and strategies they have employed to gain control over the resources of their choice.

In political economy, the power relation and nature of interaction between resource users and managers are debatable. Explaining the case of conservation, Escobar (1998) states that international companies and non-governmental organisations (NGOs), plant genetic diversity preservation sites, universities and research institutes in the global south and north as well as the large number of experts and scientists situated in each of these agencies and sites are presumably the most powerful actors in the decision-making process. The poor local people, on the contrary, appear to be the weak, disadvantaged and often-unheard groups in the management chain (Adam and Hutton, 2007). Some of the sources of power for conservation actors could be their connections with the state /government/ authorities, resounding power of their research, their knowledge of ecologies and control over discourses (Adam and Hutton, 2007; Gururani and Vandergeest, 2014).

The nature, magnitude, and extent of the social effects of such types of conservation approaches are also issues requiring careful analysis. Since conservation planners tend to overlook the reality that areas set aside for conservation are also the homelands of poor rural people whose historic livelihoods and land use have produced landscapes with high biodiversity (Siebert and Belsky, 2014), their intervention has often brought risks and hardships to local communities in and around protected areas (Brockington and Schmidt-Soltau, 2004). A critical review of the current literature by Coad et al., (2008) points out that conservation-related hardships take various forms and magnitudes, ranging from forced relocation to incidents of violent social conflicts and political instabilities. In his study, for instance, Turton (2002) assessed the process of the Nech Sar Park creation in Ethiopia and offered a classic example of the social effects of a PA. One of these was the occurrence of violent conflict between an indigenous people, the Mursi community, who claimed access right to resources and state conservation elites who demanded the imposition of restrictive rules. In the process, more than 500 local people lost their lives

and tens of thousands were forcibly evicted from their homeland to make way for the establishment of the PA (Hurd, 2006).

Environmental social scientists and advocates such as Brechin et al., (2002) argue that biodiversity conservation approaches should meet ecological, social, political, and moral requirements of actors found at multiple scales, particularly those of local communities. In 2014, the sixth World Parks Congress held in Sydney under the theme '*Parks, People Planet: Inspiring Solutions*' also emphasised the importance of empowering and involving local communities in the governance of PAs and fairly sharing benefits in a manner that meets their needs and priorities⁸. Despite such an important commitment, the creation of PAs at a local scale hardly complies with internationally agreed norms and it seldom meets the targets of improving the wellbeing of the victims of the approach. Some of the causes for such failures have been the dearth of adequate information on the politics surrounding environmental governance, the characteristics of affected and benefited social groups, and the specific nature and extent of the social and economic costs of conservation (Adam and Hutton, 2007; Adams et al., 2004; Brockington and Schmidt-Soltau, 2004; Coad et al., 2008).

Another interesting, yet contested, issue in the resource control trajectory of the Yayo district relates to the discovery of considerable coal deposits in and around already existing livelihood and conservation spaces. A geological survey by a Chinese consultancy firm, China National Complete Plant Import and Export Corporation (COMPLANT), estimates the availability of a total of 230 million tons of coal mineral in an area of just 50 km² of the district (COFCOP, 2009; COMPLANT, 2005). The same report indicated that the untapped coal deposit can offer the country a potential to produce 300 000 tons of urea and 300 000 tons of diammonium phosphate (DAP) per annum for the next several decades, not to mention an additional 30 000 tons of ethanol and 90MW of electric power that can be generated.

⁸ The outcomes of the Congress have been classified into four key pillars that are documented as 'The Promise of Sydney'. The issues of indigenous people have been discussed under the "Innovation approaches for change" pillar. More information can be found on the following link
http://worldparkscongress.org/about/promise_of_sydney_innovative_approaches.html

Ethiopia's five-year national development plan, the Growth and Transformation Plan (GTP), reveals a critical demand for energy and agricultural inputs and thus underscores the importance of extracting and processing the coal mineral resources of the country. Cognisant of the untapped potential of the coal deposit and underutilisation of the mining industry⁹, the plan envisions building and developing a large-scale mining sector that will become the cornerstone of the industry by 2020-2023, with a ten-fold increase in its contribution to export earnings (MOFED, 2010). Part of the initiative is the construction of eight coal-fired fertiliser manufacturing plants in the Oromia Regional state, out of which the installation of two urea and one DAP fertiliser plants has already commenced in the Yayo district, *Wutete* locality.

Considering their role in building national identity and substituting fertiliser import,¹⁰ there is a fresh optimism by GoE that the fertiliser plants can serve as a means to an end. It can pay off in terms of increasing the efficacy of the mining sector, modernising the agricultural sector and boosting its productivity, and eventually realising the GTP goals of ensuring sustained economic growth of the country (MoFED, 2010). Nevertheless, a large number of social scientists, conservationists, and small-holder coffee producers in Yayo are increasingly concerned about the possible social, economic, and ecological effects of the extractive industry on the lives of villagers and their biophysical environment. Conservationists, in particular, have been puzzled over the decision of the GoE, once a firm advocate of biodiversity conservation, to undertake coal extraction and processing within a biodiversity hotspot area and a globally recognised coffee forest biosphere reserve. At this stage of the plant installation and coal mining, some of the activities of the industry have already started to show signs of social, ecological, and economic effects, most of which are explored in the last chapter of this thesis.

⁹ Despite the huge potential of the country for the discovery of new minerals, the mining industry is still found at an infant stage, contributing as low as 1,5% to the country's GDP in 2011/2012 (World Bank, 2014).

¹⁰ Ethiopia's total amount of fertiliser import in 2008 and 2012 has been 440 000 and 890 000 tons respectively. The purchase and transportation of fertiliser from abroad costs the country more than 1.1 billion USD per year (Rashid et al., 2013a).

In summary, the situation here requires rethinking of the ongoing socio-ecological processes and how the particulars of the district speak to literature elsewhere. There are competing interests and claims to access, use, manage and/or control economically valuable resources in the Yayo 'frontier of ecologies'. On these frontiers, the long-term resident communities strive to sustain their traditional forest-based livelihoods, mainly wild coffee cultivation and collection, whereas the state and non-state conservationists attempt to govern the biodiversity species in a scientific manner and for long-term global benefit. For their part, proponents of extractive industries within and outside of the GoE structure emphasise short-term benefits and realisation of an economic growth plan through extraction and processing of coal minerals from within a protected forest area. Unpacking the socio-ecological process embedded within these competing claims and interests requires a careful analysis of the politics that creates and sustains the pattern of access, use, management and control system of the area. In order to do so, the following key questions on resource use and governance served as an overall guide of the research process.

1.4 Research questions

The study was guided by the following key questions:

- a. Within a broader traditional forest governance system, how does the wild coffee farming system operate – who manages, collects, and governs it and how has it changed over time?
- b. How do non-local actors (conservationists and/or mining proponents) gain access to the resources of their choice (either *coffea arabica* or coal mineral) and what strategies do they use to reinforce control over them?
- c. What are the combined social and ecological effects of the external interventions (strict conservation and coal extraction) on the long-term residents and physical environment? In what forms do these groups resist the external interventions?

1.5 Objectives of the study

1.5.1 General objective

Informed by a political ecology¹¹ approach (See chapter 3), the main focus of this study was to explore the politics surrounding access, use and governance of wild coffee and coal mineral resources in selected case villages in the Yayo district. Particular attention was given to the ways in which external forces (PAs and extraction) at different levels have enabled changes in customary access and use right over wild coffee (and/or forest biodiversity in general, as a system) in the study villages. It also examined how these external interventions brought social and ecological changes and how long-term residents of the study villages, mainly wild coffee collectors, reacted to the changes.

1.5.2 Specific Objectives

As guiding objectives, the study specifically sought to

- a. Describe and document historic and existing connection between local communities in the case study villages and the wild coffees (forests in general), including the contribution of wild coffee and other forest products to local livelihoods, customary resource access, use and governance patterns and the gender dimensions of access and use of wild coffees.
- b. Examine the manner in which conservationists attempt to gain control over the coffee forest and the wild coffees and describe the strategies they employ to enforce restriction on wild coffee access and use by local communities.
- c. Critically assess and document the conceptualisation, formulation, and execution of the coal mining and processing in the study villages and determine what the extractive operation means to the future of local communities and the ecology.
- d. Analyse and document the social effects of the strict conservation and coal mining interventions and interrogate the mechanism through which local communities protested against these external forces.

¹¹ Political ecology is an analytical tool that combines natural environment (ecology) concerns with a focus on linkages between people and their environment as well as the political interaction of different groups among themselves (Svarstad, 2005). It is thus a strategy of analysis rather than a foundation theory *per se* (Peluso, 1992) which can offer a conceptual tool for the analysis of human-environment relationships rather than a grounded theory for same (Schubert, 2005). The third chapter of the thesis discusses the origin and application of the political ecology concept in a more detailed manner.

- e. Identify key issues surrounding the livelihood-conservation-extraction nexus in the study area and suggest an input for national policy formulation process.

1.6 Significance of the study

The context in the Yayo district represents a situation where global conservation organisations and national policies and conservation actor coalitions are consistently pushing for the preservation of wild *coffea arabica* populations using a strictly protected area approach. Equally, there is a recent trend in the resource governance trajectory where the state appears to have favoured the extraction and processing of industrial minerals over the conservation of wild coffee and promotion of historic forest-based local livelihoods such as wild coffee collections. This offers an ideal scene for scrutinising the complex social, ecological and political processes underpinning the competing interests over natural resource access, use, and governance in the district.

From a development policy perspective, it will be shown in a later section that the wild coffee managed under a particular model can offer biodiversity as well as economic benefits that are valued differently by different actors, although, in recent times, the GoE privileges the short-term financial returns of the extraction and processing of coal minerals. Thus, the findings of this study are valuable for what this value/policy/practice means in trade-offs in terms of conservation and not exactly development, but economic profit for small elite groups. It also offers contemporary evidence to policy makers on how strict conservation practices and industrial mineral extraction from a protected forest area disrupt the social, ecological and political processes at the local scale and result in conflict between various resource users. As I will show in the empirical chapters, the contestation for natural resource access and use has brought along a dual negative effect. The first is on the survival needs of long-term village residents and the second is on the preservation and management of biodiversity species in the district. By way of unveiling the resource access, use, and governance patterns in the study villages, this study contributes to the formulation of a sustainable resource management strategy that

recognises and accommodates traditional resource use practice, maximises economic benefits from natural resources, and ensures preservation of endangered species.

In terms of methodology and conceptualisation, it is clear that political ecology, as a 'toolbox' of different methods and theories, is struggling with a range of issues that need to be addressed by working more with empirical evidence from different cases worldwide (Schubert, 2005). Hitherto, the framework has rarely been applied to exploring the dynamics of access, use and governance of scientifically and economically crucial resources occurring in the same geographic space. Specifically, the competing interests over plant genetic material of high breeding value (wild coffee), coal mineral deposits of considerable industrial importance and biodiversity resources of key macro and microeconomic role, all at play simultaneously in the same protected forest area, have hardly been studied and documented in political ecology research. Therefore, this study makes a unique contribution to the body of knowledge by unveiling the socio-ecological intersection between livelihoods, conservation and extraction in the context of selected villages in the Yayo district. Linked to this, the study attempts to show how vigorous attempts of a particular actor(s) to access, control and/or use specific types of natural resources occurs at the expense of the interests and survival needs of the other.

Lastly, it adds value to the advancement of the field of political ecology by offering case-specific evidence to the global scholarly debate on the politics of natural resource control in the global south. By so doing, it joins a large body of research that attempts to understand competing claims over resources of varied importance and the socio-political struggles that take place to control them.

1.7 Scope and delimitations of the study

The project was conducted over the past four years (from 2012 to 2015) and it was delimited to exploring a natural resource control trajectory in the Yayo district with a particular emphasis on local livelihoods, wild coffee conservation, and coal mining. Clearly, such a study has considerable implications on the formulation and execution of policies and strategies at the national level. Yet, in order to allow an in-depth

understanding of the local scale resource governance trajectory and the socio-political effects of the coal mining and strict conservation, I chose not to observe the entire coffee forest-dependent population within the country. Accordingly, at the local scale, communities residing in four different villages were chosen from the district based on their representation of the research theme. Irrespective of variations in sex, age, demography, household headship, asset ownership, education level, leadership role, livelihood practice and religion, the opinions, perspectives, views and perceptions of almost all the interviewed villagers were fairly captured during the research process. At the national and regional scale, a group of experts and scientists from different state and non-state institutions¹² and agencies¹³ who are involved in either extraction or conservation were selected to participate in the study. The views and opinions of these groups as well as other relevant individuals within the local government structure were sufficiently incorporated in the research.

As far as methodological preference is concerned, the nature of the study and the issues under investigation necessitated the use of a combination of assorted qualitative tools such as interviews, group discussions, observations, and other participatory rural appraisal tools. Household surveys were technically omitted due to two fundamental reasons. Firstly, the scale of analysis for this research dealt with both specific coffee forest-dependent farmers at the local scale and selected actors at the regional, national and global level. Secondly, there are preceding scientific studies that identified the basic household-level information and ecological features of the area. Thus, building a general socio-economic profile of the local communities and the biophysical features of their environment was a matter of systematically incorporating the documented findings of previous studies.

¹² The conservation research institutions include, inter alia, the Center for Development Research-Bonn (ZEF), Environment and Coffee Forest Forum (ECFF), the Jimma Agricultural Research Center (JARC), and the Institute of Biodiversity Conservation (IBC).

¹³ The state agencies consist of the Ministry of Agriculture (MoA), the Ministry of Mines and Energy (MoME), the Oromia Forest and Wildlife Enterprise (OFWE), and the Yayo Coal Phosphate and Fertiliser Complex Project (COFCOP).

1.8 Layout of the thesis

The thesis is structured in such a way that it offers a detailed analysis of the social and political dimensions of the wild coffee conservation and coal mining in the context of constant social changes in and around the Yayo coffee forest. It is broadly classified into three interrelated sections. The first section offers the scene of the study (Chapter 1) and the detailed research designs and methods used throughout the lifespan of the research (Chapter 2). The second section reviews related literature on mining, conservation and livelihoods and presents the theoretical orientation of the study (Chapter 3). The empirical findings of the study (Chapter 4, 5 and 6) as well as the conclusion (Chapter 7) are included in the third section of the thesis. The detailed contents of each chapter are presented below.

The **first chapter** introduces the entire thesis by presenting the background to the study, review of previous research works, identified research gaps and key questions that guided the whole exercise. This is followed by the general and specific objectives, significance, and scope and limitations of the study.

In the **second chapter**, the research approaches and methods used for this study, justification for the application of various techniques and their complementarity with each other are presented. It also discusses the multiple sources and types of data, the study phases and the criteria considered in choosing the Yayo district as the case study site of the research. The study is qualitative in nature and the data that informed the thesis were gathered through key informant interviews, group discussions, observations and other relevant PRA tools, not to mention the secondary sources of data. Discussions on the ethical issues, methods of data organisation and analysis are integral parts of this chapter. Prior to concluding the chapter, background information on the social, economic, ecological and geographic features of the study area is provided. These include, inter alia, a description of the geographical setting, flora and fauna species, climatic conditions, human population and settlement patterns and local level economic activities in the study area.

Chapter three consists of the review of literature and theoretical frameworks of the thesis. It deals with the review of fundamental concepts associated with biodiversity conservation, environmental resource management paradigms and complex socio-political dimensions of conservation and mining. It also discusses the contemporary realities of the local communities residing in and around PAs and the hardships they encounter as a result of coercive conservation and mining. Enlightened by a broader international perspective, the nature and type of local resistance movements towards preservationist resource management regimes and extractive industries are discussed in this section. Most importantly, as an underpinning theoretical orientation of this study, the origins, fundamental concepts and notions, existing critiques of the political ecology framework forms a distinct section of this chapter.

Chapter four is dedicated to narrating the historical interaction of the local community with the coffee forest and the customary natural resource use and governance practices in the study area. It starts by giving a highlight about the multifarious roles of the coffee forest in the village life, the extent of local-level dependence on the coffee forest, and the gender dimensions of resource access and use. With an explicit focus on the wild coffee, the chapter discusses the local scale coffee production, harvesting, and trading processes as well as the locally contested notions surrounding the crop. In terms of resource control, the chapter identifies influential customary institutions and individuals in the traditional resource governance toolbox and interrogates how these groups exercised their power to decide on the local access and use of the coffee forest and the resources within it.

In connection with this, the chapter explores the key historical and contemporary milestones that contested these traditional resource management practices during the three political regimes in the country: the Haile Selassie regime (the pre-1974 era), the *Derg* regime (from 1974–1991) and the The Ethiopian Peoples' Revolutionary Democratic Front (EPRDF) (the post–1991 era). Such an investigation of the historical trends of resource access and control helped in unlocking the nature of the *de facto* customary ownership rights of coffee forestland and other biodiversity resources. Besides, it served as a frame of reference for understanding the social, political,

economical and ecological changes in the area resulting from the strict conservation approaches and the current coal mining initiative.

Chapter five analyses the reign of conservation science in the study area. It presents the ongoing impetus to preserve the exceptional biodiversity resources, mainly the coffee forest and the wild coffee. It begins by outlining the conservationists' conceptualisation of the causes and consequences of deforestation and genetic material erosion followed by a discussion of the prescribed solutions to address the problem. The study identified three biodiversity preservation models, authoritarian in nature, recommended by the conservationists: the protected forest area, the *in situ* preservation and the biosphere reserve model. The chapter interrogates the mechanism through which these conventional authoritarian models were conceptualised and executed in the context of the Yayo district. Although the conservationists' rhetoric suggests there was a recent switch from a stringent protectionism to the so-called participation-oriented biosphere reserve approach, the reality on the ground shows that villagers are still excluded and restricted from using the resources. As presented in the chapter, the strategies of imposing restriction and reinforcing control over the wild coffees include mapping, boundary demarcation, and imposition of restrictive PA rules. The consequent social effects stemming from the restriction of access and use as well as the lack of controlling power over resources are outlined in this chapter. As with the case of the Arusha National Park, Tanzania (Neumann, 1998), the restriction of access to resources resulted in a strong and persistent local protest towards the protectionist conservation approach. The specific details of the nature, form, and extent of these resistances are presented in the concluding section of this chapter.

Chapter six deals with the issue of coal extraction and processing in the study area. The Yayo district is hosting the first ever in-country multi-complex fertiliser and thermal power plant facility, and the civil works of the project have already been underway since the year 2010/11. The chapter assesses the mechanism through which the coal mining and processing, covering 50 km² of land, is taking place in a designated coffee forest biosphere reserve and how this associates with the ongoing efforts of biodiversity

conservation and local livelihoods. Linked to this, the nature and scope of the project and the major national policies and strategies underpinning the initiative are carefully examined. The series of processes and negotiation mechanisms espoused by the mining officials for introducing the extractive industry to the area and the resultant reactions, perceptions, and views of the local community and pro-environment groups form part of this chapter. As shown, there is a changing resource control trajectory whereby the authority and power over natural resources shifted from the conservationist to the mining official. At this stage, early signs of the negative social, environmental, economic and political effects of the mining were detected; these effects included displacement, property expropriation and unfair compensation, forest clearance, and health risks. The chapter concludes by presenting the series of unfulfilled promises made by the mining officials and the resultant dissenting voices from the local community side.

Chapter seven draws the various critical issues and findings together and provides a methodical conclusion to the thesis. Clearly, the Yayo district is a typical example of a contested geographical terrain with a range of resources (wild coffee, Afromontane rainforests, and coal) that are of local, national and international significance. The rainforest ecosystem plays a key role in ecological, economical, cultural and political aspects of the district and beyond. The coal mineral holds a vital role in the economic growth endeavours of the country. The wild coffee, for its part, adds value to the advancement of scientific research such as plant/crop breeding and the sustainability of the global coffee industry. This unique feature of the study area has been inviting serious competing claims and interests from diverse multi-scalar actors. The politics surrounding the access, use, and governance of the resources seems an extremely complex process, producing winner and loser groups. As the study reveals, the control over the resources has progressively shifted from the local community (survival/livelihood interests) to the conservationists (nature preservation intentions) and then, lately, to the mining officials (coal mineral development motives). Within this changing trajectory, it is the local communities who have borne the largest part of the social costs of the external actions through displacement/dispossession, lack of access and use right over resources, lack of income source, health risk, and so on. It is in the light of these processes and outcomes

that the chapter presents the policy implications and theoretical contributions of the study as well as the salient themes for further scientific research.

1.9 Chapter summary

This chapter is a preamble to the thesis. It offered the research context by reviewing the key interdisciplinary research conducted in the past and identified some of the gaps that needed further scholarly engagement. The problem statement and key questions that guided this study were elaborated in detail and this was followed by a presentation of the objectives and significances of the research. Before concluding with a description of the structure of the thesis, the chapter outlined the scopes and limitations of the research project. The next chapter presents issues related to the research methodology and backgrounds of the study area.



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Chapter Two: Research methodology and methods

2.1 Introduction

This chapter offers detailed information on the research methodology and the background of the case study area. In its earlier sections, it presents the various methodological approaches and the types of research tools employed for the study. It particularly discusses the overall duration of the study, the criteria for selecting the case study villages, the types of data collection tools and their application at the field level. This is followed by a presentation of the methods of analysis employed by the study and then a concise reflection on the challenges encountered and solutions sought during the span of the fieldwork. Information pertaining to relevant aspects of the Yayo district and an ethnographic overview of the local communities residing in the study villages is presented towards the end of the chapter. For this, the discussion specifically focuses on geographical features and location, land use and land tenure types, ecological conditions, biophysical features, cultural aspects, and local livelihood activities.

2.2 Research approaches and methods

Situated within a framework of the interaction between humans and their environment, the main focus of this study was to analyse the mechanisms through which different actors, including local farmers, forest product collectors, communities, conservationists, and mining proponents, and state officials and policy makers privilege certain interests over others and seek to control economically valuable natural resources to pursue these interests – in this study, wild coffee for livelihood or as resource for biodiversity – or the land itself for extracting coal. It did so, first, by investigating the historic connection between long-term village residents (coffee and forest product collectors) and the coffee forests. This required an understanding of the nature and extent of dependence on wild coffee, including changes in the forest governance system, and the varied ways they depend on wild coffee and other forest products for their livelihoods. Subsequently, it proceeded to examining the nature, magnitude and scope of locally emerging external

interests that ostensibly contributed to changes in customary resource access and governance patterns in the district.

The first emerging external interest in the Yayo district is the imposition of strict conservation approaches and the increasing influence of global and national conservationists over local forestland and forest products. For this, the study examined the conceptualisation and implementation processes of different conservation approaches, the extent of involvement of actors, strategies of forest and wild coffee control, social effects of the approaches and the resistance of local communities towards the conservation measures. The second emerging interest is an Ethiopian state-led extractive industry initiative happening in and around the forest frontiers. In order to understand the socio-political processes involved in the extraction, the study analysed the national and local policy environments underpinning the initiative, the mechanism of negotiation, and local perceptions towards the coal extraction program. It also examined the processes of property expropriation and social effects arising from the activities of the operation.

Like many other political ecology studies, this research is qualitative in its nature. By this it means the aim is to understand a given social setting and the people occupying these settings (Berg, 2001) through systematic methodological approaches that make use of a range of data collection and analysis techniques. For this study, I chose to combine multiple data-collection techniques so as to allow for 'methodological triangulation or data triangulation' during the analysis stage. Meijer et al., (2002:146) argues that methodological triangulation increases validity of the research findings, as it involves not only validation of the information gathered through different methods but also the analysis of converging and/or diverging points.

2.2.1 Duration of the study /study phase

The study was conducted in Ethiopia over a span of almost four consecutive years between 2012 and 2015. The first year was allotted for developing and fine-tuning the research proposal and reviewing and writing up part of the literature review which was further modified as the study progressed. It was also during this year that I developed the

preliminary field research instruments and refined the analytical framework. In order to gain a better insight into qualitative research, I also attended several workshops and seminars organised at different places. For instance, the first training was related to research methodology, specifically on interviewing and data analysis techniques, and was held at the African Doctoral Academy of Stellenbosch University. The outcome of this training was that I obtained fresh insight into practical applications of interview techniques for the collection of qualitative data and how this data can further be analysed using different methods of analysis. The second training was held at the Institute of Social Development's (ISD) collaborating institution, the Institute of Development Research and Development Policy (IEE) of Ruhr University in Bochum, Germany, where I attended the first International PhD conference and a spring course hosted by the centre. On this occasion, I also presented a final draft of the research proposal and received valuable methodological and conceptual feedback from conference participants.

Concerning the actual fieldwork, the first reconnaissance visit to the Yayo district was conducted in the first quarter of the second year. I spent five consecutive months in the district identifying issues related to safety, logistics, and specific access routes to the study villages. This was later followed by an in-depth primary and secondary data collection from selected research participants situated in different geographical scales. As the study involved multi-scalar resource users and managers, several trips were made between the capital city, Addis Ababa, and the study area: the Yayo district. The frequent journeys between these geographical scales enabled me to hold key discussions and acquire valuable information from social groups. In my absence from the field site, a research assistant hired from the locality filled the gap by collecting secondary data, mainly relevant documents from the local government offices¹⁴ and NGOs¹⁵.

The last phases, i.e. the third and fourth years, were not only dedicated to a return journey from South Africa to the study site but also allocated for activities related to data analysis

¹⁴ The governmental organisations comprise national, regional, zonal and local based state structures that fulfil a significant role in the coffee forest conservation and coal mining in the Yayo district.

¹⁵ The Non-governmental organisations include the UNESCO, ECFE, Techno Serve Inc, Farm Africa, and other local NGOs such as the Forum for Environment.

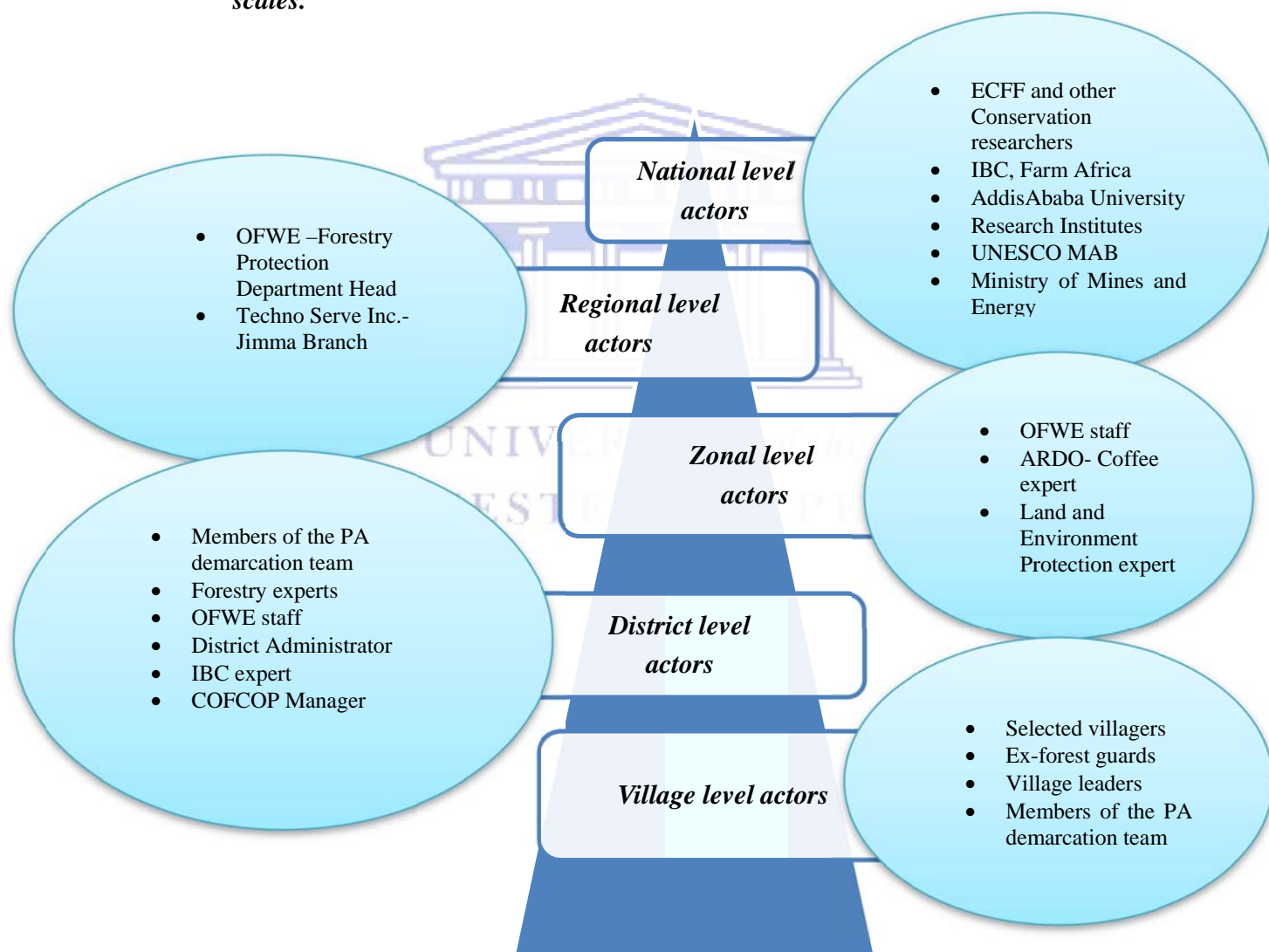
and final write up of the thesis. As regards to the former, I stayed at the study site for about two months to take note of newly emerging social, economic and political changes in the country which brought along a significant implication to the research outputs. Particularly, the follow-up trip allowed me to conduct field checks, monitor progress related to coal mining and gather additional data found lacking during the preliminary analysis phase.

The data collection involved several actors, especially those who compete for access, use and management of the wild coffees and forest products as well as the coal resources of the district. The first stage of the field interview was held with key national actors selected from NGOs and governmental organisations. The NGOs include, *inter alia*, the Ethiopian Environment and Coffee Forest Forum (ECFF), Farm Africa, and the UNESCO Man and Biosphere Reserve Unit (UNESCO-MAB). The governmental organisations include the MoME, the Institute of Biodiversity Conservation (IBC), the Ministry of Finance and Economic Development (MoFED), the Ministry of Agriculture (MoA), the Metal and Engineering Corporation (MetEC) and relevant public universities such as Addis Ababa University. At the regional scale, actors from the Oromia Forest and Wild Life Enterprise (OFWE), the Bill and Melinda Gates Foundation-funded Techno Serve Inc. and the Oromia Regional State Bureau of Agriculture and Rural Development were interviewed.

At the zonal and district level, experts from the Agricultural and Rural Development Office, the Administration Office, the Land and Environment Protection Agency, OFWE and members of the PA demarcation team were among the key informants who participated in the study. Information related to the operations of the coal mining was provided mostly by the manager of the Coal Phosphate Fertiliser Complex Project (COFCOP) and other knowledgeable local government experts based in the Yayo district. Going down to the village level, I also contacted a few village residents who appeared to have adequate knowledge of the past and present realities concerning wild coffee and forest access, use, and management in the district. These include purposively chosen long-term rural residents such as community elders, influential women, ex-forest

guards/rangers, village administrators, members of the PA demarcation team and affected villagers. The selected community members forwarded their perceptions and views on the type, nature and role of customary institutions involved in the coffee forest governance, patterns of access to wild coffee as well as emerging ecological and developmental changes affecting their lives. The following figure summarises the above discussion by presenting the levels of data collection, and the type and geographical location of the research participants.

Figure 2.1: A sketch of research participants from the local, regional and national scales.



Source: Author's own construction, 2014

2.2.2 Selection of the case study site: Why the Yayo district?

The decision related to determining geographical sites for a particular investigation should take into account the nature of the preferred research tools and the guiding research questions, availability of the target population for the study and the accessibility of the site (Berg, 2001). With this in perspective, I chose one of the popular qualitative research approaches in political ecology studies, according to Brockington, (2008) and Svarstad (2005), known as a case study approach. Several factors were considered when making the decision to employ a case study design for this particular research. Firstly, it helps in gaining an in-depth understanding of the temporal factors about the dynamics (in the past and into the future) and the effects of a particular programme/policy in different contexts (Baxter and Jack, 2008). Secondly, case studies are powerful tools that help in acquiring the perspectives and views of different research participants and factors contributing to differences between the cases under analysis (Nieuwenhuis, 2007). Thirdly, by answering questions related to ‘why’ and ‘how’, the case study design gives the researcher an opportunity to generalise findings to theoretical assertions (Yin, 2003). Lastly, it helps in drawing a nexus and speaking back to globally dominant discourses of biodiversity conservation and development and the social and economic implications these actions have on local communities (Gezon, 2005).

To understand the resource politics at the local level, this study considered areas where contested biodiversity resources such as the wild coffee and coffee forests are abundantly found. It also paid attention to the extent of historic and contemporary dependence of people on these wild coffees and the rush by competing external forces to gain control over these and other land use forms. Hence, various groups of individual actors (resource users and managers) as well as the contested resources (wild coffees, forests and coal minerals) were selected as the basic units of interest in this study. As regards to the geographical area, there is no forest bionetwork in the country other than the one in the Yayo district to perfectly fit the bill to undertake a study of this nature. This decision was informed by previous studies by Gole and Denich (2001) and Gole et al., (2001) that

identified the key coffee forest regions of Ethiopia. These two studies listed a total of nine montane forest areas in Ethiopia,¹⁶ including the coffee forest in the Yayo district.

Based on this general information, the selection of the coffee forest in the Yayo district as a case study was carried out using a purposive sampling technique that made use of a variety of predetermined criteria relevant to the research theme. Firstly, the coffee forest represents a broad spectrum of historically and socially complex human-environment interactions. Secondly, the coffee forest presents exceptional yet threatened biodiversity species such as the wild *coffea arabica* and wild spices. Given that several local, national and international conservation advocates and scientists have shown increasing interest in these threatened biodiversity species, the coffee forest fairly represents a scenario of competition for space and resources occurring within the other coffee forest areas of the country.

Thirdly, Yayo is the only district in the country where a sizeable amount of coal deposit occurs within a protected forest boundary and an internationally recognised biosphere reserve. This has led to the arrival of a new group of actors in the area who are profoundly interested in coal mineral exploration and processing. As indicated in the earlier chapter, there are three major competing forces in and around these forests: the local communities who strive to make a living from the wild coffees; conservationists who consistently advocate for the strict preservation of the biodiversity species and lastly, coal mining proponents who aspire to undertake coal extraction and processing industrial minerals in and around the forest areas. It is based on these complex socio-political struggles that this study aimed to interrogate and document the mechanism through which conceptualisation, negotiation, circulation and implementation of a particular natural resource related-ideology or knowledge influence the local dynamics of human-environment interaction.

The last criteria for selecting Yayo over other districts relates to my knowledge of the local customs and traditions as well as language spoken by those communities residing in

¹⁶ The list of the nine montane forest areas comprises Boginda- Yeba, Amora Gedel, Geba Dogi/Yayo, Berhane-Kontir, Dawo Tobi, Mankera, Maji, Bonga and Bale Mountains.

the coffee forest. Most research participants were native speakers of the Afaan Oromo language, as I am. In my ethnographic approach, the comparative advantage of knowing the local traditions and languages was that I was able to communicate and interact with the research participants and gather the necessary information without the help of interpreters.

Once the selection of the district was finalised, the next step was to purposively choose the specific case study villages from many others that exist within the administrative boundary of the district. This process was carried out in a systematic and progressive manner, commencing at the national scale and ending at the village level. Here, the roles of district level authorities and village leaders were noteworthy, as nothing could have happened without their prior consent and approval. Repeated discussions with these groups helped in developing joint criteria that guided the selection process. The main aim was to consider villages that could offer the maximum possible intra-village socio-economic variation and sufficient coverage of the past and the current social, economic and political changes occurring in the district. The outcome of the discussions was that it was agreed to consider four villages, namely *Achebo*, *Gechi*, *Wabo*, and *Wutete*, based on the following key criteria:

- Importance of wild coffees to local livelihoods, the extent of local dependence on forests, and distance of the villages from the coffee forest;
- Availability of ongoing conservation projects funded by external donors and previous histories of hosting other conservation approaches;
- Availability of long-term village residents who have their wild coffee included in the PAs and are, as a result, making customary ownership right claims;
- Presence of an active coal mining operation and COFCOP construction in and around the frontiers of the protected forest area of the villages;
- Continuous influx of migrant settlers and urban dwellers to the villages and increasing rates of encroachment on the coffee forest and the wild coffees;
- Proximity of the villages to urban centres and hence the ability to attract new resource users residing in the nearby towns.

2.3 Hitting the ground: The actual fieldwork phase

Another important aspect of the research methodology is the approach used to get access to the study villages, contact the relevant individuals and carry out the actual fieldwork. Since this research deals with humans as subjects, securing a research permit from the concerned government authorities was essential. For this, I started by holding brief formal meetings with officials at the MoA and IBC and submitting University of the Western Cape's (UWC) support and ethical approval letters (see Appendix 2.1 and 2.2 for the support and ethical approval letters respectively). The discussions with the officials focused on exchanging ideas pertaining to the nature and objectives of the study, durations of the fieldwork, individuals to be contacted and the support expected from the state functionaries down the political ladder. After two successive meetings, the federal officials put me in touch with their regional counterparts who eventually extended crucial support by granting a formal permit letter (see Appendix 2.3 and 2.4 for the research permits obtained from the regional and district governmental offices respectively).

In a similar manner, relevant zonal and district-based experts and officials were contacted and informed about the thematic scope of the research project and the detailed plans of action for data collection. It was during this time that I started to identify the appropriate local government informants with whom to hold preliminary discussions on the broader issues of conservation and coal mining initiatives in the study villages. In particular, the district-based experts furnished me with crucial preliminary information including the names, positions, roles and contact details of individuals to be approached for holding interviews. Meanwhile, basic information on the district's biodiversity resources and the processes of PA creation were obtained from experts in the *Illu Abbaa Bora* Zone Land and Environmental Protection Bureau (IZLEPB) and the Yayo Agricultural and Rural Development Office (YARDO). Overall, a total of five informal conversations were conducted with officials and experts selected from COFCOP, ECFE, IBC, IZLEPB, OFWE, and YARDO on local livelihoods, conservation and extraction related issues.

Once this background information was collected and the coal mining and conservation actors were identified, the next step was to travel to the selected case study villages and

proceed with the practical application of the research techniques and methods designed for the study. Depending on the objectives and the types of research techniques employed, the fieldwork procedure can be classified into two major phases which seem distinct, but in actual sense interrelated: the preliminary phase and the qualitative phase.

2.3.1 The preliminary research phase

Searching for and reviewing secondary data was an essential part of the research process. It was undertaken right from the onset of the fieldwork up until the final stage of the thesis. There are numerous studies, documents and reports written on the forest and wild coffees and a few on the coal minerals of the southwest Ethiopia. Some of these materials were accessed from the head offices of the conservation and mining actors in Addis Ababa, whereas others were found at their branch offices in the Yayo district¹⁷. The review and collection of the secondary data primarily consisted of forestry and agriculture-related project documents, conservation guidelines, the progress report of NGOs, monitoring and evaluation reports, coal mining feasibility and impact assessment studies, statistical information, maps, and satellite images. Moreover, legislative frameworks related to forest conservation, utilisation and development, mineral development, forest re-demarcation, and land expropriation and compensation payment proclamations were gathered so as to review the existing policies and strategies of the country.

Concerning the review of research conducted on the coffee forest, a great deal of time and effort was put into systematically exploring and analysing previous studies carried out by natural and social science researchers affiliated to national and international universities, research institutions, and environmental NGOs. As mentioned in the previous chapter, research papers, proceedings, journal articles, and books on conservation, livelihood, and coal extraction topics were adequately explored. With a specific reference to the study area, academic studies on biodiversity endowments,

¹⁷ Most of the relevant secondary documents were compiled and documented by the national, zonal and local government offices such as the Ministry of Mines and Energy and the Ministry of Agriculture and NGOs such as the ECFF, UNESCO, and Farm Africa.

microeconomics of wild coffee, the role of institutions, the types of conservation approaches, and coal resources of the country, among others, were collected and reviewed.

What has been discovered in the process of reviewing these research papers was that virtually all of the materials examined ‘ecology without politics’, i.e. giving due attention to the mechanism through which the country can benefit from conservation and how genetic materials can best be preserved using preservationist-oriented approaches. Due to the apolitical nature of these studies, there was little or no emphasis given to emerging socio-political struggles resulting from the coal mining operation and conservation, although this appears to be a timely and sensitive agenda. It was thus the approach of this study to maintain the right balance between ecology and politics by bringing the political aspect of conservation and coal mining to the forefront. The fact that the fourth chapter of the thesis carefully examines ecological facets of the study area addresses the methodological and conceptual gaps associated with the accusation that political ecology is just a ‘politics without ecology’¹⁸. In the same manner, the discussions in the fifth and sixth chapters that directly engage socio-political contestation to gain control over valuable resources fill the conceptual gaps associated with the ‘ecology without politics’ approach.¹⁹

2.3.2 The qualitative research stage

The different strategies that are employed by political ecologists to collect, analyse, and utilise field data often overlap with those applied in the mainstream anthropological research (Gezon and Paulson, 2005). In political ecology, critical ethnographies (Biersack, 2006; Gardner, 2003; Little, 2007; Neumann, 2005) and to some extent, rapid rural appraisals²⁰ (Stonich, 1993) are frequently used techniques that help to generate information on human-environment interaction of a given geographical setting. These

¹⁸ Political ecology is often criticised for seldom following the ‘politics without ecology’ approach that pays a great deal of attention to the politics rather than the ecology (Basset and Zimmerer, 2004:103, Vayda and Walters, 1999)

¹⁹ For more discussion on ‘Ecology without politics’, see Walker (2007).

²⁰ Rapid Rural Appraisals can be defined as a collection of field methods primarily used by outsiders to learn about rural life and extract knowledge from local people (Chambers, 1994a).

qualitative techniques have the potential to bring together issues related to specific ecological phenomena, local level cultural and political agendas, and the influence of global policies, actors/stakeholders, capitals, knowledge and discourses on different social groups (Gezon and Paulson, 2005). According to Chambers (1994a and 1994b), rural rapid appraisals are not only more revealing than the traditional questionnaire surveys but are also efficient in terms of saving time and cost, and expedient in obtaining policy-oriented research outputs.

Taking these advantages into account, I employed a combination of qualitative methods to gather the biophysical and social data relevant to the study theme. These data were related primarily to the ecological features of the study area, customary wild coffee and forest access and use patterns, types of contested resources and the differing interests over them, the politics related to conservation and coal mining, and social effects of the strict conservations and extractive interventions as well as the resultant local resistances. Semi-structured interviews with local residents, state officials, conservation experts and mining officials were particularly important in unpacking the manner in which one actor attempts to control resources and how these affect the mechanisms by which the other actor interacts with the physical environment. Equally, focus group discussions with villagers and government experts as well as on-site participant observations were crucial in understanding the local perceptions towards biodiversity resources and external interventions such as conservation and coal mining. By so doing, I was able to obtain information on the extent of historic connection between local communities and the forest, enforcement mechanisms of strict conservation rules, the actor's strategies of resource control, and the forms of local opposition towards extra-local forces.

2.3.2.1 Sampling

An important task during the qualitative research phase was related to the sampling procedure and determination of how many interviews to conduct for this study. The goal in qualitative research is to elucidate in-depth understanding of phenomena (including political analyses) rather than test hypotheses and generalise. In such research, the manner in which samples are selected has a significant effect on the quality of the

research process and its outputs (Coyne, 1997). By emphasising the inappropriateness of random sampling, Marshal (1996) suggests three broad techniques for selecting and determining a sample for qualitative research: Convenient sampling, Judgment sampling, and Theoretical sampling.

Based on Marshal's suggestion, the selection of key informants for this study was carried out using theoretical sampling.²¹ As defined by Glaser and Strauss (1967:73), theoretical sampling is a technique of selecting samples based on newly emerging concepts and ideas that help in examining 'the dimensional range or varied conditions along which the properties of concepts vary'. The use of a non-probabilistic purposive sampling and/or theoretical sampling is essential when the emphasis lies on the concepts or ideas captured during the research phase rather than on the number of persons interviewed (Glaser and Strauss, 1967; Guest et al., 2005).

This study also paid a great deal of attention to the density of meanings, concepts, and interpretations instead of to the representativeness of the number of sample sizes to the rural population in the country. Thus, seeking out key informants who had a material connection with the coffee forest, wild coffee, and coal mining in the district necessitated the application of theoretical sampling. This means that the selection of the individuals was carried out based on their respective roles and responsibilities, the degree of knowledge and experience, direct or indirect involvement and connection with the use and conservation of wild coffee as well as involvement in coal extraction.

As regards to the accurate number of interviews, most qualitative researchers rarely suggest a fixed number since a sample size tends to vary across various researches within the discipline. In determining sample size, it is recommended that a decision should be made on the basis of the nature of the research topic, quality of the data, study design and use of shadowed data²². Drawing on his qualitative research experiences, Marshal (1996) asserts that the samples for qualitative research are often small, although a small sample

²¹ In the literature, theoretical sampling is interchangeably used with purposeful sampling and selective sampling. Yet, the terminologies: selective, theoretical, and purposeful are defined differently in the dictionaries (Coyne, 1997).

²² Shadowed data is a condition where participants discuss the experience of others and explain how their own experience resembles or differs from others, and why (Morse 2000:4).

size increases the risks of sampling error, eventually leading to biases. Morse (2010:3) suggests 30–60 participants as the ideal size to ensure richness of the required qualitative data and base the subsequent analysis on strong information grounds. For their part, Starks and Trinidad (2007:1375) recommend a relatively a wider sample size of 10 to 60 informants to be sufficient enough to provide the conceptual saturation necessary for developing a given theory.

All these recommendations were taken into account in determining the sample size for this study. In particular, the issue of ‘theoretical saturation’ was one of the key criteria used in determining the sample size. The term theoretical saturation, as defined by Glaser and Strauss (1967:65), is a given point in a data collection when new data is no longer able to bring additional information to the theory development or a point at which “no additional data are being found whereby the (researcher) can develop properties of the category”. Guest et al., (2005) and Holloway (1997) explain theoretical saturation as a situation that occurs when all the important variations of the phenomena under investigation have been carefully identified and incorporated into the newly developing theory.

2.3.2.2 Key informant interviews

Interviews are powerful techniques in generating information directly from the original source. Briggs (1986:1) estimates that 90% of all the studies in the social science discipline rely on data that is generated through interviews. Interviews were one of the most powerful data collection techniques used for this study. For this reason, sufficient time was allotted to identify the appropriate informants, refine interview guides, and apply the guides at the field level. The key informants were selected from two national research institutions, four NGOs working on environment and development, one public university, six government sector offices, a state-owned corporation undertaking coal mining, independent conservation researchers, and local communities, giving a total of thirty-six respondents. Since social relations such as gender, class and ethnicity are integral elements of a political ecology research (Paulson et al., 2005), the representation and incorporation of the perspectives of women and young girls in the study villages

were carefully undertaken. Such an all-inclusive combination of a group of informants enabled the research context to be entrenched in a diverse mix of perspectives, opinions, understandings, and knowledge base about the resource politics in the Yayo district.

Another essential component of the interview process was associated with restructuring the interview guide into two distinct categories: a guide for an unstructured interview and for a semi-structured interview (appendix 2.5). This was followed by the translation of the English version of the guides into the local language of the study area, i.e. Afaan Oromo. After a linguistic professional carried out the translation of the guides, I conducted a thorough crosschecking to see if all the contents of the original versions of the guides were properly captured in the translated document. With regard to the contents of the guides, the first set was entirely unstructured, developed with the intention of guiding the informal talks that were often held outside of usual 'work places,' such as in local coffee shops. The informal conversations were crucial in gaining insights about the existing socio-economic dynamics, the historic connection between biodiversity and local communities, the pattern of access to resources, demographic changes with a focus on the influx of external forces, wild coffee management strategies, the nature and magnitude of coal mining operations, and opportunities and challenges to local economic development, which are all at play in the the Yayo coffee forest.

The second type of interview was a semi-structured one that often involved open-ended discussions based on sets of pre-determined topics. The guiding questions were framed around three relevant themes: historical wild coffee and forest access, use and governance patterns, contemporary wild coffee and forest use and conservation practices and the trends in coal mining operation and their effects on socio-ecological aspects of the study villages. In order to examine the deep historical connection of long-term village residents with the wild coffee and the forest, questions were developed around the biophysical features of the area, the roles and contributions of various biodiversity species to the village economy, cultivation, consumption and trading of wild coffee and differing local perceptions related to wild coffee. Besides, topics such as historical resource access, use and governance systems, gender relations over access and use of

forests and wild coffees, traditional institutions involved in determining access and use of wild coffees as well as the contemporary challenges of access to resources were covered by the interview questions.

To examine contemporary trends of wild coffee conservation and identify emerging relations in the resource governance, the questions were formulated in such a way that they can generate answers to the conservationists' perception of local ecological changes, evolutions of strict conservation approaches and legitimisation means of such actions, and decision-making processes over the use and access of wild coffees. Besides, the manner in which conservationists took control of the wild coffees, the resultant effect on customary access and use right of local communities, effects of enclosure of wild coffees and forests on the social, economic, political and cultural lifestyles of villagers were the key points captured in the semi-structured interview guide. The local resistance towards strict conservation was understood by way of interrogating the post-conservation formal and informal actions taken by the long-term village dwellers to regain access to the enclosed space.

In the same manner, understanding the coal extraction process in the study villages necessitated a systematic design of the interview questions. The politics surrounding the inception of the coal exploration and processing was unpacked by asking questions relevant to the villagers as well as national, regional and local conservation and mining officials. Some of these questions touched on the issues of national economic growth trends and policy frameworks, geological features of the district and its appropriateness to the extraction and processing of coal, pre-launching negotiation steps, and local perceptions towards the extractive industry. In order to learn the trend after the introduction of the industry, inquiries were made on issues related to the processes of expropriation of villagers' properties, the compensation payments and associated discontent, and social and environmental effects of the industry. Using semi-structured interviews, an attempt was made to gather information on the local level power interplay by asking questions that revolved around the legitimacy and decision making processes,

the extent of participation of local communities in both conservation and coal mining, and the existing relationship between the competing actors.

The data obtained using the interview techniques were vital in revealing the complex socio-political processes inherent in the access and use of local resources and the trajectory of natural resource control in the study area. They also unpacked the conjunctures of power relations between actors and the forms of opposition of one actor towards the actions of the other. It is worth mentioning that obtaining accurate information on the biodiversity status and the socio-ecological consequences of conservation and coal mining was elusive. Some of the reasons for this are similar to those mentioned by Robbins (2004) and include sketchy historical natural resource use records, inadequately documented natural resource use patterns and lack of a snapshot of the dynamics of the natural resources cover of the area.

The interview was an interactive exercise whereby informants had the opportunity to ask questions, seek for clarity as well as give their personal opinion on issues that they felt were important for the theme under investigation. Most participants raised and discussed different issues that were, at times, beyond the scope of this study. Intriguingly, these unanticipated opinions and views that, at first, seemed extraneous became crucial in creating room to ‘think out of the box’ and approach the research problem from a different angle.

In order to capture every piece of information provided by informants, a digital audio recorder was used in almost all the discussion sessions. In order to avoid suspicions vis-à-vis the usage of such devices, informants’ consent was sought and secured prior to recording. Field notes/diaries were also important tools used to document information provided by research participants. Field notes were not only important in reordering key issues but also enabled me to take notes of informants’ meaningful physical gestures that shed light onto the research theme. In order to get the full attention of the informants during the interview process and ensure clarity of the recorded voices, most interviews were conducted in relatively quiet places such as homesteads or in the forests (with local

residents) and in the office (with experts and professionals) (see figure 2.2). For informal conversations, local coffee shops, a common place where people gather and talk, were preferred so that respondents can reflect on various research-related issues while sipping a cup of coffee.

Figure 2.2: Key informant interviews with a zonal expert in an office (Left) and with a local farmer in Gechi homestead (Right)



Source: Field research, 2013

The length of the interview sessions varied depending on factors such as level of articulation, educational background, gender, specific time of the interview, and locations where the discussions were held. An average of two hours, the minimum being one hour and the maximum three hours, was used even though there were casual interruptions whenever lengthy sessions were held and informants felt tired. Such challenges were overcome by allowing informants to take breaks while maintaining informal discussions and asking for explanations on vague points that arose during the main interview.

2.3.2.3 Focus group discussions

A 'focus group' is often defined as a homogeneous social group consisting of 7–12 individuals brought together with the aim of providing a wide array of verbally expressed experiences, opinions, attitudes, and ideas on specific themes (Kleiber, 2004). Interaction between and among members is a crucial aspect of focus group discussions since it stimulates conversation and gives opportunity to group members to react to each other's

opinions and ideas. The active interaction among discussants is also useful in acquiring diverse ideas, views, concepts, and even solutions to a given social problem (Berg, 2001). Ensuring active and productive group dynamism is contingent on the way participants are selected.

The selection of individuals for the focus group discussions of this study was undertaken in a careful and progressive manner. In-depth interviews were important platforms that helped me identify the right mix of individuals for the intended group discussions. The members of the discussion groups were chosen purposively on the basis of their knowledge of the processes involved in the creation of the protected forest area and the planning and execution of the COFCOP project, specific roles in the villages and their interest to reflect on socio-ecological changes in the district. In total, eight focus group discussions (two in each village) were held with wild coffee and forest-dependent local communities, constituting both long-term village residents and migrant settlers.

In order to get a gendered perspective on local resource governance, four of the group discussions at village-level were held with women selected from the case study areas (see figure 2.3). In these discussions, issues related to access, use and dependence of women on wild coffee and the social effects of the conservation and mining initiatives on their daily lives were adequately unpacked. The remaining four village-level discussions consisted entirely of men with the composition considering the inclusion of religious leaders, village administrators, community elders, ex-forest guards and young men (see figure 2.3). Another group discussion was also conducted with professionals and experts picked out from District Agriculture and Forestry Departments, the Justice Office, the Police Department, the Administration Office, and NGOs. Except for the group discussion with the experts and professionals, which took no more than one hour, those conducted with the villagers lasted for an average of one and half hours.

Figure 2.3: Focus group discussions held with a selected group of men from Wabo (Left) and women from Achebo villages (Right).



Source: Field research, 2013

The administration of group discussions and the role of the moderator are decisive factors for the success of focus group discussions. Properly moderated group discussions are dynamic as they result in lively interaction among and between participants (Berg, 2001). During the focus group discussion for this study, as with the face-to-face individual interviews, I facilitated and guided the discussion process so that the issues that arose were systematically handled not to stray off the main foci of the study. Prior to any of the focus group discussion (FGD) sessions, participants were explicitly informed about the objectives of the study, purposes of the discussion, ground rules and guidelines as well as ethical considerations of the study. Moreover, participants were informed about the confidentiality of the information shared during the discussions. With this in perspective, individuals who agreed to take part in the meetings signed the consent form provided by my host university to show their willingness to participate in the discussion. This elevated the confidence level of the group discussants, ultimately allowing them to freely express and exchange views, opinions, and perceptions with other group members.

The discussion guide for the various sessions was designed in such a way that it could reveal the past, present and future faces of the human and natural resource interaction in the study area (see appendix 2.6 for the FGD guide). In order to position the research issue within an historical context, the group participants were requested to reflect on themes related to the long-standing importance of the wild coffee to villagers, origins and

justifications for ownership right claims over the coffee, traditional forest governance systems and progressive changes in the coffee forest over past political regimes. The discussion also focused on relatively recent phenomena such as the introduction of the notions of PAs and extractive operation and local reactions during territorialisation of wild coffees and property expropriation for coal mining. The roles and decision-making power of extra-local forces in the resource governance system as well as the resultant social costs of strict conservation and coal mining operations were also discussed by FGD participants.

By allowing homogenous groups to debate in the plenums, it was made possible to uncover the customary rules and regulations of wild coffee access and use as well as the types of customary institutions affected by the new strict conservation approaches. The group dynamisms and the resulting ‘synergistic effects’ of these, allowed me to gather diverse opinions on the undesired consequences of the conservation and coal mining and the various strategies adopted by local communities’ to resist coercive and neoliberal resource control systems.

2.3.2.4 Participant observation

As an integral element of primary data collection methods, participant observation allows a researcher to be part of local level social phenomena. It is a systematic data collection tool that helps in understanding the ‘explicit and tacit’ aspects of the people under investigation that did not appear while using other research instruments (Dewalt et al., 1998:260). Participant observation is often considered both a data collection as well as an analytic tool because it enhances the quality of the information gathered from the field and also contributes to the improvement of the interpretation of the data set (Dewalt et al., 1998). In the subsequent fieldwork periods, I spent a great deal of time in the study villages undertaking casual interviews as well as conducting on-site observations of the complex social, economic, ecological and political process in and around the boundaries of the protected wild coffee area. As such, a careful observation of the scale and extent of the coal mining operation and wild coffee territorialisation was crucial in the process of

learning the impact of both external actions on the wellbeing of local communities and the sustainability management of the biodiversity species.

My partial involvement in local scale livelihood and economic activities and societal interactions such as non-timber forest product collection, forest fire control activities, re-demarcation processes, extension field days, *Iddir* meetings, and local coffee ceremonies were crucial in obtaining insight about the diverse perceptions and views of villagers towards emerging socio-political trends in the study area. For instance, my involvement in the forest fire control activities in the study villages was essential as it facilitated the observation of the roles and reactions of different multi-scalar actors on the causes and consequences of fire hazard. A result of direct observation from one village confirmed that villagers' participation in forest fire control was different across different sections of the territorialised coffee forest depending on the type of utilisable resource that individuals possess in a specific section.

Another key advantage of this technique is associated with the regular walks in and around the territorialised forest spaces and the CFCOP construction sites. Using this method, I observed and took note of the important social and ecological phenomena that were taking place in the different sections of the biosphere reserve (the transition, buffer and core zones) and the coal extraction site (see discussions in chapter 5 and 6). These phenomena, for instance, were related to the interaction of villagers with the protected coffee forest where some bypassed the restrictive rules by undertaking traditional livelihood activities in the boundaries of the conservation space.

Another observation was made to understand the processes of re-demarcation, negotiation regarding customary ownership rights, and the extent of enforcement of forest legislations, regulations and rules in each and every case study village. As for the coal mining, civil works associated with the COFCOP, places of solid waste disposal, the extent of forest clearance, and mechanisms of property expropriation were closely observed. I also took note of the emerging local economic opportunities, the degree of interaction between villagers and mineworkers, mining-induced social and economic

changes, the effect of construction machineries on roads and other infrastructure and the extent of overlap between the coal extraction and COFCOP construction sites and the biodiversity conservation space.

Linked to direct observation techniques, this study made use of a variety of basic participatory rural appraisal tools listed by Chambers (1994a). These included, among others, continued transect walks, oral histories or ethno-biographies, timelines, key probes, and Venn diagramming. The combination of these tools with participant observation appeared to have added quality and dimension to understanding the *de facto* ownership rights negotiations and contestations, influential local institutions, past and current decision making processes over resource use, sources of conflict over local resource access and use, and techniques of conflict resolutions adopted by conservation and coal mining officials. Besides, it helped me in validating and triangulating the information already obtained from key informants regarding the socio-political struggles surrounding conservation and coal mining as well as their combined social effects on the villagers and the ecology.

2.3.2.5 Transect walks

As a study dealing with the interaction between humans and their physical environment, there were issues requiring participatory mappings and transect walks into important localities in the village such as demarcated wild coffee farms, old settlement areas, local water sources, areas of cultural significance and non-timber forest product collection sites. The application of this tool aimed at developing spatial and ecological aspects of conservation and mining spaces by observing and asking question such as: How were customary coffee ownership rights gained? How do traditional coffee production systems affect the forest ecosystem? Where do diverse livelihood activities take place? Which livelihood activities are prohibited and which are permitted? What strategies do the local communities employ to gain access to restricted zones?

In this exercise, the first task was to select, organise and appropriate local residents into a group of 3–5 individuals. The selection was based on, for instance, administrative roles in

their villages, existing customary right claims over wild coffee and forests, involvement in the territorialisation activities, participation in the property expropriation committee for the coal mine, and prior service as a forest guard. A separate transect was arranged with women in the study villages to gain an understanding of the gendered perspective with regard to the connection between women and local natural resources, the nature of the access to specific forest blocks, and the effects of strict conservation and coal mining on their livelihood practices. In one of these transect walks, I was joined by my Ph.D. supervisor, Professor Julian May, where various types of local economic activities, spatial location of the wild coffee species and other exceptional biodiversity resources, the nature of forest territorialisation, and the magnitude and scope of the coal mining and COFCOP operations were observed (see figure 2.4).

Figure 2.4: *Members of transect walks in Gechi and Wabo villages.*



Source: Field research, 2014

Most transects lasted for one and half hours and often involved asking questions, listening, and holding informal conversations and discussions on issues encountered as the transect proceeded. Whenever necessary, a field note/diary was taken and participatory mappings were done. This technique was crucial in locating the wild coffees and their spatial abundance and diversity in different sections of the protected forest area. Moreover, traditional settlement, cultural sites, and agriculture as well as the important forest and tree species that are essential for the local community were adequately captured using the transect walks. The tool was also essential in identifying the types and

locations of expropriated properties, the boundaries of the coal mining site, its overlap with the conservation space, the amount of soil dumped into the *Geba* River and agricultural farms.

The intriguing aspect of the transect walk was that there was a gender-based difference with regard to preferences of the paths and areas to be visited. The women emphasised the forest areas close to the villages. This is because women have a special connection with such areas, as these are spaces where they enjoy substantial access and right to undertake some of their traditional livelihood activities such as gathering fuel wood and other Non Timber Forest Product (NTFPs) harvesting. On the other hand, men appeared to be more interested in going to the farthest forest areas where the wild coffees and big old trees are found. This preference was directly related to the nature of their specific livelihood activities and the resources required. The findings of the study suggested that the customary role assignment bestowed men primarily with outdoor responsibilities such as wild coffee cultivation and harvesting and the collection of wood for house construction and farming tools. It was this pattern of gender-based traditional livelihood assignment that resulted in the men and women's decision to demand access to a certain type of resource in the circumscribed areas.

2.4 Challenges of the fieldwork and critiques of research approach

It is clear that the preferred research methodology, qualitative research, analytical framework, and political ecology have their own shortcomings, some of which were experienced during the research process. On top of these, there were challenges associated with methods, findings, and concepts encountered during the actual fieldwork of the study. With regards to methods, there was a challenge of collecting the required data from the study villages due to the concurrence of the timing of the fieldwork with the district-based national political elections. The resultant political tensions made some local government officials suspicious and thus classify any strangers/outside holding discussions with the villagers as someone on a political mission.

Another methodological challenge was related to obtaining information on the issues of the state-owned coal mining initiative in the district. At the time the fieldwork was conducted, the coal mining and construction of the COFCOP were simultaneously taking place in *Achebo* and *Wutete* villages respectively. The local government officials informed me that the industry is the second biggest investment, next to the Grand Renaissance Dam or Millennium Dam of the Ethiopian government. As part of the data collection, I tried to approach the mining proponents and other concerned people, such as villagers, government experts, scientific researchers, and employees of the project, with a specific list of interview questions that aimed at understanding the nature, scale, and magnitude of the extraction and processing of the coal resources. However, the majority of the individuals contacted appeared to have been somehow unwilling to express their views. This is mainly because the industry is governed and administered by high-ranking military officials of the GoE, hence some people were afraid of the risks of imprisonment and harassment that may come as a result of commenting on the extractive operation.

With regard to the secondary data, documents relevant to the coal mining such as feasibility studies, geographical images and maps, social and environmental impact assessment reports, and compensation payment reports were not made available to the public – only to military officials and other key government experts. Hence, understanding the evolution of the initiative, the extent of overlap between biodiversity conservation, local livelihoods and coal mining spaces, the manner in which compensation was paid to evictees and the complex social and ecological effects became problematic due to a lack of primary and secondary data sources. The fact that the project is carried out in a confidential manner had been the main challenge to obtain comprehensive and reliable information on the operation. However, a friendly approach and coffee-shop interactions with some of the COFCOP project staff played a key role in holding brief interviews and getting access to the construction and extraction sites as well as relevant documents such as impact assessment reports and feasibility study documents.

As far as technical and logistical challenges are concerned, there were challenges associated with bureaucratic obstacles, local transportation problems, and occasional

absence of the local residents from interview sessions. For the problems related to bureaucracies, the formal research permits were of crucial importance as they prompted the active cooperation and participation of local communities and their political leaders at district and village levels. Concerning the challenges of transportation, I hired a motorbike to travel from one village to another while sometimes walking by foot to the areas which were seemingly inaccessible by any other means of transport.

2.5 Data analysis and presentations

2.5.1 Data organisation/ preparation

After gathering the raw data from the field, the next step was to organise and prepare the data for subsequent analysis and reporting. The process of data preparation and organisation was carried out carefully and systematically. Following a daylong interview, I used to connect my digital recorder with a laptop and upload all the information in a separate folder. Taking dictated diaries during the interviews necessitated regular rewriting of the field notes on a laptop. Photographs taken were also among the essential sources of data uploaded on a personal computer. Converting the uploaded interviews from a waveform audio file format to MP3 format and backing up data on a CD-writer were also undertaken in the field.

Another essential activity that contributed to the systematic organisation and analysis of the data set was the transcription of all the interviews conducted throughout the field research period. For this study, 45 lengthy interviews from the group discussions and key informants were audio taped, translated from the local language (Afaan Oromo) to English and transcribed into written texts. As in many grounded theory analysis approaches, the transcription of the interviews was carried out on a daily basis so as to allow for an ongoing systematic analysis of the data set. The core principle while transcribing was to ensure that texts were verbatim versions of the interviews to keep their naturalness for further analysis. Once the transcription was finalised, the whole written dataset was thoroughly checked for grammatical and coherence errors, and corrections and editions were made where necessary. By so doing, a clear picture of the

key meanings, concepts, patterns, actions, consequences, and processes embedded in the text was obtained. Insights and understandings of the emerging issues were noted and written as memos. This formed part of the preliminary coding exercise.

2.5.2 Analysis of the dataset

It is clear that data analysis is the most complex task of a qualitative research phase. Yet, it is a mechanism through which a researcher can process a data set with a view to communicating what has been discovered with others. Berg (2001) offers various qualitative data analysis approaches and, based on his suggestions, an interpretive approach was adopted. This approach places emphasis on treating social actions and human activity as texts, i.e. transcribing the raw data collected through interviews and field observations into carefully written texts (Berg, 2001:239). Within this broader approach, I decided to make use of two commonly applied data analysis techniques: content analysis and grounded theory.

At the dawn of the century, content analysis was recognised by distinguished scholars such as Max Weber and Harold Lasswell as an important analytical tool for social science studies. Later, between the 1940s and 50s, several other scholars introduced many of the conventions of content analysis into modern mass media/communication and journalism research (Neuendorf, 2002; Smith, 2000). The practical application of the tool, however, became evident during the Second World War period when studies on “propaganda techniques and enemy morale” were undertaken (Smith, 2000:314).

Although the genealogy of content analysis resides in the fields of journalism and communication, it is now a popular technique in many social science disciplines including psychology, sociology, political ecology, and business. Research that varies in nature and purpose, such as hypothesis testing to explanatory theory development and from an exploratory type of research to applied research methods, has made an effective use of content analysis (Neuendorf, 2002). The basic inputs for the examination of data using this technique are the photographs and audiotapes that can be converted to text materials and secondary materials gathered from different sources (Berg, 2001). Content

analysis thus has the prime purpose of extracting information from such a large body of verbal or non-verbal material using systematic and objective identification of specific characteristics and dimensions of the documents (Smith, 2000).

Content analysis has its own merits and demerits. As regards to its merits, it is a virtually unobtrusive and cost-effective method that offers a means to investigate socio-economic processes taking place over a long period of time (Berg, 2001). By so doing, it enables different actors to be observed and inquired to tell any experience that is helpful for understanding local livelihoods and development issues (Glaser and Strauss, 1967). As for the intrinsic demerits, there is firstly a challenge to locate unobtrusive messages associated with the theme under investigation and secondly, it is impossible to perform the testing of causal relationships between and among different variables (Berg, 2001). Berg (2001) further asserts that that these weaknesses would almost be nonexistent when content analysis is used as a tool of analysis rather than as a mainstream research strategy.

It is on the grounds of these arguments that a qualitative content analysis was preferred for analysing the dataset of this study. The core principles and canons of the technique outlined by Smith (2000) were adhered to with some level of flexibility in following the sequential steps. The first task in doing the analysis was to read through the transcribed document and make sense of it by asking questions such as who was narrating the story, what actions/interactions were taking place, when did they happen and where and why they occurred. The next step was to perform one of the core activities of content analysis known as coding. As Coffey and Atkinson (1996:32) define them, codes are 'heuristic devices' or 'tools to think with'. During the coding, more than 700 codes from the transcribed texts were generated. These codes provided the required conceptual robustness and richness that can be further used as inputs for developing the explanatory theory.

Following the coding, I proceeded to the identification of the various themes and categories that were necessary for understanding the essential meanings embedded in the

codes. In identifying the themes, the main strategy was to pull similar codes together and assign them conceptual categories associated with the original research questions. For instance, codes such as ‘lost access’, ‘denial of right over resources’, ‘forgone benefits of the forest’ and ‘neglected *de facto* rights’ were brought together under the broader theme/category of ‘the effects of protectionism’. This process of generating codes, creating categories and identifying themes at various stages of the research process is known as abstraction (Graneheim and Lundman, 2003:106).

The categories generated at this stage of the data analysis were then condensed into detailed descriptions, requiring interpretation for their underlying meanings. For instance, the effects of protectionism were described in terms of the local community’s long-standing customary access, use and governance rights to resources, emerging competition over resources and power relations between actors. The different dimensions of ‘the effects of protectionism’ were systematically unpacked by answering questions such as why, when, and how it happened. Using the same procedure, all the dimensions and properties of the categories were revealed and interpreted in relation to the nature of competing interests over resources, assorted strategies of resource control, social conflicts over resources, forms of local resistance to external forces and above all, the natural resource control trajectory in the district.

Another data analysis technique employed for this study was a grounded theory analysis. Grounded theory analysis allows researchers to understand class-related dynamics such as the mechanisms through which social structures and processes influence actions and activities in a given set of social relations (Starks and Trinidad, 2007). In sharp contrast to hypothesis testing studies, this technique is crucial to examine the causes, contexts, contingencies, consequences, and conditions of social processes that help to understand the patterns and relationships among key concepts and develop an explanatory theory of the basic social processes (Corbin and Strauss, 1998). Since the emphasis of a grounded theory is on generating a theory, it is particularly suited to under-theorised disciplines such as political ecology research. As such, the canons and procedures of this technique are compatible with those used by political ecologists.

The primary objective of this study was to generate concepts and theories that are 'grounded' in the original dataset and are associated with customary rights over resources, local livelihoods, conservation and coal mining. In order to do so, a grounded theory analysis procedure suggested by Corbin and Strauss (1998) was found to be appropriate. Open coding was the first step of the grounded theory analysis. At this stage, I studied, compared, conceptualised, and classified the data set based on specific themes related to customary right, conservation, and coal mining. Meanwhile, line-by-line coding (*in vivo*) was used to form broader descriptive categories of information and ideas from the statements contained in the data. For instance, one of the descriptive categories formed in relation to the dominant influence of conservation actors in decisions related to local resource access and use was 'unequal power relation among actors'. By so doing, all ideas and information that revolved around an unbalanced interaction between actors and exertion of control of one actor over the other were classified under the same category.

The grounded theory analysis was accompanied by a continuous exercise of writing memos. Memo writing was a practice of taking notes of newly emerging ideas at the time of analysis of the data. One major benefit of this exercise was that it helped to keep track of the properties, categories, and follow-up questions that emerged throughout the coding. Hence, due to its role in generating key concepts and ideas that were important for theory development, memo writing remained an integral component of the research process.

The second procedure in the grounded theory analysis was known as axial coding. At this stage, advanced categorisation was performed by reassembling the data into groupings based on their relationships and patterns within and among the categories that were previously identified in the dataset. For instance, whenever there was new information associated with an already identified category (e.g. unequal power relations), screening of the dataset was carried out to examine the conditions that led to this type of power relation, the context within which this took place, the actions through which it occurred and its resultant outcomes. By doing so, all the relationship and interconnections between

events and actions were progressively tested and verified against the incoming data before arriving at a conclusion.

The last stage of the analysis dealt with selective coding. The major aspect of this type of coding was to identify and unfold the core phenomenon, or “core category,” in the dataset by bringing interrelated categories together. These interrelated categories were ideas that were associated with causes, actions and consequences, and strategies of a particular event such as protectionism and/or mining. By discussion on the nexus between the various categories, it became possible to develop a hypothesis that specifies the relationship between various concepts. It is important to note that, at the time of the first analysis, the categories and subcategories developed from the preliminary field trip data lacked the expected ‘*conceptual density*’ (the number of codes linked to another code) (Corbin and Strauss, 1998:277). It was to fill this analytical gap that a second (in 2014) and third round (in 2015) of field reconnaissance visits were undertaken.

In sum, the procedures followed in the two data analysis tools (content analysis and grounded theory) were interrelated and complementary. The fact that some of the steps were distinct and at the same time, overlapping was essential in approaching the data set from different perspectives. It was through this type of routine analysis that I learnt the mechanisms through which various strict conservation programs as well as neoliberal coal mining practices were initiated, maintained, reproduced and transformed within a specific social, economic, political, and historical context in the area. They also revealed the discursive sources of power in the context of biodiversity conservation and coal mining, nature and functioning of the dominant actors, local scale socio-ecological injustices and the multiple social effects of the externally induced operations.

In order to manage and facilitate the analysed data using grounded theory and content analysis, the study employed a widely used Computer Assisted Qualitative Data Analysis Software (CAQDAS), namely ATLAS.ti. It was this software that made the data analysis procedure systematic and manageable. Particularly, it assisted in the open coding, axial coding (the linking between codes) and selective coding which were crucial in

developing the theory explaining the politics of resource control in the study area. Similar to Baugh's et al., (2010) assertion, the software allowed the coding to be carried out on the basis of demographic information, text searches, identifying linkable ideas and models to be drawn while always being able to instantly access the original data behind the concepts.

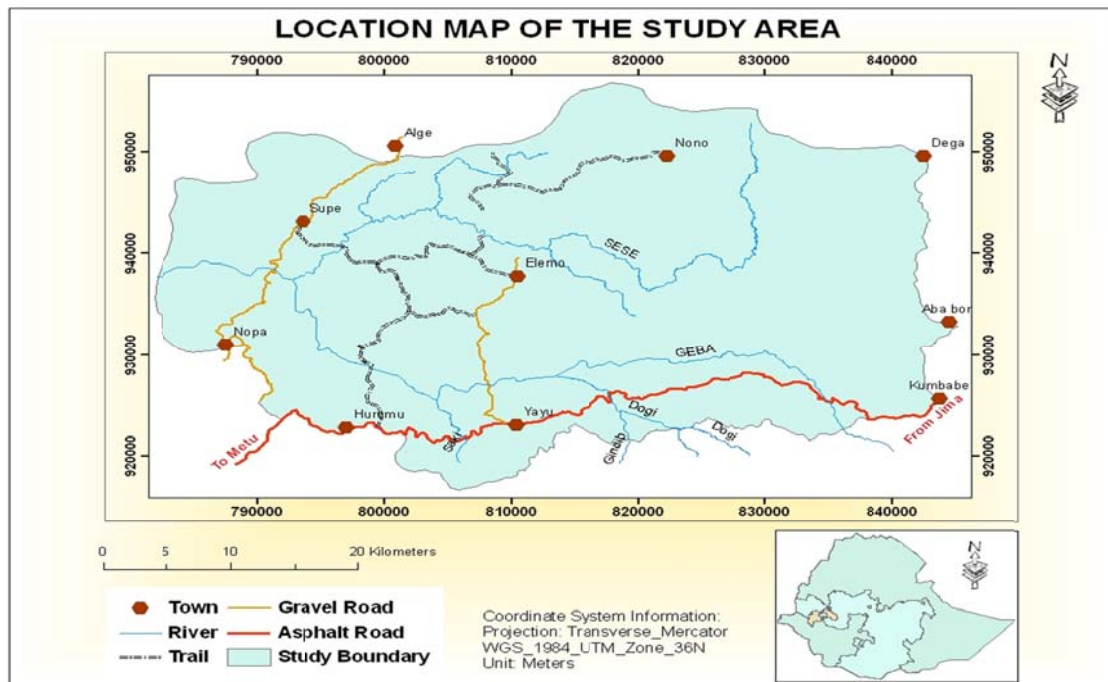
2.6 Background of the study area

2.6.1 Geographical features and location

The Great Rift Valley divides the Ethiopian highlands into the southwest and northwest highland plateaus. The Yayo district, which harbours a large proportion of the wild *coffea arabica* genetic material and a considerable coal deposit, is situated in the south-western Ethiopian plateau. The district is one of the biodiversity rich and densely forested regions in the *Illu Abbaa Bora* zone²³ of the Oromia regional state (Senbeta, 2006). Located at a distance of 560 km southwest of the capital city, Addis Ababa, the study area is bordered to the west by Gambella Regional State, to the east by the East Wollega and Jimma zones, to the north by West and East Wollega, and to the south by the Southern Nations, Nationalities, and Peoples' Region (SNNPR). According to Taye (2002), the coffee forest stretches over three administrative districts: Yayo, Hurumu, and Doreni, and covers an estimated total land area of 1353 km² (see Maps 1 and 2). It lies precisely between 8° 2'42'' to 8° 31'18'' North and 35° 37' 48'' to 36° 05'18'' East along the *Geba* River (Gole, 2003).

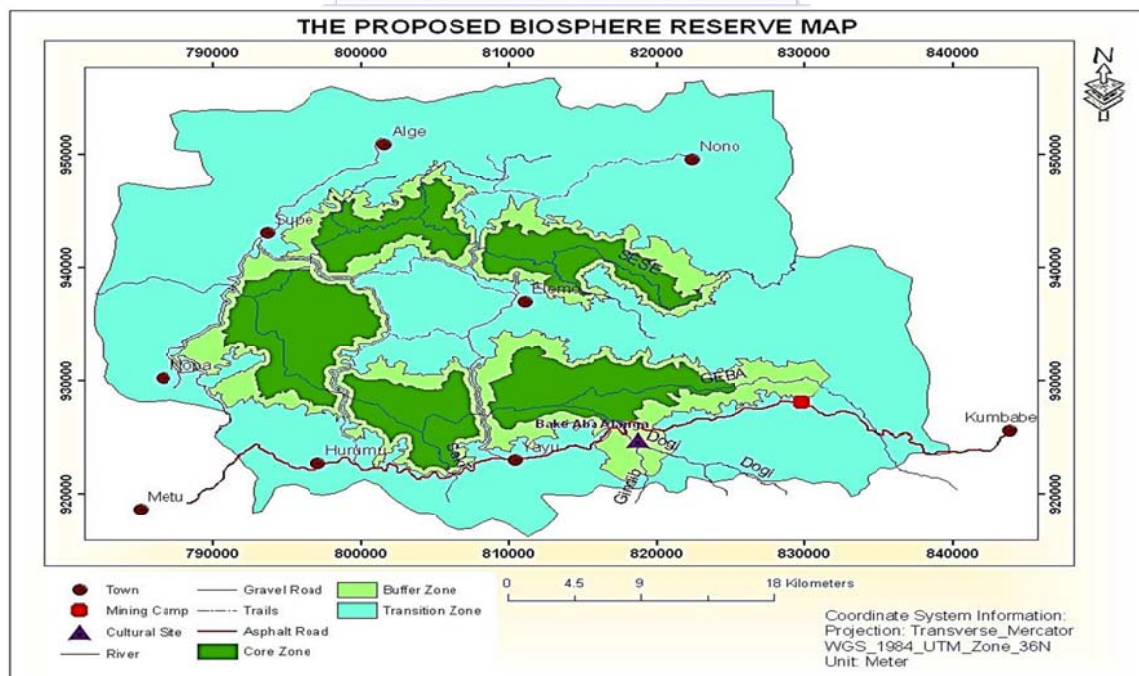
²³ Illu Abbaa Bora zone is further subdivided into twenty two administrative districts covering a total land area of roughly 1 633 156.6 hectares (Senbeta, 2006)

Map 2.1: Location map of the study area – the Yayo district.



Source: Ethiopian Coffee Forest Forum, 2013

Map 2.2: Map of the Yayo coffee forest biosphere reserve.



Source: Ethiopian Coffee Forest Forum, 2013

Deep river valleys, dissected by several small streams and three major rivers, namely *Geba*, *Sese*, and *Saki*, characterise the landscape of the study area. As for the topography, the area contains undulating mountainous terrains, rising and falling plateaus, valleys, and steep slopes. The altitude in the case study villages ranges from 1100 metres at the bottoms of valleys to 2337 metres at sea level (a.s.l) at the north-eastern higher elevation (Gole, 2003).

2.6.2 Climate

Ethiopia has four seasons²⁴: the dry season (December to February), small rainy season (March to May), main rainy season (June to August) and the transition season (September-December). According to the data from the Ethiopian Meteorological Agency, the district has a humid and warm tropical rainy climate with mean minimum and maximum temperatures of 13.5 and 27.3 °C respectively. The rainfall pattern is unimodal with a mean annual rainfall ranging between 1243 and 3445 mm (Senbeta, 2006). November to February is a relatively dry season with rare occurrences of rain, followed by the hottest period from February through to the end of April. The period between May and October is the wettest season of the year. Heavy rain occurs between July and August with extended cold weather until mid-October (Getaneh, 2008; Gole, 2003). Such a diverse mix of climatic conditions is said to be the most important factor for the availability of a huge wealth of biologically diverse species (WCMC, 1992 cited in Gole, 2003).

2.6.3 Land tenure and Land use types

With Ethiopia known for its long history of agrarian production systems (McCann, 1995), agricultural-related engagements in and around the Yayo coffee forest have also been progressively expanding in terms of both size and diversity. As a key factor of production, land plays a profound role in agricultural activities in the villages. The size of land alienated for agricultural and forest areas constitute the largest landscape mosaic in

²⁴ The equivalent Afaan Oromo terminologies for the four seasons are: Afraasa (Small rainy season), Ganna (Main rainy season), Boona (Dry season), and Biirraa (Transition season).

the area. This is further differentiated into various land-use types and intensities such as annual crops, farmlands, with scattered trees (including agro-forestry), home gardens with coffee and shade trees, grazing lands and fallows. Gole (2003) offers a statistical estimate of the five types of land-use categories. Accordingly, large proportions of the land are registered as forest area and agriculture land area covering 55,8 % and 35,7% of the total surface respectively. The remaining land is categorised into livestock grazing (4,4%), wetland (2,3%), and residential areas and others (2,7%). The 2014/15 Agricultural Sample Survey of the Central Statistical Agency shows that the average land holding per household in most parts of *Illu Abbaa Bora* zone, including Yayo district, is 1,55 hectares (CSA, 2014).

The rapid conversion of the forest ecosystem into cash crop farming land and coal extraction sites has become a serious concern for those interested in biodiversity conservation. There is a gradation of such conversions with the presence of smaller sizes of forestland, semi-forest coffee systems, home gardens, and farmlands with scattered trees (Gole, 2003). Since the forest is part of the National Forest Priority domain, it became a highly contested space due to the competition for space and forest-related resources (Asres, 1996). The GoE has given a great deal of attention to address property right issues over land resources by way of endorsing various proclamations, regulations, policies, and strategies. The Constitution of the Federal Democratic Republic of Ethiopia, which was put into effect in July 1995, makes explicit provision for the ownership of land resources. Article 40 of the constitution states:

The rights to ownership of rural and urban land, as well as of all natural resources, are vested in the state and the people of Ethiopia. Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sell or other means of exchange.

Under this overarching legislative framework, the rural land administration and land use Proclamation No. 456/2005 outlines:

The right to land is exclusively vested in the state and in the people and grants only holding rights to users. Holding rights include leasing rights to a maximum of 15 years and inheritance rights.

As stated in the above statement, at the moment, the government is the exclusive proprietor of land resources of the country whereby citizens merely have fixed term use rights on land use categories such as agricultural lands, settlement areas and forest areas. The implication of this is that this type of land use right might be revoked whenever deemed necessary. As discussed in chapter 6, this was evidenced through the expropriation of land to make way for a government-induced coal mining operation in the district.

2.6.4 Human population and settlement

The 2007 population census of Ethiopia conducted by its Central Statistics Agency shows that more than 1,2 million people live in the *Illu Abbaa Bora* zone. The three districts²⁵, which have been covered by successive conservation programmes of the coffee forest, have a combined total population of 132 177,²⁶ with almost equal proportions of men and women (CSA, 2007). It is estimated that the majority of these inhabitants (90,8% or 120 147) are settled in the rural parts of the districts adjoining the dense coffee forest. According to the 2005 countrywide census report, the average population density of the Yayo district is 189,6 people/ km², a figure much greater than the zonal average of 72,3 people/km² (CSA and ORC Marco, 2006).

The inhabitants of the study area are predominantly the Oromo ethnic groups. Being the largest Cushitic speaking people residing in northeast Africa, the Oromos trace consanguine kinship groups through a patrilineal family that is common amongst them (Bartels, 1975 cited in Gole, 2001; Baxter et al., 1996). In terms of origin, the Oromos in the *Illu Abbaa Bora* zone have their lineage from two famous clans, traditionally known as the *Jahan Noonnoos*²⁷ and *Hadheessos*²⁸ (this is to refer to the six *Noonnoos* and seven *Hadheessos* respectively). Jotte (2010) argues that the seventeenth century migration of other ethnic groups to the area allowed the rapid expansion of the *Noonnoos* and

²⁵ The three districts are: Yayo, Hurumu and Doreni.

²⁶ A statistical projection by the CSA shows that by 2015 the population in the three districts will be 163 973 (CSA, 2013).

²⁷ The Jahan Noonnoos are the *Hurumuu*, *Aferson* (Goree area), *Matuu*, *Qrettii*, *Didduu* and *Algaa*, and *Hadheessos*.

²⁸ According to Jotte (2005) the clans derived from Torban Hadheessos include *Hadheesso*, *Lagoo*, *Bachoo*, *Sarsaroo*, *Dongoro*, *Yakunoo*, *Bodee*, *Binooraal* and *Tuulama*.

Hadheessos tribal members, making the Oromo ethnic group the biggest nation in Ethiopia.

In recent years, the study area hosted a considerable number of migrant settlers, in terms of both number and ethnic diversity, who have arrived on different occasions and for various reasons. The majority of these migrants are from the Amhara ethnic group who came mainly from *Wello, Gojjam, and Gondar*. It was also noticed that other ethnic groups and nations such as those from the SNNPR (mainly the *Kembatas, Hadiyas and Guraghes*), Tigrians from the north, Oromos from the eastern part of Ethiopia and a few from the Arab and Asian countries (mainly the Chinese) reside in the district. As can be seen in chapter five, the migration of these social groups is either unplanned, which is economically triggered, or a state-induced resettlement programme that brought several thousands of people from the north, central and eastern parts of the country to the district.

2.6.5 Biodiversity endowments

The Yayo district is one of the biodiversity-rich regions in the country. The coffee forest provides an all-round bionetwork support favourable for the occurrence of a variety of flora and fauna species, including those endemic to the country. An unpublished document from the District Agricultural Office shows that the district is covered with an estimated 90 890,70 hectares of intact forest, approximately 58,8% of the total land area of the district (YARDO, 2005). Compared to the other regions in the country, the percentage of forest cover in Yayo exceeds that of the forest coverage for the entire south-western part of Ethiopia (18%) and the country (2,7%) (Gole and Denich, 2001). The forest has been a favourable habitat for a wide array of flora, fauna and other biological diversity species. To date, it is reported that a total of 450 higher plants, 50 mammals, 200 birds, and 20 amphibians have their habitat in the district's dense forest ecosystem (Gole et al., 2008; EWNHS, 1996).

2.6.5.1 Flora

Concerning the floristic composition, the south-western rainforests contain a range of genetically diverse and abundant plant species and tracts of forests. Some of these species are only found in Afromontane eco-regions such as the Yayo coffee forest biosphere reserve. Few others are non-endemic but they are linking species that could also exist in the dry peripheral semi-deciduous Guineo-Congolian forests and other eco-regions, including the Sudano-Zambezian ‘super region’ (Tadesse et al., 2006). Yayo is a global centre of plant origin and diversity containing the last remains of relatively undisturbed Afromontane rainforests (Gole, 2003; Senbeta et al., 2013). The area has been identified as one of 34 biodiversity hotspots in the world and is part of the Eastern Afromontane Biodiversity Area (Senbeta et al., 2013; Tadesse et al., 2006). According to Myers (1988), the main criterion that makes a given geographical region a ‘hotspot’ is if there are in excess of 1500 endemic vascular species within its ecosystem and it has lost more than 70% of its original habitat. Hence, there is a global consensus that a region fulfilling these requirements has to be a priority for conservation and should get the necessary protection to save its endangered species.

The diverse vegetation cover and tree species present within the biosphere reserve play vital roles in the social, economic and cultural aspects of the local community. There are trees that are used for food and others that serve as traditional medicines (Gole, 2003; Senbeta, 2006). The trees that play multiple roles include, *inter alia*, *Albizia gummifera* (*Haambabbeessa*), *Cordia africana* (*Waddessa*), *Aningeria adolfi friedertel* (*Qararoo*), *Ficus varta* (*Hogdaa*), *Ficus sur* (*Haarbuu*), *Carissa spinarum* (*Haagamsa*), *Rubus apetalus* (*Goraa*), *Solanum nigrum* (*Muiulo*), *Acacia lahai* (*Laaftoo*), *Phoenix reclinata* (*Meexxii*), and *Albizia grandibracteata* (*Shawoo*). In a similar manner, there are tree species used as main sources of wood and timber for the local people residing in the district. *Cordia africana* (*Waddessa*), *Afrocarpus calpatus* (*Birbissa*), and *Polyscias fulva* (*Karasho*) are essential trees, useful in making traditional beehives because they have a pleasant odour that attracts bees and are easily workable and light-weighted (Senbeta,

2006). Moreover, they are strong enough to be used for house construction, agricultural farm tools and traditional household utensils.

The coffee forest also harbours a variety of commercial crops and wild spices that play a significant economic role in the lives of the local community. Gole (2003) asserts that the wild coffees, *Aframomum corrorima*, *Piper capense*, *P. guineense*, *Trichilia dregeana*, and *Dioscoria bulbifera* are some of the species used for own consumption. These species are exceptional to the district and occur with a greater genetic diversity, making the study area a widely recognised plant genetic reservoir.

Concerning the wild coffee populations, the district contains the highest proportion of naturally occurring *coffea arabica* genetic material of any other coffee-cultivating geographical region in the world. Gole (2003) argues that a single hectare of land could contain up to 32 000 different varieties of the wild coffee species. These wild coffees are isolated from the rest of the coffee species in the country and they are the only self-compatible species of the genus coffee (Friis, 1992). This means that while fertilisation of other plant species requires pollen from flowers on other shrubs, the pollination process of *coffea arabica* is based on pollens from its own flowers. Such type of self-compatibility enables the *coffea arabica* to swiftly occupy new eco-regions outside of their original centre of diversity and range of distribution. The occurrence of very few populations and genetically narrow species of *coffea arabica* in some parts of the neighbouring countries, such as Kenya and Sudan, is the result of this kind of pollination process (Friis, 1992).

Dispersal of *coffea arabica* is carried out by fauna such as monkeys and baboons (Senbeta, 2006). The growth of wild coffee varieties requires a specific altitude, rainfall, soil type and topography. Altitude within the range of 1000 to 2000 meters a.s.l., an annual rainfall amount of 1000 to 2400 mm and a variety of soil types such as acidic to slightly acidic with minimal phosphorus content are conducive for the growth of *coffea arabica* (Teketay, 1999). He also asserts that certain topographical features such as sloppiness and expositions are some of the factors that could constrain the natural occurrence of the crop.

2.6.5.2 Fauna

With the majority of fauna being arboreal and bird species, the Yayo coffee forest is a home for a variety of animals, birds and invertebrate species. Research reveals that, out of the forty-eight Afro-tropical Highland Biome birds²⁹ found in the country, some thirty unique bird species exist in the coffee forest. It is this exceptional feature that led to the recognition of the Yayo district as one of the Important Bird Areas (IBA) by BirdLife International in 2009. In addition to the birds, a number of wild animals make up the great diversity of faunal species in the coffee forest. Jotte (2010) reports that Anubus baboon (*Jaldessaa*), Colobus monkey (*Weenni*), Vervet monkey (*Qamalee*), Porcupine (*Xaddee*), Fox (*Waango*), Hyena (*Waraabessa*), Bushbuck (*Bosonuu*), Duiker (*Quruphee*), Birazas monkey (*Chena'a*), Cats (*Iyyanii*), Ant-eater (*Awaal diigessa*), Leopard (*Qeeransa*) and Bat (*Simbiro haalkanii*) are among the wild animals which rely on the service of the ecosystem.

Although few in number, big animals such as lions, buffalos, bush pigs, and warthogs also occupy the dense forests of the district. Some of these animals are vital in the local community's dietary patterns due to their substantial role in substituting and/or meeting the daily nutritional requirements. In contrast, few others, such as the Anubus baboons, monkeys and bush pigs appear to have detrimental effects on agricultural crop fields and coffee farms of the households.

In general, the diversity and abundance of fauna and flora species that exists in the forest ecosystem make the Yayo district a fascinating geographical hub for scientific research and biodiversity preservation. There are several ongoing ecological and forestry research projects and inventories that are being undertaken by natural science researchers. Nevertheless, the majority of the scientific endeavours of exploring new biodiversity species could not live up to expectations mainly due to institutional and financial limitations. Should these challenges be resolved, there is a high level of optimism among

²⁹ Afro-tropical Highland Biome birds are those bird species with restricted range of distribution to highland areas of above 1500 meters.

the researchers and academia that the ongoing exploration for biotas will eventually result in a large number of species than the hitherto reported official figures.

2.6.6 Local scale economic activities

As in many other rural parts of Ethiopia, agriculture, which is often typically characterised by mixed farming, is the main source of cash income and food for the majority of forest-dependent communities in the study area. Crop production and livestock rearing form the key components of the rural livelihood strategies. The cultivation of staple or cash crops that are annual or perennial in their nature is a key land-based livelihood activity performed by villagers (Senbeta et al., 2013). Some of the widely cultivated staple crops include maize, sorghum, *Teff*, finger millet, field pea and faba bean. Meanwhile, the perennial crops include wild coffee, *Enset*, and *Khat*.

As far as livestock production is concerned, a report from the local agricultural office shows that there are more than 94 324 cattle, 33 819 pack animals, and 44 226 chickens in the districts (YARDO, 2012). Oxen play a considerable role in the agricultural farming systems of the locality, providing essential draft animal power required for ploughing the land. In spite of concerted efforts to control deadly animal diseases in the study area, livestock husbandry appeared to have been critically challenged by trypanosomiasis.³⁰ The prevalence of the disease in tandem with escalating prices of cattle in the local markets makes farming households impotent to substitute their lost oxen. This is one key reason why some farmers often tend to withdraw from rearing cattle and or owning oxen for the purpose of traction power. There are, however, farmers who purchase oxen once harvesting season is over to prepare their land for the following cropping season (Abebaw and Virchow, 2003). In some, the inadequate number of cattle remains a key challenge and forced many villagers to increasingly rely on the services of the coffee forest.

³⁰ *Trypanosomiasis* is a disease that is transmitted from disease-hosting wild animals to healthy cattle through the biting of infected *tse tse* flies and ultimately results in abortion or sudden death.

The collection of NTFPs is another form of local economic activity. These products include woods for house construction, thatching grass, climbers, ropes, timber, charcoal, wild fruits, wild spices, and woods for agricultural tools. There are also medicinal plants that are vital to local communities and their livestock. Wild coffee is also another essential crop, contributing to both cash income source and subsistence needs of the local community (Gole, 2003). Regassa (2000) reported that 92,6% of agricultural-dependent people in the district own wild coffee plantations in the montane rain forests. The relatively cheaper costs of production and better income from the sale of coffee have been the main reasons for local communities to extensively engage in coffee production.

The other most important source of livelihood comes from non-farm activities such as beekeeping, petty trading and temporary employment on others' farms. It is believed that relatively educated village dwellers and those who do not have sufficient agricultural land tend to pursue these non-farm activities. Honey production activities in Yayo are carried out within the coffee forest and are mostly rudimentary. Unpublished research conducted by Regassa (2000) reveals that farming households that have coffee in the forest could harvest up to 57,3 kg of honey per year per household. Once harvested, it is either sold at the local market or made available for household consumption. Local communities who reside near Yayo town are engaged in few other off-farm activities. These include employment in government offices, unskilled jobs in the coal mining and fertiliser factory and road construction projects.

2.7 Chapter summary

The chapter discussed the various facets of the research methodologies of the study and presented the background of the area where the study was carried out. Situated 560 km towards the south-western part of Ethiopia, the study area, the Yayo district, is one of the globally recognised biodiversity hotspots. A variety of birds, mammals, amphibians and above all an 'undisturbed natural Afromontane forest' make up the bionetwork. The forest is the only place in the world where diverse wild *coffea arabica* species are found in their original habitat. Cognisant of the significance of the area for biodiversity

conservation, a number of scientific researches, development activities, and forest protection programmes were formulated and executed in the area.

As much as the area is crucial for local livelihood and conservation, there is an emerging interest in its considerable coal deposits. Recently, the state-based mining proponents launched a coal mining operation in a protected coffee forest as well as in a livelihood space that has been used by villagers. This has resulted in a serious competition for space and resources, adding complexity to the access, use and management of local resources. The mismatch between the interests and priorities of the villagers, conservationists and mining proponents appeared to become a centre of socio-political struggle and eventually, a rationale for undertaking this study.

The Yayo district is best suited to this type of study due to the complex social and political processes of resource access and use it entails. Firstly, the area encompasses dynamic interactions of people and their environment. Secondly, there is a competing interest over resources. The competition could be for one or a combination of the following three reasons: commercial, scientific research and survival needs. Overall, this study was a qualitative investigation that made use of interviews, group discussions and participatory observations and other rapid rural appraisal as its data collection tools. Informants were selected purposively, based on their knowledge, expertise and roles vis-à-vis the theme under investigation. In addition, secondary documents from the local, regional and federal government offices, legislative bodies, NGOs and the Addis Ababa University library were also thoroughly reviewed and incorporated in the study as deemed necessary.

Chapter Three: Review of related literature

3.1 Introduction

The main focus of this chapter is to provide a review of literature that deals with the core theme of the study: the politics surrounding local livelihoods, conservation and extractive industries. In order to do so, materials such as books, journal articles written by distinguished scholars, comparative country specific studies, and legislative frameworks of Ethiopia have been thoroughly reviewed. The first section presents general debates on the nexus between poverty and biodiversity, and two dominant conceptual approaches to biodiversity conservation. This is followed by an illustration of the social and political dimensions of conservation and mining and how interventions associated with these two activities affect the lives of local communities. The third section discusses the material resistance of local communities towards external forces that attempt to access, control, use and govern local resources by restricting, annulling and limiting their historic livelihood practices. The chapter concludes by providing an extensive discussion on the origin, concepts, practical applications and critiques of the preferred analytical framework of the study, i.e. political ecology.

3.2 Poverty, biodiversity conservation and extractive industries

3.2.1 Nexus between poverty and biodiversity

Recent academic research on the connection between humans and their physical environment is characterised by a multidisciplinary approach. Such an approach to science has become an essential problem-solving tool and is a means of collaboration amongst scholars in the fields of conservation and sustainable development (Schelhas and Lassoie, 2001). Due to the interconnectedness of the socio-economic wellbeing of people and ecological systems, the approach involves working towards poverty elimination and biodiversity preservation simultaneously rather than independently (Fisher and Christopher, 2006). In a similar manner, it is also essential to devise a more

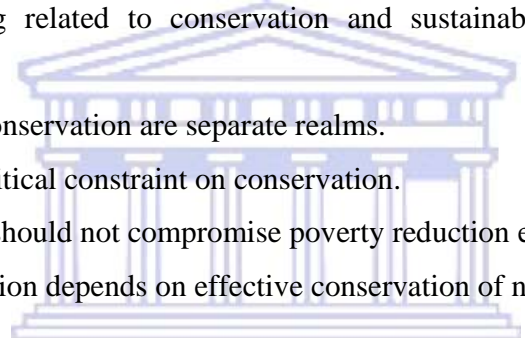
comprehensive approach for geographies where there is an overlap between biodiversity-rich and industrial mineral extraction spaces.

Over the past three decades, mining industries have been found active in areas where poverty is pervasive and biodiversity is threatened (Huang et al., 2011). A study by Miranda et al., (2003) shows that approximately one-third of mine extraction sites in the world is situated within intact bionetworks that have significant conservation value. As far as biodiversity is concerned, conservation scientists engineered the concept 'biodiversity' as a strategy of prioritising preservation endeavours and thus addressing problems related to the continued decline of flora and fauna species in some of the world's 'biodiversity hotspot' areas (Fisher and Christopher, 2006; Myers et al., 2000). The term 'biodiversity hotspot' is well established in the Global North thought and mainly refers to areas of abundant, unique, and endangered flora and fauna or a combination of some of these common features (Reid, 1998). The past trend shows that most biodiversity hotspots are designated in countries and regions where poverty and deprivation are pervasive. Thus, the understanding that poverty can be a considerable restraint on conservation and conservation should be an integral element of poverty alleviation plays a pivotal role in achieving and sustaining environmental, social, and economic goals (Fisher and Christopher, 2006).

The current global debate on the interplay between biodiversity protection and poverty eradication has not been an easy task and a systematic integration of conservation and sustainable development efforts is yet to be achieved (Roe, 2008). There are two major groups of scholars who have been actively debating such issues. The first group comprises social scientists that urge the consideration of a poverty agenda by global conservation organisations and other related stakeholders. The second group consists of mainstream conservationists who are increasingly concerned about the lack of policy attention towards biodiversity preservation (Roe and Elliot, 2005). This ongoing debate is, in turn, rooted in two fundamental problems. Firstly, there is disagreement on the nature and degree of the relationships between biodiversity preservation and poverty eradication. Secondly, there is a lack of common understanding about the mechanisms

through which one can deal with such an important linkage between nature and people (Roe and Elliot, 2005:3).

Substantial work has been done to explore the link that runs across poverty, biodiversity and conservation (E.g. Agrawal and Redford, 2006; Angelsen and Wunder, 2003; Fisher and Christopher, 2006; Mellor, 2002; Roe and Elliot, 2004; Ros-Tonen et al., 2005). Some of these studies have argued that an effective linkage between biodiversity and poverty may not be attained unless the context and complexity of the connection between the two are properly understood (Adams et al., 2004; Agrawal and Redford, 2006; Roe and Elliot, 2005). Adams et al., (2004) assessed the debate on the poverty eradication-biodiversity preservation nexus and generated four conceptual typologies that could offer clarity to the thinking related to conservation and sustainable development. These typologies are:

- 
- a. Poverty and conservation are separate realms.
 - b. Poverty is a critical constraint on conservation.
 - c. Conservation should not compromise poverty reduction efforts.
 - d. Poverty reduction depends on effective conservation of natural resources.

In their discussion, Adams et al., (2004) outline that in understanding the linkages between biodiversity and poverty eradication, different stakeholders appear to have adopted one or a combination of these typologies. For instance, tackling biodiversity loss and poverty separately, i.e. typology 'a', is often espoused by proponents of the strict conservation of nature. This group tends to pay a great deal of attention to the preservation of endangered plant genetic materials by way of creating PAs that prohibit any human intervention. Terborgh (1999) argues that if poverty is perceived as an essential cause for the failure of conservation, the proponents of PAs tend to react by further circumscribing critical biodiversity habitats and reinforcing restrictive rules and regulations over the PAs instead of looking for alternative solutions that maintain diversity and address poverty. In fact, the stance of the proponents of PAs has been useful in the exploration of the origins and perceptions of mainstream conservation approaches and hegemonic schools of thought that exist within the subfield (Terborgh, 1999).

If we take scholars who acknowledge the interdependence between poverty reduction and biodiversity conservation, i.e. typology 'd', for example, the basis of their argument is that economically disadvantaged and socio-politically marginalised communities rely on various species occurring within a biodiverse ecosystem. Hence, the standard of living of this group of people can be raised through the formulation and execution of sustainable biodiversity conservation strategies that allow local use of resources (Adams, 2001). The advocates of this stance might reject the notions of a PA approach since it is highly unlikely that poverty eradication goals can be achieved in the absence of incentives to resource-dependent people (Hutton and Leader-Williams, 2003).

3.2.1.1 Conceptual approaches to biodiversity conservation

The Convention on Biological Diversity defines biodiversity as “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”³¹. For this reason, biodiversity worldwide is increasingly recognised as a fundamental resource to the continued survival of the natural world. The values of biodiversity to human beings can be broadly classified into two categories: anthropocentric values (i.e. their role as consumptive assets) and intrinsic values or ethical values (their role as common assets) (Lockwood, 1999). Anthropocentric values (consumptive and productive use values) are the direct and indirect economic services of biodiversity species to human beings. Such values can be examined scientifically and are thus considered as relatively more objective (Pearce and Moran, 1994). Intrinsic values, for their part, are associated with a worth given to entities, a respect for the living world and a concept of heavenly creation (Castro, 2000; Lockwood, 1999).

Based on the definition of biodiversity and the description of its use values, the 2014 report of the Ethiopian Biodiversity Institute has identified a wide range of biologically

³¹ <https://www.cbd.int/convention/articles/default.shtml?a=cbd-02>

diverse species occurring in different parts of the country (IBC, 2014)³². It has been repeatedly said in the thesis that the Yayo district contains some of these crucial biodiversity resources that have tremendous use value to the local and global community (Gole et al., 2008; Gole et al., 2009). In particular, the forest in the district, which is recognised as a centre of origin and diversification of wild *coffea arabica*, offers a range of anthropocentric and intrinsic values in terms of serving as a source of cash income to people and also being a reservoir of the genetic materials of the *coffea arabica* (Gole, 2003; IBC, 2014).

Despite the global prominence of the term biodiversity and the urgency for its conservation, the definition and the embedded conceptual meanings have become contested, specially in relation to their application to the management of resources and connections with local and extra local values and competing interests (Blaikie and Jeanrenaud, 1997; Brown, 1998). The way biodiversity is conceptualised is one of the factors that influence the process of understanding the socio-political dimensions of conservation. Political ecologists such as Blaikie (1994), Blaikie and Jeanrenaud (1997), and Robbins (2004) assert that the broad range of conservation strategies and approaches practiced across the world are constructed ideologies that reflect the views, perspectives, cultures, and values of their makers/planners. It is thus crucial to critically interrogate the concept of biodiversity itself and the genealogical paradigm that seem to have shaped contemporary conservation approaches.

Basically, the conviction that valuable biodiversity resources are ‘threatened’ and are in the process of extinction forms the basic ground for the emergence of diverging biodiversity conservation paradigms and approaches (Wilshusen et al., 2002). These diverging conservation approaches are anchored within two broad and dominant ideologies. The first ideology is known as protectionism and the second is a ‘people-oriented’ approach. While the former ideology inclines towards a strict protection of

³² Ethiopia possesses an estimated number of 6000 species of higher plants of which 10% are endemic. The country has 284 species of wild mammals and 861 species of birds. Data on other wild animals are scanty; and the number of reptile, fish, amphibian and arthropod species identified so far are 201, 200, 63 and 1225, respectively. Of these faunal resources, 29 wild mammal, 18 bird, 10 reptile, 40 fish, 25 amphibian and seven arthropod species are endemic to Ethiopia (IBC, 2014)

natural resources, the latter encourages the participation of local communities in conservation programmes (Wilshusen et al., 2002). The following section offers a brief explanation of the conceptual origins of these two dominant biodiversity conservation ideologies.

3.2.1.1.1 Protectionist approach to biodiversity conservation

Rooted in a classic exclusionary model, protectionist ideology is characterised by a strict authoritarian and top-down imposition of rules as solutions to local and global scale environmental problems (Blaikie and Jeanrenaud, 1997). Proponents of this ideology prescribe protected areas and parks as some of the effective conservation mechanisms for preserving globally threatened species. During the past few decades, conservation biologists such as Brandon et al., (1998), Kramer et al., (1997), Oates (1999), and Terborgh (1999) are among the scholars who have been advocating for this approach. They argue that PAs are the last remains of a secure haven to a large territory of a global ecosystem. For this reason, they call on policy makers to create and expand an even greater number of PAs that are free from any form of human intervention. As Holt (2005) asserts, the key argument for this group that advocate for this approach is that biodiversity can be effectively preserved only if there is a smaller population, no market incentive, and no or limited modern technology to impact on the resources.

It is clear that such a protectionist stance towards nature preservation has profound implications for both ecology and humans. According to Terborgh (1999), embracing this notion leads to the perception amongst policy makers that local communities are not benign to nature and cannot be trusted to take a responsibility in the management of resources. By so doing, it gives an opportunity for conservation actors to play a dominant role in conceptualising environmental problems in ecologically fragile areas, planning relevant conservation policies and strategies, and then executing them at a local scale. It also allows the state to develop 'its own' science of explaining the environmental problem on the ground, eventually using its power and institutional arrangements for imposing strict rules and regulations on its people (Blaikie and Jeanrenaud, 1997). Ghimire and Pimbert (1997) argue that, most often, such a notion fails to pay sufficient

attention to important issues related to the welfare of humans as it involves the displacement of local communities from their homelands and ancestral resources.

An example of a biodiversity resource management strategy crafted using a protectionist notion is a PA buffer zone, an idea that stemmed from the UNESCO's MAB program (Neumann, 1997). The formulation of the concept, principles, and canons of the buffer zone in particular and the biosphere reserve approach in general was first endorsed in the 1973/74 meeting of UNESCO, although the designation of the first ever biosphere reserve took place later in 1976 (Vernhes, 1989). Biosphere reserves, as defined by UNESCO (1996:4), are "areas of terrestrial, coastal/marine ecosystems or a combination thereof, which are internationally recognised within the framework of UNESCO's programme on MAB." Nominated by national governments and administrated under the sovereign jurisdiction of the country where they are situated, they are intended to achieve international cooperation, address problems at the interface between nature conservationists, and promote interdisciplinary research, monitoring, and educational prerogatives in ecological and environmental sciences (UNESCO, 2000). Currently, a total of 631 biosphere reserves have been designated in 119 countries throughout the world, embracing an interesting mix of biodiversity conservation, socio-economic development, education, training, research and environmental monitoring activities.³³

In principle, a biosphere reserve comprises three distinct management areas: the core, buffer, and transition zone (UNESCO, 1995a). The core zones are relatively undisturbed and strictly conserved spaces containing valuable biodiversity species. They are places of exceptional scientific interest and are expected to provide sufficient biota for the fauna and flora occurring in a given area. In most countries, the prime purpose of their designation is to promote non-destructive academic research and other minimal impact activities that do not threaten the natural processes of the reserve. It is thus a requirement of UNESCO for countries to have regulations and laws for protecting core areas as strict conservation spaces (UNESCO, 1995b).

³³ <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/world-network-wnbr/>

The second management area is called a buffer zone. Adjoining the core zone of a reserve, a buffer zone serves as a protective layer for a wide range of genetic materials existing within a core zone. The purposes and activities that are undertaken in a buffer zone are designed in such a way that there is compatibility with the entire ecosystem function. Research, restoration, education, recreation, grazing and ecotourism are some of the uses and activities that are permitted within a buffer zone (UNESCO, 1995b). The third management area is called a transition zone. It is the outermost component of a biosphere reserve that is designated to creating a cooperation space for knowledge application, conservation, and skills. It is a living and relaxation place for its dwellers whereby the natural resources contained in it can be used regardless of any limit but in harmony with the prime objectives of the reserve. In order to ease the pressure from a core conservation area, settlement, grazing, intensive recreations, farming, and many other economic activities are permitted in this zone (UNESCO, 1995b).

As seen from the experience of many countries, the mechanisms through which biosphere reserves and PAs are designated, overlap. This is because, firstly, the core and buffer zones are demarcated as strictly protected areas under the laws of the state and secondly, most biosphere reserves concurrently embrace spatial areas that are protected using other strategies such as parks and nature reserves (UNESCO 1974). Explaining this overlap, Neumann (1997) argues that, even if the concept of a biosphere reserve envisions local economic development as one of its central objectives, it tends to follow an exclusionary and authoritarian conservation paradigm. This was found through his analysis of how buffer zones are initially created in a participatory manner and eventually put under the control of external actors. As argued by Neumann, buffer zone planning reflects a scenario where the state emerges as a powerful actor in the alienation of sizeable land areas for the purposes of biodiversity conservation. In many cases, this kind of land grabbing tends to result in a potentially huge amount of land claimed as the state's property and to subsequently fall under the control of its authorities (Neumann,1997).

In the past, efforts were made to amend and improve the mechanism of creating core and buffer zones in a participatory manner. In this regard, the post-Seville period played a key

role by shifting the focus from protectionism to active local participation and sustained local economic development. Yet again, the realisation of this objective, especially at the local scale, remains complex due to challenges vis-à-vis issues of zonation/demarcation, land tenure rights, inadequate scientific research, monitoring and education, and lack of good governance and coordination to resolve the conflict of interest among different actors (Ishwaran et al., 2008).

Another form of protectionist-oriented resource management strategy is a PA approach. For many years, PAs have been a commonly used approach for conserving biodiversity-rich but ecologically fragile areas in the world (McNeely and Miller, 1984). The biggest campaign to expand such conservation areas took place at the World Parks Congress in Bali. Delegates from various countries recommended that all nations should commit to designate 10% of their land under protection. A decade later, strengthening protected areas became the central agenda of the Rio Earth Summit (the 1992 UN Conference on Environment and Development), where representatives of the UN member countries gathered to discuss the meaning and importance of biodiversity and formally endorse appropriate conservation programmes. At the closing stage of the fora, 167 countries signed on to the Convention on Biological Diversity (CBD) and pledged to promote the ideologies and create protected areas in their respective countries (Naughton-Treves et al., 2005). Since then, PAs have been increasingly recognised as a preferred approach for the *in situ* conservation of biodiversity resources (Chape et al., 2005).

According to the 2014 Protected Planet Report by Juffe-Bignoli et al., (2014) the number of PAs in the world is estimated to have reached 209 000, covering 15,4% of the world's terrestrial area and 8,4% marine areas. The same report reveals that African countries have designated a combined 30 723 protected areas (i.e. 14,7% of the total) with the objective of preserving the full range of flora and fauna species that occur in their respective regions. The September 2015 version of the WDPA³⁴ shows that, including the

³⁴ A monthly update of the PAs of our planet could be obtained from: <http://www.protectedplanet.net/country/ET>

Yayo forest, 104 of these protected areas have been identified and designated in Ethiopia, covering a total land area of 208 907 km². This is equivalent to 18% of the total land area of the country, i.e. 1 135 429 km².

A standard definition of a PA is provided by the IUCN. Accordingly, PAs are defined as formally designated spaces of land and/or sea, having their own management (legal or institutional) framework, dedicated for the preservation and maintenance of biological diversity as well as natural and associated cultural resources (IUCN, 1994). For its part, the CBD offers a more comprehensive definition of PAs as ‘geographically defined areas designated, regulated, and/or managed to achieve specific conservation objectives’ (Mulongoy and Chape, 2004). As it can be understood from these definitions, PAs are the subsets of a biosphere reserve although the creation of the former follows an exclusionary and top-down principle and the latter embraces a participatory concept, at least on paper.

The creation and execution of strictly protected areas and the buffer and core zones of biosphere reserves have been subject to a range of controversies. Political ecologists argue that the actions to conserve biodiversity resources through the creation of PAs is an inherently political and problematic undertaking due to the undesired effects that it brings to the lives of thousands of rural and often marginalised communities (Himmelfarb, 2006). Particularly, the right and access to natural resources, the increasing role of the state and non-state actors, and the power and roles of conservation science have been the sources of controversies during the formulation and execution of PA approaches (Adam and Hutton, 2007). In countries where PAs are adopted as a leading resource management strategy, it appeared that they are, for the most part, owned by the government and have no-take policies, providing little access other than for tourism (Brockington, 2002; Brockington and Schmidt-Soltau, 2004; Naughton-Treves et al., 2005). This kind of practice is contrary to the global mandates of PAs that include improving social welfare, guarding local security, and providing economic benefits across multiple scales.

Similar to the other parts of the world, the creation of PAs and biosphere reserve core and buffer zones in most African countries is a complex process. The past trajectory shows that conservation efforts have developed into a predominantly protectionist or even to an ecological fundamentalist tradition whereby a weakly developed civil society is prevented from playing a role in decision-making processes (Ros-Tonen et al., 2005). In biodiversity hotspot areas, in particular, this has often resulted in the exclusion of rural communities from conservation and management efforts and the loss of access to the resources that were under use long before the arrival of the PA approach (Schmidt-Soltau and Brockington, 2004; West et al., 2006).

The implementation of a PA approach in Ethiopia is no different to any other African country. There are several occasions where a disjuncture between the underlying objectives of PAs and their local scale implementation process occurred. Even if the policy arena supports the sustainable use and management of biodiversity resources, the existing frameworks failed to ensure the attainment of social welfare and ecological stability, which were expected after the creation of a PA. Based on an exclusionary principle, the implementation of the approach in Ethiopia clearly prohibited local people from using and accessing resources and resulted in recurrent incidents of social upheavals (Jotte, 2010). For instance, in 2004, 500 local people were forcibly removed from Nech Sar National Park in the southern part of Ethiopia and made to resettle outside the boundaries of the PA. It was reported that the involuntary and forced displacement was undertaken by the GoE in order to clear the park before handing it over to a private Dutch-based organisation, the African Parks Foundation (APF), which was awarded a contract to administer the area (Adam and Hutton, 2007).

The case study area for this research, the Yayo district, can also be taken as a case to illustrate the incongruity between the rush for biodiversity conservation and the struggle for securing local livelihoods. At the local scale, the local communities rely on the products of a protected coffee forest area for cash income and own consumption. Tracing their historical interaction with the forest, they also make claims that they have a customary right to access, use, and govern the resources within the PA.

On the other hand, at the national and global scales, conservation actors demand the preservation of the genetic diversity of the wild *coffea arabica* in its original habitat (Jotte, 2010). Consequently, there are fierce socio-political struggles between the state/non-state conservation actors, the local communities and newly emerging coal mining advocates who attempt to establish *in-situ* conservation schemes for the wild coffee, make a living from the resources, and aspire to establish an extractive industry in the protected forest area respectively.

Such a complex contestation for resource and space sheds light on the ongoing debates of balancing conservation, local livelihood, and economic development. As far as the former is concerned, there is a concerted effort to find sustainable ways of safeguarding the biodiversity resources from any sort of external pressure. Advocates in this group have been calling for a more stringent ‘hands off’ approach that ensures the PAs are free from human interventions. In fact, the advocates of this approach argue that strategic tools for banning human activities are contributing to the preservation of endangered flora and fauna species (Brandon et al., 1998; Terborgh, 1999). On the development front, there is an increased concern for the impact that PAs are having on long-standing livelihood practices of the local people residing in and around them (Brechin et al., 2003, Brockington, 2002). Research shows that despite the potential for obtaining considerable benefits through eco-tourism and other forms of income sources, the net socio-economic effects of PAs are often strongly negative (Emerton, 2001; West et al., 2006).

To sum up, offsetting the undesired effects and striking a balance between conservation, coal mining and development should be at the heart of future natural resource management planning. However, this might not be achieved in a short period of time due to the social and political complexity involved during the formulation and creation of PAs and extractive industries. As such, the complexity of PA formation casts doubt on why it is considered as the preferable means, if not the only, to conserve biodiversity (Adam and Hutton, 2007; Himmelfarb, 2006; Roe and Elliot, 2004). State and non-state conservation actors, therefore, have to be politically courageous to move away from a fundamentalist and futile exercise of conservation planning to a well-studied and all-

encompassing strategy that has the potential to address all the competing needs and interests. The first major step in bridging the gap could be to analyse the interaction between strictly protected areas and the local communities residing in these spaces and relying on the resources within them.

3.2.1.1.2 A people-centered approach to biodiversity conservation

Anchored in a neo-populist perspective, a people-centred approach emerged following the successive failures of classical and traditional exclusionary approaches of protectionism (Blaikie and Jeanrenaud, 1997). Just like the advocates of protectionism, proponents of the people-centred notion also support the necessity of preserving endangered biodiversity resources in the world. Yet, there is a huge difference vis-à-vis the approach that has to be adopted to achieve these goals. The advocates of a people-centred approach argue that the way a preservation-oriented ideology is translated into action undermines complex social, economic, and political dimensions at the local scale. They also criticise the policy proposals of protectionists as being impractical, morally questionable and ignorant of the socio-political context under which the protection of nature is envisaged and executed (Holt, 2005).

In terms of policy prescription, the advocates of the people-centred approach support the idea of tangible decentralisation or people-centred conservation whereby conservation, development and economic goals can be achieved simultaneously. The ultimate goal of the approach is to ensure a smooth relationship between the state and the majority of the resource-dependent communities by way of planning locally suitable programmes or projects and encouraging concerned actors to participate in a decision-making process (Pimbert, 2004, Pimbert and Pretty, 1997). Blaikie and Jeanrenaud (1997) state that this can be achieved by means of acknowledging the problems of local communities, their indigenous knowledge, and the solutions they suggest for addressing local environmental degradation. Unlike with the proponents of protectionism, there is a shared view among these groups³⁵ that the state as an actor must withdraw from the sphere of environmental

³⁵ The groups are mainly neo-liberal scholars who advocate market-driven development strategy and eco-populists who call for civil society's full ownership over 'the commons.'

protection and natural resource management (Rangan, 1997). This is mainly due to the reason that state ownership proved to be ineffectual possibly because of fragile institutional structures and deep-rooted corruption that led to mismanagement of the biodiversity resources (Tacconi, 2007).

In recent times, there has been a shift in state policies and practices from the classical exclusionary approach to a neo-populist participatory management approach. The leading people-oriented natural resource management programmes that have flourished over the past fifteen years include the Integrated Conservation and Development Projects, the Joint or Community Based Natural Resource Management, and Participatory Management Approaches (Badola, 2000 as cited in Jotte, 2010; Ribot, 2002). Much of the interest in these people-centred conservation approaches stemmed from the persistent struggle and determination of indigenous groups to preserve their own natural resources and protect their traditional livelihood practices from external forces (Blaikie and Jeanrenaud, 1997). The majority of local resistances are targeted towards private business corporates, dictatorial state factions, capitalism-induced forced evictions, technological changes and local level bureaucratic challenges which are all key distinguishing characteristics of protectionism (Blaikie and Jeanrenaud, 1997).

While a neo-populist driven people-centred approach is gaining precedence in most policy papers and international development programmes, the local conservation practices in most parts of the developing countries seem to be returning to a focus on 'resurgence of protectionism' through the establishment and creation of PAs (Wilshusen et al., 2002). Over the past three decades, the Yayo district has also witnessed the implementation of various forms of protectionist-oriented management approaches that are targeted at safeguarding wild coffees and forests. Coupled with the emerging coal mining practices, the execution of the PA in the district appears to have affected the lives of the local people in several ways. The next section offers a detailed elaboration of the connection between biodiversity conservation and extractive industries, with a special focus on mining.

3.2.2 Biodiversity conservation-mining nexus

There is a plethora of research that studies biodiversity conservation, poverty and mining, either separately or by combining any two of the concepts. Examples of such studies include, among others, Adams et al., (2004), Agrawal and Redford (2006), Banks (2002) Bebbington and Bury (2013), Bebbington et al., (2013), Bridge (2004), Roe and Elliot (2004), and Sharan et al., (1994). However, the dynamic and complex interrelation amongst local livelihoods, conservation of globally crucial plant genetic materials, and mining when they all coexist in a biodiversity hotspot spaces remains unclear.

The destruction of habitats is a primary cause of biodiversity extinction (McNeely et al., 1995) and, as indicated above, protectionists' attempt to label such ecologically fragile areas as 'biodiversity hotspots' purely stems from prioritising preservation efforts (Myers et al., 2000). Mining operations in biodiversity hotspot regions have received a great deal of attention over the past years and this issue will continue to be contentious, particularly in countries where state governments are considering opening up PAs for extractive operations. Miranda et al., (2003) argue that a geographical overlap between mine and extraction sites and areas of considerable ecological significance will possibly lead to enormous social and ecological challenges in a short or long-term period. This will be noticeable especially in areas where PAs are not legally and formally recognised and/or where their territories are not properly defined and demarcated. Confirming to this assertion, Edwards et al., (2014) documented evidence from the central African countries where non-protected areas with ecologically valuable forests were much affected by protected forest areas.

As indicated in the World Bank (2004), some of the direct and indirect negative effects of mining encompass land degradation and undesired consequences (such as sexually transmitted infections) on the local communities hosting the operations. The most discernible effect of extraction and mining on biological diversity is the removal of floral species that in turn poses a risk to wildlife, and access to sufficient food and proper shelter (Blake et al., 2007; Edwards et al., 2014). Bridge (2004) and Deininger et al.,

(2011) argue that an increasing proportion of mineral exploration and extraction targeted geographical areas of high biodiversity conservation value. It is estimated that almost one-third of operational mine exploration and extraction sites are situated within areas of enormous conservation value. Moreover, almost three-quarters of active mine exploration and extraction sites are situated in areas believed by conservationists as having considerable ecological value (Miranda et al., 2003:16).

Admitting that PAs are struggling to safeguard global biodiversity (Soule, 1986), many conservation scholars and conservation organisations have been increasingly concerned about the effects human interventions in general, and mining in particular, will have on threatened biological resources. They argue that human effects on biodiversity could take its toll due to two fundamental reasons. Firstly, a large proportion of the world's biodiversity resources have not yet been earmarked as strictly protected spaces (McNeely et al., 1990). Secondly, even those spaces that are recognised as PAs often suffer from poor administration and management, shortage of funding, and spatial separation from other high biodiversity areas (Miller et al., 1995). The concerns of conservationists regarding the future of biodiversity shed light on the nature and extent of competing interests, i.e. between mining and conservation, which may exist in an area where extractive industries are active (Bebbington, 2011; Burry, 2005). Hilson (2002) argues that such types of competing interests over space and resources of a given area would likely lead to synergetic coexistence of various land use types, although the past trend shows that it has resulted in social upheavals.

3.3 The social dimensions of biodiversity conservation and mining

3.3.1 Social dimensions of biodiversity conservation

3.3.1.1 Indigenous people's rights and protected areas

Indigenesness is a complex term that has no standard definition. Yet, it is commonly used to refer to long-term inhabitants of a given geographical area (Colchester, 1997). The connections between indigenous people and the environments they live in are heterogeneous and differ not only between diverse societies and over a certain period of

time but also between different geographical localities (Colchester, 2000). According to Ghimire and Pimbert (1997), indigenous people are stratified based on their age, gender, spiritual belief/religion, wealth status, livelihood activity, social position, and so forth. Some of them may rely on hunting and fishing as their economic activity whereas others may pursue shifting cultivation. There are those who live within designated conservation spaces and there are those residing around them. A portion of the community may be forest-dependent while others may be solely reliant on pastoralism. Most indigenous people, however, combine multiple livelihood activities for their subsistence.

The imposition of PA proposals as an indispensable tool in the biodiversity conservation toolbox is the outcome of skepticism of many conservationists over the competence of indigenous people to manage and use their environments sustainably (Wilkie et al., 2006:247). Nonetheless, global trends show that efforts to preserve nature should take into consideration local scale realities and facts on the ground, especially the rights of indigenous people over the area earmarked for conservation (West and Brechin, 1991). In most cases, it is believed that indigenous people feel responsible and respectful for nature in general and the environment in particular. This is mainly because of their strong interaction with their ancestral lands, their communal property management systems and their sense of responsibility in preserving natural resources for the next generation (Colchester, 1997; Ostrom, 1990). For example, the traditional view of Borneo natives depicts a case where local inhabitants feel responsible for nature and held natural resources in trust for their next generations (King 1993: 167 cited in Colchester, 1997).

Indigenous people are also quite aware that the land areas they have occupied for centuries were not degraded by their customary natural resource use patterns despite being coveted by conservationist elites to be expelled from their customary land (Ghimire and Pimbert, 1997). As compared to other surrounding localities, most of the environments inhabited by indigenous people are less altered and degraded. Such a strong and long-standing tie with their local environment and the determination to continue to remain in their locality for a long time to come gives them an edge to be part of any practical conservation in the present time (Colchester, 1997).

Another key issue in the discussion of PAs and indigenous people revolves around the benefit streams that are generated from such schemes. Different groups enjoy the benefits of biodiversity in a range of direct and indirect ways. In terms of funding, for instance, the state functionaries and conservation elites who administer these spaces have much more privilege to access and make decisions on these funds than the local people (Adam and Hutton, 2007). A study in one of the protected areas in Nepal showed that only 6% of the total households living near and around the park obtain direct or indirect income from the average of 75 000 tourists visiting the area every single year (Bookbinder et al., 1998 cited in Balmford and Whitten, 2003). As it will be shown later in this chapter, this finding matches arguments that the benefits of strictly preserved areas have tended to favour the interests of one or more elitist social group, mainly external conservation actors, (Ghimire and Pimbert, 1997) and are skewed against poor rural people who were supposed to get fair redress (Brockington, 2003).

The rights of local people over PAs started to get credence and recognition during the 1980s international debate and critique over the social, economic, and cultural impacts of PAs on local people and the increasing pressure from the global social movements to evoke social justice (Adam and Hutton, 2007). The debates, advocacies, and collective movements later became successful in ensuring the fundamental rights of indigenous communities over the PAs. As it was noted, several international laws and some of the powerful conservation organisations such as the IUCN (IUCN, 1997a and 1997b) and the Worldwide Fund for Nature (WWF) (WWF, 1996) backed up the rights of local people over PAs. In this regard, the former conservation actor published a comprehensive working guideline and framework that motivates and guides countries in effectively acknowledging the rights of local people (IUCN, 1997a).

Another milestone in recognising the rights of indigenous people was reached at the World Parks congress that took place in Durban in 2003. Under its broad theme of 'communities, equity, and protected areas', it brought together academic scholars, indigenous community representatives, and leaders of major international conservation NGOs. The delegates explicitly discussed how a PA could successfully be managed and

how the local people's interests and priorities could be effectively integrated. One of the outcomes³⁶ of this high level conference was the endorsement of comprehensive working modality. In this modality, the action plan clearly describes the need to secure the rights of local dwellers, including indigenous people and mobile local communities, in any natural resource and biodiversity conservation efforts (IUCN, 2005).

The creation and governance of PAs have long been criticised by social advocates for being reluctant to acknowledge that local residents have any right in these areas. Firstly, it is argued that it is socially unfair and morally questionable to take away the livelihood assets, to deny the rights and ignore the present and future wellbeing of indigenous people (Ghimire and Pimbert, 1997). Secondly, even if PAs could generate various forms of income that can be obtained through activities such as wild life tourism, the revenues are not distributed proportionately, leaving the poor at a disadvantage. This assertion suggests that the role of PAs in local economic development is pretty insignificant wherein they are neither able to provide fair recompense for the lost access and right to resources nor do they play a pivotal role in poverty eradication (Brockington, 2003).

On top of that, alienating biodiversity rich localities as globally important conservation spaces does not make sense to indigenous people unless the right and justice issues reflected in the subsequent declarations are explicitly discussed and addressed in favour of the people (Ghimire and Pimbert, 1997). Evidence indicates that 85% of the protected areas in the world and the majority of the remaining tropical forest areas which are endowed with high biodiversity are still inhabited and claimed by the indigenous community and other local people living near them (Weber et al., 2000).

This makes a statement to conservation actors that efforts to preserve biodiversity should begin from facilitating conditions for the local people to have an equal right to

³⁶ The ten outcomes expected from the Durban Action Plan are “1. Protected areas fulfil their full role in biodiversity conservation 2. Protected areas make a full contribution to sustainable development 3. A global system of protected areas, with links to surrounding landscapes and seascapes, is in place 4. Protected areas are effectively managed, with reliable reporting on their management 5. The rights of indigenous peoples, including mobile indigenous peoples, and local communities are secured in relation to natural resources and biodiversity conservation 6. Younger generations are empowered in relation to protected areas 7. Significantly greater support is secured for protected areas from other constituencies 8. Improved forms of governance are in place 9. Greatly increased financial resources are secured for protected areas. 10. Better communication and education are achieved on the role and benefits of protected areas” (IUCN, 2005:226).

negotiation and the decision-making process (Adam and Hutton, 2007). Besides, there should be an effective mechanism to embrace them (Colchester, 2000:1365) rather than evicting them from their ancestral lands and labelling them as 'environmental villains'. If such a protectionist stance is not corrected and multiple competing interests are not well accommodated, there is a high chance that social upheaval and political instability will occur (Ghimire and Pimbert, 1997).

3.3.1.2 The benefits of protected areas

Even though the concept of biodiversity has been defined in literature before, ecosystem goods and services are relatively recent concepts that denote direct and indirect services of ecosystems that are important to human beings (Kremen, 2005). PAs can provide significant benefits in a variety of ways, such as through ecosystem services, direct income generation, and provision of local amenities. Adam and Hutton (2007) assert that, in addition to the most recognised benefits obtained through various forms of ecosystem services, the availability of habitats inside properly managed PAs could be a measurable proof of the positive contributions they can make to the welfare of human beings.

Concerning ecosystem services, the Millennium Ecosystem Assessment classifies these into four major categories (WRI, 2005). The first category is the provisioning services associated with the supply of goods and direct benefit to the local people. Some of the examples of provisioning services of the ecosystem include food, fresh water, fibre, timber, genetic resources, medicinal plants, and fishing. Such contributions can be easily estimated in monetary terms. The second major service of the ecosystem is related to regulating services. These services often play a significant role in the lives of human beings, but it is always difficult to assign monetary values to them using a conventional marketing system. The range of functions in this category includes waste treatment, water purification, the regulation of climate through control of rainfall patterns and protection from disasters such as landslides and erosions.

Cultural services are the third category of indirect material benefits of the ecosystem. These services serve as local incentives for conservation due to their contribution to the

diverse needs of the people residing in and around protected areas. Some of the examples of such services include spiritual and religious values, recreation and educational roles, cultural heritage, and aesthetic enjoyment. Lastly, the supporting services have no recognisable direct benefit for human beings, yet it appears that they are essential for gaining the services from the other functions. The processes of soil formation, nutrient cycling and plant growth are amongst the prominent examples of such services. In places where PAs are properly managed and are functioning, designing a feasible tourism business could generate various benefits to the people residing in the locality and beyond. In such areas, the abundant availability of biologically diverse species serves as a reliable source of input for the industry, making the tourism sector a much more profitable business (WRI, 2005). As a result, local residents can generate direct revenues either through direct payments from incoming tourists or get compensation through small-scale income generating activities (Adam and Hutton, 2007).

In PAs, targeted compensation mechanisms may vary from place to place, although the most common arrangements in the past are associated with employment provision, land leasing, benefit-sharing mechanisms, and privately owned local economic activities such as the sale of goods and services to tourists (Coad et al., 2005; McNeely and Miller, 1984). Tourism-based activities have the potential to substitute natural resource-based income sources and if carefully planned, can be incentives on which to build sustainable conservation and development projects at the local scale (Coad et al., 2005). The limitation with nature-based tourism is that many of these places are located remotely, are inaccessible and insecure or are not captivating enough to attract a large number of high-paying tourists (Balmford and Whitten, 2003).

One major benefit under the provisioning services of a PA ecosystem is associated with the prospecting of economically valuable resources such as plant genetic materials and medicinal plants. Plant genetic materials strike a point of interest as they are mediated through the formation of new industry and research activities such as ecotourism and bioprospecting respectively (Scott, 2001). Biodiversity prospecting, or abbreviated as bioprospecting, is a term used to denote the search for potentially valuable and useful

biochemical resources and biological discoveries in nature, and is a primeval practice (Scott, 2001). Bioprospecting can be defined as ‘the methodical exploration of biodiversity for genetic (genes) and biochemical resources, and natural compounds with a high likelihood for product development’ (Mateo et al., 2001:471).

Although bioprospecting has tremendous potential to generate benefits to the stakeholders involved in protected area management, the most common controversy is associated with the mechanism through which benefits are shared amongst these stakeholders. In any bioprospecting initiative, large-scale national and international commercial enterprises, including pharmaceutical firms, and oil, timber, and mining companies (the so-called “resource pirates”) maintain strong connections to the scientists, state or political elites and reap the lion’s share of the benefits (Brechin et al., 2002; Parry, 2000). Hence, bioprospecting experiences from across the world raise a puzzling question of whether the local people bearing the costs of conservation are adequately compensated or not (Schmidt-Soltau and Brockington, 2004).

The coffee forest and wild coffee in the Yayo district have the potential to provide all of the above-mentioned benefits, especially in terms of being a source of consumption and cash income as well as input for scientific exploration. The economic estimate of the contribution of the wild coffee genetic material for developing high yielding cultivars with low caffeine content and high resistance to coffee berry disease, rust and nematode is reported to be between 420 million and 1,45 billion USD per year (Hein and Gatzweiler, 2006). Thus, it appears that the wild coffees have an untapped potential to generate sustained economic benefits to the country and the local people through a well-designed bioprospecting initiative (Mckee, 2007; Richerzhagen and Virchow, 2002; Volkman, 2008). For this, addressing the institutional and policy gaps associated with community participation, the nature of access to resources, and the manner in which benefits have to be shared with the people at the centre of the origin is essential (Richerzhagen and Virchow, 2002).

In sum, the contribution of PAs to human welfare is enormous. However, there are concerns about their creation due to the controversies surrounding the fairness of access and distribution of their benefits that is generated either in the form of poverty alleviation and development grants or tourist-related fees. Measuring the value of these benefits to local livelihoods is also, at times, a tricky exercise as it depends on a wide array of factors. The nature of the management system of PAs, the extent of involvement and participation of local people, the degree to which long-standing livelihood practices are recognised, and the mechanisms through which the benefits of PAs are shared with the locals are amongst the outstanding challenges (Coad et al., 2005).

3.3.1.3 The social effects of protected areas

The social effects of PA establishment have been long-running subjects in poverty and conservation debates worldwide (West and Brockington, 2006). However, it is only relatively recently that conservationists have started to admit these effects, especially the negative outcomes PAs could bring to local communities (West et al., 2006). The underlying reason for the growing criticism towards PAs is associated with their planning and management (Colchester, 1997). In most cases, PA designation undermines the rights of local people over access and use of resources (Hutton et al., 2005). Local settlers are often forced to pay the costs of conservation while benefits accumulate at the global and national level (Balmford and Whitten, 2003).

A similar argument is provided by Ghimire and Pimbert (1997) who underscore that PAs are mostly designed to reflect the long-term needs and interests of non-local actors over the short-term priorities of local people. The fact is that local people, albeit numerically significant, have less power and control over resource use, and conservation-related decisions are the main reasons for the disproportion of the benefits (Brockington, 2003). Research has established that governance of PA not only affects the lives of the resource-dependent people but also threatens the feasibility of the overarching objectives of the PAs themselves. There are two main reasons for this dual ineffectuality, according to Ghimire and Pimbert (1997). Firstly, the success of all PAs is dependent upon the support of local communities and if there are no socio-economic incentives for them, it is very

unlikely that conservation programmes would succeed. Secondly, poverty, which is often exacerbated by the formation of PAs, is the underlying cause of natural resource degradation (Ferraro, 2008).

The enduring effects of PAs are multi-scalar. As much as they affect the lives of the local people residing in them, around them, and relocated by them, they also impact on various stakeholders (such as the people working for the NGOs and GOs and the private sector) who establish and control them (West et al., 2006). Interestingly, these multiple actors are affected differently depending on the category and governance system of PAs and the power they have on decision-making processes (Coad et al., 2008). So far, there is only a handful of empirical evidence offering a quantitative analysis of the specific impacts and extent of the effects of PAs on diverse social groups. This is because most of the research conducted on this subject have been anecdotal or qualitative and their analyses are entirely rooted in ex-post observations without any reference and comparisons to the conditions before the establishment of PAs (Ferraro, 2007; West et al., 2006).

In their assessment of some of the most common negative effects of PAs, Coad et al., (2008) indicated that the social effects range from the dispossession of people to the loss of basic infrastructural services induced mainly by logging concessions. The greatest of all the negative impacts of PAs, which is often most controversial and contested, is directly associated with the displacement of people from their homelands (Adam and Hutton, 2007; West et al., 2006). 'Displacement' is a word that is commonly used to refer to the forced dispossession of local people from their ancestral territory (Coad et al., 2008). For the purposes of this research, however, the broader definition offered by the World Bank is used. Accordingly, displacement is described as:

- (i) The relocation or loss of shelter; (ii) loss of assets or access to assets; or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location, or the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons (World Bank, 2002).

As highlighted in the definition, displacement is not only defined in terms of the physical movement of people from one geographical location to another but it also captures the dispossession of people from their own resources without any form of physical movement. It embraces both the local people who are physically moved as well as those who live adjacent to PAs but encountered restrictions of access to resources that they consider being theirs.

There is a large body of evidence and cases from every corner of the world that illustrate the extent of conservation-induced displacements. However, the exact number of people who have been physically evicted from their places is not known, though some studies estimate that 0,9 million to 14,4 million local people worldwide have been displaced due to protected areas (Geisler, 2003). For instance, in Central Africa, the number of people who were evicted from their land in 12 protected areas was approximately 120 000, and another 170 000 are expected to be relocated if the existing coercive biodiversity conservation policies are not revisited (Cernea and Schmidt-Soltau, 2006). Likewise, in Ethiopia, quantitative information is lacking with regard to the number of local people displaced from their land yet there are a handful of documented cases of evictions. Two major evictions are the displacement of 50 000 multi-ethnic local groups from Omo National Park (Hurd, 2006) and the eviction of 450 local people from their land in Nech Sar National Park in the southern parts of the country (Pearce as quoted in Adam and Hutton, 2007).

Any form of displacement has a direct impact on the economic and social wellbeing of local people (Igoe and Brockington, 2007). Cernea (1997) points out some of the most common social effects of conservation-induced displacements; these include landlessness, joblessness, homelessness, marginalisation, food insecurity, morbidity, and mortality. Adding to this, Ghimire and Pimbert (1997) state the loss of access to natural resources, the local disarticulation and the disruption of social institutions as being some of the disastrous impacts of PA-induced displacements. The livelihood implications coupled with unfair or, at times, lack of redress for lost access have recently become the

main causes of brutal social conflicts and political instability in most parts of the world where PAs are practiced (West et al., 2006; Wilkie et al., 2006).

Another form of the social effects of PAs is associated with the changes in land ownership and local structure and the restriction of access to resources. The demarcation and/or designation of land for the preservation of biodiversity resources impacts local-scale natural resource governance systems by way of undermining traditionally accepted land tenure regimes (Peluso and Lund, 2011). In the past, a communal property right regime where local dwellers had full control over environmental resources in general and the land in particular characterised the resource management system of most of the developing world, especially in Africa and Asia (WRI, 2005). They also set customary laws and rules that enable them to govern natural resources and establish a strong informal institutional framework that plays a key part in assigning resource ownership to villagers (Kigenyi et al., 2002).

However, a protectionist conservation philosophy and the resultant displacement of local people appear to have affected these important traditional systems in three major ways. Firstly, it hardly acknowledges the local traditional practices and boundaries, denying the efficacy of customary institutions in governing the local land use and access (Ghimire and Pimbert, 1997). Secondly, the lack of authority over traditional social processes as well as the alterations in the classification of landscapes can ultimately make key social heritages (such as traditional local institutions, social structures and community moral values and cultures) weaker (Ostrom, 1990). Thirdly, as heterogeneous groups who are brought together by displacement compete for control over and access to resources, solidarity of local people may vanish and eventually social conflicts occur (Ostrom, 1990).

In sum, the concept of PAs is grounded on denying local communities access to the resources with the degree of restraint varying depending on the characteristics and governance systems of the areas designated for conservation (Coad et al., 2008). As discussed in the above section, the World Bank definition explicitly states that restriction

of the access of local people and use of natural resources is one form of conservation-initiated displacement. Even though local people may not become subject to physical relocation, the loss of right to access and use the resources per se result in livelihood risks comparable in impact to those who are physically displaced. It can affect the ability of local people to gather food, collect traditional medicines from plants, livestock grazing, wildlife hunting, fishing, and collection of non-timber forest products (Ghimire and Pimbert, 1997). The outcome of the restriction of access and right over local resources has been a persistent local opposition and a sudden shift in the livelihood of people from 'hunters' and 'cultivators' to what conservationists refer to as 'poachers' and 'squatters' (Colchester, 1994:4).

3.3.2 The social dimensions of extractive industries

Recent global trends show that rapid economic growth, record prices for energy products, favourable policy frameworks, and advanced technologies of extraction in certain countries have become a stimulating force for an increased investment in large-scale extraction of mineral resources, gases, and oils (Bebbington and Bury, 2013; O'Faircheallaigh, 2013). The arrival of these new economic undertakings and/or the powerful actors involved in such activities paves the way for the emergence of new forms of risks and opportunities, eventually leading to uncertainties regarding their positive and negative impact on humans, their livelihood and the physical environment (Cuba et al., 2014). As regards the interaction between mining, conservation, and livelihoods, it has become clear that the extraction and processing of mineral resources is progressively expanding into biodiversity hotspot regions inhabited by resource-dependent local people (Deininger et al., 2011). In the Western Amazon, for instance, a space designated for oil and gas extraction and processing appears to overlay with an area recognised for its high conservation value as well as the livelihood spaces of the local people residing in and around the region (Finer et al., 2008).

The growing penetration of extractive industries into livelihood and conservation spaces has become a point of serious concern due to its effect on the economic, political, social,

and environmental contexts of the particular region hosting the operation (O'Faircheallaigh, 2013). At the local scale, these issues are much more complicated because the extraction and exploration of minerals, oils, and gases have substantially transformed the lives, livelihoods and landscapes of poor rural people. According to Cuba et al., (2014), most geographical spaces which are deemed by extractive industries as new frontiers often contain valuable biodiversity resources and are livelihood spaces which have been used, claimed, and administered by local communities. One aspect of these competing claims and use rights might be associated with prior local use values of the land as an agricultural production space, a source of water for local communities (material consumption), and/or a symbolic space for undertaking various cultural practices (Bebbington and Williams, 2008; Bury 2005; Lynch, 2012). Another competing interest might be associated with state and non-state conservationists' prior ownership claims of the land and the biodiversity within it. Bebbington (2012) and Bury (2005) argue that new frontiers of extractive industries might have been occupied and used by conservationists for the purposes of nature preservation.

In areas where such types of competing interests exist, it is highly likely that mining could result in social effects. The most important effects could be, according to Owen and Kemp (2014:478), "physical displacement, relocation and resettlement" which could further lead to enormous risks and opportunities on/for local people. O'Faircheallaigh, (1998) argues that the obliteration of communal and traditional land use arrangements, an increasing occurrence of private land tenure system, and the prevalence of vibrant local markets and economies have been some of the risks.

Some activities of mining such as the construction of basic infrastructure (roads, schools and health facilities) and the erection of technologies for extraction (mines and wells) that result in the removal and/or alteration of natural resources (vegetation species, soil, and land structure) and the introduction and discharge of toxic chemical products (petroleum and ore waste of mines) are some of the prominent examples (Bebbington and Bury, 2013; Hilson, 2002; Kitula, 2006). On top of these, the construction, operation, and maintenance of these essential infrastructures necessitate the influx of a large labour

force, predominantly non-local groups, who seek to obtain employment opportunity in the mining industry and compete for housing and livelihood space in the locality (Hilson, 2002, Kitula, 2006).

For the past two decades, it is these complex social, political, and economic processes involved in extractive industry operations that have become the main reason for the widespread occurrence of socio-political struggle across the world (Bebbington and Bury, 2013; Bridge, 2004; Hilson, 2002; Hurley and Ari, 2011). Local communities, whose lives are seriously affected by mining, have consistently voiced their concerns, calling for social and environmental justice, preservation of sociocultural integrity, recognition of customary rights over resources, and participation in decisions pertinent to mineral development (Ballard and Banks, 2003; Owen and Kemp, 2014). Bridge (2004:217) argues that many affected community groups tend to reject the operational and managerial definitions and explanations of mineral extraction and processing as ‘a politically neutral’ undertaking, resulting in undesired social, economic and environmental effects that are easy to mitigate. They rather favour reframing the discussion over the interrelations between extractive industries and the physical environment as a political process (Bridge, 2004).

As such, the political process contains negotiation and contestations amongst actors, decision-making regarding rights of access, use and control over natural resources, valuation of land and other privately owned properties, compensation for expropriated property, and the constitutional rights of the state actors versus the ethical rights of the people in and near the mining area (Bridge, 2004; Owen and Kemp, 2014). With this in perspective, Bridge (2004) suggests that the attempt to understand the socio-political issues surrounding extractive industries should follow an approach that focuses on the manner in which the local-scale physical extractive operations are affecting humans and their environment.

3.4 The political dimensions of resource control

3.4.1 The politics of biodiversity conservation

Much has been said in the academic and policy literature about the existing link among biodiversity conservation, social effects of PAs, and poverty eradication. Despite extensive discussions on the social dimensions of conservation, a precise explanation of the political and economic facets of such policies and strategies is yet to be fully investigated. According to Adam and Hutton (2007), this is primarily due to the existing disciplinary gap between natural science trained conservation planners and social science oriented critical reviewers of the approaches adopted to preserve biodiversity resources. Scholars in both categories agree that politics, inherently, exists in the preservation of biodiversity and hence it tends to involve relationships and interactions between and among various stakeholders such as influential organisations and donors, organisations and governments, and scientists and indigenous people (Adam and Hutton, 2007). Nonetheless, the lens through which the two groups attempt to perceive and understand the political processes involved in biodiversity preservation diverges. According to Brosious (2006), for natural resource trained ecologists, politics sits outside of the scope of their analysis and thus there is a tendency to depoliticise the processes involved in biodiversity conservation. On the contrary, for social scientists politics remains the centre of their argument and forms the basis of their understanding of a particular conservation action.

Drawing insights from a political ecology approach, Adam and Hutton (2007) conducted a systematic review of global biodiversity conservation efforts with a special emphasis on how protected areas are created and implemented. The research by Adam and Hutton (2007) identified five emerging trends that characterise ongoing conservation programmes. Firstly, the science per se and the professionals of conservation have a strong power in the process of analysing and conceptualising the natural world and prioritising intervention for protecting ecologically fragile areas. Secondly, there is growing criticism over conservation and conservationists for not paying sufficient attention to the consequences of their actions on the lives of local people. Thirdly, as a

scientific discipline, conservation is undergoing a series of self-criticisms and transformation that aims at improving the mechanism through which it can be integrated with social policies and procedures. Fourthly, PAs that are created to preserve biologically diverse species are being controlled and governed by powerful international conservation organisations. As such, the power to control these spaces has been guided by the notions of 'ecological modernisation and restoration'. Fifthly, the tendency to follow a neo-liberal approach to resource access, use and governance has resulted in the growing involvement of the private sectors and other institutions in the tenure and management of PAs (Adam and Hutton, 2007).

The highly politicised nature of conservation and development makes biodiversity preservation efforts a bit more complex. This is because most geographical localities that have been identified as biodiversity hotspots appeared to be hotbeds of social and political issues (Brechin et al., 2002). Taking empirical evidence from Tanzania, Neumann analysed the complexity of conservation in a space where there is competing interest from the local people and demonstrated why the creation and implementation of the Arusha Protected Area (National Park) has been complex since its first establishment in 1960 and reestablishment in 1968. Firstly, the creation of the protected park area followed a 'top-down' and/or fortress conservation model that is based on the notion that occupancy by the local people is 'unnatural' and that they should be removed from the designated conservation spaces. Throughout, the conservationists imposed a 'wilderness' condition that excluded certain groups of people for a while – the farmers, gatherers, hunters, uneducated natural resource-dependent Meru community – from accessing, using and governing the PA and its resources.

As it happened, the removal of farmers from their land and the imposition of restrictive rules on their customary resource use practices became a source of political complexity, harbouring strong resistance from the local administrators in the colony (Neumann, 1992). The second source of complexity is related to the post-creation impacts of the protected area on the lives of the local people. It is reported that the creation of the PA in Arusha severely disrupted the historical patterns of land use and undermined the

traditional systems of resource governance and management and thus caused anger and tension amongst the affected Meru people (Neumann, 1992; Perrow and Davy, 2000).

Colchester (1997) argues that the implementation of this type of authoritarian conservation model by state and non-state actors leads to antagonistic relationships between local people and the state, and creates political instability and social conflict instead of restoring the ecology back to its original state. In reality, almost all PA legislations and regulations are formulated and endorsed with the aim of providing maximum protection to the conservation of the resource contained within a designated space. A proclamation to establish national PAs in Philippines is a good example to illustrate this assertion. In one section, it states ‘the preservation of ancestral domain customary right within PA as a management objective’. Whereas, in another section, it aims to put the conservation spaces under ‘a close management, control, and study’ by giving ‘state experts’ the privilege to determine the specific location, interval, and amount of resources to be gathered by the local people (DENR, 1992:14 cited in Colchester, 1997).

Nowadays, conservation-related planning has started to give a comprehensive conceptual and material place to human beings within conservation circles. This is due to the continued pressure on conservationists and conservation organisations to consider the social impact of conservation and local resistance towards the restriction of access and use of resources (Neumann, 2000). Adam and Hutton (2007) suggest that, whenever local biodiversity preservation programmes are conceptualised and launched, conservation elites need to fully understand that they are dealing with a group of local people who actually have legitimate customary right to own and control the natural resources in these areas. It should also be worthy to note that any decision to conserve environmental resources, by its very nature, is political. In other words, it’s all about exerting power and authority in the decision-making processes of diminishing natural resources (Colchester, 1997). This subject is the main focus of the following section.

3.4.2 The power relations in conservation and mining

3.4.2.1 Conservation as a means of resource control

In recent political ecology research, numerous arguments have been raised and discussed on the link between conservation and control of nature. One of the leading scholars who extensively explored this subject is Robbins (2004). He argues that, in areas where conservation elites attempt to implement strict conservation programmes and projects, it is often a case that local-scale economic activities, micro-production systems and customary socio-political institutions would be disabled and dissolved. The struggle to control natural resources triggered the classification of historically sustainable and productive local livelihood practices and strategies by state officials and other global conservation actors as unsustainable and incompatible ways of natural resource use (Coad et al., 2008). For instance, a protectionist conservation approach that has been implemented in India to protect wildlife labelled local people as ‘*poachers*’ and ‘*encroachers*’ instead of recognising them as ancestral owners with absolute right over the conservation spaces (Colchester, 1994:4).

According to Robinson (2004), the basic argument surrounding a conservation and control thesis is anchored in four overarching theoretical perspectives. The first is based on the essence of governmentality and coercion wherein conservation is perceived as having elements that reflect a form of hegemonic governmentality. Bryant (2002) describes the term governmentality as a situation in which prior consent of the governed is secured through specific social technologies (such as conservation park areas) and rules are imposed by the people who operate in the social institution arena. These social institutions and technologies often have the ultimate power to determine and enforce appropriate ecological outcomes, desirable and acceptable social behaviours and goals and define what individuals can do with the resources (Gururani and Vandergeest, 2014).

The second basic theoretical underpinning for conservation and control is the conceptualisation of customary resource management approaches as institutional systems where traditional rules dictate and control extraction in the absence of state or individual

involvement (Ostrom, 1990). According to the thesis, various social capitals such as trust and expectation between members of a local community are the results of a long, strong physical interaction rooted in the past. These capitals were systematically and progressively well-integrated into customary resource management strategies and helped in sustaining ecosystem services and managing access and use over local resources (Colchester, 1993). Paradoxically, it has become an unhappy truth that significant changes in state policies, imposition of strict conservation approaches, and the neglect of indigenous knowledge have resulted in the disruption of such important traditional and cultural systems within a society (Ghimire and Pimbert, 1997; Ostrom, 1990; Peluso, 1992; Siebert and Belsky, 2014).

The third theoretical foundation in this debate is the socially constructed nature of understanding wilderness areas. According to Robbins (2004), this notion draws upon the concept of 'wilderness' as a socially constructed, ideologically imposed and materially produced reality that takes the form of 'nature without people'. Most global conservation programmes, especially the PAs in developing countries, are planned and executed based on this 'wilderness myth,' rarely considering conservation sites as social spaces where local customs and nature are shaped by indigenous people (Pretty and Pimbert, 1995).

Not all cultural and social constructs, knowledge and technologies have the privilege of enjoying the same level of power and acceptance (Gezon and Paulson, 2005; Gururani and Vandergeest, 2014). In most cases, local people, unlike the powerful actors, appear to lack environmentally sound justification to pursue traditional livelihood practices such as hunting, grazing, and the collection of forest and non-forest products (Ghimire and Pimbert, 1997). The vision of conservation elites of natural resource use is thus an automatically imposed attitude that often gives rise to the alienation of the vast majority of 'the commons' to state functionaries. Clearly, this vision and notion of wilderness is a cultural and social construct and may not necessarily reflect the views of other groups of people who have a different perception of their interaction with what is called 'nature' (Colchester, 1997).

The last and fourth point reflected in the argument is based on the work of Zimmerer (2000). This is associated with the understanding that any form of spatial bounding, territorialisation, and/or demarcation of conservation spaces are socially and ecologically complex exercises which often fail to meet their economic and ecological goals. In fact, the exclusion of local people from protected areas, due to the formulation, creation and execution of conservation spaces, is considered by conservationists as a tool for 'removal of anthropogenic disturbance of the ecosystem' and sustainable protection of biodiversity resources (Ghimire and Pimbert, 1997). By any standard, it is illogical to detach local production systems from the natural resource base since most of them require the integration of various resources at different times (Robbins, 2004). For instance, livestock production requires the movement of cattle through different geographical spaces. Similarly, in Bhutan, most cropping systems are based on swidden (including shifting cultivations) or carefully managed fallows (Peluso, 1992; Seibert and Belsky, 2014). Due to such types of competing interests over resources and spaces, the spatial bounding of biodiversity conservation areas becomes a challenging exercise. On the one hand, it leads to persistent social conflict over resource access and control of resource. On the other hand, it destroys biological diversity and local traditional knowledge, which are essential requirements for sustainable ecosystem management (Ghimire and Pimbert, 1997).

3.4.2.2 Power politics in biodiversity conservation and mining

Power politics is one of the fundamental concepts in the analysis and understanding of human-environment interaction as well as associated local environmental problems (Bryant, 1998). The relationships between and among multi-scalar actors (such as state, NGOs, business corporates, and indigenous people) and their interaction with the natural environment, have been integral elements of the environmental problems of developing countries. In most of these regions, unequal power relations among actors accompanied by the power that the dominant actor holds, shape and condition the consequence of environmental conflicts (Bryant, 1997). Scholars studied the forms and dimensions of power in a wide array of contexts and came up with much broader explanations of the concept (Bryant and Bailey, 1997; Escobar, 1995). Nonetheless, the original concept of

the term is understood by political ecologists as the ability of a given actor to control, not only its own but also the interaction of others with the environment. In a more general sense, power is used to denote 'the topography of a politicized environment' (Bryant and Bailey, 1997:37).

Bryant (2002) offers the forms in which an actor seeks to exert control over the environment of other social groups. The first control mechanism is reflected through controlling and restricting the access rights of other actors to the environmental resources, such as land, mineral, forests, and wildlife, which the other group used to openly access. The main goal in this form of control is to monopolise economically valuable natural resources with a view to obtaining outright authority over the imminent revenue streams that may be obtained from its expropriation (Bryant, 1997). In her research on conservation practices in Kenya and Indonesia, Peluso reveals the ways in which the protection of biodiversity in both countries was carried out and concludes that both case study countries employed a heavily armed (militaristic) biodiversity management technique that violently imposed restrictions on local people to the access of resources. Especially in Kenya, the use of military force and the killing of trespassers of protected areas, without confirming whether they are poachers or not, have been used as an access control mechanism (Peluso, 1993).

The second form of control is reflected in an actor's power to pollute the physical environment and, unintentionally, affect the health and livelihood conditions of the other actor (Bryant, 2002). Here, the most powerful group can influence decisions pertinent to locations where industrial by-products should be generated and dumped into the environment. According to Bryant (1997), one of the classic examples of this scenario at the local scale is the migration of 'dirty' industrial by-products such as waste products and chemicals from the highly industrialised global north to the global south where there is a relatively undisturbed environment. In most cases, the state and business corporates have a strong influence in formulating and determining the geographical distribution of perilous practices, such as coal mining, whereby the local people often bear the cost incurred by these activities (Bryant, 1997).

Thirdly, an actor may seek to exert power over the other through controlling environmental management projects and problems of the state functionaries, and deciding on societal prioritisations. Here, it is not about controlling environmental resources directly; rather it is about having the power to budget and plan the state's financial and human resources to be allocated to certain environmental problems of their choice (Bryant, 2002). Typical examples of this nature are the cases in Brazil and Indonesia where large-scale pulp and paper private businesses considerably influenced the actions and decisions of the state authorities (Marchak 1995 cited in Bryant, 1997). Linked to this is the last form of resource control, which is related to 'indirect discursive means'. In this situation, an actor becomes the ultimate engineer and controller of hegemonic ideas and discourse that produced the material practice in question (Bryant, 2002).

In order to understand how unequal power relations are reflected and manifested in the physical world, one can visualise and read the environment. However, such a reading alone is not sufficient per se and could not provide a comprehensive explanation to the politics of conservation and mining due to the complexity of the concept of power. Exploring the 'intangible qualities' of power should begin by addressing the question of why weak actors are often successful in resisting externally induced resource control attempts, i.e. conservation and mining practices, and maintain power in the context of extremely unequal power interplay (Bryant, 1997).

3.5 Understanding resistance in conservation and mining

For the past several decades, exclusion of and persistent opposition by underprivileged local people have characterised the external push for resource control, mainly through coercive conservation and mining. Despite the availability of numerous studies on the social dimensions of conservation, only a handful of them paid much attention to the inherent oppositions embedded in these resource control practices (Neumann, 1998). The 1985 groundbreaking work by James Scott, a text entitled '*Weapons of the Weak*', offers crucial concepts that help in understanding the notion of peasant resistance. He defines subordinate (lower class) resistance as:

...Any act(s) by member(s) of a subordinate class that is or are intended either to mitigate or deny claims (for example, rents, taxes, prestige), made on that class by superordinate classes (for example, landlords, large farmers, the state) or to advance its own claims (for example, work, land, charity, respect) vis-à-vis those superordinate classes (Scott, 1986:22).

Based on this broader definition, in particular to conservation, Holmes (2007) reviewed several other studies on social, economic, political dimensions of conservation and discussed everyday resistance in the context of a protected area. He asserts that the local resistance against protected areas, especially in the 'fine and fence' strategy, is characterised by the fact that local people who are victims of conservation schemes may probably not meet the managers and decision-makers who have the power to decide on how the protected areas should run. Contrary to Scott's peasants, who had a strong day-to-day interaction with decision makers, the interplay of actors in the protected area circle entails a different situation where victims of conservation who are at the local scale should deal with elites, managers and officials who are often out of their reach and based at the national or global scale.

This shows that local people may have rare access to conservation-related decisions since most of these crucial actions are made several kilometres away from the designated protected areas (Chapin, 2004). With many powerful conservation actors advocating for scientific ways of biodiversity preservation, such a scalar difference between actors may obstruct the process of fair political negotiation on conservation and ultimately lead to a lack of adequate attention to local sociocultural factors (Fairhead and Leach, 2003).

Control of resources through extractive industry operations also faces almost similar socio-political struggles to that of biodiversity conservation. Although it has been noted that the resistance to mining activities has become an increasingly worldwide phenomenon, the composition of the local people in and around mining projects is hardly predictable; rather, it emerges through various contestation processes (Ballard and Banks, 2003). According to Hurly and Ari (2011), there are two key features characterising the socio-political struggle surrounding mining initiatives. Firstly, the manner through which non-local powerful actors attempt to get access to the raw materials (resources) and the

extractive space on lands primarily occupied and claimed by local people. Secondly, and in relation to the first point, socio-political struggles are often the outcomes of the tensions among neoliberal resource access and use policies that trigger a change in resource governance dynamics, interventions by state and non-state actors, and the local community residing in the new extraction spaces (Ballard and Banks, 2003).

In most everyday resistances, the power of the weak comes from nothing but the challenges and difficulties that the powerful actors are confronted with while trying to control the resources of the others. Grassroots actors, especially indigenous people, interact with nature in complex ways that reflect multiple cultural and material interests (Blaikie and Brookfield, 1987). Another reason why weaker grassroots actors have the ability to resist the actions of their powerful counterparts is related to the issues of legitimacy. Bryant (1997) argues that strong non-state actors are aware that they need to logically justify their imposition of restriction and control of the environment of others by using mainstream conservation and mining discourses such as the appeals for a 'common good'. For their part, state functionaries also want to justify their actions and seek for legitimacy for imposing restrictions and attempting to control these resources (Bryant, 1997).

In the process of seeking the endorsement of the grassroots actors, they are allowing the 'weak' to influence decisions and also 'the public transcript' to a certain extent (Bryant, 1997). The ability of the local people to make combined and organised protests depends on the extent to which individuals, especially those affected by conservation and mining, are constrained and restrained by the rules and regulations of protected areas and extractive industries. This does not mean that several other forms of formal resistance such as legal challenges, petitions, official appeals, and marches do not happen against conservation and mining, but they are not as common in everyday resistance (Carswell, 2006; Neumann 1995; Rangan, 1995).

In his review of such types of socio-political struggles, for instance, Holmes (2007) identified two of the most common everyday forms of resistance against protected areas.

These are continued pursuance of banned livelihood activities and setting fire to some portions of the forest. The former form of opposition to conservation depicts a situation where local people continue their customary livelihood practices such as hunting, burning, forest and non-timber forest product collection, and farming in areas where access is restricted and resource use is banned (Neumann, 1998). Conservationists describe this practice as ‘an act of encroachment’ and a failure of enforcement rules and regulations of protected areas (Neumann, 1998). On the other hand, the latter scenario, forest firing, is considered to be a very popular way of resistance because it combines other forms of resistance and, at the same time, it is widely practiced as a common livelihood activity used to clear new farming land, clear new grazing space and collect forest products such as wild honey (Kull, 2004). From the two types of resistances, setting fire is an explicit and powerful form of opposition that makes a clear statement to conservation actors that the local people are against any restriction and prohibition of use right (Holmes, 2007).

Overall, resistance studies provide a strategy to explore the relationship between conservationists, mining elites and local communities, the reasons for the dissatisfaction of local people with mining and strict conservation practices, their reaction to demarcation, and the outcomes of their everyday resistance. The study of resistance is also crucial for the analysis and understanding of inherent conflicts surrounding PAs and mining spaces in particular and conservation and extractive industry frontiers in general. Despite the importance of resistance studies for the success of conservation and mining programmes, not much has been done explicitly to unveil the forms, nature, and reasons of everyday resistance specific to the social, political, and cultural contexts of extremely contested terrains such as the Yayo district.

3.6 Analytical framework of the research

3.6.1 Political ecology as analytical framework

The comprehensive traditions of political economy, wherein social relations of production are characterised by their emphasis on access and control over resources, have

contributed to the understanding of political dimensions within a political ecology (Svarstad, 2005). The study of these complex and diverse relationships demands a comprehensive analytical approach such as political ecology. Political ecology is an interdisciplinary and transdisciplinary academic field having its roots in the critical reviews of the ecological anthropology and cultural ecology of the 1970s (Adam and Hutton, 2007; Brown, 1998). It first emerged as a popular discipline through the groundbreaking works of Blaikie and Brookfield (1987) on the issues of '*Land degradation and society*' where they applied political ecology as a descriptive framework for understanding the problems of soil erosion at the local scale.

A political ecology approach offers multidisciplinary perspectives for analysing human-environmental interactions (Neumann, 2005; Robbins, 2004), especially those associated with economic development in the global 'south' (Bryant, 1992; Belsky, 2002). For their part, Peet and Watts (1996) argue that the approach seeks to relate an understanding of the logics, dynamic patterns of economic change, the politics surrounding environmental actions, ecological outcomes and a set of linkages that are basic to external interventions such as conservation and mining. In other words, political ecology incorporates interactive effects, prevailing global actions, socio-economic organisations, and various actors at different geographical scales (individuals, households, regional, national, and global) (Blaikie and Brookfield, 1987; Neumann, 2009; Svarstad, 2005; Zimmerer, 2000).

Another advantage of a political ecology framework is its focus on the analysis of key issues related to conflict over access to resources, political implication of environmental change, and the contextual basis of these changes (Bryan, 1992). Svarstad (2005) underscores that political ecology is a tool that combines natural environment (ecology) concerns with a focus on linkages between people and their environment and the interaction of different people among themselves (political). Hence, the thematic and conceptual approaches of the political ecologists are not limited to a single historical instant or places of investigation only; instead, they attempt to build a nexus between

and/or across them and also locate studies in various scales of space and time (Blaikie and Brookfield, 1987; Paulson et al., 2005).

One of the strengths of a political ecology framework is that it brings together “a broadly defined political economy with an in-depth concern of ecology” (Blaikie and Brookfield, 1987:17). As such, the integration of both concepts of political economy and cultural ecology gives it a robust foundation in understanding the complex interaction between humans and their physical environment (Peet and Watts, 1996). Albeit rooted in the notions of political economy and the critiques of cultural ecology and ecological anthropology, there are fundamental points of divergence between these subfields. Primarily, it differs from political economy in that:

Political ecology is concerned with biological relation (contrary to a political economy which deals with production) and welds together the compelling question of how communities were integrated in to and transformed by a global economy with local resource management and environmental regulation and stability....Besides, political ecology is not inspired by the isolated rural communities studied by Rapport but by peasant and agrarian societies in the throes of complex forms of capitalist transition (Peet and Watts, 1996:5).

Conversely, so as to address the apparent apoliticism of cultural ecology and its limited emphasis on marginalised rural communities, political ecology scholars turned their attention to neo-Marxist theories (Schubert, 2005) and began to integrate political conflicts, the impacts of global markets and societal disparities into their analysis (Paulson et al., 2005). It also employed the existing historically constrained societal arrangements as the starting position of such studies and then isolated itself from cultural ecology that was criticised for being less functionalist and ahistorical (Winterhalder, 2002). As Peet and Watts (1996:5) explain, political ecology separates itself from human or cultural ecology in that:

In political ecology, market integration, commercialization and the dislocation of customary forms of resource management—rather than adaptation and homeostasis – become the lodestones of a critical alternative to the older cultural or human ecology.

The other most important aspect of political ecology is its detachment from neo-Malthusian approaches or population pressure theories that accentuate the assumption that high population pressures will eventually result in natural resource degradation and/or conflict. Such disagreements with theories of Malthus, together with a localised and context specific approach to environmental problems, was embraced and used in advanced studies by political ecologists. This meant that these approaches have often been coined as 'neo-Marxist' since they consider social stratification, class, ethnicity and societal movements as a scale of analysis for studying conflict over resource and use patterns (Peet and Watts, 1996).

Political ecology embraces the crucial dimensions of logics of capitalist production and the subsequent outcomes in the environment, the roles of politics on control and access to resources, the construction of knowledge and discourses, and diverse institutions and actors involved in power relations and the environment (Paulson et al., 2005). According to Bryant (1992), it is a systematic tool for understanding the ways in which environmental and political forces interact to affect social and environmental changes through the actions of various social actors at a different scale. Neumann (1992) identifies three important areas that he considers are central to political ecology studies. Firstly, political ecology studies should emphasise land user groups and the societal relations within which they exist and operate. Secondly, it is necessary to examine the connections of these local scale relations to extra local social settings and geographical spaces. Thirdly, exploring historical contexts of resource access and use are necessary to the process of understanding the contemporary situation.

In sum, the analysis of political ecology involves crucial issues related to the cost and benefits incurred by different social actors as a result of direct resource access and use by external forces, the role of the global economy in advancing certain types of resource utilisation, the function of the state in designing and executing policies that benefit certain groups of social actors over the others, the inherent interaction of class and ethnicity to conflict over resource use and access, and the link between and among resource user groups and those societal groups who influence resource use patterns

(Blaikie, 1994; Bryant, 1992; Neumann, 1992; Peet and Watts, 1993; Stonich, 1993). It is thus a strategy of analysis and a conceptual tool to understand such interplays rather than a foundation/grounded theory per se (Peluso, 1992; Schubert, 2005).

There are some broad questions offered by Schubert (2005) that he considers a political ecologist could deal with. These include: how is access to natural resources shaped and determined by the interaction of nature and societal structures? To what extent do constructed ideologies of society and nature affect the relationship between humans and their environment? How is the link between access to resources and environmental change explained? And, what are the positive and negative outcomes of environmental change on society?

As can be seen from the first chapter, the nature and scope of this study is directly or indirectly related to the key concepts, logics, arguments and scopes of a political ecology research. Political ecology framework is thus an appropriate tool of analysis in understanding historical facets of wild coffee access, use, management and control practices, contemporary access patterns to wild coffees, and the emergence of coal mining and conservation initiatives and their effects on ecology. Moreover, it helps to examine the local level conceptualisations of wild coffees, the power relation among local communities, conservationists and mining proponents as well as local resistance towards external forces attempting to control local resources in the context of the Yayo district. Despite its relevance in understanding such issues, political ecology, however, has been under continuous critique by other scholars. Providing a highlight of the major criticism surrounding the conceptual and theoretical contents of the tool is the focus of the following section.

3.6.2 Critiques of a political ecology approach

Research that engages political ecology has been under scrutiny for a number of reasons. The most prominent critique was made by Vayda and Walters (1999), who argued that political ecology could not equally focus on social and natural sciences as it is more indulged with the social aspect rather than paying sufficient attention to the various local

level environmental changes. They further claim that most political ecology studies are deeply concerned with the political factors affecting environments of the global south, thereby neglecting the non-political aspects which could equally affect local environmental conditions (Vayda and Walters 1999: 168). In the same article, the authors offer an alternative gap filler approach known as ‘event ecology’ which could help political ecologists answer questions related to why specific events take place in certain geographical locations rather than a restricted view about how events are affected by presumed factors by the researcher (Vayda and Walters 1999: 170).

Other authors have also reaffirmed lack of attention by political ecology to the “ecology” dimension of environmental change. Forsyth (2003) reveals that there is a dearth of congruent and equivalent explanation of the term “ecology” in political ecology studies and, if there are any, none of them provided a standard definition of the term. In agreement with Vayda and Walter’s critique, Walker (2005: 73) also asks a fundamental question in his article “Political Ecology: where is the ecology?” Walker (2005) and Bryant (2002) relate the disjuncture between politics and biophysical aspects of political ecology research mainly to post-structuralist perspectives of political ecology.

Walker calls on the scholars in the field of political ecology to engage in “mature collective reflection” (Walker, 2005: 80) over the future directions of the subfield. According to him, if such dialogues are not taking place, the research in this discipline will end up being only a philosophical exercise on environmental politics with little implication to the critical themes outside of its own sphere. This will in turn make it politically weak to bring strong argumentative grounds that can influence global policy-debates on the management of the environment.

3.7 Chapter summary

The chapter reviewed a range of literature that has a particular emphasis on biodiversity conservation, local livelihoods and mining. As far as biodiversity conservation is concerned, many third world countries tend to follow an authoritarian and top-down management approach that is based on the exclusion of the local people. In reality, the

areas set aside for conservation appear to be contested landscapes often claimed by indigenous people as economic and settlement spaces since time immemorial. Similarly, the introduction of extractive industries is an extremely political process due to the competing interests among actors for space and resource. As many scholars argue, both mining and conservation often give rise to changing dynamics in resource control patterns whilst negatively affecting the social, economic and political conditions of the local community residing in these areas.

In the context of the study area, the Yayo district, the simultaneous occurrence of these three diverging interests and priorities (local livelihoods, mining, and conservation) in the same geographical space is an indication of the extent of the complexity of the socio-political struggle over resources of the area. As such, traditional resource governance patterns, growing competition for access, use and control of resources, emergence of new actors and relations of power, and resistance towards external forces have been at play for the past several decades. In order to understand these and other interactions between humans and their environment and the consequent socio-political dynamics of the locality, a political ecology approach appears to be an appropriate tool for analysing the issue. Besides, the fact that some of the points listed in various sections of the thesis have also been noticed in the study area means that a political ecology framework is suitable in the process of understanding the social, economic, political, and ecological context.

Chapter Four: Customary access, control, management, and use of forest biodiversity in the Yayo District

4.1 Introduction

Situated within the broader debates related to political ecology and how to understand the interaction between humans and their environment more generally, this empirical chapter deals with the customary patterns of access and use of biodiversity resources including mechanisms through which such resources, especially the coffee forest and wild coffee, were administered, governed, and controlled by local communities. The Yayo district offers an interesting mix of evidence to illustrate historical connections between the local communities and the forest and competing external claims that attempt to defy, and even denounce, the existence of such interactions. By placing the discussion into a historical context, the multifarious use values of the coffee forest, the type and nature of traditional resource management institutions and the patterns of resource access and use by individual villagers are thoroughly explored. A detailed account is also given to the ways in which these local institutions and other long-standing social norms influence the local community's access and control over biodiversity resources in the past and today.

As noted in the methods chapter, the dataset used for the analysis of this chapter was gathered through key informant interviews, focus group discussions, transect walks, and participant observations in four villages, namely *Achebo*, *Wutete*, *Wabo* and *Gechi*. These instruments offered a comprehensive set of information on the social, economic, ecological, and political contexts of the case study villages to enable analysis. In addition, timeline analyses were used to understand how and why the customary resource use practices have progressively transformed under different political regimes. Since a key point of political ecology is seeking “chains of explanation” over multiple scales which are nested within each other (Blaikie and Brookfield, 1987:21), the data obtained using these methods were used to explain the local scale resource, use access and management practices and how these are being affected by the interests and priorities of non local actors.

4.2 Interaction between the local communities and the forest biodiversity

4.2.1 The roles of coffee forest and wild coffee in the village economy

The south-western plateaus of Ethiopia, which predominantly contain the last remains of its coffee forests, are among the biodiversity rich locales in the world. For more than a century, the forest ecosystem has been supporting a wide array of economic, spiritual, social, and cultural activities pursued by millions of rural households. The Yayo district is an essential component of these plateaus of which the faunal and floral-species diversity play considerable ecological and socio-economic roles both at local and global scale. The interviews with the local conservationists³⁷ show that the keys to the availability of abundant and diverse biological resources in the area are the high and reliable rainfall and ‘the dense and thick natural forest cover’. Despite this claim, it is argued that areas categorised by environmentalists as ‘natural and thick forests’, are not absolutely pristine and free of positive and/or negative influence from the local community adjoining them (Peluso and Vandergeest, 2001).

For several hundred years, the forest and its products served as a source of social, economic, and cultural benefits for the majority of the rural dwellers in the study area. During the interviews, members of the local communities emphasised the nature and characteristics as well as the role of these resources in terms of sustaining the lives of villagers. Even though the forest and the wild *coffea arabica* were frequently mentioned as having substantial economic and social importance, wild spices, trees, wild fruits, shrubs and herbs, and wild animals play crucial roles in securing and sustaining the quality of life of the rural households. It is on this resource base that diverse village-level economic activities such as coffee production, beekeeping activities, and non-timber forest product harvesting are hinged (Abebaw and Virchow, 2003).

Following the works of Brown and Moran (1993) and Pearce (2001), the use values of the forest biodiversity in the Yayo district can be classified into four broad categories: direct use values, indirect use values, option values and non-use values. Since the main

³⁷ Local conservationists, in the context of this study, are those individuals who are employed by either the state or non-state agencies and have a basic training in conservation sciences.

objective of the chapter is to learn about the complex interactions between the local communities and the forest, I opted to focus on the direct use values rather than the indirect and non-use values. This is because indirect values are perceived as public good, with negligible consumptive and marketable roles, which are enjoyed by a wider section of society rather than a specific group of people. Thus, assessing these values appears irrelevant in providing adequate evidence that can illustrate the role of the forest in the betterment of the lives of the local community. As regards the non-use values, Blaikie and Jeanrenaud (1997) assert that these have no meaningful association with humans and hence they hardly become relevant in the discussions of human-environment relationships.

In the villages studied, the direct use values of the forest biodiversity are enormous. The finding of the field analysis shows that the forest sustains livelihoods, provides recreational value, and serves as a source of information on the floral and faunal diversity of the area, thereby fostering sustainable use and management of the resource. For instance, forest trees such as *Vernonia Sp*, *Podocarpus falcatus*, *Albizia gummifera* (*Haambabbeessa*), *Schefflera abiyssinica*, *Prunus africana*, and *Croton machrostachyus* were reported by villagers as valuable assets in wild honey production. According to the response of some of the interviewed villagers, the main feature that makes these tree species suitable for beekeeping activity is their ability to provide sufficient and quality nectar/flower for bees. The field observation confirmed that almost all of the trees have long and strong branches that make them ideal for hanging traditional beehives.

Another benefit of the forest biodiversity in the study villages is associated with the local coffee cultivation and production practice. At the time of the interviews, informants were asked to list some of the trees that are useful for such purposes. The result shows that *Albizia gummiferra* (*Haambabbeessa* or *Sasaa*), *Miletia ferugnia*, and *Acacia abyssinica* are amongst the most preferred trees due to their leaf sizes that prevent snow and heavy rain from causing potential damage to the coffee plants. Another reason, as indicated by

Hundera (2007:7), is the unique reverse phenology³⁸ characteristic of some of the trees, for instance *Albizia gummiferra*, that makes a widely preferred shade tree for local coffee production systems. It is therefore hardly possible to visualise the smallholder coffee production system in the study villages without these tree species. Given the continual decline in the international coffee price and a growing demand for 'shade-grown or organic coffees', these trees can undoubtedly contribute to producing wild *coffea arabica* of superior quality and high market return.

The forest biodiversity in Yayo also contains abundant and diverse tree species that can be used for extractable purposes such as timber making, fuel wood, fodder, and charcoal. For example, some of the tree species that can be used for house construction, agricultural farm-tool making and fuel wood in the district are *Albizia gummifera* (*Haambabbeessa*), *Cordia africana*, *Ritchiea albersii* Gilg, *Albizia grandibracteata*, and *Aningeria adolfi-friedericii*. The local communities indicated that these trees are preferred for this purposes due to their strength, length, shape, and resistance to disease and termite attack. As for timber, whether for commercial or substance needs, trees such as *Cordia africana* and *Aningeria adolfi-friedericii* have been the top choice due to their durability and quality.

The local community informants also discussed a few other extractable non-timber forest products that help them meet household subsistence and/or cash income needs. The first in his regard are the wild spices. Interviewees pointed out that *Cardamom afromum*, *Aframomum corrorima*, *Zingiber officinale* and *Piper capense* are some of the extensively used shrubs in the day-to-day dietary systems of their households. Meanwhile, plant species such as *Ocimum gratissimum* L., *Justicia schemperiana* , *Dracenea fragrans* , and *Croton macrostachyus* have been utilised for decades as sources of traditional medicine for curing various types of infections. For their part, group discussants mentioned *Syzygium guineense* and *Cordia africana* Lam as the source of wild fruits that supplement the daily dietary requirements of the communities.

³⁸ Reverse phenology is a situation where shading leaves at the main rainfall season and grows during the dry period when coffee plants require shade cover (Hundera, 2007).

Although it is a rare and unusual practice, there are also plant species whose roots, leaves or bark are used as a source of power.

The last direct use value of the forest is its contribution to scientific information and advancement of research and development, mainly those within the scope of ecology, zoology, and conservation biology. For more than a decade, researchers, scientists, students, and other interested individuals from the academia, regardless of their spatial location, citizenship and disciplinary background, have conducted a range of studies and experiments in the district. The main focuses of the studies were exploring the nature and characteristics of the soil, tree, and vegetation covers of the areas. The collection of unlimited quantities of accessions and samples from the local species was, thus, a prerequisite to undertake such types of explorations. The information obtained from the collected samples from the district appeared on the front pages of many published articles, books, proceedings, and chapters in books. Most of the conservationists that I interviewed accentuated that the forest biodiversity in the district has huge potential to become a hub for the ever-growing tourism industry whilst simultaneously maintaining its recreational and aesthetic value.

4.2.2 Gender relations in the context of forest and wild coffee access, control, and use

The nature and extent of dependence on natural resources vary depending on a range of social, economic, and cultural factors. Important in this regard are the complex processes and structures associated with the difference in gender. Paulson (2005) argues that the practice, knowledge and resources that are found in a given geographical location inherently take on gender dimensions and are structured by gender in a manner that affects the natural environment. Gender relations significantly influence the essence of resource access, reliance, and tenure. Thus, focusing on the divide between men and women's activities, and uncovering those spaces where women/men exert more control over the resources and how these changes over time, help in understanding the how and by whom resources are accessed and controlled (Rocheleau and Edmunds, 1997).

In the context of the Yayo district, examining these relations helps to better understand how the local men and women differ in their interaction with the environment and also to learn who has control over which resource. Several approaches can be considered to explore the extent of interaction between women and/or men and the forest biodiversity. For the purposes of this study, I decided to examine gender relations based on the knowledge and dependence on the forest, household divisions of labour in forest-related activities and various roles ascribed to the forest biodiversity.

As far as the knowledge and dependence on the forest is concerned, analysis of the field data shows that, when compared with men, most women are more knowledgeable about the various types of trees in the study villages. Depending on their livelihood characteristics and strategy, women tend to gain access to and have control over certain types of trees, mainly those related to supplementary food/fruit, wild spices, and fuel wood, that may not be considered useful by men. These include, among others, *Cardamom afrorum*, *Aframomum corrorima*, *Zingiber officinale*, *Piper capense*, *Ocimum gratissimum L.*, *Justicia schemperiana*, and *Dracenea fragrans*. Analysis of the interview data further reveals that the women's decisions to make use of these forest species is influenced by whether it is worth their while to spend time in collecting and harvesting the products within the ecosystem.

When assessing the effect of women on the ecology, focus group discussants in various villages highlighted that women forest-goers tend to engage in 'non-destructive' activities that can generate small amounts of income whilst meeting their substance needs. Harvesting wild spices, medicinal plants, grasses, and fuel wood are among the key use types practiced by the majority of women and young girls residing in the study villages. Cutting big trees and selling timber and non-timber forest products to the market are seldom practiced by women, as their environmentally benign livelihood activities help them suffice their personal, household, and societal obligations.

On the contrary, young and adult men forest-goers appear to be much more interested in tree species with substantial direct and indirect roles in increasing agricultural

productivity and profitability. Men prefer to make use of tree species that can provide shade for small and large-scale coffee production and are suitable to provide wood for making ploughing tools, houses, timber, charcoal, and nectar for the production of honey. These trees include, for instance, *Albizia gummifera* (*Haambabbeessa*), *Cordia africana*, *Ritchiea albersii* Gilg, *Albizia grandibracteata*, and *Aningeria adolfi-friedericii*. During the interviews, it became clear that there are activities such as the harvesting of medicinal plant species involving both social groups in an equal and undifferentiated way. From a resource management perspective, the nature of activities pursued by men and the manner in which these activities are undertaken at the local scale presumably has tremendous implications for the composition and abundance of the forest biodiversity of the district.

Similar to other forest-dependent societies, the household division of labour in the Yayo district is one of the factors that influences the nature and characteristics of dependence on the coffee forest. Traditionally, women and men groups in the communities have a culture of sharing various duties and responsibilities amongst themselves. Interviewed community members pointed out that the former are charged with roles that can be carried out in and/or around residential houses because such activities are restricted to a fixed space and thus do not require the women to make frequent long distance travels. The list of activities in this category includes vegetable gardening, fuel wood collection, and small stock husbandry (such as chicken, goat, and sheep rearing). In these livelihood spaces, women enjoy substantial rights of using, managing and governing the resources even though this customary right seems to have been negatively affected by the growing population pressure and competition for resource and space.

On the other hand, those activities that are carried on outside of the villages are often assigned to male groups, i.e. adults above the age of fifteen. According to the results of the interviews, some of these activities include timber making, agricultural farming (mainly maize and sorghum), wild coffee production, charcoal making, and beekeeping. The forest resources used as an input for these activities are located relatively far from the villages and as expected, villagers frequently have to travel several miles and expend

much labour to make use of them. Irrespective of such challenges, the local communities still perceive these activities as the main sources of cash income that can help them meet the diverse needs of their households.

Analysis of the interviews with both the local men and women indicates that the active engagement of men in these selected activities gives them a comparative advantage over women in several ways. Firstly, men are firmly placed in a position where they can influence and make decisions regarding the time and place of disposal and marketing of the harvested forest and non-timber products. Secondly, they have a strong say and controlling power over the income obtained from the sale of the forest products. Thirdly, although women have a role to play, the final decision on the detailed budgeting and allocation of various household expenses such as school fees, health costs, food expenses, and purchase of agrochemicals rests in the hands of the men.

The third aspect of gender differentiation can be examined in connection with various individual roles during the cultivation and production of some of the income generating resources occurring within the forest biodiversity, especially wild coffee. As a component of the forest biodiversity, for instance, the cultivation of wild coffee is often differentiated based on the roles men and women play in different phases of its production. Harvestable coffee beans are obtainable either directly from standing plants or by collecting those that fall on the ground, locally known as *Aricaatuu*³⁹. Interviewed respondents indicated that men are usually responsible for harvesting coffee beans from the standing plants. The coffees harvested from standing coffee plants make up a large proportion of the harvestable bean and are often automatically destined for sale.

On the contrary, women are charged with the responsibility of harvesting the leftover coffee beans from the ground, the *Aricaatuus*, and, to some extent, a few from standing coffee trees. This type of harvesting takes place only when the main harvesting season is completed. The coffee beans harvested through this process are used predominantly for meeting subsistence needs and/or served during local coffee ceremonies or village level

³⁹ According to many respondents, *Aricaatuu* is an Afan Oromo word used to describe a leftover coffee bean on the ground or on the tree after the main harvesting period has ended.

customs and rituals. The possibility to be sold in the local markets is negligible due to issues of quality, marketability and taste. As with gender analyses elsewhere, for example, Schakleton et al., (2011), the situation here suggests that the manner in which the different roles of women and men are ascribed to the wild coffee cultivation resulted in a condition where women mostly deal with consumptive needs, whereas men are expected to engage with the commercial ends of the crop.

In April 2014, when my supervisor, Professor Julian May, and I visited the case study villages, an interesting scenario that sheds light on other related factors determining the roles of members of the community in coffee harvesting process was encountered. In *Wabo* village, a brief discussion with a young girl of age twelve who was carrying 2 to 3 kg of wild coffee on her back confirmed the findings of my regular observation. Most young girls and boys in the village have limited access and use right over the beans from the standing trees, which the men control and market. Instead, they are much more dependent on the *Aricaatuu* to complement their financial requirement for purchasing clothing and educational materials. Hence, not only gender but age plays a key role in assigning roles and responsibilities during the wild coffee harvesting period.

Gender-based differences could also influence the mechanism through which forest biodiversity is managed, accessed, used, and controlled at the local level. According to the interviewed informants, traditionally, a household gets access and use right over resources through the men (husbands) instead of the women due to the culture and how it assigns to the household. Further to this, the customary resource access and use pattern forbids a single (unmarried) woman from having the right to own land and/or make claims on any property belonging to her parents. In the same manner, a divorced woman cannot claim access and ownership over a customary forestland due to the view that she could get married to another man through which she can secure access to land. Yet, this does not mean that she does not have usufructuary right – rights to use the land – to her former husband's land while they were married. A condition under which a woman's request for access to forestlands could be considered is when she heads the household.

For example, a widow can appeal directly to the customary resource administrators and can gain access to certain blocks of the forest.

The types of gender divides in the district have clear implications for the use, access, and control of resources by various social groups. They significantly determine the household-level decision-making processes and the power relations between men and women over the use and access to commercially valuable resources in the forest biodiversity. In the community studied, men appear to have an influential role and power due to the nature and extent of their interaction with the forest biodiversity. Women, on the other hand, appear to be living under the mercy of men without having a meaningful say on the use and control of the local resources. In this regard, some of the women interviewed complained that the lack of an active role during the time of coffee harvesting has made them powerless in decisions pertinent to selling the wild coffees and budgeting for major household expenses. In most instances, men decide when, where, and how to sell and for what purpose the income should be allocated.

According to Rocheleau and Edmunds (1997), the underlying reasons for the subordination of women in accessing, controlling, and using forest biodiversity is their exclusion from a formally recognised system of tenure regimes. In other words, the inability of women to retain a formal natural resource ownership title puts them in a condition of increased dependence on men to access and use valuable biodiversity resources. They further argue that, without their own title to forests, women could face difficulty in making decisions over the type of crop that has to be cultivated, the trees to be planted or to be cut, and also the nature of resource management strategies that should be exercised. In the context of the study area, there are various policies, directives, and proclamations⁴⁰ intended for improving women's access and control over various natural resources. Except some notable achievements in areas of women empowerment at a national, regional and local level, there are still concerns surrounding the gender-based dynamics of access and use of forestlands within a household.

⁴⁰ The 1994 FDRE constitution article 25 and 35 can be an example of the State's efforts to eliminate any form of discrimination against women and ensure gender equality in the country.

4.2.3 Wild coffee arabica and rural life in the Yayo district

The traditional centre of the Yayo settlement pattern is predominantly occupied by smallholder wild coffee producers and, to some extent, by beekeepers characterised by their strong historical connection to make their living from the direct use of their biophysical environment. As frequently described by interviewed villagers in the case study villages, the forest biodiversity forms the basic component of the livelihood strategies of many households. To mention some, activities such as wild coffee production, agricultural farming, honey collection, and Khat⁴¹ (*Catha edulis*) production are common forest-based activities that are being practiced in the villages. In the case of wild coffee, for example, a large proportion of the farmlands set aside for its cultivation are privately owned although there are ongoing disputes between the state and non-state conservation actors and the local community over the ownership of these spaces. Almost all the local informants underscored that, no matter what the size, individuals who have use rights over wild coffee farms are considered better-off farmers because the coffee production gives them a sustainable means of social security.

Depending on the extent of human-management, wild coffee production in the study area constitutes the forest, semi-forest, garden or cottage⁴² and plantation systems⁴³ (Woldetsadik and Kebede, 2000). As indicated in figure 4.1, the forest and semi-forest modes of coffee production in Ethiopia aggregatedly account for 45% of the total harvestable coffee (Petit, 2007). Describing semi-forest coffee production, Aerts et al., (2011) outlined that the practice is based on the selection and reduction of tree species so as to allow an adequate amount of sunlight to penetrate to underneath coffee trees without compromising the provision of shade cover by the trees. In this production system,

⁴¹ Khat is a shrub that has a stimulating effect when the fresh young leaves and tender shoots are chewed. It is widely consumed locally and also exported, predominantly to countries such as Djibouti, Yemen, and Somalia. The WHO identifies Khat as an abusing drug with a potential of producing moderate psychic addiction.

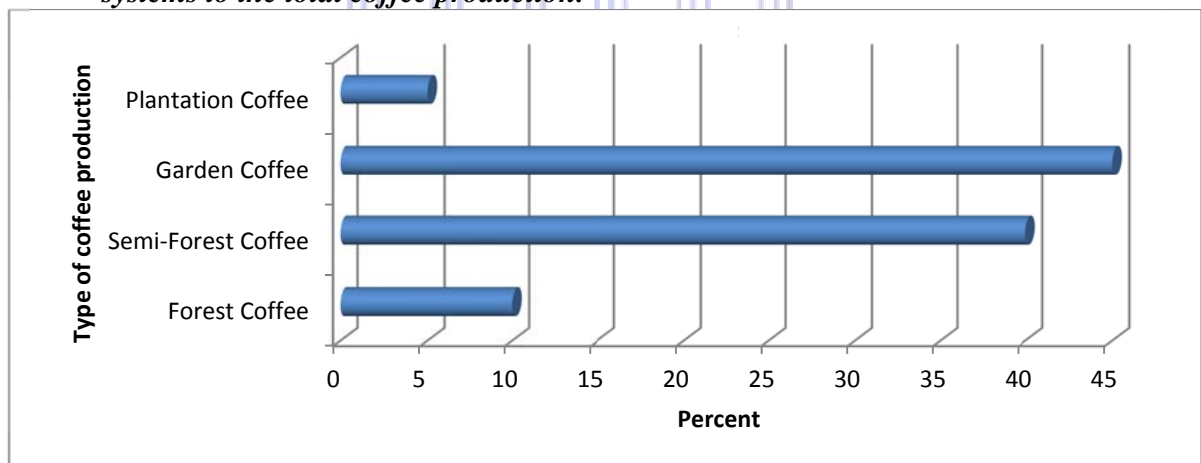
⁴² Garden coffee is mostly found around homestead or monasteries. It is planted at low densities ranging from 1000 to 1800 trees per hectare, mostly fertilised with organic material and inter-cropped.

⁴³ Plantation coffee is grown in the former state farms (most of these areas are currently under private ownership) and, on rare occasions, on properly managed smallholder coffee farms. Unlike the others, these types of production systems are known to use organic fertilisers, high yielding and disease resistant varieties and herbicides. Reports reveal that the contribution of plantation coffee accounts for only 5% of the total. Generally, both the garden coffee and plantation coffee production systems are not common to the Yayo district.

farmers slash and bury unwanted plants (weeds) from their coffee farm once a year with a view of enhancing crop growth and productivity. For its part, forest coffee refers to the wild or organic coffees that grow predominantly in the southwest Afromontane rainforests of Ethiopia such as the Yayo forests. According to Aerts et al., (2011) and Petit (2007), this type of coffee production system is characterised by:

- The availability of diverse and abundant plant species within the forest that can provide adequate shade cover.
- The occurrence of diverse wild coffee varieties offering several filial generations for the purposes of selection and breeding.
- Low productivity due to the shortage of important growth factors such as sunlight. This happens as a result of competition with other tree species.
- The agents for the natural regeneration for wild coffee are the wild animals that coexist with the plant.
- Regulated host-parasite interaction due to no or minimal human intervention.

Figure 4.1: The percentage contribution of the various types of coffee production systems to the total coffee production.



Source: Adopted from the Ethiopian Coffee Exporters Association website, 2014

One of the unique features that make the Yayo district suitable for the forest and semi-forest wild *coffea arabica* production system is the abundant availability of biologically diverse plant species. Informants from the local government offices asserted that the forest biodiversity offers a favourable condition for coffee production and as such

became a key 'pull factor' attracting tens of thousands of people to the district. The influential research work of Wood (1993) on natural resource based conflicts in southwest Ethiopia asserts that there are multiple actors, with differing interests and priorities, who are incessantly migrating to the region and competing for access and control over the resources. The actors include not only the local community but also the state, additional ethnic groups who have migrated to the region, individuals in the government structures, and several international actors for whom the *coffea arabica* genetic resources have become valuable. A deeper review of previous research and a closer look at the historical demographic patterns of the study villages also substantiated the fact that a significant influx of people from other parts of the country to the district has been taking place since the 1940s (Gole et al., 2002; Labouisse et al., 2008; McCann, 1995) (See the detailed discussion in the next chapter).

Wild coffee represents a substantial part of household cash income. Compared to other livelihood activities such as honey making, wild coffee production is more lucrative for smallholder farmers with a relatively higher selling income despite price differences between buying sites. Here, reflecting on the interviews conducted with young girls and women in *Achebo* village suffices to illustrate the importance of the wild coffees to the local community. In March 2014, I came across young girls and women daily labourers from *Achebo* village who were hired on a state sponsored water and road construction project (see figure 4.2). When approached and asked to describe the amount of income that she obtains from wild coffee harvesting and the one she receives from the off-farm employment, one of the women explained that, for the time spent from 8 a.m. to 5 p.m., she gets an average payment of Ethiopian Birr (ETB) 32/day⁴⁴ (approximately USD 1,539 /day). When asked to make a comparison of the two sources of income, the woman replied:

Basically, it is difficult to compare the return from wild coffee with what we are doing right now. For us, wild coffee harvesting is a leisure time engagement and a kind of activity that gives us fun. By the time the cherries get ready, my friends and I go to the farms to harvest the *Aricaatuus*. In the

⁴⁴ At the time of the data analysis for this research, 1 ETB was equivalent to 0.048 USD.

farms, we get sufficient time to rest, take a walk, discuss our personal lives, and/or do whatever we want to do. If the weather condition is good (meaning, not rainy), we harvest as much as 3 kg a day. As far as the selling price is concerned, in this year for instance, the price of coffee in the local markets was between ETB 17 and 20/kg.

Figure 4.2: Women working as daily labourers in a state-funded water project (Achebo) and collecting *Aricaatuu* wild coffee (Wabo)



Source: Personal observation at Achebo and Wabo villages, 2014

The interview with the local woman suggests that the total daily income obtained from harvesting wild coffee is estimated to be ETB 54 (USD 2,59 approximately), an amount higher than the income from the day labourer job. The yearly progress report from the District Agricultural and Rural Development Office indicates that a single villager harvests 30–40 quintals of coffee per annum depending on the farm size and the season. The market-selling price of coffee in the locality often ranges between ETB 15 and 20/kg (YARDO, 2012). In line with this, a local woman spoken to compared the wild coffee harvesting tasks with that of the non-farm activities such as the one in the above figure. She underlined that the latter is cumbersome and non-rewarding, involving extended work hours of heavy physical labour not suitable for women.

Analysis of the field data also shows that wild coffee constitutes one of the most reliable and sustainable means of financial security for the local community. Describing its economic significance, group discussants in *Gechi* village remarked that coffee is the foundation of their survival. The participation of households in wild coffee production is crucial in raising the standard of living in the form of health facilities, education for

children, electricity, modern agricultural farming tools, water, clothing, and other basic needs. The income obtained from the sale of wild coffee also represents the daily expenses at household level, including the payment of tax on private agricultural farmlands and purchase of fertilisers. Many interviewed villagers consider wild coffee as a safety asset allowing any poor village residents to overcome periods of hardship such as lack of rainfall and collapse of cereal crop prices. For those households who do not own permanent cereal crop fields, the income from wild coffee offers an alternative means of purchasing cereal crops, thereby complementing the food requirements of the household.

Apart from the economic dimension, the wild coffee plays a pivotal role in the day-to-day cultural, social, and religious affairs in the locality. In this regard, the local coffee ceremony is worth mentioning due to its role in bringing several rural residents together and fostering friendship and hospitality amongst them. Regular observation of the activities of the villagers confirmed that a given household brews coffee 3–4 times a day after each regular meal. Close neighbours, friends, and relatives receive invitations to the host's house to drink coffee. Once the coffee drinking starts, people spend an average of 30 minutes raising different social topics, discussing them in relation to their villages, and sharing valuable information. It is also in these coffee ceremonies that personal disputes and conflicts among the community, if any, are sorted out and resolved.

At important social events such as traditional weddings, funeral services, and religious customs, villagers also make extensive use of wild coffee as their preferred hot beverage. For instance, through the traditional mutual support institutions such as *Iddir*, village dwellers are instructed by their respective leaders to brew and bring coffee to a particular social event. For all these reasons, it can be said that the coffee ceremony is an important local practice that brings despaired communities together, strengthens interpersonal relations and ultimately builds societal cohesion, solidarity, and togetherness. As an interviewed local forestry expert put it, the wild coffee is sometimes known as a 'diplomat plant', a plant that has tremendous benefits in the life of the people.

Lastly, much has already been said concerning the contribution of wild coffee to worldwide research and development. Gole (2003) argues that it is the diversity and abundance of the wild coffee relatives that serve as a primary ingredient in scientific exploration and discovery of high yielding cultivars with low caffeine content and high resistance to diseases. As part of the exploration, the past decade has witnessed a constant inflow of several foreign visitors and travellers, particularly international scientists locally known as '*Faranjiis*⁴⁵', as well as national researchers to the district. The economic estimate of the intrinsic values of the wild coffee genetic material to the global coffee industry ranges between USD 0,5 and 1,5 billion per annum (Hein and Gatzweiler, 2006). This has necessitated an in depth scientific exploration that required an organised and well-coordinated collection of accessions from within the forest (Labouisse et al., 2008).

During the interviews, it appeared that the local communities are unaware of the multimillion-dollar value the genetic material may add to the worldwide coffee industry, the nature and extent of collection as well as the benefits they should obtain from the collection of the accessions. This strikes an ethical and political question that, whilst these explorations and collections become increasingly essential in terms of being informational and a material resource, the likelihood that any significant benefit shared with the local community from these undertakings is highly unrealistic (Parry, 2000).

4.2.4 Wild coffee production and trading

4.2.4.1 Wild coffee management and harvesting

In the above sections, an attempt was made to demonstrate the interrelation between the day-to-day life of the local community and the wild coffees in the Yayo district. For many decades, producing, harvesting, and trading wild coffee has been very common amongst the rural settlers of the district. During the field research, interviewed villagers gave their opinion on why and when the cultivation of coffee started in the area. A closer examination of their responses shows that cultivating coffee is 'a tradition and lifestyle of

⁴⁵ Faranjii is a local name given to foreigners who travel but specifically refers to a person who is white in complexion.

the villagers' and it is inherited from their ancestors. A community elder in *Gechi* village succinctly stated,

Buna biiqiilchuun adaafi akkaataa jirenyaa kenyaati. Sabnii keenyaa issaa mallee hojii gara biiraa hiinbeekuu. - Meaning 'Cultivating and harvesting wild coffee is our tradition and lifestyle which has been there for more than a century. It is the only thing that we could do for a living.'

Research conducted on the early history of the domestication and use of wild coffee firmly substantiates the above claim by the community elder. Luxner (2001) underlines that the history of domestication and use of coffee in Ethiopia goes back as far as 2000 years. Another historical account on the consumption of wild coffee even date it back somewhere around 1000 BC (Illy and Illy 2015). By this time, there was reduced interest in the commercial production of wild coffee and thus the majority of the coffee harvest used to be consumed within the house (Gole et al., 2001). According to Wood (1983), the key disincentives for the lack of interest in commercial production of the crop were transportation problems⁴⁶ and relatively low prices of the commodity in the urban market areas.

Meanwhile, large-scale coffee production started to take place in the 1960s and 70s when the socialist *Derg* regime of Ethiopia overthrew the Imperial regime and its legacies of private land ownership. It is during this time that the awareness of peasants towards the commercial significance of wild coffee increased and the local community started to extensively engage in market-oriented production systems. At the moment, more than 20 million rural people in Ethiopia draw their income from the coffee sector either through production, processing, trading activities and/or a combination of these (Wakjira, 2006). In the focus group discussions, participants clarified that the main reason for the growing interest in coffee production was the relatively higher return obtained from the sale of the commodity. Wood (1993) argues this market sensitivity at the local scale coupled with social and demographic factors, such as the 1986 villagisation and mass resettlement, was

⁴⁶ By that time, only mules or donkeys were used to transport the coffee to over 550 km to the railroad in the capital city, Addis Ababa.

the main factor that added complexity to the access, control, and use of forestlands for coffee production.

Coffee production, especially semi-forest and plantation production systems, is a challenging activity due to management requirements that compel villagers to make frequent visit to their farms. During the field research, group discussants came up with a list of major activities involved at this stage of wild coffee production. These include slashing, weeding, shade reduction, and pruning. Harvesting, which is carried out almost every single year between the month of September and January, was also mentioned as an essential agronomic operation.

The harvesting of wild coffee marks the busiest period of all the agronomic operations due to the considerable amount of time, labour, energy, and finance a farmer has to put into it. Most local harvesting practices (Forest, Semi-forest and Garden coffee production systems) are carried out manually although there are mechanised forms of coffee harvesting in some large-scale and private investor and/or state-owned coffee farms such as Gamadro Coffee Plantation PLC. in the Southwest Ethiopia. In the interviews, villagers indicated that the lack of access to modern technologies such as harvesting machines (coffee bean harvesters) is a main challenge forcing them to perform manual collection of the beans through handpicking techniques. In this technique, the coffee beans are directly harvested from spontaneous wild coffee trees that are found in the forest.

Harvesting of coffee commences after the beans have become ripe or have changed colour from green to red. Yet, some villagers tend to harvest green and red cherries simultaneously because the ripening of the cherries occurs asynchronously in the forest biodiversity. In some exceptional situations, for instance, to avoid the risk of theft and to meet household cash income needs, villagers do not wait till the beans get fully ripe. Instead, they risk the quality of the wild coffee by harvesting the green beans as they are. According to a coffee expert from the Zone Agricultural and Rural Development Bureau, such an untimely harvesting practice stands as one of the leading reasons for the supply

of low quality wild coffee to the market and the continuous decline of the price of the commodity.

Depending on the age, gender, occupation, and harvesting experience of an individual farmer, the average amount of wild coffee harvested from a standing tree is estimated at 18 kilograms/day/person. During harvesting seasons, family members of a given household gather at one place to discuss the assignment of roles and responsibilities. As mentioned earlier, gender plays a significant part in the organisation of labour as well as the division and segregation of duties. The discussions with men and women revealed that adult men are often responsible for duties outside of the village such as patrolling and supervising wild coffee farms, undertaking agronomic operations, and leading and coordinating harvesting duties. For their part, women undertake activities that are related to cooking, taking care of children, and delivery of meals and potable water to those family members partaking in the harvesting of the coffee. As noted above, the only time women start to harvest coffee is when the peak-harvesting season is over.

Interviewed villagers also reflected on the internal and external challenges of wild coffee harvesting. The lack of modern technologies, distance of the coffee farms from the village, absence of transportation systems, theft by migrant settlers, and wild animal attacks were mentioned as some of the major inhibitors of wild coffee production and harvesting. The analysis of the interview data reveals the various strategies adopted by villagers to overcome these challenges. In order to avoid the risk of theft, for instance, villagers make various arrangements, such as increasing the labour force working on the farms, which enables them to collect the beans in a very short period of time. Increasing labour force on the farm can be achieved by hiring landless migrant settlers on a daily payment basis and/or seeking the cooperation of existing local support groups such as the *Daboo*⁴⁷. Similarly, problems associated with transportation are addressed by way of using pack animals or beasts of burden such as donkeys, since waiting for other means of transport may increase the degree of exposure to theft.

⁴⁷ *Daboo* can be defined as an informal institutional system whereby the local people organise themselves into a group to assist and support each other on different village level agricultural activities, house construction and so on.

Another challenge in the local coffee production relates to the rudimentary practices of post-harvest handling and processing. The group discussants in the studied villages pointed out that the lack of storage space, the absence of coffee washing, drying and pulping facilities, and the lack of finances to purchase post-harvest handling technologies have been the main challenges in the village. In fact, given that these smallholder farmers are major contributors to the total share of the country's exportable coffee (up to 60 %), the state and other concerned NGOs are striving to improve the poor post-harvest handling practices in the region. With the aim of ensuring the quality of the wild coffee supplied to the market, the local Agriculture and Rural Development Office, through its extension workers, regularly monitors and supervises the activities of the coffee growers in the villages. Furthermore, to improve the post-handling of the wild coffee, US-based international NGOs such as Techno Serve Inc. have launched a Bill and Melinda Gates-funded project. One of the activities envisaged by the project is the supply of dry processing and pulping machines to district level farmers' Cooperatives. Despite such concerted efforts aimed at quality improvement, the wild coffee from the study area is yet to receive proper recognition and certification as one of the finest coffees in the world.

4.2.4.2 Wild coffee trading

In Ethiopia, two predominant interests, i.e. domestic consumption and international export drive the marketing of coffee. In remote areas such as the Yayo district, smallholder farmers cannot directly export coffee due to the lack of access to reliable national and international market information and channels. In many cases, therefore, the coffee producing farmers are forced to sell their products to the unions and market nodes both within the villages and in urban townships. Except for the unions, the trade network for the wild coffee and also other non-timber forest products in the district consists of the sellers (smallholder farmers), buyers/traders, and middlemen/brokers. It was observed during the field research that the agents who act as middlemen are sometimes village leaders or relatively well-educated and influential farmers, primary school teachers, agricultural extension workers and other local government staff, urban-based businessmen, and NGO staff, each of whom have distinct roles to play.

The trading of wild coffee takes place in various forms and on different occasions. Firstly, in the peak marketing seasons of the crop, the local and non-local middlemen come to the villages to lobby the farmers to sell their coffee to a particular buyer who is in their trade network. Secondly, urban-based traders and middlemen establish their 'mini-shops' in the villages to ensure that the export of wild coffee from the villages to the capital city, Addis Ababa, and beyond is effectively and smoothly done. Thirdly, some farmers take their coffee to urban-based market centres (in this case, Yayo town) and choose their buyers depending on trustworthiness, previous business relationships, and fairness in offering good prices for their coffee. Since many villagers consider wild coffee as 'the safety net of the poor', they opt to sell their coffee under special circumstances and emergency situations,⁴⁸ especially when cash is desperately needed.

The coffee trading is guided by the principles of a fully open market economy. In this system, no established agreement exists between the farmers in the rural areas and the buyer in the urban centres. Despite the availability of a federal body who regulates the marketing of agricultural products, the prices for coffee are often volatile and are set and controlled by the powerful value chain actors. Each morning, the relevant state agency (the former Ministry of Coffee and Tea and the current Ministry of Agriculture) makes public announcements through the radio regarding the lowest possible market price for coffee.

During the interviews, it became clear that most local community members either do not own a radio or do not have a habit of listening to it, let alone using other techniques such as mobile marketing. Hence, information regarding the daily prices of coffee is often obtained from relatives, friends, neighbours, local traders, and village-based middlemen. Many villagers are, however, aware that the price of coffee escalates at the beginning of a harvesting season and tends to fall after a while due to the potential surplus supply of the commodity to the market.

⁴⁸ The special circumstances and emergency situations could be the time when school opens, when there is emergency sickness and when there is a holiday.

Concerning the challenges of local coffee trading, interviewed villagers mentioned that unavailability of alternative market channels and the low prices assigned to coffee at the village level have tremendously affected the income that they should get from selling the commodity. Explaining the former scenario, many villagers clarified that they are restricted to selling their product to exploitative village-based merchants and middlemen at a cut price due to the lack of market options and problems associated with transportation. A research conducted by Seyoum (2009:56) affirms that the majority of the Yayo villagers travel an average distance of one walking hour to reach the closest market centre. He further points out that in 2006/07, a great majority (88%) of the sampled households for the study, sold their coffee at the local market centres whilst the remaining 9 % and 3 % sold their products to cooperatives/unions and wholesale traders from other parts of the country respectively.

In the later scenario, the information asymmetry on coffee prices and the unequal power relations in setting local prices seems to have resulted in 'winners' and 'losers' of the market network. In most instances, it is only a few market elites (especially the traders and middlemen) who take advantage from the way the market functions, whereas, the majority of the coffee producer villagers tend to be price takers with less bargaining power over getting the best deal for their commodity. Explaining such market imbalances, the local informants indicated that they have no guarantee what prices they are going to receive for their coffee and how much they can sell at a time because such decisions are made by the elite groups. Hence, the unequal power relations between the traders and smallholder farmers compels the latter to operate at the mercy of the former (powerful traders or merchants) who are often equipped with better and up-to-date market information.

In sum, the trading of wild coffee in the study area is inhibited by several internal and external challenges that directly or indirectly affect the lives of tens of thousands of villagers in the district. Amongst these are the low quality of coffee, inaccessibility of market centres and lack of transportation, information asymmetries on coffee pricing, volatile coffee prices, and unavailability of pro-poor institutions and frameworks.

However, the situation can be improved, should the state and other concerned actors have the ‘political will’ to take concrete action on both the production and harvesting front. Firstly, indigenous technical capacity needs to be developed to improve the quality of harvestable coffee beans. Secondly, product quality (or export quality, in general) could be reached by establishing local washing, drying and packing centres with adequate and reliable technology. Thirdly, marketing could be enhanced through the identification of national and international trading centres for certified wild and rainforest coffee that bears a ‘Yayo coffee forest biosphere reserve’ trademark. At the time this field research was being carried out, ECFE was making an attempt to secure an ‘organic coffee’ license from the Rainforest Alliance International. Such efforts need to be further reinforced for two prominent reasons: On the one hand, they have the potential to contribute to the improvement of the livelihoods of smallholder coffee producers in the district and, on the other hand, they can provide incentives to the coffee growers to better conserve the fast diminishing biodiversity resources of the area.

4.3 Contested local perceptions surrounding wild coffees

Dove (2005: 232) argues that examining ‘indigenous environmental knowledge’ is a crucial approach in the study of environmental politics. Robbins (2004) also recommends an in-depth analysis of conceptual vocabularies, terminologies, and naming of resources used by actors participating in an ecological struggle, as an appropriate approach for understanding the politics of environmental agenda. This is because the divergent perceptions, terminologies, images, languages, and knowledge surrounding a particular environmental resource are socially constructed and they implicitly reflect an actor’s desire to establish control over the rural population and their economically valuable resources (Dove, 2005; Robbins, 2004; Scott, 1998).

An interesting aspect associated with the wild coffee in the study area is that some of its natural features and the mechanism through which it is produced and harvested embrace a wide array of contested perceptions amongst different actors. I argue that elucidating these contrasting notions and views surrounding the wild coffee will help in

understanding the underlying reasons why multiple actors compete for access to the crop's genetic material. Besides, they unpack the specific strategies adopted by actors to secure ownership and gain control over them and the evidence used to judge legitimacy, including whose interests matter more in terms of guiding formal policy and practice. Such an investigation also offers new insight to investigating the socio-economic, institutional, and ecological reasoning invented to legitimise the resource control endeavours of a certain actor. Closer examination of the data suggests that the contrasting perceptions of the local actors in the study area (conservationists and villagers) regarding wild coffees revolve around two fundamental concepts depending on the role they attach to the coffee. Villagers emphasise traditional ownership and give more emphasis to their own livelihood (the commercial aspect of the coffee) whereas formal conservationists emphasise the scientific elements and the non-commercial values of the coffee plants in maintaining forest biodiversity.

For the state and non-state conservationists, the household level economic importance of the wild coffee is less important than biodiversity. Because they view the two as mutually exclusive, they place an emphasis on tackling the threats of species extinction and plant genetic material erosion through the imposition of preservationist-oriented strategies, i.e. reducing or eliminating the production of wild coffee. For their part, the local communities rarely contemplate the wild coffee's significance to worldwide scientific research and development. Rather, they perceive the wild coffee as an important crop that allows them to generate the income necessary to sustain their lives. These perceived diverging interests and priorities over the wild coffee not only revealed the basis of interaction of these competing actors but also unpacked the way the actors conceptualise, control, and use the crop.

On nomenclature and human-management: Just a pristine forest (natural coffee) or a source of cash?

The first contested local perception regarding wild coffee is associated with the nomenclatures assigned to it by various actors. A detailed analysis of these

nomenclatures discloses a range of problematic perceptions of the wild coffee that shed light on the contestation over the access, use, and control of the crop. As it appeared during the interviews, the local communities classified the wild coffee into two broad categories depending on their spatial origin and the efforts they put in to cultivate them: garden coffee (*Bunaa Qeeyee*) and wild coffee.

The local language, Afaan Oromo, contains at least six terminologies that are interchangeably used to describe the wild coffees. Taking the spatial origin and location as a frame of reference, vocabularies such as *Buna Gabbaa* (a coffee situated near *Geba* River) and *Buna Bosoonaa* (a forest coffee or a coffee found within the forest) are commonly used amongst the residents of the villages. There is also a local terminology called *Buna Baggajjaa* (*Kibur*, *Buna Haadhoo*), which literally means ‘a mother coffee’. According to the interviewed villagers, the name ‘mother coffee’ is to refer to the age of the tree and, in most cases this is estimated to be between 50 and 70 years. In a similar manner, there are alternative wild coffee terminologies assigned based on external management practices. These are *Buna Umamaa* (natural coffee) and *Buna siimbiirron facaafttee* (Bird-sown coffee).

The state and non-state conservationists working in the Yayo district also make use of some of these descriptive nomenclatures of the wild coffee, although the interpretation they assign to them is very different from that of the local community. The combined results of the analysis of the data show that some of these terminologies have been used for a different purpose and repeatedly come to the frontline during negotiations intended at legitimising the formation and execution of strict biodiversity conservation measures. For instance, *Buna umamaa* and *Buna siimbiirron facaafttee* have been used as key concepts to argue that wild coffee follows a natural regeneration mechanism whereby the contributions of humans in terms of sowing, planting, distributing the seeds, and cultivating/managing the crop in its habitat are insignificant. Based on this, the conservationists further argue that the local communities could not claim access, use, and control over the wild coffees in these spatial locations mainly because they do not have scientific ground to justify their ownership claim.

Analysis of the field data shows that the contested nature of these nomenclatures has formed part of the conservationists' justification that wild coffee is 'a fast disappearing plant genetic material' that necessitates the use of a strict and authoritarian conservation approach. As can be seen in the chapter, such conceptualisation ultimately led to granting the state an exclusive right to decide on what to do with the wild coffee, when and to whom to give access and use right. Scholars assert that such nomenclatures of resources have material impact and serve as tools for controlling environmental resources and determining laws and policies. Bryant and Baily (1997) argue that power is control over the material practice and it is partly a matter of winning the battle of ideas over human use of the environment. In the same manner, Scott (1990) argues that controlling the 'public transcript'⁴⁹ (in the context of this study, interpretations attached to the different names of the wild coffee) is a way in which an actor seeks to have ultimate power on regulating, controlling, and governing the use and access to environmental resources.

The above contestations on nomenclatures relates to why wild coffee producers prefer engaging more in forest and semi-forest wild coffee than plantation and garden coffee. This question can be approached, at least on a very general level, in association with the intriguing perceptions over the quality parameters linked to the different coffee production systems. When asked about which coffee production system they are interested in, focus group discussants, mainly those in *Wabo* village, indicated that the forest or semi-forest system which contains the wild coffee are their first choice rather than the other coffee production systems because of their perception of the superior qualities of wild coffee in terms of aroma, oiliness, and freshness when roasted, size and weight of the beans, and resilience and durability of the coffee tree (see table 4.1). As such, the following responses on the comparisons between wild and plantation coffee are offered based on their extensive knowledge of the wild coffee ecology in the locality and the socio-economic history of the district.

⁴⁹ As explained by Scott (1990), a public transcript is the 'socially accepted' version of events represented in public documents, legal political ideologies, popular music and theatre, and so on.

Table 4.1: Comparisons of wild/forest coffee and garden/plantation coffee by the local community

SN	Important features	Type of coffee production system	
		Wild or forest coffee	Garden or plantation
1	Bean size and weight	Big and heavy beans	Small and light beans
2	Age of the coffee tree	Long lived (> 70 years)	Short lived (10-15 years)
3	Aroma	Excellent	Good
4	Taste	Excellent ⁵⁰	Good
5	Height of coffee tree	Tall (up to 10 meters)	Short (up to 3 meters)
6	Drought tolerance	Tolerant	Susceptible

Source: Author's analysis of data from a group discussion in Wabo village, 2013.

More on taxonomy and human-management: Wild coffee farms or Afromontane forests?

As reported in the in-depth interviews, the ideological construction of the wild coffee held by state and non-state conservation actors is that it is a plant in the kingdom of Plantae which makes up an important component of the forest biodiversity rather than the local economic system. They further argued that, as a wild plant species in serious danger of becoming extinct, it has to be strictly safeguarded against any form of use by the local community. In fact, most wild coffee farms in the south-western region of Ethiopia constitute trees and shrubs in their own right, a complex population of fauna and flora species, and a balanced function of biophysical processes that undergoes natural regeneration over a long time (Kufa and Burkhardt, 2011).

Yet, such a taxonomical conceptualisation affects material lives including the free movement of coffee producing farmers within these contested areas. This was clearly reflected in the research conducted in the area that advocates the elimination of any anthropogenic disturbance of the ecosystem by limiting people's access to the forest (Gole, 2003; Senbeta and Denich, 2006). Dove (1985), Robbins (2004), and Siebert and Belsky (2014) report on a similar situation with the denouncement of shifting cultivation,

⁵⁰ Qualitative Rating: Excellent =5, Very good=4, Good=3, Fair =2, Poor=1

resulting in its being criminalised and outlawed around the world with tremendous negative implications on former shifting cultivators' lives as well as on the forest. Thus, meanings, discourses and taxonomic classifications offer powerful ground for 'the political ecology of landscape production and control' (Robbins, 2004:122).

In sharp contrast to what so-called conservation experts think, most villagers in the Yayo sample communities studied here described coffee as merely a crop of economic significance whose cultivation and harvesting requires management. According to the combined results of the focus group discussions, the economic management of the wild coffee is more similar to that of agricultural crop farming than to that of a forest. It thus involves rotational farming, shade cover management, weeding, pruning, harvesting, transportation of the harvest from the farm to the village residences, stocking, post-harvest handling, and supplying to the rural and urban market centres.

During the in-depth interviews, it became clear that the local communities were more concerned about the general classification of the wild coffee as an important component of the forest ecosystem than as a cash-generating agricultural crop. This concern stemmed from their suspicious perception that such a classification may serve as a means of legitimising forest conservation actions. According to them, most of the conservation interventions that they have seen tend to propose more environmental long-term benefits through strict protection of the wild coffee than a short-term economic gain from its sale. In relation to this, Ghimire and Pimbert (1997) underscore that any resource dependent farmer cannot appreciate the vague idea of 'long-term' benefits from conservation spaces if they are forced to lose right and access to their livelihood resources. They further argue that smallholder farmers prefer immediate and quantifiable revenues than an uncertain benefit expected to be shared to them in the future.

On agronomic practices: Species isolation or wild coffee management?

Certainly, wild coffee farms are a typical representation of an agroforestry association conveying a mutual interdependence of tree species and economically viable agricultural crops (Gole, 2003; Schmitt and Grote, 2006). They offer a new way of looking at

questions such as in what form and to what extent the local community have contributed to the preservation of biodiversity prior to the arrival of scientific ways of resource conservation. Just as swidden or shifting cultivation has been portrayed as an anti-biodiversity practice, some of the traditional management practices associated with wild coffee production in the Yayo district have unjustly come to represent the same notion. Particularly, shade management remained a long-running controversial subject whereby it often takes the front page of many research projects, studies and surveys conducted in relation to the coffee forest.

In any coffee production system, optimally managed shade trees not only add value to the quality of the wild coffee but also boost productivity of the crop and provide an incentive for local people to maintain these trees rather than cut them down, for example for wood. A study by Schmitt and Grote (2006) shows that intensive shade management in semi-forest production systems requires the removal of 30% of the tree canopy and virtually all of the undergrowth vegetation. Although this seems to pose a threat to the forest biodiversity, a slight removal of the tree cover encourages coffee growth and results in a threefold increase in the coffee harvest. Describing the importance of shade management, an interviewed researcher who is currently spearheading coffee forest research in the district, stated that success in forest coffee production is unlikely without a slight thinning of the trees and shrubs occurring within the boundaries of the farms. Yet, he further indicated that this practice is one of the leading reasons, next to encroachment and coffee farm expansion, for the extinction of biodiversity species of the area.

Village residents are also aware of the interrelation and integration of various biodiversity species, mainly the wild coffees and the shade trees. Interviews suggested that the local community has maintained a strong tradition of conserving large old forest species, mainly indigenous trees, cognisant of their role in providing shade to their coffee plantations. It is on this crucial understanding of the roles of the trees that traditional biodiversity conservation practices are hinged and sustainable use and management of the resources is allowed in the customary system. This situation is similar to Dove's (2005) findings in Pakistan where farmers' belief system towards the roles of tree shade attested

their commitment to effectively manage the interaction between the trees and their preferred agricultural crops. He further pointed out that such a commitment from the farmers defied dominant conservation belief that local people are hostile to shade trees.

As indicated above, conventional conservationists remain concerned about the negative consequences of some types of agronomic practices on the forest ecosystem of the region. According to one of the local government conservation experts, the growing local interest in market-oriented production systems and the emphasis given to increasing crop yield prompts smallholder farmers to engage in ‘incompatible management activities’⁵¹ that may have a potential to negatively affect the composition and diversity of the Afromontane forests. These arguments have been repeatedly reflected in the research conducted by ecologists such as Gole et al., (2008), Schmitt et al., (2010), and Wakjira (2006). These studies have shown that both the forest and semi-forest coffee production systems require agronomic practices such as slashing, weeding, pruning, and the removal of competing trees and shrubs underneath the coffee tree. Hence, the concern over such activities is their adverse consequences on the bionetwork due to their role in prompting deforestation, degradation, species isolation, and degeneration of important tree/shrub species.

According to some scholars, such environmental perceptions tend to implicitly criminalise local community members who are often the traditional targets of apolitical ecology – that is research which does not include an historical understanding of differences between local perceptions, concerns and interests with dominant political and conservation elites (Dove, 2005; Fairhead and Leach, 1998). Similarly, in the context of this research, ‘species isolation’⁵², for instance, embodies a connotation that the traditional agrarian activities performed by the local community are the key factors that prompt deforestation and ultimately result in irreversible damage to the biodiversity. Consequently, the blame for the damage caused to the biodiversity resources is

⁵¹ The list of incompatible and compatible activities, as defined by the local conservationist, is offered in chapter five of the thesis.

⁵² As explained by a local conservationist, the term species isolation refers to the removal of competing trees, shrubs and small bushes that affects the production of coffee.

apportioned to the local community and their agricultural practice, most importantly the wild coffee production. In his study of the southwest Ethiopian forests, Stellmacher (2007:519) reaffirmed such an apolitical claim of resource degradation by succinctly insisting:

The most apparent reasons (for the degradation of the coffee forest) are the destructive activities of the local population, undergrowth clearing for intensification and expansion of agriculture (or species isolation), and extensive cutting of timber and wood for construction and fuel among others.

In sum, the past two decades have seen the influence and dominance of such understandings in the discourses, narrative and actions related to biodiversity conservation in the study area. As discussed in the next chapter, the decision to coerce strict conservation that restricts local use and access to the coffee forest has for long been entrenched and defended by these scientific arguments. Criminalising traditional ways of interactions with the biodiversity became a tool for controlling ‘unruly local community’ (a term used by conservationists to refer to resource dependent village members). In fact, Bryant and Baily (1997:40) also concisely argue that the desire to exert control over environmental resources is engrossed within the symbolic articulation of ‘ecologically bad’ (in this case, shade management and species isolation) and ‘ecologically good’ practices.

4.4 Customary forest and wild coffee control

4.4.1 Prelude on the historical facets of resource access and ownership

Perhaps the most contentious aspect of rural life involves the ways in which indigenous people customarily access, control, and use natural resources. Mackenzie (2005) asserts that, in most poor African countries, exploring the rights of access, use, and control of natural resources rather than ownership of them provides more pragmatic ground in understanding land and forest tenure systems. This is because the concept of ‘ownership’ is more prevalent in a Eurocentric viewpoint and occurs only where there is exclusive control of natural resources and where these resources have in principle a sole commodity value (Mackenzie, 2005). Stellmacher (2006) also underscores the

importance of understanding customary resource access, use, and control practices. He stated that such an understanding considerably contributes to achieving broader objectives of sustainability, justice, and efficacy in the use and management of biodiversity resources.

In Ethiopia, customary practices through which the local community access, govern, administer, and utilise biodiversity resources have been steadily declining. Since the advent of centralised legal systems in the twentieth century, biodiversity resources, especially forests, have been, by default, recognised as the property of the state rather than of the local communities. According to an expert from the OFWE branch in the Yayo district, all the coffee forest areas in the district are now part of the NFPA scheme that is prominently grounded in a stringent protectionist philosophy of conservation. Historically, however, these resources belonged to all the local communities residing in the district and the ownership pattern followed a communal system where individuals can enjoy access to resources.

Analysis of the focus group discussions in *Achebo* village shows the coffee forest is historically classified into three land cover systems based on a set of predefined criteria such as weather condition, land use, soil type, vegetation type, availability of river and water sources, and distance from settlement areas. This classification consists of the undisturbed high forest, disturbed forest, and secondary forest areas. As far as the undisturbed high forests are concerned, group discussants described that these forests are located very far from residential villages and urban centres and, according to Tadesse and Bekele (2004), they are mainly dominated by evergreen plants, broad-leaved and thornless montane trees, bamboo thickets and many other plant species. The forests in these areas are crucial in the lives of the local community as they are used for beekeeping activities and as a source of extractable non-timber forest products such as woods, spices, grasses, and medicinal plants.

The second classification, the disturbed forest, consists of those coffee forests located adjacent to residential and agricultural areas. The forest and non-timber forest products

obtained from these spaces are used mainly for grazing, fuel wood, shade for garden coffee production systems, and a base for other subsistence purposes. The third and final category, which comprises the secondary forest areas, contains tree and vegetation species regenerating on an abandoned agricultural land following a very long spell of a fallow period. In the group discussions, the local community reiterated that they do not perceive these forests as natural due to their exposure to human intervention such as frequent clearance and conversion to agricultural land. Akalu (1982) states that the land nationalisation espoused by the *Derg* regime made most secondary forests to be owned by smallholder farmers a *de jure* property right arrangement.

In contrast to market-oriented societies in other parts of the world, the nature of forest biodiversity utilisation in the Yayo district is not restricted only to commercial interests. Instead, communal and individual household subsistence needs play a major role in the use and management of the forest resources. Drawing on the historical forest use patterns, interviewed informants recounted that their ancestors were the sole guardians of the forest whereby they responsibly utilised the resources without removing big old trees from the field. Whether it was tree cutting or harvesting of NTFPs, every single activity in relation to the forest was performed with the intention of meeting household consumption or subsistence requirements. The local community further elucidated that their traditional ways of access and use have had minimal impact on the quality and quantity of the biodiversity in the district. The experts in the local government offices also conceded that the non-capitalist mode of traditional forest resource utilisation was amongst the factors behind the sustainable use and management of the resources.

Analysis of the field data shows that customary resource use patterns were governed through customary laws that prohibited villagers from removing the branches of big trees, cutting a tree at its lower stem, and/or uprooting it for other commercial purposes. For instance, villagers used to obtain fuel wood from dried parts of selected trees, such as branches, small sticks or dead and fallen trees. Livestock enclosures were built from thorny bushes or branches of selected tree species. Poles of thin and long trees were used for village houses. As a matter of practice, most of the local residents maintained a

traditional belief system that enabled them to respect and adhere to these informal customs and established taboos. When giving examples of some of the established taboos that forbade the local community from destructive use of the forest, a participant of the group discussions in *Wabo* village quoted a saying that goes like:

Those who cut the branches and the stems of the big trees in the village (especially indigenous trees such as *Cordia africana*) shall experience a recurrent death (extinction) or sickness of themselves and their offspring.

As highlighted in the above statement, violation of customary laws and practices of forest use and management was considered by the local community as an immoral act that leads to bad fortune for their descendants, according to the local elders. It is based on these types of values assigned to the forest that scholars such as Feyissa (2001) asserted that the villagers in the Yayo district maintained a special connection with the forest biodiversity and developed a sense of responsibility for its sustainable use and management. However, these customary rules and governance systems have broken down over the last century.

4.4.2 The genesis and role of customary resource control systems

Historically, the lifestyle of the local community in the study area was characterised by rotational or swidden cultivation and, to a lesser extent, livestock husbandry, hunting and gathering, honey production, and wild coffee collection. According to Gole (2004), changes in people's livelihood patterns, mainly from shifting cultivation to sedentary ways of living through the pursuance of a range of agricultural and farming activities, occurred immediately after the conquest of Menelik II in the late 1890s. The Menelik II era (1889-1913) was also characterised by radical social, political, and economic changes that included territorial expansion and a top-down governance system with a strong decentralised presence in newly conquered regions (Gole, 2004).

One of the measures taken by Menelik II was the announcement of the formation of a territory-based institutional hierarchy and a relatively new concept known as 'village' and 'village land' (Crummy, 2000). The forest biodiversity in the south-western region

served the political agenda of the time in a wide array of systematic ways. Not only did it provide a favourable ground for a decentralised political administration (state jurisdiction) but also offered a reliable means of income and survival for powerful people within the government system (Tadesse and Bekele, 2004; Gole, 2004). It was during this time that the concept of traditional customary landholding system commenced and that lordship over natural resources dramatically expanded to every corner of the region.

Crummy (2000) states that, prior to the official assignment of leaders/governors in these newly established villages, the central government carefully recruited relatives, allies, and members of the army presumably believed to have a demonstrable leadership quality. The great majority of these potential leaders were selected predominantly from the northern part of the country without giving due attention to participating local communities in the governance system. The recruited leaders were then deployed in their respective areas and were generously granted exclusive rights to use large acres of fertile land and dense forest areas. Since most members of the leaders were part of the army and soldiers with a major proportion of the forest under their control, the local people started to call the political elites *Abbaa lafaa* (literally, land owner, or landlord) (Gole, 2003).

Interviews with knowledgeable community elders indicated that, at the onset, the *Abbaa lafaas* were not given outright power over the land resources; rather, they were restricted to exercising usufruct right with a privilege of leasing out and exchanging their land title to any other interested party. Gradually, however, the leaders started to exert more control over the local resources by publicly claiming that they were the sovereign owners of all the forest and land resources within their territory. Along with this land use right, the *Abbaa lafaas* were entrusted with the prerogative of having their own local servants, known as the *Gabbars* or slaves, who operated under their lordship (Crummy, 2000). This gave rise to the emergence of a landlord-tenant relationship, a condition where the *Abbaa lafaas* were superior to the rural smallholder farmers who were forced to serve tenancies.

Interviews revealed that, within the landlord-tenant relationship, the responsibility of administering and overseeing natural resources was given to a locally nominated district

officer known as *Ciiqaashuum*. Supervised by the *Abbaa lafaa*, the main duty of the *Ciiqaashuum* was to subdivide the available patch of forestland and allocate them to the *Gabbars* who were relegated to serving tenancy for the respective landlords. By then, the land use system was clustered into four major categories: settlement land, forestland, grazing land, and farming land. There was also a distinct land use system called ‘*coffee land*’ (locally known as ‘*Lafa bunaa*’) whereby a defined acre of forest block was set aside for the purposes of wild coffee production. In fact, the local community initially challenged the imposition of this type of forestland classification although it became a common and acceptable practice at a later stage (Jotte, 2010).

In addition to the above roles, the *Abbaa lafaas* delegated the *Ciiqaashuum* and some members of traditional elders and tribal leaders (*Jarsoolii biiyyaa*) to collect taxes and rents and manage and allocate forest resource use right to the community. According to the community elders, this was a strategy to silence the possible occurrence of peasant resistance and other related social movements against the new forest land administration system. The main duty of the council of elders and clan leaders was to redistribute land to the villagers depending on the type of livelihood activity (such as coffee and honey production, hunting, grazing, and gathering) that they opted to pursue. In this way, each and every member of the clans in the district was given a block of land and portions of the forest with clearly defined boundaries.

Analysis of the field data shows that customary forestland use pattern in the district in the past was governed by principles of private ownership system. For example, if a villager is the first person to tap honey or coffee from a certain forest patch, then he will automatically be given an exclusive right over the use and access of that forest area by the respective leaders, the council of elders and the rest of the village residents. This use right continues for a lifetime and could be inherited by descendants irrespective of the user’s decision to quit the pursuance of such livelihood activities in the boundaries of his coffee forest. As a proof of their ownership, peasants with usufructuary rights were obliged to pay taxes to the *Abbaa lafaa* either in kind (such as honey, coffee, and mutton) or in cash. According to the interviewed elders, the maximum amount of money paid for

the *Abbaa lafaa* as a tax was in the range of ETB 5 (five) to 10 (ten). This type of tax collection as a proof of resource ownership is not new phenomena. A research conducted by Vandergeest and Peluso (1995) outlines that tax collection has been used as an alternative proof of land right and ownership in Thailand.

In the customary resource ownership scheme, the mechanism through which boundaries of privately owned forest blocks were designated was a tricky undertaking, exhibiting a huge difference with that of the contemporary techniques of boundary-marking. It is notable that the current trend of circumscribing or boundary-marking and supervising conservation spaces employs sophisticated mapping technologies that could help in fencing and establishing signposts (Peluso, 1995). On the contrary, the traditional practice of private forest boundary demarcation in the Yayo district was based on simple techniques that employed the use of physical features such as big trees, houses, rivers, small mountains, ridges, and valleys. Informants recounted that the customary techniques of boundary-marking were free from social injustice and conflict because the process had been carried out based on mutual understanding and informed consent of village dwellers.

In the customary coffee forest and land ownership system, the local community used to be entrusted with certain rights and responsibilities. First, customary owners of forest land were given exclusive rights to inherit (*Dhaalcha*), transfer (*Dabarsuu*), lease out/contract (*Kontraata*), share-cropping (*Qiixxee*⁵³) and donate (*Kennaa*) their property to their close families, relatives and others. Individuals who resided in the villages but had no agricultural land, used to get access to these privately owned coffee forest trees through other arrangements such as contract (*Kontraata*), share-cropping (*Qiixxee*), gift (*Keennaa*), and transfer/inheritance (*Dhaalcha*). Nonetheless, the customary rules strictly prohibit the sale of the ownership right over forests. In a sharecropping arrangement, the owner reserved the right to allow landless people to produce coffee with the agreement of sharing the yield equally. This type of local forest use deal was often

⁵³ Qiixxee is a local level land use deal whereby a landless person receives land from the owner on a contractual basis, provides labour throughout the different agricultural seasons and equally shares the harvest.

established through informal bilateral discussions, although the trend has recently been changing due to the preference of written agreements. The village leaders and elders were responsible to monitor the transaction processes of forestlands in the villages, although the villagisation program introduced by the *Derg* regime abolished the practice.

Interviewed elders also recalled that the exclusive proprietors of the forestland had the power to cease, terminate and/or allow any form of use and practice on the forest and land under their control. Different local communities recognised each other's property and there was a norm that prohibited unauthorised entrance into forestland belonging to others. Whenever there were incidents of illegal use and hence disputes, the owner of the forestland defended his territory by seeking the support of the traditional clan leaders and the council of elders or that of the central government. In most cases, however, it was the local leaders and elders who resolved the disputes and conflicts over the access, control, and use of such resources.

In sum, the century-old customary ownership of forestland formed the basis of claims by local communities to the access, control, and use of the coffee forests and the NTFPs found within them. Local communities respected these customary access and ownership patterns as well as the traditional boundary used to enforce the local control over forests. The traditional forestland holding gradually started to face internal and external challenges related to several social, economic, institutional and demographic changes in the region (Senbeta and Teketay, 2003). According to the local conservationists, two major processes can explain these changes: population pressure and market-oriented production systems.

Concerning the population trend in the locality, as briefly noted above, the district is experiencing a continuous arrival of diverse groups of people who often join the local competition for space and resource. One form of the intra- and inter-village competitions for resources occurs between the majority of the long-term villagers who claim customary forest use rights and those who lack (customary) land ownership rights (COFCOP workers and seasonal farm and off-farm migrants). With regard to market

driven production systems, the growing population in the district increasingly engaged in coffee production, beekeeping and Khat production mainly due to the market rewards of such sectors. Those portions of the community who were previously left without a recognised customary forestland have also commenced these livelihood activities in the forest areas and fallow lands situated outside privately owned land holdings. The details of these discussions and other politics surrounding the struggle to control the forest are presented in the next chapter. For now, the chapter continues to discuss social and political dynamics surrounding customary resource control of patterns.

4.4.3 ‘Bakkee abbaa alangee’ and its role in the customary forest and wild coffee access and control

One way of looking at the interaction between humans and their physical environment is to investigate the cultural and spiritual significance of the resources to the local community adjoining them (Mackenzie, 2005). In the Yayo case study villages, the analysis of the traditional governance and control of resources cannot be conducted without mentioning some of the social, economic, cultural, and political dimensions of the forest biodiversity that shape the perceptions, conceptions, appropriations, and management practices over the resource. During the field research, historical and cultural sites in the district were often mentioned in connection with traditional forest access and use. These much-neglected spaces of cultural connection offer an interesting dimension to examining how long-term residents make use of these sites to establish customary rules that allow them to gain historic access and control over resources. By uncovering the historical relationship between the community and such areas, it could also be possible to explore the current state of the sites and its implication to the existence of traditionally influential institutions as well as biodiversity status.

Bakkee abbaa alangee, which literally means the throne of the judges, and the history of the Oromos of the *Illu Abbaa Bora* are inseparable. According to historical accounts of the elders and written documents from the District Culture and Tourism Bureau, *Bakkaa abbaa alangee* was inaugurated for the first time during the era of one of the kings of

Abbaa Bora, namely *Caalii Shonoo*. The information from the local culture and tourism bureau showed that, during that time, *Caalii Shonoo* invited the nine rulers of *Yayo* and *Illu* to this area and organised a massive feast to publicly declare the establishment of the *Bakkee abbaa alangee*.

Spatially situated within *Wutete* village of the *Yayo* district, *Bakkee abbaa alangee*, had been used as a special venue to draft, discuss, and endorse various administrative and legislative directives as well as regulations within the *Gadaa*⁵⁴ system of the *Illu Abbaa Bora*. Customary and traditional rules and protocols associated with the social and economic affairs of the local community were all discussed and passed at this special place. According to the elderly informants, it was in *Bakkee abbaa alangee* that one of the ancient kings of the region gave the name *Illu Abbaa Bora* to the current administrative zone. The cultural significance in terms of providing a space for practicing long-standing rituals and ceremonies of the Oromo *Gadaa* system was also among the key benefits of the site. Sources from the district also revealed that selected traditional leaders of the clans of the *Illu Abbaa Bora* Oromos, mainly those under the two grand clans (i.e. *Jaahaan Noonnoo* and *Toorbaan Hadheessoo*, discussed in chapter two) used to hold a bi-annual general assembly at *Bakkee abbaa alangee*. The meetings were aimed at revisiting existing rules, announcing new ones, and making decisions on other pressing societal issues.

Bakkee abbaa alangee was also a preferred geographical space where the village councils, local elders and the remaining community came together to discuss and decide on customary resource access, use, and control patterns. As such, it was considered as a venue within the village where issues related to the use and governance of resources was conceptualised and implemented. Regarding the wild coffee, for instance, some of the

⁵⁴ *Gadaa* is a political, economic and social system which the Oromo people have been following in governing themselves. It is a democratic system of governance in which the community as a whole has the opportunities to participate on equal basis. In this governance system, people are grouped and organized into five *Gada* grades or strata and govern themselves in rounds. *Gadaa* is a system in which the groups of Oromo people who are organized or structured into five grades or strata assume power in rounds which last for eight years each (Jalata, 2012). The *Gadaa* system still exists in all zones of the Oromia regional state including *Illu Abbaa Bora* although the political autonomy of the Oromos is still controversial (Jalata, 2012).

discussions in *Bakkee abbaa alangee* focused on conservation and management of shade trees, allocation of coffee farms, local practices of forest uses, resolution of conflicts among villagers, in-kind payments of taxes, and contribution (payment) that has to be made for the village councils and others. According to an informant from the district, some of the traditional forest management and use protocols and codes that were ratified at this historical site were:

1. Young trees were highly regarded by the local community due to their role in promoting local economic growth and providing essential ecosystem services to the villagers. Thus, cutting these trees was declared an offense that resulted in punishment and a fine.
2. In order to avoid wilderness and maintain the ability of the forest to provide shade, reforestation of trees was set as a societal obligation. Every member of the community was required to plant a tree seedling whenever they cut one.
3. Cutting, firing and/or burning certain types of tree species was strictly prohibited. These include *Prunus africana* (*Hoomii*), *Cordia africana* (*Waddessa*), *Ficus spp.* (*Qiilxuu*), *Albizia gummifera* (*Haambabbeessa*), *Entada abyssinica* (*Ambaktaa*), *Aningeria adolfi-friedericii* (*Qararoo*), *Syzygium guineense* (*Baddeessa*), and *Podocarpus falcatus* (*Biirbirsa*). As remarked by the villagers, there was a famous quote that was used to metaphorically underscore the significance of these trees. The saying goes: “A village lacking big trees is as frail and insecure as a man who does not have something to eat and a province/region without respected elders.”

During my fieldwork period, I got the chance to visit this historical and cultural heritage site. Accordingly, I took note of the exact location, characteristic, and the extent of existing interactions of the local communities with the site, as well as the potential threats to its future existence. From my observation, *Bakkee abbaa alangee* has a circular to oval shape with an estimated diameter of 180 meters. It is situated in the midst of the thick forest and is covered with bunches of grass that were used as ceremonial bedding. An on-site discussion with the elderly informants showed that the site was once a residential

place whereby the local communities spend several days to undertake traditional ritual ceremonies.

The assembly that used to gather in *Bakkee abbaa alangee* had been active until its abolition by the introduction of a formal administrative system of Menelik II. At present, the demarcation of the site as a component of the NFPA and the consequent regeneration of vegetation species made it lose its past features.

4.4.4 The significance of customary forest biodiversity control systems

The traditional practices of access, control, management, and use of forest biodiversity have been hailed by long-term local residents as an effective, just and sustainable means for achieving social and ecological targets. In the interviews held with villagers, it became clear that the traditional land ownership system played a positive role in the areas of biodiversity conservation and social security. From a conservation point of view, the patches of forests on which the local communities make ownership claims were strictly safeguarded from being cleared and unsustainably exploited by outsiders. Through the customary rules and regulations, village residents were held accountable to the local institutions that monitor any form of ‘destructive use’ in their designated areas as well as on the forests located along the route to their own forest blocks.

Outsiders, especially migrant settlers, were either debarred outright from using the forest biodiversity or were required to contact the owner of the forestland or the council of elders to discuss another arrangement of access to the resources. Whenever illegal users and destructive uses were encountered, the community members used to report the incident to the council of elders in the village for further action. Some of the destructive activities that were regulated using customary laws include the likes of commercial timber production, charcoal making, and agricultural farming expansion within customarily owned forestlands. In the case of unexpected catastrophes such as forest fire, there was a strong collective responsibility among the village dwellers to participate in extinguishing the fire. By discouraging commercial use, the traditional forest access and use practice systematically promoted subsistence use of the resources by its users. The

interviewed community elders and experts recounted that the main reason for the rare occurrence of commercial forest use during that period were: a very low market demand for forest and non-timber forest products and the low level of competition for space and use of natural resources.

Concerning social protection, residents perceived the customary forestland ownership system as a social security strategy due to its considerable role in alleviating household poverty. Many smallholder farmers in the study villages face times of hardship where cash is desperately needed to meet their daily subsistence needs. In order to cope with such periods of economic crises, most local community members used their forestland as collateral to obtain loans and credit from other relatively wealthy individuals, mainly honey and wild coffee traders. The collateral agreement included terms and conditions compelling villagers to repay their loans either in kind (i.e. coffee or honey) or in the form of cash.

Analysis of data suggests that some special groups within the society had particularly benefited from the privately owned forest blocks under their control. This group consisted mostly of inactive community members who were aged, disabled, or chronically ill farmers and/or widows. In most cases, the forestlands of such people used to be leased to interested and landless working-class individuals through a sharecropping (*Qixxee*) arrangement over coffee and honey production. Under a special term and condition, the person who takes the contract was obliged to make proper use of the resource and share yields with the owner of the land on a fifty-fifty basis. Taking the value of the coffee into account, this arrangement seemed to have favoured the landless individual whilst reducing the income that the owner was supposed to obtain, had he been working by himself (Wood, 1983). Nonetheless, due to their inability to engage in labouring agricultural activities, there was no better alternative for them than sharecropping to generate income or receive in-kind benefit from the resource.

4.5 Institutions involved in the customary control of forests and wild coffees

The principal instrument through which natural resources can be accessed, governed, and controlled is through social institutions. Institutions are capable of playing an intermediary role in complex interactions between individuals and their physical environments (Ostrom et al., 1994). Yet, they experience several twists and turns and are subject to progressive changes due to key social, cultural, and historical processes. Institutions emerge and operate at different periods in time and space. Some of them are formed recently whereas others have existed for more than a century (Stellmacher, 2007).

In the Yayo district, the local communities and their traditional institutions have a historical interconnectedness that dates back to the ancient times (Jotte, 2010; Toli, 2006). As highlighted by many community informants, the institutions played a holistic role in the social, economic, ecological, and cultural aspects of the community whereby they shaped the interaction of the society with the physical and non-physical world. The wild coffees and the forest were amongst those key biodiversity resources mediated and governed by the directions, rules, protocols, and codes of the institutions that were briefly discussed in section 4.3.2 of this chapter. The following section offers a thorough examination of the nature and characteristics of the customary institutions and their relevance to traditional resource access, control, and use patterns.

As indicated in the above sections, the feudalistic land ownership system followed a tradition of exclusive ownership and control of natural resources by landlords, known locally as the *Abbaa lafaa* (*Abbaa biiyyaa*). Being the superior institution in terms of their decision-making power, the *Abbaa lafaas* comprised individuals who actively participated in the Ethio-Italian war during the Menelik II era in the 1900s. Immediately after the war, considerable acres of land were given as a gift to the soldiers and the military people returning from the battlefields, mainly to the *Naftanyaa*⁵⁵ groups from the northern part of the country (Crummy, 2000). According to the responses of the community elders, the *Naftanyaas* who were granted the forestlands in the Oromia region

⁵⁵ Naftanyaa is an Afaan Oromo terminology that literally means 'a man with a rifle'.

later became the *Abbaa lafaas* who started to control all the natural resources such as the forests and wild coffees. Since the Menelik II period had its roots in the mainstream Christian kingdoms of Ethiopia, the ancient Orthodox Church also received a considerable size of forestland for the establishment and expansion of local churches (Young, 2006).

In addition to the *Abbaa lafaas*, there were other subordinate local institutions that were influential in the decisions pertinent to the ownership, use, management and access of forests and wild coffees. The interviews with the local community elders revealed that some of these institutions included *Qooroo*, *Abbaa laгаа*, *Tullaa*⁵⁶, *Xuuxxee*⁵⁷, and *Shanee*⁵⁸. The term *Qooroo* has its origin in the Afaan Oromo language and is used to refer to a greatly respected person in the community who is equipped with exceptional skills and talents in all his undertakings. As per the interviews, the *Qooroo* were responsible to administer and govern designated geographical areas, solve emerging socio-economic problems of the village community and contribute to the natural resource management process in the district. In collaboration with the council of elders in the villages, the *Qooroo* also arbitrated resource conflicts and regulated various forms of property right violations especially those related to agricultural farming land, natural forest, and wild coffee. What was not under their power was they did not have ultimate authority to determine access to wild coffee and forest since these were the exclusive responsibilities of the *Abbaa lafaas*.

The other most essential informal institution in the customary resource access and control system was the *Abbaa laгаа*. This is, once again, a word in the Afaan Oromo language that literally means ‘the owner or father of a river’. The *Abbaa lagaas* were appointed on the basis of the depth of their knowledge and understanding of the local scale interaction between people and the forest biodiversity. This knowledge can be related to the

⁵⁶ *Tullaa* is territory-based administrative institution that performed activities related to social, economic, cultural and political aspects of the villagers. *Tullaa* is an Afaan Oromo word that is used to refer to the English word- heap or stack.

⁵⁷ *Xuuxxee* is an Afaan Oromo word used to designate a mediator role between *Tullaa* and *Shanee*. In most cases, *Xuuxxee* undertakes the activities delegated to it by the *Tullaa*.

⁵⁸ *Shanee* is an Afaan Oromo word which is used to refer to the English word - five. It is a social institution containing only five people.

composition of the natural resource base of the district, the nature of livelihood activities in the villages, and the extent of the people's dependence on the resource base. According to the group discussions, the main duties and responsibilities of the *Abbaa lagaas* included designating and setting traditional coffee forest boundaries, identifying and reporting natural resource disputes and conflicts to their superiors, monitoring the resource utilisation patterns by villagers, and gathering information on livelihood practices such as wild coffee production and NTFP collection. Although the administrative hierarchy placed them under the *Qooroos*, the *Abbaa lagaas* also had an indirect stake in forest related decision-making processes. Yet, like the *Qoroo*, the *Abbaa lagaa* did not have the ultimate say in granting forest access to the local community, unless otherwise instructed by the *Abbaa lafaa*.

During the time, the aforementioned customary structures had a direct and/or an indirect role in regulating forest utilisation, monitoring coffee production and harvesting processes, setting and enforcing fines and punishment in cases of misuse of local resources, resolving resource-based conflicts and disputes, and administering the functioning of various community support and self-help groups such as *Daboo*. They also made considerable contributions to the traditional systems of biodiversity conservation and as such, the scale of their influence was detectable through the rules and the bylaws they issued on different occasions. For instance, if an ordinary peasant/villager required access to certain acres of farmland, grazing land, natural forest, and/or forest coffee land, an informal request would be submitted or presented to the respective *Abbaa lafaa* who holds the ownership right over the specific space.

Once the requests were received, the decision as to whether an individual was eligible to access and use the forest land or not was usually made taking into account the gender, family size, age, availability of unoccupied land and its potential productivity, the physical ability of the farmer to engage in coffee production, and the degree of intimacy of the farmer with the *Abbaa lafaa*. If a peasant was favoured by the *Abbaa lafaa*, then, an order would be given to the subordinate hierarchical structures such as the *Ciiqaashuum* and the *Qoroo* to measure, demarcate, and grant the requested size of

forestland to the farmer. Prior to carrying out any activity on the space, the institutions under the *Abbaa lafaa* normally held a meeting with the farmer to explain the size, location and boundaries of the land, the modes of utilisation, the obligation of the farmer, and other terms and conditions related to yield-sharing. The regulation and monitoring of the adherence to these working modalities was the responsibility of the *Qooroo, Abbaa lagaa, Tullaa, Xuxxee, and Shanee*.

Analysis of the field data suggests that the decisions to grant access and use right over forestland were subjective. An individual villager might be given a fertile, productive, and accessible forestland or the opposite. In most cases, close allies of the *Abbaa lafaas* such as friends and relatives enjoyed prerogative access to the coffee forest area of their choice over the rest of the village residents. If a farmer was not within the relationship circle of the *Abbaa lafaa* either as a friend or a relative, then he followed the common practice of bribing the landlord and his subordinates by way of presenting '*Kennaa*' (literally known as a gift). The *Kennaas* were not specific in terms amount and type. They often varied depending on the situation and the purpose for which they were given. As mentioned earlier, it was either cash amounting to ETB 10 or an in-kind gift that included mutton, wild coffee and/or a gallon of wild honey. It was through the *Kennaa* system that such farmers secured long-term access and use right over a relatively fertile, proximate, and productive coffee land.

The local community elders also recounted a situation whereby traditional access and use are cancelled. According to their responses, cancellation occurs when the *Abbaa lafaas* realise that the farmer is performing well in his agricultural work and is showing progressive financial growth. An elder in *Wutete* village concisely stated:

When a farmer gets some money and starts to live a decent life, the *Abbaa lafaas* used to become so suspicious and afraid due to their perception that the farmer might be a potential threat to their power by challenging the 'one-man' control of the resources. It was this fear that often resulted in frequent arguments and conflicts between the *Abbaa lafaa* and the villagers and that also led to cases of eviction and dispossession of villagers from the forestland.

Such kind of an abrupt expulsion through disempowerment and control of better-off farmers was used as a systematic strategy for avoiding intra-village competition for space and resources in the district. The results of the analysis of the dataset shows that the rent-seeking behaviour of the *Abbaa lafaas* and their subordinates in tandem with the feeling that the farmer has to plead to access and use the forest lands were the major negative aspects of the forest land tenure system of the time. Further conversation with village elders, over countless cups of coffee, revealed that almost all the customary institutions continued to exert influence and control over the forest resources, although limited, even during the post-Menelik II era. The imperial epoch repeated the same practice adopted by the Menelik II era in that the local community's customary right and control over natural resources were partly recognised (see table 4.2 for the summary on the type and roles of the customary institutions). However, since it was not an outright recognition of use right, villagers were not allowed to get full access to the forestland unless they work or serve tenancy for the powerful *Abbaa lafaas*.

Table 4.2: Summary on the type and roles of the customary social institutions.

Regime	Social Institutions	Roles	Remark
Menelik II/ Imperial Regime	Abbaa lafaa	- Superior institution in decision-making. - Controls natural resources: the forests and wild coffees. - Makes final decision on access to wild coffee and forest.	
	Qooroo	-Administers and governs designated geographical areas. -Solves emerging socio-economic problems. -Contributes to the natural resource management process. -Arbitrates and regulates resource based conflicts.	
	Abbaa lagaa	-Designates and sets traditional coffee forest boundaries. -Identifies and reports resource disputes and conflicts. -Monitors the resource utilisation patterns by villagers. -Gathering information on local livelihood practices.	
	Tuullaa	-Performs activities related to social, economic, cultural and political aspects of the villagers.	
	Xuxxee	-Plays Mediatory role between Tullaa and Shanee. -Undertakes the activities delegated to it by the Tullaa. -Administers the functions of community support groups.	
	Shanee	-Undertakes local level activities. -Actively participates in self-help group activities.	

Sources: Author's analysis of field data obtained from interviews and FGDs, 2014/2015

Tesema (1996:206) argues that the brutal invasions both by internal (Menelik II) and external forces (Italian colonisers) as well as the focus of the Oromos on increased economic viability and a centralised governance system abolished the power of the customary institutions and weakened the mutual support practices and strong communal life of the Oromo people, including those in the study area. It also paved a way for a centralised and formal natural resource management system by abating the powers of the *Qooroos* and the *Abbaa lagaas*. Nowadays, it is only the lower institutional structures (such as *Tuullaa*, *Xuxxee*, and *Shanee*) who have maintained their roles and functions in the daily interaction of the village community, except in natural resources related issues. Analysis of the data shows that the weakening of customary resource ownership and control over biodiversity resources and the resultant shift in property right seemed to have led to extensive degradation and extinction of valuable biological resources of the district.

4.5.1 Status of the customary forest control system during the *Derg* and EPRDF regime

Pausewang (1990) underscores that the rise of the *Derg* in 1974 was a landmark period for the sudden annihilation of customary access and use of resources and the emergence of the state's control over natural resources. The *Derg* regime brought 'the land question' to the centre of its political programme whereby controlling natural resources using the idea of 'the public good' was given top priority. The customary institutions serving as an instrument of resource control were, thus, debilitated by newly imposed formal laws, rules, and regulations (Stellmacher, 2007). Most importantly, the *Derg* obliterated the influential role of the *Qooroo* and *Abbaa lafaa* with immediate effect whilst informally permitting the lower administrative structures such as *Tullaa*, *Lagaa* and *Xuxxee* to maintain limited power in duties that were not directly associated with natural resource management and ownership.

One interesting phenomenon that was noticed in the post-1974 period was the emergence of the notion of a villagisation program (locally known as '*Yemender Misreta*',) that

aimed at settling peasants in their respective villages. Consequent to this, Peasant Associations (*Kebeles*⁵⁹) were formed and made the lowest administrative units of the state structure. Appointed from among the local community, the leaders of the villages were given the title *Bulchaa gandaa* (literally, village administrator) and emerged as a key institution in exerting control and governance over the agrarian resources and practices of the local community. In collaboration with relevant government structures⁶⁰, the *Astedadari*⁶¹ (in my case *Bulachaa gandaas*) were entrusted with absolute control over the distribution of land and determination of access and use right in the villages (Pankhurst 2002).

The majority of interviewees noted that some of the positive aspects of the dismantling of the feudal system by the *Derg* were the cessation of serving tenancies and paying taxes and/or giving gifts to the *Abbaa lafaas*. Yet, resource access and use right by villagers was still a question since, according to Akalu (1982), the villagisation programme served the state's ambition of extending controlling power from the national scale directly to the remotely positioned villages. Compared to the Imperial regime, many interviewed local experts conceded that the *Derg* regime tended to make a relatively fair distribution of the coffee forestland to smallholder farmers by virtue of their landholding status.

In the EPRDF regime (the post-1994 period), the status of customary institutions and the local community's ownership right over resources has not improved much. The period witnessed much more reinforced planning and implementation of various protectionist-oriented biodiversity conservation programs, strategies, and policies. As will be seen in the next chapter, much effort went into dislocation, imposing strict coffee forest preservation measures, and precluding customary use and access rights due to the state's exclusive ownership claim over all forms of biodiversity resources, including those found on ancestral forest land.

⁵⁹ Kebele is one section of a district that is identified as the lowest administrative unit in the government structure.

⁶⁰ The relevant local government departments who had a stake in land administration were the District Forest and Wild Life Bureau, Agricultural Office and Land and Environmental Protection Authority.

⁶¹ *Astedadari* refers to the administrator of a Kebele or 'neighborhood'. Founded by the military revolutionary government (the *Derg*), the Kebele is the urban equivalent to the so-called Peasant Associations (PAs).

The EPRDF era is marked by a series competing interests over land and forest resources. In the study area, large tracts of forests have been set aside for strict conservation and state-led extractive industries. Following these transfers, the customary controls over resources have been abated and the movements of the local community within various livelihood spaces were banned. The state and non-state conservation and mining actors failed to acknowledge the role and historical dimensions of the traditional institutions by marginalising them from the management process. This has led to an increasing influence of formal institutions, regulations, and rules on matters pertaining to access and ownership of environmental resources. By so doing, the recognition of customary resource ownership rights is systematically made 'to depend on the condition that such type of recognition does not obstruct national development priorities and interests'.

As will be discussed in the next two chapters, the strict conservation measures and the inception of neoliberal coal mining initiatives have brought along several tenacious effects on the social, economic, and political lives of the village dwellers. Firstly, they outlawed an unlicensed local community's use of the forest products such as wild coffee production, wild spice harvesting, hunting, gathering, and traditional medicine. As such, the incorporation of large proportions of customarily owned forests and wild coffees into strictly conserved spaces and mining sites made the local community to seek access and use right permits from the extra local forces. Over the past decade, obtaining permission and access to the wild coffees, was not that easy as it was presumably made the prerogative of the dominant groups who have direct or indirect politico-economic ties with the state.

Secondly, the new resource control patterns favoured neoliberal interests of a few powerful and extra local groups such as small and large-scale timber extractors, private coffee producing agencies, coal mine proponents and workers, and plant genetic material collectors. Thirdly and most importantly, it destabilised customary resource management and governance patterns, social ties, and traditional modes of agrarian production whilst romanticising contemporary institutions and resource control mechanisms. Analysis of the data suggests that such a changing trajectory in natural resource control, access, and

use has led to antagonistic relationships among the competing actors. As a result, many villagers have continued to protest against the external actions with various formal and informal resistance mechanisms.

As a summary of the temporal changes in the forest biodiversity, demography and resource management approaches, table 4.3 takes the Imperial, the *Derg* and the EPRDF regimes into perspective and attempts to provide the combined results of the analysis of the field data. Information contained in the table was obtained through various focus group discussions, in-depth interviews and reviews of historical records. It can be clearly seen from the table that complex population dynamics, changes in production systems, and the ever-increasing competition over space and resources adversely affected the local ecological processes. Villagers indicated that the wild coffee and the forest resources are in a continuous decline due to a combination of social, economic, institutional, and political factors mentioned in the table. Among these factors is the arrival of powerful actors (mainly professional conservationists and mining proponents) in the district who added another layer of complexity to the contestation over access, use, and control of resources.

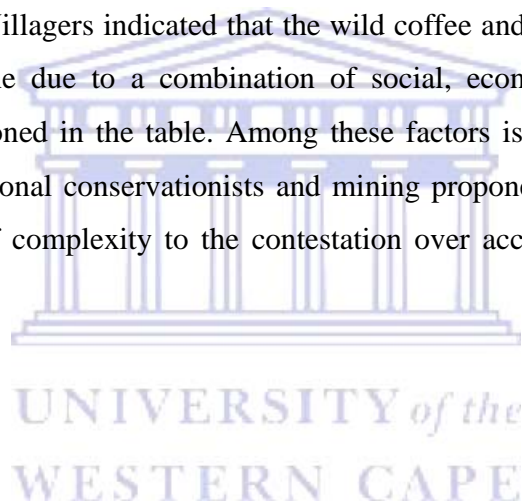


Table 4.3: Comparative analysis of the status of the forests and wild coffees, resource management approaches, and competing interests over resources across different regimes.

Parameters	Political regimes					
	The Imperial regime	Underlying reasons	The Derg regime	Underlying reasons	The EPRDF regime	Underlying reasons
Forest status	Excellent	-Traditional forest ownership, access and use system. -Low population pressure. -Low levels of commercial use of forests and NTFPs	Very good but with a progressive decline	-Change in ownership, access and use pattern. -Population pressure due to resettlement and villagisation programs -Increased levels of commercial utilisation of forest resources	Forest resources area severely declined	-Population pressure due to formal and illegal settlement. -Prevalence of poaching, expansion of farmlands, mining activities. -Market driven forest use systems -Failures of the state's conservation measures
Wild coffee status	Excellent	-Undisturbed wild coffees, -Well recognised traditional wild coffee ownership, access and use system -Very low population pressure and thus low degree of commercial use of wild coffee.	Good but with a progressive decline	-Introduction of high yielding varieties. -Reduced emphasis on wild coffee Arabica cultivars, -Diminishing roles and power of customary resource governance systems -Population pressure and increased commercial production of coffee	The wild coffee varieties are fast disappearing	Population pressure due to formal and illegal settlement. -Prevalence of poaching, expansion of farmlands, mining activities. -Market driven wild coffee utilization systems -Failures of the state's conservation measures
Management approach	Customary resource management systems	-Regulated and administrated by locally accepted indigenous institutions -Availability of powerful institutions	Relatively strict conservation measures	-The introduction of restrictive proclamation and laws -Adoption of strict conservation measures. -The abolishment of customary resource governance practices	Extremely strict conservation measures	-Introduction various protectionist-oriented conservation measures. -Increased numbers of conservation actors. -Diminishing roles of customary institutions.
Competing interests over resources	A few interest groups	-Abundant amount of resources -Low levels of competition over resources	Growing levels of competing interests	-Influx of diverse groups of people through resettlement -Emphasis on market-driven forest and wild coffee use	Stiff competition over resources	-Increased numbers of conservation actors -Influx of coal mining workers and proponents. -Arrival of other settlers.

Source: Author's analysis of the field data obtained from various sources, 2014/2015

4.6 Chapter summary

Biological diversity is an extremely valuable resource for the survival of humankind. People depend on these resources and interact with them in a wide array of direct and indirect ways (OECD, 199; Pearce, 2001). However, how biodiversity is created and maintained is largely contested and the costs and benefits of maintaining it are not equitably distributed. In the Yayo district, the wild *coffea arabica* cultivars and a range of other forest species have been crucial in social, economic, cultural, and political lives of the local communities. As a biodiversity species of commercial and scientific significance, the wild coffee, in particular, contributes to the local subsistence and consumption needs. Despite the inherent challenges of the local coffee production and harvesting, the findings of the study show that engagement in a coffee sector is much more rewarding for the villagers than any on or off-farm activity that may generate cash incomes. From the various types of coffee production systems in the country, the villagers in the study area prefer engaging in forest coffee instead of garden and/or plantation coffee due to the perceived superior qualities of the former in terms of aroma, taste, oiliness, tolerance to drought, and size of the coffee bean.

The local perception regarding the nature and characteristics of the wild coffee species varies across actors who espouse diverging interests over the access and use of the crop. These perceptions are contested on the basis of taxonomic features, nomenclature and agronomic practices associated with the cultivation of the crop. Robbins (2004) argues that such contested perceptions and conceptualisations of environmental resources can significantly influence the way they are accessed, used, and governed. Concerning wild coffee governance, the local communities in Yayo exhibited a complex set of customary approaches to access, use, management and control of the local forest resources. A range of customary institutions such as *Abbaa lafaa*, *Ciiqaashuum*, *Qooroo*, *Tullaa*, *Xuxxee*, and *Shanee* was directly or indirectly involved in allocating spaces and determining access and use over them. Access to the wild coffee and the forest was secured through one or more of the local arrangements. These include, among others, inheritance (*Dhaalchaa*), transfer (*Dabarsuu*), contract (*Kontraata*), sharecropping (*Qiixxee*), and donation (*Kenmaa*). As the results of the

study suggest, the customary resource ownership system was crucial in regulating the sustainable utilisation and management of biodiversity resources in the locality.

The past three decades have witnessed significant changes in these customary governance institutions. Along with subsequent changes in the political arena, a new internationally supported approach of biodiversity resource management, as well as a new understanding of the value of the resources, started to influence the laws, policies and institutions regarding access and control over them. Within the broader context of natural resource control trajectories in the study area, it is the objective of the next chapter to examine the nature and characteristics of one of the most powerful actors, the state and non-state conservationists, who compete to secure control over the biologically diverse species of the district, mainly the wild coffee genetic materials, based on their understandings and interests.



Chapter Five: Wild coffee control by state and non-state conservationists: the reign of stringent protectionism

5.1 Introduction

Placed within the framework of temporal shifts in natural resource control, the main objective of this chapter is to investigate how wild coffee control gradually slipped out of the hands of villagers and was strategically taken over by the state and non-state conservation actors for their economic benefits. The chapter approaches resource control and competing interests over wild coffee and forest biodiversity from four perspectives. Firstly, it presents the ever-changing demographic, social, economic, and ecological processes in the study area; secondly, it discusses the courses of action carried out during the introduction of wild coffee preservation interventions. The third perspective unpacks the detailed content of the preservation regimes and explores how they were used for reinforcing the state and non-state actors' control over the wild coffees. Lastly, it explores the diverse social effects resulting from the conservation approaches and also assesses the local resistance toward the restriction of access and use of forest biodiversity.

Mindful of the fractional uses of the forest biodiversity by villagers, I focus on the role and power of NGOs and global conservation advocates in influencing policy evolution, determining resource access, use, and formal tenure right and controlling the meanings and practices associated with the forests and wild coffees. The findings show that the state, by way of introducing formal institutions, took away the local community's customary forest governance right and transferred them to NGOs and global conservation advocates who became increasingly influential in defining the access and use of the resources. In this regard, the conservationists made use of dominant global environmental discourses to shape access and use of resources in the Yayo district, Ethiopia. In this chapter, I argue that the success of conservationists in controlling the discursive and material practices associated with the wild coffee in Yayo is the result of two prominent factors: Firstly, they have received strong backing from the regional and federal state authorities. Secondly, they have the resources and technical capacities to come up with a persuasive scientific explanation on

degradation and hence have won negotiations related to establishing conservation territories and the rules pertaining to these.

The chapter is structured in the following way: the first section presents the perceptions of NGOs and global conservation advocates on the status of the wild coffee and the major drivers for its extinction. The second section describes the formulation and execution of the set of protectionist-oriented approaches that they implemented to, in their view, safeguard wild coffee. The last section discusses the social effects of the strict conservation approaches on local livelihoods and biological resources and the resistance of local communities towards these externally induced interventions. The analysis of the issues that are covered in this chapter were carried out based on the information obtained from interviews (with NGOs staff, global conservationists, state actors and long-term villagers), transect walks, participant observations, focus group discussions and empirical studies of the coffee forests.

5.2 Explaining the wild coffee genetic material erosion: The conservationists' view

According to Marcus (2002), in Ethiopia, the past four decades are characterised by three major politico-economic changes which influenced national policies to be centred on agrarian development and to grant priority to this sector rather than any other development sectors. The first involved voluntary and forced migration of smallholder farmers to other rural areas, paving the way to radical transformation in socio-economic relations and local scale natural resource use patterns (Melaku, 2003). The issue of natural resource degradation became a touchstone for the rhetoric, discourses, and policies advocated by state and non-state actors found at the local, national and regional scales (Keeley and Scoones, 2000). It was for this reason that a range of coordinated and organised movements were started by global and national conservation actors to investigate the extent, severity, and impact of human-induced natural resource degradation in the country and devise sustainable mitigation strategies for the problems (Yeraswork, 2000).

Concerning forests, there is a general understanding amongst national and global social and ecological scholars that forest resources have substantially declined both in

quality as well as quantity (Sutcliffe et al., 2012). A comprehensive report by EFAP (1994) reveals that, in the 1950s, an estimated 16 % of the total land coverage of Ethiopia was endowed with closed canopy forests that declined to 3,6 % and 2,7 % in 1980 and 1989 respectively. Constituting more than half of the ‘undisturbed high forests’ of the country, the south-western plateaus, where the study area is located, have been identified by western scientists and Ethiopian researchers as ecologically fragile landscapes with high rates of forest conversion and rapid and widespread loss of its exceptional biodiversity species (Gole, 2003; Senbeta, 2006).

Historical accounts indicate western scientists, including ethno-botanists and plant taxonomists, did not visit the southwest region until the mid-1930s. This was mainly due to the perceptions by this group that the region is remote and inaccessible with a suspicious and conservative society and a recurrent occurrence of tropical diseases such as malaria (Meyer, 1965). The loss of forest biodiversity, mainly the wild *coffee arabica* populations in the region, was first documented during an FAO mission in the late 1960s (Meyer et al., 1968). Reporting on the change in composition and status of the vegetation ecology of the coffee forests, Meyer et al., (1968) stated that most of the areas in the southwest corridor had been covered with abundant and diverse verdant, pristine, and evergreen montane rainforest vegetation. Since then, the coffee forests have undergone complex social, economic, physical, biological, and institutional changes that resulted in the rapid extinction of the wild coffee genetic material (Tesfaye and Thomas, 2004). An empirical study on the forest cover change between 1970 and 1975 estimated that approximately 38 % of the highland plateaus in the southwest were covered by 1,2 million hectares of closed canopy forest (Reusing, 1998). The same study shows that the figure dropped significantly in 1997 to the level that 52 % of these natural coffee forests were lost, leaving the region with only 0.6 million hectares remaining of the high forests.

Different groups of global and national conservation advocates have provided a number of explanations for the causes and drivers of forest loss and wild coffee genetic erosion in the southwest region of Ethiopia. The first, although not within the scope of this study, is climate change. Davis et al., (2012) underscore that wild coffee relatives in the Yayo coffee forests are a climate-sensitive plant species. As a result, their genetic stock diversity and local scale production continues to be strongly

affected by accelerated changes in climatic conditions and that, in most instances, the outcome will have a negative implication for the worldwide coffee industry. The other two reasons, which are directly related to the theme of this study, are the commercialisation of smallholder agriculture and an increase in population in and around the forest. Sylvian (1958) asserts that the changing trends of increased commercial farming and in-migration to these areas, increasing the population of small farmers, have been taking place since the late 1940s and putting pressure on existing coffee forests. As part of the market opportunities, villagers with limited economic opportunities outside of forestry-related activities in the study launched a number of village-based coffee production enterprises and intensified their engagement with wild coffee trading. The commercial opportunities of forest products, including wild coffee, triggered the migration of many other extra-local user groups to the region, thereby contributing to higher population.

The burgeoning numbers of studies on the Yayo coffee forest cover change argue that the decline of the forests and thereby the erosion of wild coffee genetic material are primarily associated with pressure by local communities on the resources. In particular, settlement, incompatible use of forest resources (fuel wood and charcoal exploitation), demand for agricultural farmland and expansion of commercial plantations are identified as major threats to the sustainable use and management of the wild coffee genetic material (Gole et al., 2002; Gole, 2003; Gole et al., 2008; Labouisse et al., 2008; Tesfaye and Thomas, 2004). The analysis in this research reveals an apolitical understanding of forest degradation which, in turn, shaped the conservation interventions in the study area. In their explanations, none of the key scientific analysts paid attention to how political reasons such as power imbalances between NGOs and global conservation advocates and local communities, ignorance of forest use by local communities, and management had contributed to changes in the forest, including biodiversity extinction; nor to how a greater understanding of historical wild coffee regimes could suggest principles and an alternate path to their conservation.

The explanation regarding the causal factors of coffee forest biodiversity degradation in the Yayo district, given by the natural and physical scientists, is more or less similar to globally dominant environmental thinking such as 'biodiversity continues to

be destroyed by human activities at an unprecedented rate⁶². It upholds Neo-Malthusian and Populist claims and blames local users, mainly forest-dependent villagers, for the loss of environmental resources and hence targeting them for conservation interventions rather than other forces and possible remediation measures. Therefore, the prescribed resource management strategy often follows stringent and preservationist measures restricting the customary access and use rights of local villagers over resources and centuries long historic management practices, including great local knowledge and adaptive capacity (Blaikie and Brookfield, 1987). The following section discusses the two factors in detail.

5.2.1 Population pressure

Population pressure arises from two interrelated dynamics: the natural growth of the population and migration and resettlement into forested areas (Brown and Pearce, 1994). In Ethiopia, population growth has been a major developmental concern of the government over the past decades. From an environment perspective, an increase in population poses a considerable threat to the ecology and contributes to the loss of vital resources such as forests. The 2007 census data of the GoE indicates that, in 2007, Ethiopia's population was estimated at 74 million with an annual growth rate of 2,6 % (CSA, 2007). Current estimates place the population figure at approximately 96,5 million (UN, 2013), raising concerns over the extent of pressure it causes on land resources and the magnitude of its effects on conversion of forest areas to agricultural farmlands.

One of the areas experiencing a dramatic rise in population is the Yayo district. Taking migration into account, for instance, published papers identified a range of key factors that triggered the influx of people to the district. The first population increase in the district was recorded during the state-induced large-scale resettlement programme that brought people from other parts of the country to the district. In 1975, as part of the 'land to the tiller' programme, the socialist regime endorsed an ambitious land nationalisation proclamation⁶³ declaring the state as the sole proprietor of natural resources and granting a revocable use right to peasants (Pausewang, 1990).

⁶² <https://www.cbd.int/doc/publications/rio10-brochure-en.pdf>

⁶³ The land nationalisation was sealed by the 'Proclamation to Provide for the Nationalization of Rural Land No. 71/1975'

Along with the nationalisation of land, the so-called ‘villagisation’ programme (locally translated as *Ye Mender Misreta*) was launched with the aim of organising village dwellers in peasant associations (Akalu, 1982), addressing chronic famine and food insecurity and enhancing the productivity of underutilised land resources such as forestland (Berisso, 1995; Stellmacher, 2007).

The second trend of migration is related to the food security approaches adopted by the socialist regime that focused on the resettlement of people from other parts of the country to the southwest region (Stellmacher and Mollinga, 2009). In this regard, one of the preferred resettlement directions was the *Illu Abbaa Bora* zone, specifically the then *Yayo-Hurum* district. By this time, the resettlement planners believed that this area had a low population size with relatively few residents around large blocks of semi-pristine primary forest, and uncultivated arable land. An estimate by Bulcha (1988) shows that, in 1985 alone, more than 600 000 economically disadvantaged people from famine-stricken areas such as *Wello, Tigray, Gondar, and Gojjam* were resettled in unoccupied spaces within the coffee forest of the Southwest Ethiopia.

The third trend of migration, which can also be considered as a pull factor, is associated with the search of formal and informal employment opportunities in the study area. In this regard, the arrival of the COFCOP and the coal mining programme in 2010 opened up job opportunities for thousands of unemployed and poor job seeking people from urban areas across the country. An interview with the project manager of the factory indicates that, between 2012 and 2013, over 6000 unskilled labourers were hired by the factory and resettled in the highly forested villages in the district, mainly *Achebo* and *Wutete*. My personal observation also confirmed that these two villages have become the ideal destinations for non-local people because of the diverse economic opportunities associated with the coal mining operation. Linked to the pull factors is the type of migration that occurs as a result of the comparative economic advantage of the district in terms of offering informal jobs on individual coffee farms. Interviews with local informants indicated that there has been a sporadic movement of other ethnic groups, mainly *Guraghes, Wellaytas, and Kembatas*, to the district during peak coffee harvesting seasons for employment, whereafter they rarely return back to their hometowns once the harvesting season is over.

Analysis of the responses of the experts of the conservation NGOs suggested that the sharp increase in the population numbers in the district created various forms of social, economic, and political complexities at the local level. Firstly, the growing competition for acquiring space and resource exacerbated the pressures on forest biodiversity and resulted in the extinction of wild *coffea arabica* genetic material. Secondly, and related to the first point, the subsequent arrival of various migrants with different cultures, knowledge, skills, technologies, and institutional backgrounds, that were unaware of the socio-ecological conditions and lacking local knowledge and management based on centuries-long presence. As newcomers focused on deriving economic benefit from the forests, they were not part of historic cultural forest management institutions, or aware of local ecology or concerned about its long-term protection. Hence, they undermined customary management practices of the long-term use and generation of forest biodiversity associated with indigenous communities.

In sum, the local conservationists argue that one of the reasons for the extinction of wild coffee is the migration of large numbers of outsiders. Yet, Blaikie and Brookfield (1987) maintain that in history, severe forest and land degradation have occurred under rising populations, in periods of population decline and/or even when there is no population pressure on environmental resources. I also argue that the simplistic assumption that population growth inevitably caused erosion of the genetic stock of the wild coffees would not necessarily be the case unless this is confirmed otherwise by comprehensive research on the subject. Hence, it is difficult to sustain any claim that the current population dynamics and the difference in historical resource use patterns amongst the settlers of the Yayo district has no implication for the ecology, the power relation among users, customary resource management practices, and social stability and cohesion in the area.

5.2.2 Expansion of commercial agriculture

Another key factor in the loss of forest biodiversity and wild coffee in the Yayo district is a changing agrarian production system from small-intermediate scale, subsistence oriented to commercial operations operating at larger scales. Kaoneka (1998) asserts that such shifts can have a profound impact on forest resources because

they occur on a much larger scale. As discussed in chapter four and similar to the case specific arguments of Siebert and Belsky (2014), forest-dependent villagers in the study area acquired agricultural farm land by clearing small patches of forests that were found in their customarily owned territories. The rate of conversion was, however, very low due to the low population density and predominantly extensive agricultural farming system. Nowadays, organised and unorganised influx of people to the study area brought a new group of resource users and new forms of interactions with the forest biodiversity. In order to understand the nature of resource use by the different migrant settlers and elucidate the extent of destruction they have caused on the forest, it is imperative to briefly introduce the forest-based economic activities carried out by these users.

The local conservation NGOs and government experts classify the forest users in the Yayo district into two broad categories: ‘insiders’– exclusively comprising village dwellers, and ‘outsiders’– new settlers from other parts of the country and urban dwellers from nearby towns such as in the Yayo and Chora districts. During my visits to the villages, I observed that the insider user groups are far from being homogenous and often are stratified based on their gender, age, wealth, religion, and ethnicity. There are villagers who reside within the coffee forest and there are those who inhabit the fringes of these areas. The insiders have a strong historical connection with the use and management of the forest and wild coffee. They perceive that these resources are not only infinite reservoirs of all types of foodstuffs but also the source of socially, economically, and culturally essential substances. Seyoum (2009) pointed out that the traditional forms of wild coffee production have been the foundation of the local household economy although recent conservation measures have negatively affected the pattern of access and use rights over these resources

For their part, the outsider user groups have brought along new forms of interaction and approaches to the access and use of the forest, including the wild coffees. My personal observation suggests that outsiders are much more inclined towards large and small scale commercial exploitation of the forest biodiversity and an immediate cash income generation with little concern for the sustainable use of the resources. The vast majority of the outsider users engaged in forest and non-forest based commercial production systems that include commercial logging, timber making, and

agricultural crop production. Although it has not been part of their historic livelihoods, these groups have successfully adopted coffee production as the main source of cash income for their households.

Interview data obtained from village leaders revealed that some of the users from the outsider groups do not possess legal residential status in the villages and have no official permits granted to them to harvest forest products. Meanwhile, they are aware of the existence of *de facto* forest access and use rights exercised by the villagers and that they could not be entitled to claim any ownership rights over the forest and wild coffee. According to the information of the new settlers, they often consider themselves as 'secondary' users whilst recognising the villagers' 'primary' access and use rights over the wild coffee and the forest. One migrant settler from Tigray succinctly explained that:

The local communities call me *Maxxee* or *Safaarii* (meaning, a newcomer or settler respectively). As a result, I do not have the feeling that I have the same level of right as the locals, the Oromos, over the forest. The Oromos have been around for quite a long time and I acknowledge that they have a birthright to use the forest and its products in multiple ways.

Despite such intra-village resource ownership recognition, the outsiders employ systematic yet illegal ways of forest product and land acquisition. In the case of forest products, i.e. timber and fuel wood, outsiders often enter the forest at night to keep their identity unknown to the villagers or local conservation officials. This practice is mostly assisted with trucks and vehicles to transport forest products to the market and residential areas in the nearby towns. For this group, getting access to the forest products is much easier than gaining control over the forestland. This is explained in a statement of an urban dweller from Yayo who stated:

I can collect fuel wood, spices, ropes, and coffee from every section of the forest without asking any permission. The owner in the village could not control my movement and he does not even complain as he also steals from another individual's landholding.

Unlike other forest assets, coffee land acquisition by outsiders has its own strategy. When asked to explain this strategy, a local agricultural expert stated that:

All the outsiders (mainly migrants) were landless when they first arrived in Yayo. Yet, most of them had vast experiences in systematically acquiring agricultural land. As a strategy, either they first negotiate with villagers to get land on the basis of *Qarxii* or *Qixxee* (share-cropping) or they start working as a day labourer on a farmer's coffee farm. After a while, they construct their houses and establish their settlement in uninhibited areas in or around the forest followed by cutting trees and setting unexpected fire in certain blocks of the forest that they intend to use and commence their farming activities.

The arrival of diverse groups of forest users contributes to heightened competition for limited forest space and resources, and new patterns of forest access and use in the district shape the way different people interact with the forest biodiversity, and leading to its demise. Evidence for this view is seen in the change in the local agrarian production system that made villagers develop less interest in traditional livelihood activities such as forest and semi-forest coffee production systems. It was also confirmed by various studies that the local communities in the southwest region are gradually moving away from traditional agrarian practices and starting to embark on the cultivation of more lucrative crops such as Khat, maize and sorghum (Osorio, 2002; Teketay 1999; Tesfaye and Thomas, 2004).

As emerged from the interviews with local informants, people's preference for Khat production occurred due to two prominent reasons. Firstly, cultivating Khat has a comparative advantage over cultivating wild coffee in that the former withstands external hazards related to climate change and plant diseases. Secondly, Khat leaves can be harvested throughout the year, allowing farmers to distribute the required labour over the year. Nonetheless, the perceived disadvantage is that it involves high production costs as compared to the wild coffee.

The production of Khat has environmental impacts, however. It involves uprooting and clearing of wild coffees and other valuable biodiversity species such as wild spice to make space to plant it. As the number of people who engage in large-scale productions of Khat and other commercial crops increases, the state and non-state conservationists have become deeply concerned about the ecological implications of these types of production systems, especially conversion of coffee forests. This was noted in the statements of various state and non-state forestry experts who asserted: "The biodiversity is being disturbed due to agricultural farm expansion";

“Previously, Yayo was known for its bulk coffee production but these days both the insider and outsider users are removing wild coffee plants and planting Khat everywhere on their farms. Thus, among the districts in the zone, Yayo has become the second best supplier of Khat to the market, next to Chora”; “It was common to see wild animals such as hyena and leopards as well as primates and birds in the forests. But now the condition has changed to the extent that there are no wild animals because the forest is lost and these animals have migrated to other parts of the zone.”

The long-term village dwellers, the insiders, share similar opinions as the local and global conservationists regarding the continued degradation of the forest biodiversity. In the focus group discussions, it was common to hear statements such as: “Big trees which were used to distinguish the different zones of our individual forest lands and the boundaries of other privately owned farms have been cleared by the newcomers”; “Due to the prevalence of stealing, trees for beehives are not there as they used to be 10 or 20 years ago.”

Such statements suggest that the lack of recognition and formalisation of historic wild coffee use and management institutions have contributed to the demise of the system. To understand the complexity of land use change, Agrawal (1995) asserts that population and market factors alone are over-simplistic assumptions in the understanding of forest change and degradation. Yet, the local conservationists in the study area made the two concepts the cornerstone of their local actions. In fact, population and market factors can be crucial concepts in understanding the politics surrounding access, use, and control of the forest biodiversity in the Yayo district. Firstly, they led to the introduction of new actors and new relations, different mechanisms and technologies of acquisition and control of forest resources such as wild coffees. Secondly, they impact on local socio-economic dynamics and the nature of livelihood activities and resource use by different user groups. In connection with this, opportunistic resource use not governed by formal and informal institutions are taking their toll, leaving long-term villagers with a seriously diminished resource base for their survival and search for alternatives – which, ironically, involves the further destruction/conversion of coffee forests. Thirdly, the population increase in the district and the resultant competition for land and natural resources contribute to resource-based conflicts and alienation amongst different groups.

5.3 Addressing forest and wild coffee degradation: The advent of protectionism

For political ecologists, environmental problems involve socially constructed phenomena and demand attention to the language, assumptions, and theories in which environmental claims are developed, employed and ultimately are closely embedded in a politico-economic system that produces and sustains them (Robbins, 2004). As noted in earlier chapters, many global conservation interventions and ideas of wilderness have been imposed as a principal tool for controlling nature and excluding local people from the use and management of resources (Colchester, 1997). In their work in Ivorian Savannah, Bassett and Koli Bi (2000) examine how the discourses of desertification became the leading frameworks for several policy documents and strategy papers espoused by environmental and development actors. A common preservation instrument against biodiversity loss, as indicated in Bassett and Koli Bi (2000), is a spatial demarcation of hotspot areas and thus the circumscription of activities and livelihood practices of resource-dependent people surrounding these spaces.

Cognisant of the impact of human pressure on biodiversity, including those fostered by historic indigenous peoples, and in the light of sustainable economic development, the GoE has been adopting a range of conservation strategies that it believes will safeguard its exceptional biodiversity resources. With regard to forests, in particular, conservation efforts made by the GoE began in the 1980s when the state established a large proportion of forest priority areas in different regions of the country. Later in 1994 and following the impetus from outside/global conservation movements advocated by organisations such as FAO, the GoE formulated a comprehensive forest management guideline called the Ethiopian Forestry Action Plan (EFAP) that outlines a comprehensive approach to forest preservation. Accordingly, an estimated 2,8 million hectares of forests in the country were subdivided into 58 distinct NFPAs (EFAP, 1994; UNDP-GEF 2005). The delineation of these NFPAs was carried out primarily on maps with only a handful of them undergoing physical boundary demarcation. Besides, little attempt was made by the government conservation officials to gazette and legalise the designated forest priority areas as ‘state-owned forests’.

Interviews with state and non-state conservationists suggested that the NFPA did not provide adequate protection to the wild coffees and also failed to contribute much towards easing the pressure on the forest biodiversity. One of the main reasons for the failure of the approach, as pointed out by these groups, was a lack of well-established enforcement mechanisms that ensures sustainable management and use of the forest resources – including lack of what the latter means and rigorous enforcement or monitoring protocols. Accordingly, the impetus to address the flaws of the NFPA approach and thus save the wild coffee in the study area was reinitiated over a decade ago. The discourses and rhetoric associated with the deforestation and plant genetic erosion were constructed, negotiated, and renegotiated largely mainly by conservation-oriented scholars and national and international research groups and agencies that had a strong presence in the district. As indicated above, these groups argue that existing forestland use patterns by the local people has seriously threatened the diversity, productivity, and usefulness of the coffee forest.

With the forest biodiversity still recognised as a NFPA, the second phase of preserving the wild coffee genetic material considered two globally dominant conservation strategies, the *ex situ*⁶⁴ and *in situ*⁶⁵ methods (See definitions by Dulloo et al., 2010 and UNCED, 1992). As far as the former is concerned, informal attempts of *ex situ* conservation started in the 1950s in Jimma town, with technical assistance from a horticulturalist named Pierre G. Sylvain (Sylvain, 1955). Since then, the *ex situ* conservation system in general and the collection of the wild coffee specimens in particular have become common in the country (FAO, 1968; Labouisse, 2006). Extensive discussion can be made on the issues of the genealogy, the current status of the *ex situ* approach and the benefit sharing from the collection of sample genetic materials. Nonetheless, the scope of the thesis is limited only to an *in situ* approach due to its direct link with the livelihood of the village residents and also its methodological relevance in understanding power relations over local resource control. The paper now turns to examining the formulation and execution of an *in situ* conservation approach in the study area more closely.

⁶⁴ *Ex situ* stands for the preservation of genetic material outside of their natural habitat such as in field gene banks, storage of seeds or pollen, and the in vitro culture.

⁶⁵ *In situ* refers to the conservation of genetic material in their natural surrounding (either in the farms and or wilds) where the plants have evolved and developed their distinctive properties

5.3.1 The conservation approach: *In-situ* preservation of the wild coffees

As a complementary approach to an *ex situ* method (Dulloo et al., 1998), the formulation and execution of an *in situ* conservation approach have been attended to as a matter of national urgency since the late 1980s (Tewolde, 1990). Hitherto, the focus of the *in situ* approach was on preserving only a few severely degraded remnants of the country's forest biodiversity by using development grants obtained from international funding agencies. One typical project of this kind, despite its much wider ambitions, was the national Coffee Improvement Project (CIP). The CIP involved numerous state and non-state actors including the Ministry of Agriculture (MOA), the former Ministry of Coffee and Tea, Ministry of Finance and Economic Development, and the then European Commission (EC) in Ethiopia. The project was considered by the state to involve long-term international support (mainly through EC funding) towards the improvement of coffee quality, the coffee value chain, and the inventory of the forest biodiversity in southwest Ethiopia – widely recognised benchmark data for future conservation planning.

At a nation scale, the CIP has been under implementation since the late 1970s. According to a brochure obtained from the MOA and the report of Agrisystems Limited (2001), the first phase, CIP I, was launched in 1977 and was operational in 8 districts with a total program budget of ECU⁶⁶ 14 million. The second phase (CIP II) was launched in 1982 with a budget of ECU 39,58 million. Congruently, the number of target areas also increased to 15 districts. Seven years later, in 1989, the third phase (CIP III) was launched with a budget of ECU 38,1 million and the intervention was scaled up to a total of 18 districts. The overall program goal of the three phases was to increase the income of smallholder coffee farmers through coffee extension programmes, improved coffee production practices, the supply of disease-tolerant coffee varieties, and the introduction of intercropping into the household farming system (Lightbourne, 2006).

With a brief break in 1992, the GoE and foreign consultants such as the Agrisystems Limited carried out an evaluation of the CIP III in 2000. Based on the outcome of the

⁶⁶ ECU=European currency Unit

evaluations and considering the global demand to preserve wild *coffea arabica* cultivars, the project implementing and funding partners agreed to extend the initiative to another phase, i.e. CIP IV (Agrisystems Limited, 2001). A careful examination of the project document showed that three important features could characterise CIP IV, a project designed and launched in 2002. Firstly, the number of intervention districts dramatically increased to 81 with the European Commission (EC) committing a maximum financial grant of 15 million EURO. Second, it introduced the idea of amalgamating the two dominant conservation methods (the *in situ* and *ex situ*) to improve opportunities for success in preserving the wild coffees. Linked to this, the CIP IV emphasised the quality and certification aspects of the wild coffees such as Organic, Fair-trade, and Rainforest Alliance. Thirdly, and quite relevant to this study, during this phase the Yayo coffee forest was designated particularly for the *in situ* conservation approach. Along with the Yayo district, the project also demarcated two other biodiversity-rich sites in the southwestern part of the country: namely, *Boginda-Yeba* (2764 Ha) and *Kontir-Berhan* (9025 Ha) in *Kaffa* and *Maji* zones respectively.

The specific project title assigned for the execution of the CIP IV in the Yayo district was '*Geba Dogi Forest Conservation Project*'. Unlike the ambitious NFPA approach that demarcated large proportions of the forest, the *in situ* conservation model limited its spatial focus to key forest blocks, technically known as the 'core area'. The core area covered an estimated total area of 10 000 hectares. With little or no history of human impact, much of this newly designated conservation space involved semi-pristine and relatively undisturbed forest with abundant genetic diversity of the wild coffees and other exceptional floral and faunal species.

Review of the project document revealed that the CIP intended to achieve three comprehensive targets. The first one was associated with community development. This component involved a systematic understanding of the local community's interaction with different forest patches by way of collecting background information on the socio-economic condition, tenure type, size, and the exact location of villagers' wild coffee farms. Moreover, it focused on outreach education on plant genetic material conservation, the formation of farmers' cooperatives, livelihood diversification, and provision of alternative income sources to long-term villagers in

the Yayo district.

The preservation of wild coffee cultivars was another important target of the project. The target included activities such as territorialisation of a new core zone, creation of a narrow buffer to safeguard the boundaries of the core zone, delineation of settlement and agricultural spaces, establishment of checkpoints, and the start up of community-based nursery (seedling production) sites. Along with the creation of the new core zone, one of the key phenomena that occurred in the district was the creation of a permit system for accessing forests and its products. Interviews with the local conservationists and local community members indicated that, except for selected extra-local or outsider actors, villagers were forced to seek permission from the conservation officials to gain access to the wild coffee in the core zones. As it can be seen in section 5.3.2 of this chapter, the establishment of checkpoints around the boundaries of the core zone and the imposition of a permit system were used as strategies to curtail villagers' access and use right over their wild coffee farms and what has been discussed throughout the thesis as territorialisation through externally-imposed conservation programmes (Vandergeest and Peluso, 1995).

A third project target was the development of basic infrastructures. These were mainly related to establishing and improving physical structures such as houses for forest guards, offices, checkpoints, fire towers, fire-break fences for the proposed nursery sites, and water wells. According to the former manager of the project, the Yayo district had none of these basic amenities prior to the inception of the project and it was the funding from the European Commission and the federal government offices that materialised them. A physical observation in the study villages verified that the majority of these infrastructures and facilities were constructed but not functional due to a lack of regular maintenance. This is because the CIP IV neither had an income source of its own nor did the donor agency allocate funding for such activities, explained the former project manager.

5.3.2 Strategies of forest and wild coffee control under the *in situ* approach

5.3.2.1 Delineating Margins: The politics of mapping and territorialisation

According to Vandergeest and Peluso (1995:385), the demarcation of protected area

boundaries can be best understood through the notion of ‘internal territorialisation’⁶⁷. It is argued that enclosure or ‘internal territorialisation’ has been used as a principal strategy for producing power, restricting access, coercing protectionist models of conservation and, eventually, gaining control over nature (Peluso and Lund, 2011; Ribot and Peluso, 2003). Territorialisation employs a variety of legal frameworks and institutional collaborations and agreements between state functionaries, non-state actors and parastatal institutions (Chapin, 2004; Vandergeest and Peluso, 1995). Even in the absence of regulatory frameworks and financial budgets, some actors remain active in the allocation and control of the land for various purposes like industrial agriculture, conservation, and forestry development (Brockington et al., 2008). Even though there are various forms of protected area territorialisation, this section focuses on the state and/or NGO managed *in situ* conservation area, which entails distinct processes of territorialisation and resource restriction mechanisms.

The territorialisation of Ethiopian protected forest areas through circumscribing boundaries and defining local access and use right over resources started in the 1980s when the first NFPAs were identified and their management plans were prepared (Million and Leykun, 2001). In the case of the Oromia region, the Yayo coffee forest was amongst the 37 PAs demarcated by the concerned regional government authorities (Feyissa, 2008). Analysis of the data indicated that, except for its geographical downsizing, the *in situ* conservation space existed as a subset of the NFPA and followed the same principle as that of a classic protected area model. This was detectable in the way the various project activities were designed and executed in the district. A closer look at the activities suggested that they implicitly aimed at excluding villagers from the local resource management practice, making a distinct separation between conservation and production spaces, annulling, limiting, and restricting the access and use right by villagers to their customary owned resources.

⁶⁷ Vandergeest and Peluso (1995) explain internal territorialisation as a condition where the state delineates territories within national boundaries, sets rules as to what happens within them (especially patterns of access and use of the resources), and how this can be achieved.

The principal tool adopted by the state and non-state conservationists to exert control over the wild coffees and legitimise and bolster their power over the resources was this notion of territorialisation. Analysis of the field data shows that the mechanism through which territorialisation of the wild coffees was carried out defied historical patterns of local customary use and governance but followed the national/colonial model of increasing control by external powers guided by their interpretation of forest health and conservation. As a leading conservation actor, the consultants/researchers contracted by the *Geba Dogi* forest conservation project held influential roles during the territorialisation processes of the wild coffees. Firstly, they defined the duties and responsibilities of the territorialisation team and recommended the use of specific technologies for the actual demarcation. Secondly, they set specific spatial boundaries for the core zone and determined the general rules that had to be practiced in and around this space. Thirdly, they were allowed to decide on the governance, access, and use of wild coffees within the *in situ* conservation space and, by doing so, they firmly incorporated their interests in the resource management guideline of the project.

During the interviews with two of the former CIP project experts, it became clear that many of the recommendations of the conservationists gained strong political backing. This highlights that there was a tendency by the government to progressively hand over environmental governance mandates to non-state actors. In principle, however, this contradicts one of the forest regulations of the state, i.e. Proclamation Number 56/2007⁶⁸, Article 18/1, that charges the regional state body with the responsibility of administering and managing forest resources by using its own resources.

One of the controversial aspects of the territorialisation of the wild coffees under the *in situ* approach was the use of maps. An interviewed former project manager explained that the *in situ* core area map was amongst the basic management tools used by the project to systematically document boundaries between village forests and those spaces set aside for the preservation of the coffee genetic material. In conformity with Peluso's (1995) assertion that the mapping of boundaries is a complex political process and tool to elicit resource control, a similar exercise in the Yayo district was just as controversial.

⁶⁸ Proclamation No. 56/2007 is a proclamation for forest development, conservation and utilisation in Ethiopia.

Analysis of the data suggested that the constructed map ignored the social, economic, and cultural contexts of the district in three major ways. Firstly, it failed to capture the historical connection of the villagers with the forest biodiversity accurately, particularly the customary ownership systems and traditional importance of the forests to the villagers in terms of elevating their social and economic status. Secondly, it failed to carefully examine whether to include or exclude cultural and demographic features such as settlement histories and religious practices. Thirdly, not only did it alienate the productive wild coffee farms to the state but also included those areas with negligible forest biodiversity as part of the *in situ* conservation space. For these reasons, it can be said that, by the time the actual territorialisation process began, the state and non-state conservationists had substantial data about the biodiversity resources of each village but scanty information on the socio-economic context of the district. In connection with this, an interviewed project manager admitted that the increasing focus on the wild coffee genetic material preservation led to the use of inaccurate geographic information that conflicted with historical forest ownership and use patterns.

A key aspect of the mapping exercise was the use of contemporary scientific knowledge and technologies by the local conservationists. Interviews revealed that the mapping of the wild coffee was carried out using modern technologies such as GIS information, satellite images, aerial photos, compass readings, and photographs that were captured on different occasions by non-local actors, mainly natural scientists. Yet, the majority of the local community members were unable to get involved in the planning process due to their low level of education and skill to comprehend the technology. Peluso (1995) argues that, when forest maps become more and more detailed, there will always be a doubt as to whether local voices and opinions are fairly represented or not. Drawing on evidences from Asia, Gururani and Vandergeest (2014) illustrate how mapping and territorialisation practices marginalised long-term residents from the production and circulation of environmental knowledge, and ultimately from its governance. The findings of this study also suggested that the use of sophisticated territorialisation techniques that led to limited involvement of local communities appear to have made the *in situ* conservation, as indicated in Igoe and

Brockington (2007:443), a 'technocratic conservation approach'.⁶⁹

From the perspective of power relations and decentralisation, the hurriedly constructed maps and the resultant territorialisation can be considered as a rapid, unilateral and top-down approach giving less room for a meaningful participation by villagers and the integration of traditional resource management styles with scientific conservation approaches. With instructions coming in from officials and experts at the federal level, the views, concerns, opinions, and attitudes of the customary wild coffee owners remained hidden. The indigenous resource management skills and the knowledge of relevant village-based social classes such as village administrators, women, religious leaders, and community elders were rarely considered in the planning and execution of the territorialisation.

During the field research, a forestry expert in a local government office admitted that the process was largely non-participatory because it was crafted at the federal level. The expert further explained that the expert recalled that the territorialisation team randomly selected a few village residents and provided them with a per diem amounting to ETB 10 /day. However, some of these arbitrarily chosen individuals were new settlers (migrants) who had little, if any, understanding of the historical forest and wild coffee access and use patterns, traditional forest boundaries and resource management practices. As a result, instead of directly and fully engaging in boundary negotiations, their task appeared to have been limited to guiding the territorialisation team through the forest patches, showing directions and walking paths, and serving as a guard to protect the team from potential animal attack.

In general, it can be concluded that the mapping and territorialisation of conservation boundaries in the study area served as tools of coercing preservationist-oriented wild coffee management practices and imposing arbitrary sanctions on customary resource access and use right. By so doing, they further destabilised villagers' access and use rights over resources and reinforced the control of resources by the state, researchers, and other conservation proponents. Through the reclassification of the forest biodiversity as a strictly protected area, firmly belonging to well-connected state and

⁶⁹ In the case of Yayo, such a 'technocratic conservation approach' is related to the situation where the villagers were excluded and marginalised from the *in situ* protection of the wild coffee mainly due to their lack of skill and knowledge to work with modern demarcation technologies.

non-state conservationists, the mapping of boundaries facilitated the complete elimination of customary institutions and resource management practices and their replacement with new and formal institutions. In connection with this, different scholars (Corson, 2011; Peluso, 1993; Vandergeest and Peluso, 1995) argue that this type of forest landscape planning erases rural inhabitants, their livelihood patterns and areas from official maps and memory but which remain in the local consciousness and local 'cognitive' maps. It was for all these reasons that the implementation of the exercises in the Yayo district became one filled with controversies, antagonistic relationships and brief periods of conflicts between the local communities and external conservationists.

In sum, three points can be drawn from territorialisation practices in the Yayo district. Firstly, the wild coffee demarcation per se was not sufficient to firmly instill the state's power over forests unless these forests were legitimised and gazetted as a property of the state. This is because the lack of legal backup, i.e. legitimation and gazettment, has been the main source of confusion in defining the ownership status of most state forest resources in Ethiopia (Feyissa, 2008; Million and Leykun, 2001). Secondly, the effort to preserve wild coffee through territorialisation (meaning, state ownership claims) did not succeed as anticipated due to weak linkages between policy and practice and the lack of coordinated actions among the concerned state and non-state actors. The report by GEF (2006) indicates that the governance of most Ethiopian protected forest areas is characterised by an uncoordinated management system that did not make use of its proclamations, rules, and regulations. Thirdly, despite the conservationists forbidding any commercially-driven agrarian practice within the *in situ* conservation space, villagers continued the use of the forest for income and own consumption. Million and Leykun (2001:9) reported that encroachment, illegal and uncontrolled forest use, and forest clearance for agricultural production were more rampant after the boundaries were set.

5.3.2.2 *Setting the in situ core zone rules: The 'DOs' and 'DON'Ts'*

Since the creation of the *in situ* conservation space, there were continuous efforts by the state and non-state conservationists to define and redefine forest biodiversity

access and use patterns. According to the information from the district government experts, none of these efforts were accompanied by a management plan that outlined the list of prohibited livelihood practices and the responsible body for enforcing the rules and regulations pertaining to the core zone. The lack of clarity about the rules of the protected area and enforcement capacity created confusion among villagers who were accustomed to having unlimited access to the forest but now have to face the reality of operating under the discretion of powerful conservation officials. With the CIP IV getting into full implementation, the attempt to formulate a detailed administrative plan for the *in situ* conservation area started in 2004. A project expert recounted that setting the *in situ* conservation rules and developing a sound and practicable management plan was a relatively slow and complex process due to the lack of prior experience and skill within the local government structure.

Cognisant of the importance of a resource management guideline, the regional government authorities outsourced the technical responsibility of formulating and enforcing conservation rules to non-local pro-environmental NGOs and individual scientists in 2004. Meanwhile, the forestry experts of the CIP project were ordered to identify and categorise the list of traditional livelihood activities that were dependent on forest resources and that may be affected, directly or indirectly, by the conservation project. Based on the ecological characteristics of the villages, the management plan divided the local forest-based livelihoods into two broad categories: those compatible with the conservation and those that are incompatible with the conservation intervention.

From the perspective of the forestry experts, the areas deemed compatible with conservation involves, at least theoretically, areas with livelihood activities that contribute to the improvement of the economic, social, and/or cultural wellbeing of the local community without posing any threat to the natural processes of the forest biodiversity. The areas deemed incompatible refers to places with so-called 'destructive activities', mainly logging, fuel wood collection and charcoal making, which could potentially lead to the extinction of valuable biodiversity resources from the core conservation space. During the field research, one of the former forestry experts of the CIP elaborated that the compatibility and incompatibility concept of forest resource use and the resultant classification of the permissible and prohibited

livelihood activities were formulated based on the Oromia region's forest Proclamation Number 72/2003⁷⁰. In part three (subsection 9/5) of the proclamation, it is stipulated:

The traditional user rights of the local people to use the state forest resources for purposes such as fuel wood, construction wood, medicinal plants, grazing, etc. shall be permitted according to the regulations and directives.

The review of the proclamation indicates that it does not clearly outline the forest use rights, the range of traditional livelihood activities practiced by villagers, and the mechanisms through which forest access and use can be permitted. Despite its inherent gaps, it was on the premise of the above section of the proclamation that the forestry officials attempted to draw a list of compatible and incompatible activities and successfully advocated for its incorporation into the local scale forest access and use directive. The summary of the results of the discussions with the project staff and villagers regarding the list of activities permitted and/or prohibited within the different sections of the forest is presented in the following table.

Table 5.1: Summary of compatible and incompatible activities in and outside of the core zone

<i>The list of forest-based livelihood activities</i>	<i>Activity zones</i>		
	<i>Buffer</i>	<i>Core</i>	<i>Settlement</i>
<i>A. Human-related activities</i>			
Agricultural encroachment			X
Charcoal making			X
Honey production	X		X
Logging (Stump count)			X
Setting fire for clearing land			X
Pollarding (lopping) or pruning			X
Debarking			X
Coffee production	X		X
Medicinal plant harvesting			X
Settlement			
<i>B. Animal-related activities</i>			
Grazing			X
Browsing			X

X= the local community can undertake the activity only in the marked activity zone.

Source: Analysis of the group discussion with CIP forestry staff and villagers, 2013

⁷⁰ The Forest Proclamation of Oromia (Proclamation No. 72/2003) is the regional law defining forest ownership and administration in Oromia Regional State.

The table clearly shows that the local communities were allowed to undertake almost all of their social, economic, and cultural activities in and around the settlement areas but not in the core and buffer zones of the conservation space. Most villagers were unhappy about the way the above list was constructed. They believe that permitting activities in the settlement area was meaningless because the resource base of this area was not sufficient to sustainably support their longstanding livelihood activity, mainly wild coffee production. In the case of the buffer zone, the management plan restricted forest use only to honey and coffee production. Harvesting spices and medicinal plants were labelled as prohibited activities unless the local forestry officials grant permissions to harvest those products. However, getting permission to harvest medicinal plants or to undertake honey production in the core or buffer zone was a complex process due to the bureaucratic nature of securing permits. It is also clearly outlined in subsection 13/1 of the above proclamation as:

The act of storing and transporting forest resource products without holding evidence is prohibited.

Another major concern over the buffer zone, at least from the point of view of the local communities, was the controversial nature of the permissibility of wild coffee production. In principle, the management plan allowed the production of coffee in the buffer zone, i.e. in a space adjoining the core zone. Yet, the plan imposed a restriction on wild coffee-related agronomic operations such as shade management, weed clearance, and pruning. Analysis of the data showed that the expert conservationists label these operations as acts of species isolation (See the discussions in chapter 4), whereas villagers argued that shade management is an essential long-standing agricultural operation that minimally affects the forest ecology. They further expressed their feeling that permitting coffee production whilst imposing restrictions on relevant agronomic operations (the selective restriction of activities) is illogical and no different from controlling their livelihood activities since the two are highly interdependent undertakings.

The interviewed local conservationists – those working for the NGOs and the government – for their part, acknowledge that the success of local communities in the coffee sector, at least in terms of productivity and market profitability, depend on the

intensity of coffee management. This was confirmed in the statement of a leading conservation biologist who has extensive experience studying the forest biodiversity of the district. He said the following:

If there is no management, then there cannot be any coffee harvest.

As far as the *in situ* conservation core zone is concerned, the plan labelled almost all crucial livelihood practices as destructive acts against the forest and hence the local community should no longer get access to the zone. The restriction of access and use of the forest in the core zone is clear evidence that the protected area-based management plan not only failed to capture the historical ecological connection between local communities and management of forest products including wild coffee but also undermined the customary rights of village dwellers. For this reason, the core zone is the most contested space in the district to date due to the growing socio-political struggle between the local community and the conservationists, both of whom are competing to secure control over the space and the resources as well as whose ecological knowledge guides management plans. The discussion with the local informants suggested that villagers have made repeated ownership claims over the resources in the core zone, yet the management plan stands against the recognition of their rights in particular by presenting the area as a ‘human-free geographical space’.

Peluso and Lund (2011) argue that the formulation of legislation, regulations, and rules have strategic importance in reinforcing the control of resources by the state. Likewise, the attempt of conservationists to set wild coffee preservation rules and designate specific use rights for the local communities served as a tool for the state to control the biodiversity resources of the study area. It was not only in the core zone that restriction was imposed, but also access to the resources in some areas outside of it (in the buffer zone) were selectively denied by the new rules. Such a shift in resource control and restriction of access to forest products became a source of tension between the local conservation officials and resource-dependent villagers in the district. As such, villagers made repeated claims to regain access to their customary forestland, even though no response was forthcoming. Instead, the conservationists opted to further strengthen their restrictive management approach by deploying forest guards.

5.3.2.3 Assigning armed forest guards: Militarist control of wild coffees

Thus far, the state and non-state conservationists comfortably secured a ‘caretaker’ role over the wild coffee. Strategies of reinforcing the state’s control over resources continued to come from the CIP project officials in a top-down fashion. One of these strategies was a militarist control of resources that required the deployment of armed forest guards in and around the *in situ* conservation space. In fact, the notion of protecting forests using armed guards is not a new practice in Ethiopia. Nune (2007) asserts that the notion emerged for the first time during the Haile Selassie I regime when the power of guards and rangers was incorporated into Regulation Number 345-351/1968 of the country.

Since then, a range of national and regional policy initiatives have been made to assign forest guards and strengthen the state’s control over them. Particularly, the forest development, conservation, and utilisation acts such as Proclamation Number 72/2003 and 542/2007 clearly outline the need to assign forest guards as well as the specific role that the guards should play in the governance of forests. Article 15/1 of Proclamation Number 542/2007, for instance, states the power that has been given to the forest guards as follows:

Forest guards shall ... have the power to protect forests against acts committed in violation of article 14 of this proclamation.

As indicating in article 14 of the same proclamation, the guards have been given the power to control forest-based activities of villagers and safeguard the forest against prohibited activities such as cutting indigenous trees, temporary or permanent settlement, graze domestic animals, hunting, carrying cutting saws and any other tools used for cutting trees, keeping beehives, and extracting honey. However, except explicit emphasis on the obligation of forest guards to wear uniforms and carry identification cards with them, the proclamation does not clearly indicate the type of specific equipment that the guards should use while they are on duty.

In the context of the Yayo forest biodiversity, the initial process of adopting the notion of forest guards, as an integral component of the management plan, commenced two years after the introduction of the *in situ* conservation project. On

paper, the project document indicated that the assignment of forest guards was to ‘*create employment opportunity for the locals*’. Hence, the employment was carried out in a formal and organised manner by forming a joint committee extracted from the project officials, village leaders and local government authorities. The main task of the committee was to develop selection criteria that could be used in the hiring processes of the guards. Results of the interviews with the former guards, village leaders, and project experts revealed that, military experience was one of the required skills for candidates who were interested in applying for the position. Based on this criterion, two forest guards, comprising mainly of former soldiers with proven military experiences, were recruited for each and every village targeted under the *in situ* conservation.

Shortly after, the respective duties of the forest guards were defined, in accordance with Proclamation Number 542/2007 as well as the specific requirements of the *in situ* conservation approach, and handed over to the recruited guards. Their responsibilities encompassed both supervisory duties and labour works. The former responsibility was associated with patrolling forest boundaries, controlling unauthorised forest use, arresting and transferring culprits to the concerned judiciary body, and appearing as eyewitness during local court hearings. Concerning the labour works, some of the activities that were included were, if not only, planting and distributing seedlings and reforesting degraded areas. As part of an administrative support role, the guards were also informed that they were the standing members of the wild coffee management team of the district. In order to build the technical capacities of the newly hired guards, the CIP project staff provided at least two weeks of training on the concepts of biodiversity monitoring, environmental awareness, and forest patrolling techniques.

As indicated above, although the country’s proclamations do not clearly state the issues of arming forest guards, one of the distinguishing features of the *in situ* wild coffee conservation program in the Yayo district was the adoption of militaristic approach. Once the training and the induction processes were finalised, the CIP project, in consultation with the District Police Bureau, supplied arms to the forest guards. Analysis of the interview data from the former guards showed that the arms had never been utilised to attack the village dwellers; instead, carrying them was used

as a symbolic representation of state-sanctioned wild coffee control. However, with the arms under their custody and having secured a job in the project, the forest guards started to perceive themselves as superior in power to the rest of the villagers and that they were the only protectors of the forest biodiversity in the district. This situation seemed to have resulted in confusion amongst villagers regarding the actual daily functions of the guards and the extent of their power in the preservation of the wild coffee.

Analysis of the field data suggests that the militaristic approach that was adopted in the *in situ* conservation of the wild coffee experienced a range of internal and external challenges. Firstly, the notion was introduced to the district in the midst of an unresolved resource ownership claim between the state and the local community. Hence, the patrolling roles of the armed forest guards was another source of concern for villagers due to the fear that these actions might further dislocate them from their ancestral forestland. Secondly, the local community strongly objected to the term '*forest guard*' due to the meaning they assigned to the term as someone who imposes restriction on their customary use right over the local forest products. In response to this local opposition, the CIP project officials replaced the term 'forest guards' with a new nickname called '*Information source men*'⁷¹. However, the change that was made to these technical terms did not introduce a major alteration on the overall approach of militarist control and the powers of forest guards over the resources. Instead, the terminology change served as a strategic tool to circumvent villagers' suspicion towards the forest guards and, by so doing, legitimise a militaristic approach in the *in situ* conservation of the wild coffee.

Thirdly, there was a clear doubt whether the total number of armed guards hired by the project would be sufficient to protect the entire forest tract of the district or not. It was mentioned during the interviews with the project forestry experts that the number of guards deployed in the district and the size of the forests put under their jurisdiction

⁷¹ Information source men (locally known as '*Gabaastoota fayyadama boosoon*') was a nickname given to the term 'forest guard'. The term refers to individuals whose responsibility is to provide information to the project experts and officials regarding unauthorized access and use of local resources. As the term suggests, the information source men differ from forest guards in that the former are not mandated to control the traditional livelihood practices of the long-term village residents.

were disproportionate, ultimately creating a considerable workload on the available forest guards. This was the main reason why many forest guards struggled to regulate the extraction of forest products, notably timber, charcoal, and wild coffee, and the daily movements of the local community into and out of the core zone. As the scale of forest resource extraction from the *in situ* conservation area was intensified, the project officials started to inflict pressure on the guards, blaming them for incompetence in performing their duties. Ultimately, disputes and conflicts within the various administrative structures of the CIP became common, eventually resulting in self-initiated resignations in villages such as *Wutete*.

Fourthly, there were regular incidents of resentment and conflict between village dwellers who relentlessly attempted to regain access to the forest biodiversity and the armed forest guards who were assigned to prevent any agrarian movement occurring in and around the conservation space. The hostile relationship between the two groups manifested in disputes, arguments, swearing, physical clashes, and the exclusion of guards from the existing village-based social systems. For instance, when asked to explain one of the strategies of excluding the guards from the local systems, an interviewed elder in *Wabo* village responded:

Because these guards (who were our close friends before their employment) attempted to prohibit us from getting benefits out of the forest, most people including us (the elders) decided not to greet and speak to them. Moreover, we decided not to invite them to take part in the village-based community activities such as Daboo and coffee ceremonies.

Fifthly, forest guards were not able to successfully enforce the *in situ* conservation rules because of what seems to be related to Peluso's (1993:213) argument regarding confusion over 'jurisdiction over trees and forest territories' and 'jurisdiction over people'. Practically, the forest guards in the study area were only given a mandate to regulate the forest biodiversity, including the wild coffees, whereas jurisdiction over the local communities lay in the hands of the politically elected district and village administrators. In circumstances where the guards arrested unauthorised forest users and reported the incidents of violation of the conservation rules, the politically elected leaders were seen to be reluctant to take action on the culprits. Hence, the lack of

political power over the local community means that the forest guards were actually restricted to having relatively lesser power in the *in situ* conservation system.

The last and perhaps an interesting aspect of the militarist style of wild coffee control was the prevalence of poaching, corruption, and rent-seeking behaviours practiced by the forest guards. Interviewed villagers recounted that the majority of the guards abused their power by harassing and mistreating poor local community members with whom they had no friendship, lineage or marriage relations. The forest guards maintained strong connections with their superiors, influential village leaders, and agricultural experts in the district government offices. As a result of these new relations, the access and use of forest products became relatively easier to those who were close allies of the guards than to the poor village dwellers who had been claiming customary ownership rights over their wild coffees. It is this unequal access pattern that forced some members of the village dwellers to bribe the forest guards, either in cash or in kind, and gain access to the forests. Aside the bribing, the contribution of the guards to *in situ* conservation of the wild coffee was disputed since they indirectly got indulged in destructive forest uses through the extraction of timber and charcoal for commercial purposes.

In sum, the introduction of a militaristic style of wild coffee preservation were aimed at monitoring and regulating villagers' agrarian practices in and around the conservation boundaries. Some interviewed villagers stated that, when compared to the previous NFPA, patrolling the forest by the armed guards somehow saved the forest from getting destroyed by agricultural encroachment and/or setting fire. Nonetheless, the major critique of the 'forest guard approach' was that the socio-political implications of supplying arms and other surveillance equipment to the so-called '*information source men*' who were recruited from amongst the villagers were not taken into count. As recalled by the project officials, the implementation of the militaristic system could not last beyond three years due to the lack of financial resources to cover the salary and benefits of the forest guards.

5.3.2.4 Enforcing the in situ conservation rules and regulations

Thus far, the wild coffee control trajectory in the study area suggests that, as the

government's control over resources strengthened, the villagers' traditional resource use right as well as governance practices were gradually eroded. During the lifespan of the project, the state and non-state local conservationists were busy holding regular interactions with the local communities to find the best enforcement mechanisms for the 'DOs' and 'DON'Ts' of the *in situ* conservation area. The analysis of the data revealed that the instrumental tents in ensuring the local interactions were official communications and various forms of education and outreach programs that included workshops, training, and awareness-raising events based on the external conservationists' understanding of what it takes to protect wild coffee using *in situ* methods. These activities did not only play roles in strengthening the state's control over wild coffee but also sensitised the community on the contents of the existing proclamations and regulations as well as the specific requirements of the *in situ* management plan.

The enforcement mechanism for restricting entrance to the territorialised wild coffee and forest areas was promulgated in the district by means of an official letter issued by the District Agricultural and Rural Development Office. The primary recipients being the village (*Kebele*) administration offices, the letter detailed clear statements banning village dwellers from undertaking any activity in the protected forest area. Recalling the specific contents of the letter, a former village leader mentioned:

The letter we received contained a strict warning to villagers and forest users. It stated that the local people are banned from entering the protected area as well as from bringing any agricultural tool (even a knife) into the boundaries of the core zone.

The same letter charged village administrators with tasks of regulating and monitoring unauthorised forest biodiversity use in their respective jurisdiction area. As anticipated, the state and non-state conservation actors, forest guards and other local government experts were preoccupied with sensitising villagers regarding the overall consequences of unauthorised entrance into the conservation space and also the details of the proposed enforcement mechanisms. According to the data from the study villages, the most common and powerful means of enforcing the new patterns of forest biodiversity access and use was the introduction of fines and punishments. Taking *Achebo* village as an example, for instance, during a one-year period, between

2004 and 2005, the District Agriculture and Rural development Office and the CIP project issued more than 71 charges against illegal users who were involved in cutting forest trees and making timbers in the conservation space. In the same year, the project filed a legal case against a few hundred of villagers accused of harvesting various forest products such as thatching grass, climbers and ropes, wild coffee, and medicinal plants from the *in situ* conservation space.

According to an interview with a former project staff member, the majority of the cases were settled out of court, with some exceptions requiring a formal court hearing procedure. The type and nature of the penalties vary depending on the extent of the destruction caused on the forest biodiversity, although many villagers were unaware of the whole range of fines and punishments. For examples, villagers who were found guilty of extracting timber and charcoal from the protected forest area were charged with an imprisonment period ranging from six months to seven years. There were also instances where the enforcement authority issued monetary fines, formal warnings, and oral advice as corresponding penalties for harvesting thatching grass and wild spices from the conservation space.

In order to improve enforcement efficiency, the legal process developed a strategic collaboration between various institutions such as the CIP project, OFWE (after its establishment), the District Police Department and the District Justice Office. While the personnel in the project and OFWE were responsible for preparing and compiling reports and charges for the specific cases of violation, the Police Department was held accountable for arresting and bringing culprits to the judiciary system for a final penalty decision. It was indicated by the project experts that the tightening of the *in situ* conservation rules and regulations and the way the rules were enforced increased the extent of local compliance with rules, thereby contributing to a marginal improvement of the forest cover in the territorialised areas. Yet, this assertion needs to be verified by a detailed empirical study that aims at assessing the condition of the forest biodiversity before and after territorialisation.

Notwithstanding the increased level of compliance with the *in situ* conservation space, there is still continued violation of the rules and regulations of the protected forest area due to two main reasons. Firstly, the local community were engaged in a

persistent protest by claiming their customary access and use right that allowed them to harvest the wild coffees contained in these contested spaces. Secondly, some villagers were fully unaware of the rules and regulations issued at federal level and the consequences of the violation of the rules. The violators' assertion of ignorance of the *in situ* conservation rules and laws as a defense, nonetheless, was legally insufficient since the conservation officials' focus on environmental awareness creation programs belies these local claims.

5.3.3 The socio-ecological effects of *in situ* conservation: Post-territorialisation complexities

In developing countries such as those found in sub-Saharan Africa, the governance of PAs often involves enormous and complex socio-ecological costs. The impact of such costs may not be considered to be significant at the early stages of PA creation; however, they still negatively affect the livelihoods of the community residing around them and undermine conservation (Ghimire and Pimbert, 1997). Several scholars have documented concrete empirical evidence on multiple forms of social and economic consequences of protectionist philosophies of biodiversity conservation on local people (Brockington, 2002; Brockington, 2003; Brockington and Igoe, 2006; Brockington et al., 2006; Chatty and Colchester, 2002; Coad et al., 2008; West et al., 2006; Wilkie et al., 2006).

Likewise, in the study area, the introduction of *in situ* conservation has brought undesired consequences to the lives of the villagers. It was already indicated in chapter four that the villagers in the district were the historical inhabitants of the space earmarked for current *in situ* conservation. They were also heavily dependent on the forest products for commercial and subsistence use, both as a 'daily net' and 'safety net'. Analysis of the data confirmed that, despite the significance of the forest to local communities, the introduction of fortress-style of forest preservation exposed thousands of villagers to a range of socio-economic disruptions. These negative effects of restricting the use of resources impacted the wild coffee growers and forest product harvesters who had used and managed wild coffee and the forest biodiversity it created over generations, in particular.

The first undesired social effect of the *in situ* wild coffee conservation was displacement/dispossession of coffee producers. As discussed in chapter three, there are a range of definitions attached to conservation-induced displacement. Yet, the explanation offered by the World Bank group seems fairly appropriate to the specific context of the *in situ* conservation programme in the Yayo district. In this definition,⁷² not only the physical eviction of individuals but also the loss of access to valuable natural resources is distinguished as displacement. The justification behind the World Bank's definition of displacement is that even if forest-dependent people are granted permission to remain within or on the fringes of PAs, the loss of access and use right over land *per se* can result in almost all the displacement-related risks identified by Cernea (2000). In fact, these eventually lead to tension between PA officials and local people (Brandon et al., 1998).

Taking the World Bank definition of displacement into account, combined data from the case study villages suggested that the coffee farms of 654 households were included in the demarcated conservation space. Although conducted in the villages not covered by this study, the estimate by Jotte (2010) shows that, out of 6141 households residing adjacent to the Yayo forest, 1692 of them no longer access and use their coffee farms that are enclosed in the conservation space. As far as forest and non-timber forest products (NTFPs) harvesting is concerned, an unpublished work by Regassa (2000:57) reveals that 92,6% of the local people residing in and around the conservation space have lost their right to access and uses resources because of the designation of the conservation boundaries.

My personal observations of the case study villages and the findings of the transect walks affirmed that, although many villagers in the district were dispossessed from their wild coffee farms, the problem appeared to have been more severe in some of the villages studied, mainly *Achebo* and *Wutete*. One of the principal reasons for these villages to be affected more than the others was that a large portion of the newly designated conservation space overlaps with the privately owned coffee farms. Analysis of data reveals that such type of non-physical displacement resulted in the

⁷² "(i) relocation or loss of shelter; (ii) loss of assets or access to assets; or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location, or the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons" (World Bank, 2002)

downsizing of their productive spaces of grazing, extraction, coffee production, and other agrarian practices, ultimately impacting on the total agricultural production of the households. Explaining the effects of the state's control of the forest including traditional coffee management practices, a farmer in *Wabo* village remarked:

Prior to the government's acquisition of the forest and wild coffee farms (owned by me), I used to harvest an average of 12 quintals of coffee beans each year. However, after it had been taken by the project (the CIP), I was limited to working on small patches of forestlands and the total harvest has been reduced to 3 – 4 quintals per year.

It was discussed in the above sections that territorialisation of the forest biodiversity realised the inclusion of economically, socially, and culturally valuable resources in the conservation territory; and physical restraints, fines and police tactics to limit traditional forest management. Particularly, residential houses, open settlement areas and considerable portions of coffee plantation farms were made part of the protected forest area. Following the loss of access to these valuable household assets and continuation of long-term management, forest-dependent families found it difficult to obtain the same wild coffee and other forest products as they used to in the past. Analysis of the data showed that the restriction of the use of these forest resources by village dwellers completely contradicts with article 9/3 of proclamation No. 72/2003⁷³, which clearly outlines the need to recognise traditional livelihood practices in protected forest areas. The controversial aspect of the dispossession, as recalled by the local informants, was that displaced people were expected to pay taxes on these contested wild coffee farms although they were no longer enjoying its economic benefits.

Linked to the non-physical displacement resulted, there were also key social effects that resulted from the *in situ* conservation. These include joblessness, landlessness, and reduced cash income of village households due to the reduction in coffee harvests. It was mentioned by some of the interviewed villagers that they have reduced and/or eliminated the frequency of visits to the wild coffee farms. The reason given for this is

⁷³ Article 9/3 of Proclamation No. 72/2003 states that "The traditional use right of the local people to use the state forest resources such as fuel wood, construction wood, medicinal plants, grazing etc. shall be permitted according to the regulations and directive."

fear of fines and harassment by the conservation officials that may lead to imprisonment. As a coping mechanism to such undesired social consequences, some members of the villages (especially young boys and girls) started to diversify their livelihood options by migrating to nearby urban places such as Mettu town and engaging in temporary unskilled jobs. In a similar manner, some physically able household members, who were once owners of large tracts of coffee farms, started to work as day labourers on village-based private coffee farms and the Yayo coal mining and fertiliser factory. When compared to the total cash income that a villager obtains from the wild coffee farms, the earnings from such activities have been low (up to an average payment of ETB 30 /day), suggesting a significant reduction in the income of the coffee dependent households (See chapter four).

Dispossessing villagers of customarily owned wild coffee farms did not only impact their livelihoods, but also became a principal reason for creating disincentives to participate in the local conservation program. Coad et al., (2008) asserts that displaced local people quite commonly hold negative feelings towards restrictive and exclusionary conservation approach, the end result of which is the extinction of biodiversity resources. In the Yayo district, the exclusionary principles that were prompted by the *in situ* conservation created a lack of sense of ownership and belongingness amongst villagers. Asked what their role should be in the preservation of the wild coffee, one of the interviewed villagers asserted:

The government has been claiming that the wild coffee is its property and that it should be under its control. Hence, it is not us but the same government that has to take full responsibility and accountability of protecting and supervising it.

A former forest guard also admitted that there was a lack of support and sense of responsibility by villagers towards externally conceived *in situ* conservation approach. He recalled:

The local communities were never willing to cooperate in identifying, exposing, and reporting trespassers, strangers, poachers, and unauthorised users because of the widespread assumption that this has to be the duty of the project (mainly the guards).

Analysis of the data showed that such an outsider attitude by villagers and the lack of local support towards the *in situ* conservation approach gave rise to a new form of resource use in the district. Migrant settlers and other non-local forest users, in particular, have started to harvest ‘what they want to’ from the buffer and core areas in a manner that seems like ‘nothing has been prohibited’. This situation did not only contribute to the typical open-access use situation but also undermined the traditional forms of ownership recognition and respect that villagers held for each other’s customary forestland holdings and the care it entailed. For all these reasons, it can be argued that the restriction of historic access and use rights actually led to a decline in the sustainable use and governance of forest biodiversity and wild coffees.

The second and most frequently reported social effect of the *in situ* conservation regime was associated with the psychological, economic, and social marginalisation of the affected villagers from the local scale social systems. As discussed in chapter four, a wild coffee farm is an indication of wealth status and serves as collateral for villagers where one can feel reasonably confident of effectively dealing with hardships. However, the progressive shift of control of the resource from villagers to the conservationists negatively affected the economic status of villagers. In most of the interviews, informants stated that they are economically and socially excluded from participating in local scale social affairs, mainly due to the lack of income and productive assets.

The lack of control over the wild coffees also complicated villagers’ access to loans/credit from potential lenders (farmers’ unions and/or wealthy individuals) because the lenders often cast doubt on villagers’ ability to pay back. Meanwhile, there were reported cases where inability to meet minimum membership criteria, i.e. having a fixed asset such as coffee plantation, forced some village households to quit from being a member of local farmers’ unions, associations, and cooperatives. This was clearly explained in the statements of a villager in Gechi whose coffee was demarcated in the conservation space. He said:

I am extremely unhappy for losing my coffee farm to the conservation workers. Since then, my family and I are going through the hardest time in our life. To give you an example, I left the farmers’ union in the village two

years ago. This is because I had no commodity (i.e. coffee harvest) to bring to the union and I was unable to pay the monthly membership fees.

The third impact of the *in situ* approach in the Yayo district was related to the dissolution of traditional institutions and customary resource use patterns. It was discussed earlier that traditional institutions that constituted local authorities, such as village elders and clan heads, mediated the customary access and use right to forest resources in the study area. In such cases, forest-dependent communities tend to develop their own land use laws and rules and also allocate governance mandates to the traditional institutions that ultimately take the responsibility of delineating ownership and use rights over these resources (Coad, 2007; Kajoba, 2003; Kigenyi et al., 2002). Despite the strong role of the customary institutions in the governance of the local resources, the implementation of the *in situ* conservation concept and the resultant shift in the wild coffee tenure rights appeared to have brought considerable changes in the traditional resource use and management practices.

The findings of this study showed the shift from traditional resource management practices to scientific conservation systems, which was followed by the state's reclassification of the local resource as 'a government-owned forest', left the village dwellers with little power to own, control, manage, and overall govern their forestland. It also weakened the role of traditional elders and village leaders who were actively regulating issues of access and use of the forest biodiversity in the district. As a result, there was an unexpected occurrence of a new resource use pattern in the district as villagers were unable to exercise full authority over the forestland and defend and safeguard the resources from this type of outside pressures. The situation was intensified further as the government has not yet given use right certificates to villagers for these contested spaces.

In sum, the execution of the *in situ* conservation concept in the context of the wild coffee in the study area did not seem to uphold ancient but locally acceptable ways of resource management rules and boundary identification practices. It was also extensively discussed that villagers' indigenous knowledge and skills were not sufficiently incorporated in the management guideline. Despite concurrent opinion by both interviewed elders and conservationists that the customary resource management

system was an effective way of preserving wild coffees, the lack of integration of the scientific models with traditional practices became one of the main reasons for the failure of the *in situ* conservation in the study area.

5.4 The demise of *in situ* wild coffee conservation

As mentioned above, the *in situ* model reflected the priorities and interests of extra-local actors, mainly the state and non-state conservationists, who were based locally, regionally, and nationally. The list of activities implemented under the CIP project (territorialisation, infrastructural development, and community support interventions) also implicitly focused on reinforcing the state's control and territorial claim over economically important forest biodiversity resources. It appeared that little was done to secure benefits for the local community either in the form of wildlife management, social service and/or political empowerment.⁷⁴ According to the interviewed villagers, this has, eventually, led to antagonistic relationships between the conservation officials and villagers as well as negative attitudes towards the *in situ* conservation approach.

Analysis of the data suggested four main reasons why the *in situ* conservation failed to meet its primary objectives of preserving the wild coffee and other important biodiversity resources. Firstly, the approach followed an authoritarian principle where decisions were made in a top-down fashion by excluding villagers from the access, use, and governance of the forest biodiversity. Secondly, the competition between conservation officials, who were seeking to control and preserve the wild coffee, and the historical wild coffee cultivators and users who struggled to secure their livelihood, created growing inter and intra-group tension and conflict.

Thirdly, the period of the *in situ* conservation experienced persistent resistance from villagers who stood against the new reclassification of the forest biodiversity as well as the state's territorial claim over the resources. In their opposition, as can be seen later in the chapter, villagers employed various formal and informal strategies of gaining access to their customarily owned wild coffee farms. Lastly, there was a lack

⁷⁴ Neumann (1997) describes direct benefits of protected areas to local people as: wildlife management (wages, income, meat), social services and infrastructure (clinics, schools, and roads), and political empowerment through institutional development and legal strengthening of local land tenure.

of well-designed and strong institutional mechanisms with the essential skill and expertise to enforce and implement forest protection proclamations, regulations, and directives. For instance, during the project period, it became impossible to recruit the required number of forest guards due to financial reasons. This is in agreement with Ghimire and Pimbert's (1997) assertion that preservationist-oriented resource management systems often incur high management costs that the countries in the developing world cannot afford.

Following the flaws of the *in situ* wild coffee conservation and the mounting danger facing the wild *coffea arabica* genetic material, the mainstream conservationists started to contemplate a different approach that can ensure the sustainable use and management of the wild coffee species. One of these strategies was the biosphere reserve approach.⁷⁵ At least in principle, the biosphere reserve strategy is grounded on the ideas of recognising customary access and use right, securing the benefit of local communities from the resources and encouraging their participation in decision-making processes. By so doing, it was assumed that this approach would provide an incentive for villagers to take an active role in preserving the forest. The following section narrates the implementation processes of a biosphere reserve approach in the context of the Yayo district and investigates how it promoted the resurgence of a protectionist ideology rather than a cleavage from it.

5.4.1 Towards a 'participatory' model of wild coffee preservation: The Biosphere Reserve Approach

It was already noted in the first chapter that decade-long research by various national and international scientists established the district's endangered biodiversity species. Virtually all of the studies have indicated that the fast disappearing *coffea arabica* is one of the most threatened and fragile species in the area. Cognisant of the flaws of the execution of the *in situ* approach in the district, the conservationists have come to realise that any forest biodiversity preservation endeavours will only succeed if the local community participates in the

⁷⁵Biosphere reserves are areas of terrestrial and coastal /marine ecosystems or a combination thereof, which are internationally recognised within the framework of UNESCO's Program on Man and the Biosphere (MAB) (UNESCO, 1995)

governance of these contested resources and gain material benefits from them. In view of this, the first major step towards creating a participatory model, in this context the biosphere reserve approach, kicked off in 2008. Spearheaded by conservation biologists such as Gole et al., (2002), the approach was envisaged as a perfect model for ensuring sustainable use and conservation of the wild coffees.

As a leading advocate of the implementation of the notion in Ethiopia, the ECFF and a group of other scientists collaborating in the Conservation and use of wild populations of *coffea arabica* in the montane rainforests of Ethiopia (CoCE) programme established a task force with the aim of fostering dialogue and sharing information on issues related to sustainable conservation strategies of the forest. The task force comprised the Institute of Biodiversity Conservation (IBC), the Jimma Agricultural Research Center, the Yayo Administration Office, the Yayo Agricultural and Rural Development Bureau, Jimma University, Addis Ababa University, OFWE, and the ECFF. The first meeting was held at the IBC conference hall on 29 October 2007. The panel discussed a range of issues pertaining to the temporal forest cover change and the urgent need for a different conservation approach. Moreover, it developed terms of reference for the task force, outlined a plan of action, and fixed time for further meetings (see appendix 5.1 for the plan of action and the list of members of the task force).

As anticipated, the process of creating the Yayo biosphere reserve (BR) followed UNESCO's MAB core principles. It started with the investigation of the social, economic, floristic, and ecological aspects of the district. According to the Yayo BR nomination form authored by Gole et al., (2009:8), some of the salient features of the Yayo BR are:

The proposed area comprises an extraordinary landscape, mosaic of forest, agricultural land and wetlands. It is the center of origin and diversity of several plants with high versatility, such as *Aframomum kororema*, *Piper capense*, *discorea sp*, *Coccinia abyssinica*, and *Placterantus edulis*. It is economically important regional watershed, part of the Nile basin that necessitates an integrated management approach at a landscape level such as the UNESCO concept. The proposed area harbors the historical site of the Gada Assembly of the Iluu Oromo People - a key landmark in Oromia's sophisticated political culture.

The second major step in the creation of the BR was a spatial reclassification of the forest biodiversity into three distinct management zones, the core, buffer, and transition zones. Based on the regulations of the UNESCO, one of the tasks of the conservationists was to legitimise the new spatial reclassification by participating villagers in the planning processes. Analysis of the data showed that the BR formation entailed a relatively decentralised and bottom-up planning process starting from the village (*Kebele*) level and then proceeding to national scale actors. Various state and non-state actors including *Kebele* leaders extended their support by duly signing the BR nomination form (see appendix 5.2). As far as financial and technical supports were concerned, once again, the Centre for Development and Research (ZEF) in Bonn, Germany and Ethiopian-based state and non-state agencies played key roles by providing grants.

After all these steps, the official endorsement of the forest biodiversity as a UNESCO biosphere reserve was finalised in 2010. Explaining the participatory nature of the planning process and his future expectation, an influential member of the nomination team stated:

The Yayo Biosphere Reserve initiative is a joint effort of government actors, the population within and around the coffee forest and scientists to work towards securing sustainable livelihoods together with effective protection of the forest.

The early planning stage of the BR approach was at a time when many interviewed conservationists became optimistic that the approach would solve existing local socio-political struggles over wild coffee access, use, and ownership. Yet, the analysis of the data from the study area showed that the implementation processes of the approach tended to follow the same protectionist-oriented principles of the *in situ* conservation that they were supposed to replace. Firstly, even though the BR approach advocated for meaningful local participation, the actual implementation appeared to have favoured only the needs and priorities of the local conservation actors. Secondly, the BR proponents' sympathetic consideration of villagers' forest use right and their emphasis on improving local livelihoods failed to formally recognise the customary ownership rights of villagers over the locally contested resources. The following sections attempt to demonstrate these assertions by using

the field data on the spatial designation, characteristics, and goals of the management zones and the extent of villagers' participation in the process.

5.4.1.1 Mapping the reserve and recreating the core zone: Resurgence of protectionism

Mapping the biosphere reserve management zones was one of the key activities that were implemented during the early phase of creating the reserve. The objective was to help forestland users to decide on and implement management practices in key areas of the reserve. Interview with a conservation planner from the ECFE revealed that the mapping exercise followed a landscape approach whereby the forest had to be reclassified into three distinct zones: transition, buffer, and core zone (see table 5.2 below). Biological and physical criteria for the different zones were derived from the ecological research conducted on the forest cover changes of the district. The criteria were further refined through additional research on wild coffee population genetics, diversity, spatial distributions of the forest biodiversity, and other socio-economic issues.

As with the *in situ* conservation model, determining patterns of abundance and diversity of the wild coffee, the risks of human disturbance, and the forest cover types of the reserve were carried out using low and high technologies such as GIS, GPS, compasses and sophisticated aerial satellite images. Consequently, covering a total area of 167 013 hectares, the majority of the land and forest resources of villagers residing in six districts of the *Illu Abbaa Bora* zone were all absorbed by the reserve. The core and buffer areas were estimated to be 28 326 and 21 000 hectares respectively. The remaining 117 687 hectares were set aside for the transition or settlement zone. The summary of the total area coverage of the different sections of the reserve is presented in table 5.2.

Table 5.2: Total area coverage of the management zones in Yayo coffee forest Biosphere reserve

Biosphere reserve Zones	Total land area (Ha)	Forest area	
		Amount (Ha)	% Land area
Transition	117 687	50636,8	97,5
Buffer	21 000	18798,6	89,52
Core	28 326	27618,8	43,03
Total	167 013	97 053	58,11

Source: Adopted from the BR nomination form, 2013-14

The Transition zone

The transition zone, which is often described by villagers as *Daangaa 3ffaa*⁷⁶, is an area designated for sustainable development and livelihood promotion. It encompasses agricultural land, grazing, gardens, a few semi-forest coffee farms, and settlement areas of the biosphere reserve. It is only in this zone that longstanding social, economic, religious, and cultural practices are allowed without any restriction. These activities may include settlement, farming, coffee production, NTFP collection, grazing and other useful economic activities.

However, this is a space where most forest-dependent villagers often struggle to obtain vital livelihood resources that are necessary to secure a living. Such a challenge is associated with the unavailability of adequate forest and forest products in this zone. As can be seen below, villagers prefer to have access to the other zones that have abundant resources although the conservation officials do not allow this. Hence, it can be argued that dislocating people's interaction with the key parts of forest not only creates disincentives to conservation but also poses dangers to the important indigenous knowledge of plant material for medicine and other purposes.

The buffer zone

⁷⁶*Daangaa 3ffaa* is an Afaan Oromo phrase that literally means the third zone. In this context, it depicts the transition zone of the biosphere reserve.

Locally known as *Daangaa 2ffaa*⁷⁷, the buffer zone is a semi-forest area designated primarily for development and conservation purposes. Geographically, it extends along the major rivers, *Geba*, *Dogi*, and *Saki*, and comprises a predominant proportion of customarily owned and community-managed coffee forests. According to the results of the interviews, prior to the reclassification of the reserve, villagers were using the resources of the buffer area as common property for the purposes of food and medicinal plant harvesting, coffee production, beekeeping, grazing, and hunting. The coffee that was produced in this zone was genetically wild in its nature and made up the largest proportion of the district's semi-forest production system, explained a local agricultural expert.

As it stands, the buffer zone is highly controversial space due to two political reasons. Firstly, diverging from the original biosphere reserve plan, the BR proponents introduced a new conservation space within the buffer zone, known as the 'extension buffer zone'. Analysis of the field data suggested that the extension buffer zone was introduced in the interest of the powerful conservation actors who strived to force compliance through systematic territorialisation and enforcement mechanisms. It was based on this motivation that the new extension buffer zone was crafted as a human-free space and was intended to be a strategic way of monitoring and regulating the daily functions and activities of villagers within this zone. Confirming to this assertion, the majority of the interviewed conservationists indicated that the main purpose of the extension buffer zone was to offer a protective layer for the core area and achieve purely conservationist goals. One of the conservationists in the district pointed out:

There are standard criteria for obtaining a certificate on sustainable forest management and one of them is to maintain a minimum number of selected tree species. Given that the local communities are still clearing the forest within the buffer zone and making the conservation a futile exercise, it is necessary for us to design the extension buffer zone approach. We believe that it will contribute to an increase in forest tree cover, if accompanied by a sustainable afforestation and management plan.

⁷⁷ *Daangaa 2ffaa*, which literally translated as the 2nd zone in the biosphere reserve, is a buffer zone earmarked for biodiversity preservation and local development.

The extension buffer zone approach can be taken as evidence to substantiate that the BR proponents are still paying a great deal of attention to stricter forms of forest biodiversity enclosure as an effective strategy for preserving the wild coffee species. The way the conservationists have dealt with the buffer zone resembles a classic exclusionary conservation model where little consideration was given to the livelihood of the local community. In line with this, Beyene (2014) notes that the conceptualisation and implementation of the BR merely complements and reinforces the previous *in situ* model of wild coffee preservation instead of improving the livelihood of villagers.

It was also found out that the list of compatible and incompatible activities developed for the buffer zone is alarmingly similar to that of the previous *in situ* conservation. According to a forestry expert of the OFWE, except for coffee production, it is strictly prohibited to carry out agricultural farming, grazing, and residential house construction in the buffer zone. Furthermore, cutting trees for timber, charcoal, and house construction are listed as punishable acts.

As it stands now, the restrictions on the local livelihood activities do not seem to be revoked any time soon. Beyene (2014) points out that there is a target to double the size of the buffer zone through an outward expansion mechanism towards the transition zone. However, given that there is emerging competition for space (from the coal mining actors), it remains unclear to what extent the buffer zone extends to the transition area. It would also be a point of concern whether this geographical expansion perpetuates the social, economic, and political problems in the district or not. Either way, Neumann (1997) argues that any endeavour by conservationists to demarcate lands and forests adjoining a particular PA as a state-owned buffer area will have key implications for the politics of natural resources.

The second controversy surrounding the buffer zone is the issue of competing claims of forest ownership rights between villagers and conservation actors, the state and environmental NGOs included. Personal observations from the study area revealed that most of the forest biodiversity, especially the wild coffees to which repeated claims are made, occur in the buffer area of the reserve. This seems to have resulted in pronounced contestation between the conservations and the villagers over

access and control of the resources in this particular zone. To the state and non-state conservation actors, the buffer part has been an integral component of the regional forest priority area. Thus, they claim a governance right to define the nature of access and use patterns that have to be exercised in its boundaries. To the villagers, the resources in the buffer zone have been customarily owned, controlled, accessed, and used as a primary means of living. Many interviewed villagers argued that the selective permission of certain livelihood practices in the buffer area is meaningless unless their customary rights over the wild coffee forests not legally acknowledged.

In fact, villagers' feelings of insecurity over ownership of the buffer zone resources is valid according to Peluso (1995:392) who argues that "...government's recognition of certain types of trees as useful to the community doesn't necessarily translate into acknowledging local people's right claims to blocks of forests as territorial entities." Meanwhile, one way of resolving such types of access, use and ownership contestations over space and resources is to create a buffer in such a way that there is a transfer of land title to the local people at the village or clan level (Oldfield, 1988:4). Considering the strong emphasis of the conservationists on preserving the wild coffee, this does not seem to happen due to the 'lack of political will' by conservationists to handover or even share the power over and benefits from the buffer area.

The core zone

The core zone is probably an essential component of a biosphere reserve that comprises less disturbed ecosystems worthy of strict conservation (Batisse, 1986). Often identified by villagers as *Daangaa Iffaa*, meaning the first zone, ecological values attached to the resources in this zone are enormous due to its diverse and abundant mix of flora and fauna species. Therefore, proclamations and regulations alienating the core zone to the government focused primarily on excluding villagers from the management process. In addition, they also curtail villagers' access to the core area owing to the mainstream thinking of the BR planners that the communities are 'incompatible coffee forest users'. Only selected actors, mainly researchers, reserve authorities and tourists, are granted the privilege of undertaking non-consumptive activities such as research, monitoring, and ecotourism within the area.

The number of people entering the zone at a time is set at a maximum of twenty individuals.

Similar to the buffer zone, the designation of the core zone entailed various types of competing claims over the resources contained in it. A BR planner recalled that one of the difficult tasks during the creation of the BR was the mapping and reclassification of the specific blocks of forests, especially the core and the buffer zones. This was mainly due to the complexity of identifying those areas with abundant wild coffee species, diverse vegetation cover, less risk of anthropogenic disturbance, and, at the same time, free from any ongoing customary ownership claim. As the forest reclassification proceeded, the area that was said to have relatively undisturbed wild coffee and forest biodiversity was situated only in the range of 2–3 kms across *Geba*, *Saki* and *Dogi* rivers. Villagers argued that the new reclassification of the forest as a core area overlaps with their historical settlements and traditional livelihood spaces. A Geographic Information System (GIS) expert and member of the BR formation committee elaborated the underlying causes of such contestation as:

The reclassification exercise of the core area was not based on individual farm-to-farm surveys, negotiations, and discussions. Instead, it was barely based on our spatial maps and our professional judgments that considered physical features such as watershed divides as the main frames of reference.

One again, the local community stood against the newly constructed map of the biosphere reserve and the notion of reclassifying the forest in such a way that it includes their customary forestland into the boundaries of the core area of the reserve. There were a few dissenting voices and short periods of local disputes between conservationists who presumed that there is no and/or should not be any local claims over ownership of the core zone and the villagers who demanded their customary right of using the forest products.

5.4.1.2 Re-territorialisation of spaces: The process of re-demarcating the coffee forest

Following the mapping of the BR on paper, the next essential activity in the process of creating the Yayo BR was the spatial demarcation of the different management zones. Throughout the interviews, conservationists admitted that the need to re-territorialise the forest stemmed from addressing the flaws of the first two episodes of territorialisation of the coffee forest, i.e. the *in situ* conservation and the NFPA. As discussed earlier, these flaws were associated with the inaccurate mapping and conflicting geospatial data and the lack of recognition to old forms of communal forestland tenure practices and historical relationships between the forests and the villagers.

Under the title of Biosphere reserve re-demarcation⁷⁸, the re-territorialisation began in 2013/14 with the financial assistance of the German Federal Ministry of Education and Research (BMBF) and the University of Bonn, Center for Development Research. At the time of the data collection for this study, a task force led by OFWE and comprising state and non-state forestry expert⁷⁹ was undertaking the re-demarcation of the district's forest resources. Review of the re-demarcation directive shows that there were three major objectives that necessitated the territorialisation of the forest. Firstly, it was to develop a sustainable and participatory forest management strategy by 'partially' addressing existing ancestral ownership claims and certifying farmers for their coffee forests. Secondly, it was to strengthen the state's 'tax collection' system on registered (certified) agricultural lands and private forest resources. Thirdly, it was to gather baseline information on the forest cover change and facilitate 'gazettement' of the biosphere reserve's core zone as 'a state-owned forest'.

The actual re-territorialisation was different from the previous demarcation in three key aspects. Firstly, villagers, through their respective leaders and community

⁷⁸ Here, it should be noted that this is the third time that the coffee forest underwent spatial territorialisation. The first two were carried out during the NFPA and the *in situ* conservation respectively.

⁷⁹ The task force comprises of the OFWE, the District Agricultural and Rural Development Office, the Land and Environmental Protection Office, the Police Office, Justice office, *Kebele* leaders, and community elders.

elders, were given the chance to become members of the task force. Besides, there were relatively better options for discussing and renegotiating boundaries of conservation and livelihood. Secondly, so as to make the re-demarcation legitimate, the task force allocated sufficient time taking geographical coordinates using GPS techniques, developing new participatory maps, performing ground checks, identifying current and historical forestland use systems, and counting and registering wild coffee farms to which claims are made. Thirdly, as a sign of a joint agreement, members of the task force signed memorandums of understanding whenever consensus was reached on the trustworthiness of the information and the fairness of the decisions.

Interviewed villagers indicated that, although the way the re-demarcation was planned seemed promising, the actual implementation was complex due to issues related to genuine local participation and fair resolution of customary ownership claims. Despite the bold claim by conservationists that there was meaningful community participation, villagers complained that their role and involvement in the task force was pretty much symbolical. Villagers were limited only to constructing insights about the biological and social and cultural landscape instead of deciding on the size of the conservation territories. Part of the reason for such a passive participation in the re-demarcation could be attributed to the low education status of villagers in reading and understanding sophisticated maps and mapping technologies. Hence, this has led to a situation where most of the decisions had to be passed on the basis of the perceptions, views, management plans, and research activities of the biologists and foresters in the task force.

As regards the ownership claims, ever since the biosphere reserve became a dominant approach in the district, there was high expectation among village dwellers that the long-running competing claims and contestations over the ownership of wild coffees could be resolved. Yet, this did not happen as expected due to the difficulty in getting information on when exactly villagers entered into the forest, which state authority granted them access and use right, and how much of the forestland has been used by them. One of the task force members explained the challenge of addressing ownership claims as:

In many villages, there are peasants who claim *de facto* ownership right for a small block of forestland located at the center of the core zone. From a conservation point of view, it is difficult for us to consider such appeals as excluding these small patches of managed forestlands pose potential risks to a considerable size of natural forest that is worthy of preservation. What we did was to hold a village level consultation and negotiations with farmers on the need to include the forest in the core area.

As clearly mentioned in the above statement, the creation of the reserve did not involve any form of physical displacement of villagers. Yet, the boundaries were clearly layered over customarily owned wild coffees and forestlands and the traditional forest use rights. Another point that can be noted from the above statement is the local conservationists remained naive and/or unwilling to consider traditional forest holdings and ownership systems as a benchmark for establishing the new conservation territories. By confining villagers to limited forest spaces and compelling them to work on a relatively degraded agricultural land, the reserve became a strategic tool for the scientific group to exert control over ecologically and economically crucial sections of the forest.

Conclusively, the overall trend shows that the efforts to re-demarcate the coffee forests were peripheral to the inherent politics of *de facto* ownership claims. One of the key justifications for this assertion could be the issue of the mapping. The way the maps were created and constructed contradicted with traditional wild coffee management practices and, hence, created formidable problems for the lives of villagers. As clearly illustrated in the case of the extension buffer zone, maps were used as a benchmark for actual territorialisation, a legitimate source of territorial claims for the state, and a principal tool of expanding conservation territories and controlling the livelihood resources of villagers.

Another key lesson that can be drawn from the reclassification of the forest is that the notion failed to recognise the unequal power relations between the conservationists and villagers and how these relate not only to forest access and use but also to the sustainability of the biosphere approach. The whole exercise of re-territorialisation seemed to have reinvented the previous fortress style of conservation by reinforcing the decision-making power of the state and non-state conservationists and their exclusive control of the wild coffees.

Considering the recent efforts to officially gazette the forest as a ‘state-owned’ property, one can easily anticipate that villagers are at the verge of losing their decade-old struggle of gaining access and use right over their ancestral territories. This means that there will be a continued competition for space and resources as well as sustained local resistance towards the interventions of these non-local forces.

5.5 Local resistance towards protectionists-oriented conservation approaches

Historically, protectionist-oriented conservation intervention has been one characterised by exclusion and protest. The nature of protest that takes place in a specific location is often a combined outcome of the type of conservation strategy that has been implemented, enforcement mechanisms, the socio-economic condition of the affected community, and the physical characteristics of the resources earmarked for conservation (Holmes, 2007). In the Yayo district, almost all the conservation initiatives have been planned and implemented in a top-down fashion whereby the state boldly declared sole ownership over the local resources. Accordingly, private wild coffee farms were assigned new meanings and became integral parts of the NFPA, the previous *in situ* conservation, and the current core and buffer zones of the biosphere reserve. In effect, there is no historically grounded justification to support the state’s claim except that it has established legal claim over the resources through the 1995 Constitution and 2005 Land Use Law. The trajectory of resource control, hence, presents a typical example of the power imbalance between villagers and the state, mainly the conservation actors.

Analysis of the data consistently showed that villagers are disappointed with the inconsiderate actions of the conservation officials. They blamed the conservation officials for denying their ancestral rights over economically vital biodiversity resources and for being reluctant to provide them with redress for the lost access to their wild coffee farms. The imposition of protected area rules and regulations, which limited and annulled the access to forest resources with a history of centuries-old use, was another reason that led to irritation amongst village dwellers. Some administrative officials in the district also expressed their concerns over the negative socio-political implications of fortress-style wild coffee conservation for

the economy of the villages. Intentionally or not, however, the state and non-state conservation actors remained reluctant to come up with an amicable solution to address the survival questions of the local people.

As it happened, ever since the inception of the protectionist-oriented conservation programmes, forest-dependent villagers did not so easily give up their traditional agrarian practices and forest resource use patterns. They have been attempting to counteract the external initiatives by adopting various forms of resistance movements. Analysis of the data showed that the resistance movements entail political messages that shed light on their systematic attempts of renegotiating territories, scientifically constructed meanings of the conservation spaces and reclaiming ownership rights over their wild coffee farms. According to Neumann (1995), state and non-state conservation actors often interpret any form of local resistance strategies as poaching, a failure of regulation, trespassing, and territorial encroachment. This is, in fact, an attempt by the state actors to conceal the embedded political content of the resistances towards protectionist ideologies (Holmes, 2007). In sum, the nature of local resistance towards the conservation programmes in the study area comprises a mixture of formal and informal as well as visible (explicit) and subtle (implicit) forms of opposition.

5.5.1 Official appeals and petitions

The attempt by conservationists to circumscribe the access and use over forest products compelled displaced villagers to organise and unify themselves in their respective villages and initiate discussions on legitimate and formal ways of expressing their concern and disappointment. In this regard, one of the key strategies was the submission of official appeals and petitions by villagers. Regassa (2000) reported that a total of 308 households went to the local court to settle the resource ownership claim. Many others continued to negotiate with conservationists to peacefully settle the issue of use right.

According to an interviewed village elder who was part of the local resistance movement, the first major step they took was to form a core of five individuals who have the ability to represent villagers and renegotiate conservation boundaries

with state authorities. Comprising young and elderly people, the village representatives were selected based on their education, status in their respective villages, knowledge of the historical resource ownership, governance and use patterns and understanding of the existing socio-economic disruptions caused by the protectionist ideologies. The remaining village-based claimants contributed cash amounting to ETB 100/household head to cover the travelling costs incurred by their representatives.

The representatives from each village held their first joint meeting in *Gechi* in July 2004. The information from one of the representatives indicated that an agreement was reached to follow the legal route by filing suits against the project and its operation. A legal expert from Yayo town was contracted on a temporary basis to record the views, opinions, and claims of villagers in a logical and professional manner and prepare these for submission to the concerned authorities. According to the interviewed villagers, the written document contained two sections. Firstly, it described the historical connection of village dwellers with the forest biodiversity and their contributions to its preservation. Secondly, it presented the list of affected families and requested the conservation authorities to recognise customary ownership right and allow access and use of forest products, mainly the wild coffees.

In circumstances where this may not be possible, the villagers stated in the document that the conservation officials have a moral obligation to them because of the promises they made to compensate villagers for the lost access to resources. Based on this, villagers suggested three alternative ways of fairly compensating the affected families. These were the availing of replacement farm lands, promoting agricultural assistance, and expanding community development projects such as the construction of roads, clinics, and schools.

The submission of the appeals and petitions started at the district level and then proceeded to the highest-level decision-making authorities at the zonal, regional, and national scale such as Administration Councils, Agricultural and Rural Development Offices, Police Departments, Justice Bureaus, and the *Geba Dogi* Forest Conservation Project (CIP project). In addition to submitting their appeals,

the village representatives also used various meetings and forums to express their disappointment with the restriction of access over their wild coffee and the impact these have on their lives.

Such types of oppositions are still ongoing with a hope that there will be room to renegotiate boundaries and secure access to their coffee farms. Asked why they still persistent with their claim, an elderly person from the representatives replied:

The government officials promised to listen to our demands and give us back a few blocks of the coffee farms. Besides, we are still paying taxes bearing a glimpse of hope that there will be a day, if not soon, that we shall regain control over our ancestral land.

Although at first, the local conservation officials tended to discourage such organised local movements, the villagers' persistence in their resistance seemed to have paid off. Non-state conservationists such the ECFE recently started to reconsider the local claims by way of providing minimal assistance to poor farming families through community development interventions. These local supports include, among others, coffee seedling provision, organic coffee certification, modern beehive distribution, and employment opportunity creation in active development programmes.

Most of the villagers are, however, unhappy with what has hitherto been provided to them, arguing that the support is unfair and grossly inadequate to compensate those affected by the forest enclosure. One of the villagers described:

They (the conservation actors) gave us little things compared to what they took and, hence, I am not afraid to say that we are robbed off our forest and coffee.

Explaining the unfairness of the compensation, another interviewed villager added:

Look, for instance, they took our agriculture and forest land and, in return, the only compensation that they are giving to us are coffee seedlings. In fact, they also told us to sign coffee certification consent forms. My question is, thus, since we lost our farm to them, where are we going to plant those seedlings? As regards to the certification, from which farm are we going to harvest the wild coffee beans that could be supplied to the market?

For their part, conservationists seem to have made their decision based on the notion that 'few groups (the locals) should lose their asset for the benefit of the majority (the national or global citizens)'. They defended their actions by boldly declaring that, under the state's ownership of the coffee forest, preservation efforts focus on generating benefits to the entire nation instead of posing a danger to the ecology just for the sake of supporting the farmers in the district. A conservation official from the regional OFWE clearly noted:

I don't think that the government has any moral obligation to pay damages to villagers on forest property that is not theirs, in the first place. Even if we say that the state is obliged to offer redress to the claimants, it would be an extremely costly and complicated process due to the lack of funds for such causes.

This perspective plainly shows the little account accorded to local voices, demands, and interests and persistent formal appeals, even though at a declining rate, until today. Meaning, the political question of villagers has not been given the necessary political solution. In the light of the current relentless push to gazette and legalise the coffee forest as 'state-owned property', it appears highly unlikely for the villagers' formal appeal to succeed and to win them the right to access their wild coffee farms. Hence, it can be argued that the fortress-style of wild coffee conservation in the district will continue to embrace informal forms of resistance such as those indicated hereunder.

5.5.2 Continued livelihood practices in protected forest and wild coffee spaces

Recognised by Kull (2004) as an implicit form of local resistance⁸⁰, another strategy of opposition towards preservationist ideology is the continuation of banned social and economic practices within designated conservation territories. As mentioned above, the patrolling of the forest by armed guards and the imposition of restrictive rules failed to halt the movement of the local community in and around the conservation space. Analysis of the data showed that both the villagers and new

⁸⁰ Implicit form of local resistance, as explained by Kull (2004), is a condition where people intentionally break rules and regulations as a sign of challenging the legitimacy of the enforcement mechanism.

settlers have continued the collection of wild coffees, spices, fuel woods, medicinal plants, and other timber and non-timber forest products from within the protected area. In this regard, one of the strategies adopted for accessing the forest was to shift forest visit practices from day-time to a night-time. An ex-forest guard explained the newly adopted forest-going behavior as:

Villagers normally hang around until it gets dark, which is the best time for them to cut trees, move timber, and also hunt wild animals without seeking any formal permission from the authorised officials.

During the field research, it was found that the change in the timing has largely benefited the skilled villagers and migrants who often engage in small-scale woodwork activities. These user groups found it easier to obtain the required amount of timber, mainly from the core zone, at night and transport it to the nearby workshops in Yayo town and some bigger villages such as *Wutete*. As indicated above, any livelihood activity associated with making timber and charcoal is labelled as a serious offense that could result in severe punishment. However, the local forest users have developed their own strategy that does not cause them so much trouble from reserve authorities. For instance, a resident of *Achebo* village explained his strategy as:

To cut a big tree, I do not use a saw mill as this may possibly produce a lot of noise and then leads to detection by the guards. Instead, what I do is, I remove the bark from the preferred tree on my first visit, and then wait for about a week until it dries and falls on the ground. Subsequently, I report to the development agents and leaders in the village to formally ask them permission to use the fallen tree. Getting this type of permit is not difficult as long as the reported tree is on my fathers' land to which I am making claim.

The continuation of traditional livelihood activities and harvesting of forest products from within the designated conservation space was also noted during a transect walk around the boundaries of the core zone near *Gechi* village. Walking down the road, I observed both a borehole on a tree (for honey production) (see figure 5.1) and a couple of villagers who were entering the core zone to collect fuel woods. Members of the transect walk believe that the continuation of banned livelihood activities has become more rampant after the service of the forest guards was terminated. They further argued that creation and implementation of the

biosphere reserve has not been effective in regulating continued resource use by villagers either from the buffer or core zone.

Analysis of the field data showed that the degree and freedom of accessing the resources in the core and buffer zone differs from village to village due to the lack of uniformity in enforcing the rules and regulations of the protected area. In villages such as *Achebo*, almost all affected villagers appeared to have continued to harvest forest products from the demarcated areas whereas in other villages like *Wabo*, only a handful of them had the courage to draw benefits from the strictly managed core zone.

Figure 5.1: A bore hole on a tree that is prepared as a traditional beehive (Gechi village)



Source: Field research in Gechi village, 2013.

As discussed earlier, various enforcement mechanisms such as oral warnings, harassment, and imprisonment were exercised as a means of controlling the movement of local communities in the protected forest area and curtailing the use of the forest by the locals. Although the villagers were frightened by the possible consequences of the penalties in the first few months, they later developed a coordinated opposition system against the restriction of access. The interviews with the villagers revealed that the locals refused to cooperate with the conservation officials by engaging in an act of tactical support in the local use of resources. This means that when prohibited activities are undertaken in the core zone and villagers are aware of the identity and details of the illegal users, they remain hesitant to report the situation and expose one another to the conservation authorities. It is because of such forms of oppositions that the preservation of the wild coffee in the

district became a complex undertaking for conservationists.

5.5.3 Forest Fire

The third form of resistance to wild coffee conservation in the Yayo district was the use of forest fire. Fire is considered as a powerful sign and a more visible form of opposition towards a fortress conservation approach. Through setting fire, villagers attempt to make a statement that they have the right to do so and carry out their ancient livelihood activities within designated conservation spaces (Holmes, 2007; Kull, 2004). In Ethiopia, research classifies forest fire into three categories: human-induced, natural or a combination of both (Teketay, 2001). Concerning human-induced forest fires, the studies outline that such fires occur due to the intentional introduction of fire to forests through cigarette smoking, wildlife hunting, and wild honey collection (Gashaw, 2001).

Identified by villagers as one of the key traditional livelihood activities, the use of fire is a common phenomenon in the Yayo district. Agricultural farm clearance, charcoal making, timber production, and wild honey harvesting are some of the local livelihood practices requiring the use of fire. For instance, during the harvesting of wild honey, farmers make fire in the protected forest areas to subdue bees and protect themselves from potential attack that may cause unnecessary interruption in the process of honey harvesting. Contrary to the assertion of the local conservationists who assign different meanings to the use of fire and blame local communities for the incidents (see Alem and Muche, 2009; Worku and Zewde, 2009), interviewed villagers argued that fire-making practices are not meant to cause deliberate destruction in the biodiversity since such traditional operations have minimal or no impact on the ecology. In his study of the protected areas of the Dominican Republic, Holmes (2014) makes a similar assertion that making fire in a core zone is not a calculated move to destroy a designated conservation area; rather it is an infuriated, spontaneous, and random attempt to reclaim customary rights.

Results of the focus group discussions and interviews suggested that fire is a recurrent occurrence in the Yayo forests with the most severe incidents recorded in

March to April 2013. I was able to get direct observational insights of the magnitude of the forest fire incident and understand the politics surrounding the use. As it was understood, the latest fire incident was one of the worst experiences in the country mainly due to the damage it caused to the social, economic, and biological aspects of the district. More than 289,6 hectares of high forest in a total of eight villages, the case study villages included, were destroyed by the fire incident. The estimated economic loss was calculated to be roughly ETB 2,3 million, excluding potential environmental services the forest would have to offer.

Due to the magnitude of the fire, the prevention and control efforts involved not only the local people in the respective villages but also several other extra-local actors who brought along specialised fire extinguishers to the district. One thousand military personnel and two helicopters were sent directly from the Federal Ministry of Defense in Addis Ababa to the village forests that were destroyed by the fire. Officials from the zonal, regional, and federal government structures also traveled to the Yayo district to take part in the fire control efforts. At the time, the situation became a highly politicised national agenda generating a great deal of attention from both national and international media outlets including the Ethiopian News Agency and the VOA respectively. On its daily news coverage of March 16, 2013, the ENA aired the information for the first time, revealing the loss of over 280 hectares of forestland due to a human-induced fire.

The fire affected the core zone much more than the buffer area and this situation provoked discussions regarding the underlying reasons for the difference in the forest fire intensity. The explanations provided by the conservationists and villagers differed in that the former took an apolitical position whereas the latter unveiled the political content of the fire. In the former case, information from the conservation officials suggested that the severity of the fire in the core zone was due to a combination of factors such as global climatic change, topography, soil type, and vegetation density which made the coffee forest easily vulnerable to the fire.

For their part, villagers who participated in the focus groups and personal interviews offered ‘a political explanation for the fire’ confirming Kull’s (2004) assertion that fire is a way of protesting restrictive measures over resource use. The

informants emphasised the benefits of the fire as an integral component of their rural life used to control insects and pursue rudimentary beekeeping activities. They further noted that the recent fire incident could be because of an attempt by landless people to clear forests for agricultural farms and expand landholding boundaries towards the edges of the reserve. Given that the forest fire happened in eight villages at once, few village residents suspected that it might be a deliberate and organised action by frustrated villagers who have lost access to their resources and were not given any compensation.

Hence, based on these responses, one reason for the fire setting could be an attempt by villagers to redefine and renegotiate boundaries and challenge the territorial restrictions imposed by the reserve authorities. During my participation in the fire control, I observed that the villagers showed a different level of commitment to the fire control in the buffer and core zones. Since the overwhelming majority of the local farmers possess wild coffee farms in the buffer zone where use right is relatively allowed, they showed a sense of ownership and acted promptly to control the fire. In contrast, there was relatively little motivation to prevent the fire in the core zone possibly due to the lack of sense of ownership that stemmed from the exclusion of people from the use and management of the resources.

In sum, the territorialisation of the protected area using the *in situ* conservation model and now through the biosphere reserve approach significantly disrupted the material and cultural practices in these conservation spaces. Although explicit forms of opposition by villagers such as violence are prohibited and illegal, the local community have used the abovementioned forms of protest to underscore their customary meanings to the protected area. By so doing, they challenged the contemporary patterns of governance, access, use, and decision-making processes over the forest products.

The cumulative outcome of the tension between the villagers and the conservation officials sheds light on two critical issues. Firstly, although unsatisfactory, the current community development assistance is the result of the persistent opposition of villagers towards the fortress-style conservation. For instance, the continuation of traditional beekeeping activity within the coffee forest forced the conservation

officials to plan and execute livelihood diversification strategies through the provision of modern beehives. In another case, the provision of millions of coffee seedlings is part of the long-term strategy of substituting traditional forest and semi-forest coffee cultivation with a modern garden coffee production system. Secondly, local resistance towards the strictly protected areas made conservationists rethink and redefine the territories of the core and buffer zones. Even though such initiatives by the conservationists failed to meet the expectation and needs of villagers, the frequent demarcation and re-demarcations that were undertaken in the district were the direct outcome of the local protests.

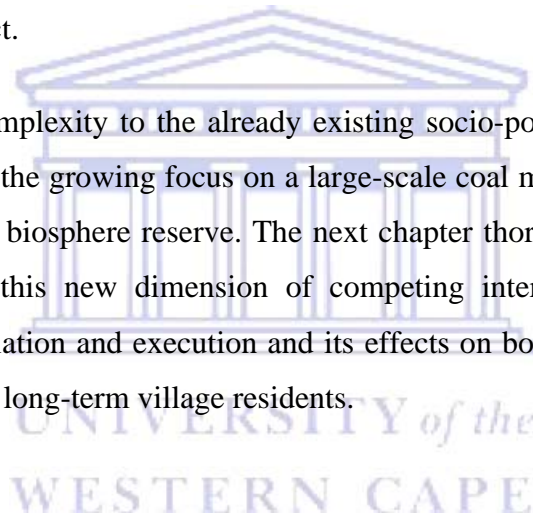
5.6 Chapter summary

Over the past three decades, the wild *coffea arabica* species in the Yayo district have gained remarkable worldwide prominence. In their research, national and international scholars revealed that the genetic materials of the wild coffee are fast disappearing due to population pressure and market factors, and that there is an urgent need to preserve the crop in its natural habitat. Following these apologetic explanations of degradation, protectionist-oriented conservation approaches such as the National Forest Priority Area, *in situ* coffee conservation and biosphere reserve core zone were formulated and executed on different occasions.

Generally characterised by protectionist-oriented philosophy, the three approaches adopted various strategies of resource control. These include spatial mapping and boundary territorialisation, defining and setting new ways of access and use of resources, enforcing new resource use and access patterns by way of developing rules and proclamations, and assigning armed forest guards. It was through these strategies that the conservation actors have successfully regulated the movement of villagers in and around the conservation boundaries, monitored their agrarian practices and hence gained control over the material practices associated with the wild coffee. The restrictive and exclusionary nature of the conservation approaches negatively affected the local communities in several ways. The findings suggested that villagers suffered from debilitation of customary access, use, and resource management practices, displacement from customarily owned forestlands, landlessness and joblessness, and social and economic marginalizations.

In an attempt to defend their customary forest access and use right and sustain their traditional livelihoods, villagers were engaged in persistent protests against the actions of conservationists. They lodged claims to the conservation actors, seeking the renegotiation of the conservation territories and recognition of their customary rights over access and use of the resources. As shown in the findings, formal and informal resistance strategies were used as a means of demanding their customary rights. These included, among others, submission of official petitions, the continuation of prohibited forest-based livelihood activities and the setting of fires in the boundaries of the protected coffee forests. It was a combination of this implicit and explicit local resistance and the weak institutional linkage among conservation actors, which contributed to the prevalence of a classic open-access resource use system and the partial failure of the protectionist-oriented conservation approach in the district.

Adding a layer of complexity to the already existing socio-political struggle over resource and space is the growing focus on a large-scale coal mine exploration and processing within the biosphere reserve. The next chapter thoroughly explores the politics surrounding this new dimension of competing interests, the processes involved in its formulation and execution and its effects on both the local ecology and livelihoods of the long-term village residents.



Chapter Six: The Coal Mining and Coal Phosphate Fertiliser Complex Industry in the Yayo coffee forest biosphere reserve

6.1 Introduction

The Yayo coffee forest area now faces a new form of resource demand and politics due to the abundant occurrence of coal mineral deposit. The efforts to explore and process the coal resource have brought along new actors and layers of competing resource claims and profound threats to the livelihoods of villagers and the wild coffee genetic material. The aim of this chapter is to unpack the contested resource terrain by offering an in-depth analysis of the genealogy and development of the Coal Phosphate Fertiliser Complex Project, referred to as COFCOP, in the same area earmarked for biodiversity conservation. Emphasis is placed upon the ways in which the macro context and policy direction on economic growth in Ethiopia has made establishing the fertiliser complex a national priority despite potential negative influences on wild coffee production and conservation.

The socio-ecological impact of the COFCOP and accompanying reactions by local coffee producing communities are also the key focus of this chapter. By taking the perspectives of professional conservationists and coffee-producing villagers into account, the chapter aims to illustrate their reactions towards the engagement of the mining and fertiliser project with these other actors. In line with this, empirical evidence is used to demonstrate how increasing environmental and forest-based livelihood concerns by professional conservationists and villagers have been ignored for the sake of realising national industrialisation goals. By doing so, the chapter tries to identify the social effects of the COFCOP and the mechanisms through which direct and indirect compensation has been promised to the affected community members to solicit their approval.

Out of the four case study villages considered for this study, the data for this chapter was gathered from two villages where the mining initiative is operational, i.e. *Achebo* and *Wutete*. The information used in the analysis has been gathered over a period of eight

months using a combination of primary and secondary data collection methods. Personal interviews and focus group discussions were held with the COFCOP authorities, local government officials, conservation proponents and the affected coffee producing local communities from these villages. The field data were subsequently verified by two rounds of additional visits to the mining and fertiliser sites in 2013 and 2014 and videotaped evidence of the launching of the project.

6.2 Genealogy of COFCOP in the Yayo district

6.2.1 The national context and the new economic growth framework

Over the past several decades, the government of Ethiopia has prioritised broad economic growth which also targets poverty eradication and sustainable food security. The series of policies and strategies designed and executed to achieve these goals have thus far identified various strategic sectors that have the potential to address emerging development challenges and contribute towards the realisation of the economic growth targets. One of the overarching policy packages is the Agricultural Development Led Industrialization (ADLI), an economy-wide strategy to realise the MDG and for Ethiopia to become a middle-income country by 2020.

Introduced in the early 1990s, the ADLI envisions agricultural productivity as the principal engine of economic growth. Through this strategy, the Ethiopian government has provided comprehensive support to the agriculture sector (Rashid et al., 2013a). Notably, an essential programme towards improving soil fertility and fostering agricultural productivity and profitability is the scaling up of the application of modern technologies and inputs especially inorganic fertilisers. Under the general framework of the ADLI, there are also other programmes and strategies that have been executed by the Government of Ethiopia. These include the Sustainable Development and Poverty Reduction Program, the Rural Development Policy and Strategy, Plan for Accelerated and Sustained Development to End Poverty, and the latest GTP. Due to its relevance, this section begins by reviewing the essential elements of the GTP.

According to the World Bank (2012), the years before the introduction of the GTP in Ethiopia are recognised as a period of remarkable economic growth and substantial poverty reduction. These impressive achievements have been led primarily by the agricultural sector with an increasing contribution from other sectors. As a comprehensive five-year (2011-2015) policy framework, the GTP builds up on the achievements of the past decades and allows the government to maintain focus on agricultural productivity in particular and economic growth in general. In connection with this, the plan sets a relatively broader and ambitious economic vision of

Building an economy which has a modern and productive agricultural sector with enhanced technology and an industrial sector that plays a leading role in the economy, sustaining economic development and securing social justice and increasing per capita income of the citizens so as to reach the level of those in the middle-income countries (MOFED, 2010:21).

In addition to the heightened emphasis on agriculture, intensification of other natural resources such as mineral extraction is also a strategic sector for achieving sustainable economic growth targets of the country. Ethiopia is known for its wide natural resource endowment, which can become the 'back bone' of the national economy. In terms of ownership, article 35/3 of the 1994 Constitution of the Government of Ethiopia clearly outlines the state's sovereignty over these natural resources. Therefore, the rural and urban land resources, as well as all other natural resources including minerals, are under the exclusive power of the state and the people of Ethiopia to be used for the greatest benefit of the nation. Referring particularly to mineral resources, the latest legislative framework governing the sector, Proclamation No. 678/2010⁸¹, affirms the state's custodianship of the nation's mineral resources as follows:

Mineral resources existing in their natural condition on, in, and under the territory of Ethiopia are the property of the Government and all the people of Ethiopia. (Article 5/1)

⁸¹ Proclamation No. 678/2010 is a FDRE proclamation to promote sustainable development of mineral resources.

It further stipulates:

The Government shall have the duty to hold mineral resources, on behalf of the people, and deploy them for the benefit and development of all Ethiopians. (Article 5/ 2)

Recently, the World Bank conducted a comprehensive assessment of the mineral sector of Ethiopia to project its potential for the economic development of the country. The findings of the study reveal that Ethiopia has a huge geological potential for exploration of new mineral deposits, yet the sector has been one of the more underexploited and marginal activities (World Bank, 2014). In terms of GDP, the contribution of the mining sector was as low as 1% in the 1990s; even so this has gradually increased to 5,8% and 5,5% in the fiscal years 2007/8 and 2008/9 respectively (MoME, 2009). Such a dramatic increase is, however, doubted by the World Bank (2014) who reveals that the sector's contribution to GDP in the year 2011/2012 was only 1,5%. According to both reports, the lion's share of this foreign currency earning comes from the large-scale production and sale of precious minerals such as gold and tantalite concentrate platinum. The reasons why the country has been unable to engage in a large-scale industrial mineral development are primarily the lack of technology, capital and human skill (MoME, 2009).

Transforming the mining sector commenced in the 1990s when the country strove to develop a progressive resource sector that places mining at its center. At this time, the ADLI policy followed a free market economic approach that introduced restrictions on public agencies from engaging in key economic sectors. As a result, the mining sector became open to interested private entities, stimulating considerable investment, modern technology, and skilled human power. The private sectors were, however, either unable or unwilling to embark on all the options available in the mining sector and projects such as the sugar manufacturing industry, metal and engineering projects and coal phosphate fertiliser complexes could not attract much interest from potential mining agencies. According to the MoME (2009), the main reason for this is partially reported to be because of the smaller return on investment.

The second important advancement in the mining sector started in 2011 when the new economic policy framework, the GTP, was launched. The framework envisages the mineral sector to be the main pillar of the industry in the next 10–15 years with its share in GDP substantially increasing from the present 1,5% to 10%. While recognising the leading role of the private sector investment in the mining sector, the GTP also offers a pragmatic operational framework for the government to strategically intervene in selected mining activities such as the in-country production of fertilisers using locally available industrial minerals. Parallel to these efforts, the government has also made a significant step to standardise the mining sector by submitting a candidacy application to the Extractive Industries Transparency Initiative (EITI)⁸² in 2013. The application was approved and Ethiopia was admitted as one of the candidate countries during the board's regular meeting in Oslo, Norway, on March 19, 2014.

Moreover, transforming the mining sector has also necessitated the formulation of new implementation modalities. The GTP framework outlines four interrelated implementation strategies⁸³ for developing the sector and eventually fostering sustainable economic growth. One of these strategies has been establishing baseline information of the various minerals that could be used as key inputs for modern agricultural technology such as fertilisers. In this regard, notable progress has been achieved by undertaking a large-scale exploration and estimation of reserves of raw materials such as coal industrial minerals, mainly phosphate, potash, and limestone in various parts of the country.

Coal is a natural resource that can be used not only as a source of energy but also as an ingredient for the production of a range of industrial materials. Many people in the extractive industry sector across the world considered coal as a burning rock with tremendous supernatural power (Sharan et al., 1994). The earlier efforts to discover and extract coal reserves in Ethiopia dates back to the arrival of Italian colonisers between

⁸² The Extractive Industries Transparency Initiative (EITI) is a global standard to promote open and accountable management of natural resources. It seeks to strengthen government and company systems, inform public debate, and enhance trust. In each implementing country it is supported by a coalition of governments, companies and civil society working together. For more information visit: <https://eiti.org/Ethiopia/implementation>.

⁸³ The other three implementation strategies in the mining sector are 1) Enhancing Geo-science Data Coverage and Mineral Exploration' 2) Mineral and Petroleum Investment Expansion 3) Undertake Artisanal Mining and Marketing Promotion 4) Undertake Geosciences and Energy Sector Research and Development.

1937 and 1940. Nonetheless, large-scale national exploration commenced in the 1940s by public and private entities such as the Geological Survey of Ethiopia and Addis Ababa University (GSE, 2009). Similar engineering-geologic surveys have also been actively carried out at a regional scale. The most prominent is the decade-long scientific explorations of coal and oil shell in the *Geba* basin of the Yayo district.

The Yayo COFCOP project commenced in the mid-1990s. The main objective of the project was to measure the total amount of coal reserve that may be present in the district and to determine its potential for further processing and use. By this time, the GoE had commissioned a Chinese-based consulting firm, COMPLANT, to undertake a coal reserve techno-feasibility study of ETB 12 million. The finding of the study showed that there is an estimated total of 230 million tons of coal mineral in 50 km², an area spreading over two villages in the Yayo district, namely *Wutete* and *Achebo* (COMPLANT, 2007).

Ahmed (2008) offers a slightly lower estimate of the coal reserve than the one reported by COMPLANT and argues that the reserve is 200 million tons. The studies further confirmed that the untapped coal deposit has the potential to produce 300 000 tons of urea and 300 000 tons of DAP per annum for the next several decades. Besides, it is estimated that 30,000 tons of ethanol and 90MW of electric power can be generated annually from these mineral resources (COMPLANT, 2007). In sum, it is this untapped mineral potential that prompted the government to envision the construction of eight COFCOP⁸⁴ and a thermal power plant in the Oromia regional state. The following section attempts to illustrate the nature and magnitude of the multicomplex fertiliser facility construction in the study area.

⁸⁴The COFCOP comprises five Di-ammonium Phosphate (DAP) and three Nitrogen, in the form of urea, manufacturing facilities.

6.2.2 A glance at the Yayo coalfield: Coal mine, phosphate fertiliser complex and thermal power plants

As stated above, Ethiopia is undertaking various reforms to support the country's GTP goal of doubling crop yields by 2015 and revolutionising the access and use of fertiliser amongst smallholder farmers. Even though fertiliser use has incessantly increased over the past several years, it still remains low compared to the existing usage standards of other countries (such as Kenya) and the actual national demand for the product (Spielman et al., 2011). According to Rashid et al., (2013b), the current average annual import of over 890 000 tons is expected to increase rapidly, thereby requiring a substantial amount of foreign currency for its purchase and transportation. In order to meet the growing demand for fertilisers and to reduce the corresponding import bill, the MoA, MoME, the Agricultural Transformation Agency, the Ministry of Industry and Privatization and Public Enterprises Supervising Agency and other public and private actors have been jointly working to launch a new program that explores and supports the possibilities of producing fertilisers in the country using locally available resources. It is this joint working relationship that led to the decision of constructing Ethiopia's first in-country fertiliser manufacturing complex in the Oromia region, the *Illu Abbaa Bora* zone of the Yayo district.

According to interviews, the first significant step in processing the coal deposit for the fertiliser and thermal power plant occurred in 2005 when the Ethiopian Electric Power Corporation (EEPCo) allocated USD 0,5 billion for the COFCOP. Although preparatory works for the actual implementation were finalised, the project was suspended immediately following an official letter sent from the then state Minister of Mines and Energy to the CEO of the EEPCo. An informant from the federal government office recalled that the MoME reached the decision of terminating the project for two key political reasons. Firstly, during that time, the GTP framework was conceptualised and the power plant and the fertiliser projects were not a priority on the development agendas of the government. Secondly, based on the COMPLANT's assessment of the opportunity

costs of the in-country fertiliser production, importing fertilisers from global sources appeared to be relatively cheaper than its domestic production (COMPLANT, 2005).

As a key proponent of the project, the EEPCo did not easily give up on its attempts to construct the thermal power plant complex in the district. Following a series of lobbies with the MoME, the authorities sought to undertake another comprehensive Environmental and Social Impact Assessment (ESIA) study based on the standard regulatory prerequisites of Proclamation No. 299/2002⁸⁵. In fact, it is also noteworthy to recognise that the project is classified as a World Bank 'Category A' project⁸⁶, an initiative of a comprehensive regional or sectoral ESIA study, mainly due to its nature, type, sensitivity, scale and location. In view of this, the EEPCo sought for the service of an independent consultant to review the previous findings of the COMPLANT as well as to explore the ESIA of the proposed project in the area. Information from the mining project personnel indicates that a German-based consultancy firm, Fichtner GmbH & Co⁸⁷, was commissioned to undertake the study with a budget of USD 148 650.

In January 2006, a group of experts from the consulting firm and EEPCo travelled to the Yayo district and commenced their fieldwork with concerned local government authorities. At the end of the study, a comprehensive report was produced and subsequently submitted to the then MoME as well as the management of EEPCo. The report by Fichtner focused on an analysis of the preferred coal mining technology, the engineering design of the plant and the baseline conditions of the proposed COFCOP. Unsurprisingly, the report revealed similar findings to that of the COMPLANT study and affirmed that the COFCOP is not environmentally viable and that there was a probability of causing irreversible damage to the flora and fauna of the district (Fichtner, 2006).

⁸⁵ Proclamation 299/2002 is an Environmental Impact Assessment Proclamation of the FDRE.

⁸⁶ A proposed project is classified as Category A if it is likely to have significant adverse impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.

(<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTENVASS/0,,contentMDK:20484429~menuPK:1182591~pagePK:148956~piPK:216618~theSitePK:407988~isCURL:Y,00.html>)

⁸⁷ <http://www.fichtner.de/en/home/>

The report also reflected on the possible socio-economic disruptions that may arise from the implementation of the thermal power plant operation. It is estimated that over 3777 village dwellers in the district will be exposed to involuntary displacement, thus there will be direct adverse effects on their livelihood in particular and survival in general. As for the question surrounding the validity of the findings of the COMPLANT, the new report argues that the previous feasibility study is a shallow investigation in that it has barely addressed a range of crucial factors such as health and safety aspects, socio-economic conditions or flora and fauna audit compliances. It further notes that the Chinese firm's report fails to capture the land utilisation plan and waste disposal strategies of coal ash and slag, if the project had to come to full operation. Clearly, these findings offered legitimate grounds for the Ethiopian state to terminate the project, at least in the short to medium term. It is obvious that such a decision was not appealing to the EEPCo who had set a target of increasing the country's electric power coverage from 15% to 50% of the population.

There was then a brief suspension of the COFCOP until the subject was reviewed in the country's latest economic policy, the GTP. As discussed above, increasing agricultural productivity has become the key priority of the government and the use of modern technology is given a great deal of attention to realise the sectoral targets of the GTP. Hence, the government envisions the construction of its own fertiliser manufacturing facility in selected parts of the country. Four years after the release of Fichtner's report and the suspension of EEPCo's push to execute the thermal power plant project, the government decided to conduct another participatory feasibility study to determine the multifaceted social, economic and environmental impact of the COFCOP. Under the auspices of the MoME and the Ministry of Industry and Privatization and Public Enterprises Supervising Agency, local consultants based at the Chemical Engineering Department of the Faculty of Technology of the Addis Ababa University, were contracted to conduct the study.

With fieldwork of the consultants starting in mid-2010, the study reviewed the previous ESIA reports by COMPLANT and Fichtner and made a fresh assessment of the nature,

extent and scope of the project and its potential impact on the surrounding people and the physical environment. Accordingly, the first report was prepared in such a way that it contains crucial points such as the description of the project, the physical, biological and socio-economic conditions of the coalfield, identification and prediction of the environmental and socio-economic impact and feasible management and mitigation plans of the impact of the project (COFCOP, 2009). In its summary section, the report offered an independent opinion on the viability and profitability of the COFCOP initiative:

Comparing the overall negative impacts of the project with the current energy and food security need of the country, it is recommended that the project be implemented as it has a positive spin-off effect that could possibly improve the lives of many of the country's 80% population engaged in subsistence farming practices by providing key inputs like fertiliser, modern energy services, and improvement of infrastructures in the area. Furthermore, implementation of these industrial projects is in line with and supports the government development strategy, which aims for the industry to take the lead in the economic and development of the country during the coming years. (COFCOP, 2011:35)

Consequent to the recommendation by the consultants from the Faculty of Technology of the Addis Ababa University, the early implementation stages of the fertiliser and thermal power plant facility was started by outsourcing the civil work component of the plant to potential engineering companies. A few private and public stakeholders and international corporations expressed interest in the opportunity and submitted their respective bids to the concerned Ministry. The Chinese-based consulting firm (COMPLANT), which conducted the coal reserve exploration, requested USD 730 million to undertake the construction of the multi-complex facility. Meanwhile, an Ethiopian-based military-run industry complex, the MetEC,⁸⁸ submitted a relatively lower bid amounting to USD 540 million. Following the evaluation of the two bids, the agency finally appointed MetEC for the construction work and the contractual agreement was signed in 2012. Interviews with the project official indicated that, in March 2012, MetEC further subcontracted the general construction work to one of the mega private construction companies in the

⁸⁸ Established four years ago and entrusted with a range of state-owned projects and programs worth billions of dollars, MetEC is run by high-ranking military personnel. The corporation undertakes many of the nation's mega projects such as the electromechanical work of the Grand Ethiopian Renaissance Dam, the railways, and 10 sugar plants, fertiliser manufacturing and blending facilities in various parts of the country. (Source: <http://www.metec.gov.et/index.php/en/>, <http://allafrica.com/stories/201203270569.html>)

country known as Tekle-Birhan Ambaye Construction PLC, for the same amount of money.

The multi-complex fertiliser facility is a sophisticated undertaking and its detailed description will be extremely technical. For the purposes of this study, it is sufficient to offer a brief description of the plant, the crucial processes involved and the expected products of the project. The COFCOP is situated in the *Sombo* locality of Yayo district, 35°55'29"- 36°00'00" east longitude and 8°21'00"- 8°23'42" north latitude (COFCOP, 2011) whereas the mining site is situated to the west of *Achebo* village. Field observation and transect walks conducted around the boundaries of the coal field show that the project site is situated in the middle of the Yayo coffee forest biosphere reserve. Not only does it stretch over the transition area of the ecological reserve but also shares overlapping space predominantly with the buffer area and slightly with the core zone (2,5 km entrance into the core area).

According to the COFCOP (2009), a range of criteria was considered during the site selection of the fertiliser manufacturing plant. These include proximity to the coal mine field in *Wutete* village, the main *Jimma-Mettu* road and local market areas, and the *Geba* River⁸⁹, the availability of sufficient space for future geographical expansion, and also the availability of a dumping ground for coal ash and slag. The plant complex is laid out on an estimated total area of 550 000 m² and will include necessary structures for two plants, associated buildings, and roads. An interview with the project official and reviewed secondary documents revealed that the essential constituent components of the complex are the ammonia synthesis plant, the urea synthesis plant and the thermal power plant. Each of these plants includes various subunits in which processes such as gasification, air separation, compression, and gas purification through the removal of elements or compounds take place (See appendix 6.1). The total power requirement of the COFCOP is approximately 61 MW, thus, a surplus of 39 MW will be made available for delivery to

⁸⁹Geba river is the main source of water for the power plant and the fertiliser facility. The total fresh water requirement from the Geba River as make up water is estimated at a maximum of 402 tons/hour and a minimum of 209 tons/hour (COFCOP, 2011).

the nearest grids of the Ethiopian Electric Power Cooperation using an approximately 1 km of transmission line.

Given that Ethiopia's agricultural productivity has been constrained by a critical shortage of urea and DAP, the prompt action by the state to construct the COFCOP is a significant step towards achieving the economic growth and transformation plans of the country. According to the interview with the COFCOP project manager, the contractor has already started the civil works of the factory whereby site preparation, through clearance of forests and excavation of soil, has been finalised. Parallel to this, the field observation reveals that the extraction of coal has also commenced in the *Achebo* and *Wutete* localities using the latest mining technologies.

The performance report of COFCOP has been presented at high level meetings such as that of the House of Representative of Ethiopia which was held on Thursday, 10 January 2013. Speaking to the members of the parliament, the Director of MetEC stated that the first two urea fertiliser-manufacturing units have been completed four months ahead of schedule with a 70% accomplishment rate. For its part, the design phase of the DAP factory has been finalised and the production of equipment and ground level civil works has started. During the field interview, the manager of the project reflected on the implementation progress by claiming that 1,9 million cubic meters of soil have been excavated and earth work and levelling have been finalised with machinery planting to follow soon.

It appears that the mining officials have maintained hopes that the construction of the factory would continue smoothly and that pilot production of the fertiliser will commence in less than four years. In his 2012 report, the Director of the MetEC assured members of parliament that half of the construction of the fertiliser facilities will be completed by September 2013 and, based on the realities on the ground, smallholder farmers will receive the first locally produced fertiliser in the 2013/2014 cropping season. During my field reconnaissance visit in 2014, I tried to verify the actual progress against the statements of the official and found out that, considering the current pace, the facility will

not be ready to produce fertiliser until 2017. This is confirmed by a 2014 satellite image and a 2015 image found in a national newspaper⁹⁰. The key factors for the delay in execution of the plans, according to the manager of the project, are related to the lack of timely budget release, huge excavation activity, disputes on compensation payment, unpredictable weather conditions, delay in the delivery and supply of construction machineries and equipment.

6.3 Mechanisms for negotiation with local residents

Once the design of the fertiliser plant was likely to advance to the construction phase, the mining authorities made a crucial political step to include the participation of local communities and other local stakeholders in the negotiation and legitimisation process. Considered as a key element of the latest ESIA study, a consultative meeting was conducted for the first time in mid-2010 in the main public hall of Yayo town. A long and inclusive list of invitees from the local, regional and national scale gathered to attend the one-day meeting. The federal team comprised influential and decision-making individuals such as the independent in-house engineering consultant, the director of the MetEC and Regional Bureau heads. For its part, the local stakeholders were represented by some 40 individuals selected from local business owners, urban and village dwellers and their leaders, community elders, agricultural experts and foresters, local government administrators, legal experts, health professionals, and school teachers. The full session and all the stories told of this landmark gathering were videotaped by the Yayo district and *Illuu Abbaa Bora* zone Communication Offices and accordingly, viewed and used in the thesis as the main source of data for the following discussions.

The local government officials organised a warm reception that involved the presentation of flowers and other locally made gifts to the guests from the federal state agencies. The reception was then followed by a traditional blessing ceremony (locally known as '*Eebbaa Oromo*'⁹¹) of the local Oromo leaders and announcement of the meeting agenda

⁹⁰ <http://preciseethiopia.com/yayo-fertilizer-factory-300000-tons-intended-potential/>

⁹¹ Eebbaa Oromo (the Oromo Blessing) is a traditional blessing given by Oromo elders before the kick off of any meeting or programme.

by the Oromia Regional State Environment and Land Administration Authority Head. Analysis of the recorded data shows that the meeting had four overarching purposes. Firstly, it aimed at setting the scene of the extractive industry by describing the technical and operational features of COFCOP. Secondly, it was to inform the local people regarding the range of benefits they would derive from the project. Thirdly, it intended to identify the expectation and demands of the local actors and, hence, negotiate on issues of possible compensation and resettlement plans. Lastly, it was to build trust amongst various project stakeholders so as to avoid any possible challenge that may affect the successful implementation of the project.

On behalf of the mining authorities, the consultant gave a detailed presentation on the technical aspects of the envisaged project, the results of their impact assessment and anticipated benefits of the project both to the local people and to the country as a whole. In his speech, the consultant reiterated the key targets of the GTP which is to promote in-country fertiliser production and build eight manufacturing facilities, five for urea and three for DAP, in the Yayo district. Then the discussion focused on the range of benefits that the factory is expected to generate for the local people. Similar to many other extractive industries, the various phases and components of the project were said to create direct or indirect benefits to the locals and contribute to the 'sustainable development' of the district. In fact, it is evident that the coal mine exploration phase alone would yield an economic multiplier effect in terms of job creation opportunities, poverty eradication and a new source of tax for infrastructural service improvements (Viega et al., 2000). Particularly, if the mining is to take place in rural areas such as Yayo, which are not sufficiently covered by the state's development programmes, it would lead to economic growth, community development, and infrastructure provision.

The consultant outlined that the major source of possible job opportunities is in both facilities of COFCOP (i.e. the urea and DAP manufacturing facilities). In the former, it is expected that there will be a permanent employment opportunity for 15 000 individuals. Once the construction phase begins, this particular component is said to have the capacity to hire an additional number of 4000-5000 jobseekers. For its part, the latter is expected

to create plenty of permanent and temporary job possibilities for the working class from the local community. For instance, the construction phase of this component alone opens up temporary employment for up to 4000 individuals. The consultant noted, once the technical operations commence, the permanent positions in this unit would absorb 540 skilled and 250 temporary workers.

Within the same facility, each one of the sulphuric and phosphoric acid manufacturing units will create permanent jobs for 420 and 370 individuals respectively, increasing the total job opportunity in the DAP fertiliser manufacturing unit to 5580. Overall, the consultant's presentation estimated that not less than 25 000 people would get either permanent or temporary employment opportunities in the two units/components. The prospective employees comprise unskilled labour, scientific researchers and technical experts such as engineers, technologists, technicians and several other production and support staffs who will be trained in a research and training centre to be established in the district.

Another form of benefit expected from the multi-complex fertiliser industry is the availability and expansion of infrastructural services that are essential for sustainable local economic growth. Infrastructure development in the form of road, electricity, water, and health centre construction are amongst the promised immediate benefits of the COFCOP. In his presentation, the consultant remarked that one of the advantages of the having the project in the district would be constructing an adequate number of primary, junior and high schools, including a standard vocational training centre. This centre will have a chemical industry division that trains people for the operational phases of the Yayo COFCOP as well as other similar initiatives in the country. Beside these benefits, the consultant also touched on one of the long-term plans of the project that focuses on building a standard airport in the area. It was said that the new airport would play a pivotal role in boosting economic development through the facilitation of the domestic transportation of the labour force as well as factory products. Given that the whole region of *Illuu Abbaa Bora*, the Yayo district included, is relatively less developed, the news

was taken as a positive step towards integrating all the remote areas in the zone and creating a vibrant rural economy.

A final element of the benefit is the expansion of social services. The consultant indicated that the increasing pace of urbanisation and industrialisation that will be taking place in COFCOP sites in particular and in the district in general can serve as an incentive for the social service-providing institutions to invest in the district. Banks, insurance and telecommunication companies, micro-financing systems and entrepreneurial institutions are amongst the key service providers that are widely expected to open their branches and commence service in the area. In support of this, a study by Mishra (2009) that illustrates how infrastructural and social service provision by the Ib valley, Orissa, coal mining authorities has had a positive impact on the income of the local people.

As seen from the analysis of the field data, to some extent, the provision of these benefits has started, especially due to the seasonal population rise that resulted in a steady increase in capital flow within the villages. My field reconnaissance visits affirmed that the number of new local barbershops, small restaurants, grocery outlets, coffee shops, boutiques, and small trading shops in the village has increased significantly since 2013. As a result, relatively young educated boys and women residing in the urban and rural areas have succeeded in generating income by engaging in various business activities related to the mining industry, such as renting houses, opening restaurants and working in the shops. However, it is necessary to recognise that such opportunities are benefiting only a small segment of the community, mainly the youth, whereas the elderly and uneducated coffee-dependent farmers are still far from receiving any comparable benefits. When compared to the grandiose benefits of COFCOP mentioned in the consultant's report, these locally emerging benefits are quite modest and non-compensative for the villagers who, as we will see below, are losing access to valuable resources and income generating opportunities.

Another relevant issue discussed during the meeting was the relocation of people living in the area where the mine would be developed, and the provision of productive

agricultural land for the affected long-term residents to the villages as compensation for the expropriated coffee farms. Concerning the relocation, COFCOP (2011) stated that the project should be the direct implementer and that the resettlement should be carried out according to Ethiopia's resettlement policy frameworks.⁹² For the routine resettlement operations, the project would establish a resettlement implementation unit that has to be accountable to a central resettlement steering committee. Under the implementation unit, it was intended to establish resettlement field offices equipped with an adequate number of staff both in quantity and quality. The total budget required for the planned resettlement and compensation for expropriated property was roughly ETB 97,5 million (COFCOP, 2011). According to the interview with the project manager, a significant proportion of this money, ETB 65,5 million, has been allocated for direct compensation, whereas ETB 22 million is for various community development activities.

In addition to the oral presentation of the benefits of the projects, an animation video was used, as a strategy of eliciting approval, to demonstrate the potential contribution of the fertiliser facility to the economic transformation of the area. Entitled 'Yayo: Yesterday, Today and Tomorrow', the video presented a comparison of the present development realities and the imminent industrial revolution that is expected to take place in the district. In its 'Yayo: yesterday and today part (the 'pre-industrial period')', the video discussed the valuable natural resource endowments of the area and how the local communities have made their living from them. Productive farm land, dense coffee forest, the uninterrupted flow of the *Geba* and *Saki* rivers and sizeable livestock grazing lands were captured in the video. Apart from these positive attributes, the main reasons given for the poverty and underdevelopment were due to the area's remoteness, slow economic growth, and lack of active markets in the district. This section of the video concluded by emphasising the importance of industrialisation and urbanisation in fostering the development of the area and by arguing that mining has the potential to achieve these goals.

⁹² The main resettlement policy framework is Proclamation No. 455/2005 which is entitled 'Expropriation of Landholdings for Public Purposes and Payment of Compensation Proclamation.

In the 'Yayo: tomorrow' section (the 'industrialisation period'), the animation video not only portrayed an imaginary positive sketch of COFCOP with its various components and sub-components but also depicted the tremendous rural socio-economic change that could occur as a result of the coal mine. Amongst the features shown in the video were excellent service providing institutions, perfectly built infrastructures, and a beautified fertiliser complex facility. Agricultural lands and related agrarian activities had been replaced with thousands of condominium houses hosting lively urban activities. A four-storey school with students wearing clean uniforms and playing on a standard basketball court was displayed. Health institutions were decorated and beautified with green grass and roadside trees in their compounds. Electricity and telecommunications services had reached every single village in the district. The transportation system had changed much; modern city buses, trains, and airplanes were seen to be actively engaged in service provision. Overall, the video presented excessively picturesque and imaginary landscapes of Yayo as a district undergoing rapid transformation with a tremendous pace of economic growth.

Once the presentation was over, the Director General of the MetEC emphasised a few important points. Firstly, given the high demand for urea and to ensure its production and supply for the 2013/2014 cropping season, three of these manufacturing facilities shall be built instantaneously in *Wutete* village. This will be followed by the construction of the DAP manufacturing complex which is expected to take place in the year 2014/15. Secondly, he assured professional conservationists that the project would avoid any geographical overlap with the protected forest blocks and would only include arable agricultural land, unproductive land and those areas with less forest cover. In fact, he also argued that COFCOP could co-exist to a considerable degree with agricultural production and (to a lesser extent) with forest conservation in the area if the mitigation plans were strictly followed. Thirdly, although it may seem impossible to provide timely compensation for the displaced local people, the management team of the MetEC will hold discussion with community leaders and local government officials to continue the construction work as planned whilst processing the compensation payment.

6.3.1 Community reactions and perceptions: The social, economic and environmental concerns

A study in Papua New Guinea by Banks (2002) shows that mining-related perceptions are a mixture of contemporary understanding of processes such as business activities and forms of local governance, and a traditional outlook of how the world operates. Identified in the above section as key actors of the mining project, the local communities in the two villages also exhibit a particular way of conceptualising the mine development in their villages. During the interview sessions, some of the long-term residents of the two villages indicated that they had heard about the construction of the fertiliser complex informally from the local government officials, fellow villagers, village leaders, and also experts of COFCOP. The 2010 gathering was, however, the first formal platform where local communities were able to learn about the nature and scope of the project and put forth their perception regarding the industry. Shortly after the federal delegates wrapped up their presentations, the local people in attendance were invited to reflect, ask, and comment on the proposed mining activity. Analysis of the videotaped responses of the attendees of the gathering suggested that there were mixed feelings about the mining programme whereby some supported the initiative and others denounced it. A local professional conservationist who was part of the event recalled:

It was one of the most tense assemblies that I have ever attended. Almost all the villagers knew that COFCOP would certainly bring along several adverse consequences both on their livelihood and the environment. But, many of them were afraid to openly discuss their concerns and confront the officials because, at the end of the day, this might lead to an unnecessary argument with the federal delegates.

One of the reasons for the political tensions and fear was the presence of high-ranking military personnel and heads of regional and federal government departments who were in the attendance. The presence of these powerful individuals undoubtedly restricted the free expression of opinions of the members of local communities in the audience, limiting them to issues that would not offend the federal delegates. As the following statement from one of the attendees revealed, villagers did not openly express all of their views

regarding the mining:

It was hard to directly oppose the COFCOP plan because the government owns it. And, the government is a powerful entity compared to us. If we raise any opposition, we will be literally criminalised and labelled as ‘an anti-peace and anti-development element’. Then, what follows next is years of imprisonment or a regular abuse by the government cadres in the district who are affiliated with the ruling political party.

Instead of direct confrontations, therefore, the local participants opted for a systematic and vigorous negotiation mechanism by appearing to favour the operation and rarely expressing their resistance to the proposed state-driven extractive industry. Almost all of the individuals who were given the chance to speak on the event started their statements by expressing their excitement, appreciation of the state’s efforts to develop the country and their desire for the successful implementation of COFCOP. From viewing the video, most people seem to express the view they could benefit from the project, which is why they want the construction of the facility to take place in their villages.

Meanwhile, interviews with people from the two villages revealed that local residents had deep concerns, which differed according to the age, gender, education and relation to existing political elites. Overall they expressed concerns that, in their opinion, should get immediate assistance from the government. Some of these concerns were intra-community agendas and attempts to seek various forms of external support whereas others were logical and held strong opinions regarding the effects of COFCOP. For instance, women seem to be concerned more about the future of family life in the village whereas men extensively discussed the potential impacts of the mine on the coffee forest conditions/resources more generally and the wild coffee in particular.

Most of the concerns and trepidation raised by local residents relate to their subsistence, health, and environment. The overwhelming majority of the attendees feared that the initiative would primarily affect their historical land tenure systems, forest resources (such as coffee forest and wild coffee) and the social, political, and economic lifestyle of the villagers. Most importantly, those communities that would be displaced by the mine were greatly concerned about their future existence and cohesion and solidarity with

other villagers. They were concerned that the loss of social ties would not be worth the anticipated benefits the COFCOP brought for two main reasons. Firstly, the displacement of villagers from their birthplace weakens the social connections amongst various social groups within their communities. Secondly, it further weakens historical support mechanisms and traditional informal social institutions such as *Equub*, *Idiir*, and *Daboo*.

Notwithstanding the fear of the anticipated impact of mining operations, the community representatives also hoped that there could be potential benefits that would possibly contribute to the improvement of their livelihoods. Among these were the creation of employment opportunities for the local youth, the prospects of having access to improved infrastructural services (such as water, electricity and local roads) and the construction of reliable basic facilities (such as health and education). It is clear that the benefits could be gained in the form of better access to schools, markets, health facilities and local development and to monetary compensation once the project enters into full-scale implementation. Expressing his excitement of some of the benefits demonstrated through the animation video, a village representative noted:

What we just watched in the video is extremely exciting. The infrastructure development, the school, shopping malls and health facilities are all impressive. Our hearts are filled with joy and hope, thinking that the project will put an end to our economic misery. I am certain that this place (Yayo) will be 'a heaven on earth' very soon where our children and grandchildren enjoy life.

An ambitious local woman also went on to thank the federal delegates for bringing the animation video to the attention of the public and expressed her delight about the future development prospects of the town, especially through employment creation. In her speech, she stated: "Even if we (the older individuals) are not able to go and get the employment opportunities, I am now assured that our children will have a bright and safe future that they have sustainable cash income source." Adding further to this point, another gentleman described that the construction of COFCOP in Yayo is like 'Killing two birds with one stone'. On the one hand, it allows farmers to get easier access to chemical fertilisers and ultimately leads to tremendous success in their farming activities. On the other hand, the anticipated job opportunities could reduce the outmigration of

young boys and girls from the village and provides new economic opportunities. Hoping that the mining would produce a range of benefits and provide proper replacement land to displaced people, many of the participants expressed their willingness to resettle voluntarily to make way for the successful operation of COFCOP.

Overall, some of the attendees of the gathering saw opportunities for themselves; others were concerned about their potential losses, and many chose to say nothing. Those who expressed their ideas stressed the issues of winners and losers of the mining, the nature of compensation and its valuation mechanism, and the magnitude of the impact of mining on household life and subsistence agricultural production. They also emphasised the degree of vulnerability of forest-dependent villagers to this impact and the roles and responsibilities of the state actors in ensuring the safety of its citizens.

6.3.2 Professional conservationists' perceptions and reactions towards COFCOP

The mining initiative also produced great concern for mainstream conservationists and environmentally conscious local government experts. State and non-state conservationists and other environmental protection advocates appeared to be the most fervent opponents of the mining proposal. Since the onset of the mining project, the environmental advocates have been raising many questions to the mining authorities regarding the threats that this extractive industry poses on forest ecology. Unlike the past years where they stand firmly for the preservation of forest biodiversity, in recent times, conservationists have started to incorporate 'the human element' in their attempts to move along their agenda and to negotiate with the mining officials. In addition to raising environmental concerns, they expressed concerns about the impact of mining on the survival of local people and the future of the villages. This has been noted on several occasions when they featured villager's implicit opposition towards COFCOP in their campaigns, forums and discussions with the government.

Nonetheless, it is necessary to question the sincerity of the concerns of the local conservation community due to what had happened when power over some of the crucial biodiversity resources of the district was in their hands. As revealed in the previous

chapter, the local conservationists have been criticised in the past for not integrating concerns of how forest protection could lead to deterioration of local livelihoods, especially to the most vulnerable coffee producers. In the face of their inadequate concern of people's livelihoods in the past, their new concerns were not only for ecological effects of the mining but also the socio-economic consequences for village residents. The question here is, thus, are the local conservationists truly passionate about the lives of the poor or it is just an intentional or unintentional attempt of using human subjects to get their ecological concern heard by the new powerful group, i.e. the mining authorities. If such concerns emanate from a purely social welfare point of view, then one may ask why the same agenda was neglected when a series of strict coffee conservation approaches were adopted and the local communities suffered due to lack of access to their customary resources. Answers to these questions are crucial in understanding the negotiation tactics employed by various competing actors so as to attain their respective interests, priorities and goals and the durability of conservation and development efforts over time.

This study attempted to explore some of the key perceptions of the local professional conservationists regarding COFCOP. Interviews with both groups consistently suggested that they have strong reservations about the mining mainly due to the effect the various activities of the operation will have on forest ecology. Some of these concerns were explicitly expressed since the first date of the launching workshop in 2010. At the time of field research, I had the chance to discuss these issues with one of the local conservationists who attended the 2010 gathering and also read a copy of the findings of the ESIA report. Asking to remain anonymous, he forwarded his opinion on the extent to which environmental and social aspects have been given due attention in the meeting and the assessment report. He stated:

In my opinion, it is just a coal mine-friendly report and meeting with no serious attention to our local environment. Both the meeting and the document did not come up with clear and workable strategies of undertaking the coal extraction and processing activities without causing significant damages to the forest, the wild coffee, and the lives of coffee-growing farmers in the coalfields.

Given that the COFCOP is taking place in the vicinity of what has for so long been identified as a coffee gene pool and a UNESCO coffee forest biosphere reserve (See the map in appendix 6.2), the conservationists maintained that the project is likely to lead to loss of forest biodiversity, especially the genetic materials of the wild coffee. Activities such as extraction, beneficiations, and transportation would likely have a negative impact on the physical and biological environments of the proposed mining area. An official from one of the internationally recognised local environmental NGOs branded the mining initiative as ‘a dirty industry’ to express the massive effects it would bring to the social, environmental, and economic aspects of the locales targeted by COFCOP. In fact interviews with mine workers found similar concerns and issues with those raised by local conservationists. An expert from the MoME, unofficially, admitted the possibility of mining-driven forest degradation as follows:

We all know that Yayo is one of the few ecologically sensitive areas of the country. Any intervention in or near the forest will likely have negative effects on the biodiversity. If the planned project continues the same way it is being undertaken now, the district will be a barren forestland in a few years from now.

Interviews with local conservationists revealed that, despite their ecological concerns, they are also keenly aware of the potential contributions of mining to the national economy and even to the national identity. They are mindful of the mining industry’s role in saving millions of dollars on the country’s fertiliser import bill. However, one major point of dissatisfaction is the long-term costs at which the industry is being undertaken. In line with this, most interviewed conservationists felt they were insufficiently involved and that their perspectives and priorities were not given due weight during the planning phase. For this, they blame the COFCOP authorities as being arrogant, dictatorial, and exploitative with little or no concern for the threat to the biodiversity resources within the biosphere reserve (see the map in appendix 6.2). Although the reserve is formally protected, the state’s decision to mine in and around this area, in their view, shows its double-standard approach to conserving the local biodiversity; that is, on one hand, supporting wild coffee conservation globally while, on the other hand, working to dismantle the preserved coffee gene pool area. It also casts considerable doubt on claims

to support 'sustainable development'. The mine has eroded the legitimacy of the conservation agenda and the resource controlling power of conservationists in the Yayo district.

The interaction between the conservationists, local government officials and mining authorities is further complicated by the communication failure that appears to have shed light on the power inequalities among them. The local conservationists invariably seek to build and maintain a strong and smooth working relationship with the mining authorities to achieve their ultimate goal of safeguarding forest biodiversity. In contrast, mining authorities disregarded the conservationists and tended to reinforce a close tie with only the federal-level government functionaries. An interview with a leading local conservationist revealed that the unwillingness of mining officials to communicate with conservationists has increased negative perceptions and sentiments from other environmental advocates towards the mining programme.

At the local level, there are close personal relationships between mining officials and influential local figures such as zone and district level heads of the Agricultural Bureau, the Land Environmental Office and the Administration Office, regarded as crucial for the success of the industry. Building these relationships was not just an attempt to ensure adequate protection for the forest biodiversity but to communicate the details of the industry's programmes to the social and political networks at the local scale. In fact, this has helped in community mobilisation and awareness-creation programmes and resolving disputes over compensation and COFCOP boundaries. Results of the analysis of the interviews with both professional conservationists and communities suggest the local communities' relationship with each of the two non-local forces operating in the district, COFCOP officials and the conservationists, is different. During the early construction phases of the facilities of the industry, the COFCOP officials built a stronger alliance with the local communities. This was made possible by co-opting support from local communities through promising to resettle affected people and providing monetary compensation for expropriated private properties.

In contrast, as discussed in chapter five, the conservationists had a long period of fall out with the local communities mainly due to their reluctance to either recognise customary resource ownership rights or offer redress for villagers' loss of access to forest resources due to conservation programmes. It is only in recent times that the expert conservationists started to build a stronger alliance with the local communities. There is overlap between local communities and conservationists on two main points. Firstly, they both perceive that the construction of the COFCOP will bring serious adverse effects to the forest ecology and local livelihoods. Secondly, the actual compensation payment is in no way commensurate with the values of the villagers' expropriated properties. These areas of agreement could suggest a natural alliance between the two groups, and a future platform for coordinated action.

In sum, the communication breakdown between the conservationists and mining officials and the marginalisation of ecological concerns from the industry's operation have become a major challenge to the ongoing efforts of preserving the wild coffees. Since the industry is at an initial stage, it remains unclear to what extent and under what capacity the conservation community – at the local Yayo and higher scales – will be able to protect the forest biodiversity in the district. Parallel to this, it also remains unknown how the decline in the power of local, national and global conservationists over matters pertaining to wild coffee affects the future development and/or conservation grants to be secured from international donor agencies.

6.4 The politics of the COFCOP and consequent social effects

6.4.1 The general narrative and the local context

The primary raw materials in virtually all fertiliser industry productions across the globe are phosphate rocks, potassium ores and nitrogenous compounds (Righi et al., 2005). As indicated above, the Yayo COFCOP aspires to obtain these raw materials by way of exploring, extracting and processing the abundant coal mineral reserves in the district (COFCOP, 2009). Mining, as an essential driving force determining the sustainability of development, has been systematically analysed in many scholarly works, mainly in a

political economy of extractive industries (Ayee et al., 2011; Bebbington et al., 2013). According to Bridge (2004), the political economy approach offers two key features that are crucial in understanding the politics embedded in mining initiatives. First, it emphasises the complex issues of ownership, access, use and control of resources. Second, asymmetries of politico-economic power relations (between private and public actors and between state and local communities) are placed at the heart of the analysis. One aspect of the politics of extractive industries, such as the COFCOP, is their impact on the lives of the people residing near the project sites.

Although the comprehensive list of effects of the coal mining initiative are yet to happen in the study area, many scholars have documented a plethora of empirical evidence illustrating the range of negative social, economic and environmental externalities that are associated with extractive industries (Downing, 2002; Epstein et al., 2011; Goldblatt et al., 2002; Jorgensen, 2010; Kitula, 2006; Mishra, 2009; Petkova et al., 2009; Taabazuing et al., 2012). In his recent study, Mishra (2009) contended that the entire coal mining cycle, i.e. the extraction, processing (beneficiation) and transportation, is often associated with both socio-economic and environmental effects that occur at the national, regional, provincial or local scales. He further attests that most of the benefits from a mining program accrue to the extractive industry and its labour force whereas local communities remain deprived, bearing only the costs. As such, the provision of benefits also favours powerful actors more than it does the majority of the population residing in these localities. With respect to the positive impact, Mishra (2009) argues that new mining projects bring a range of direct and indirect benefits in terms of creating employment opportunities, and generate foreign exchange earnings and tax revenues. They also provide a favourable condition for the expansion of business activities and basic facilities like roads, schools and health clinics in remote areas.

In the context of the study area, it is too early to know the comprehensive effects of coal mining programmes, since the COFCOP is still at an early construction phase. However, even at this particular time when the plant installations are underway, villagers in *Wutete* and *Achebo* have started to witness effects, mostly negative. Here it is worthwhile to

mention that monitoring, assessing, and offering a comprehensive analysis of the positive and negative effects are challenging tasks due to two key reasons. Firstly, it was hardly possible to access any public records, studies, surveys and other documents that discuss the nature, scope and activities of the COFCOP. Due to the contentious nature of the project, most of these documents were held by MetEC officials and a few government authorities who were often unwilling to discuss COFCOP related issues. Secondly, identifying some of the positive impact that has hitherto been observed in the study area is a challenge since almost all interviewed individuals are reluctant and unwilling to emphasise the benefits of the COFCOP. According to the interview data collected for this study, this is because the positive aspects of the project remain inadequate to offset the negative consequences brought to the lives of local communities. To fill such gaps, the study relies on direct observation and informal conversations with concerned research participants, and secondary documents. These methods have enabled me to get a sense of both the positive and negative effects of the COFCOP for the period between 2010 and 2014.

Positive effects

As far as the positive effects are concerned, information from the field revealed that the local community have benefited from the project in several ways. The first major benefit was from employment. Since the inception of the COFCOP construction, not less than 3000 temporary and permanent jobs have been opened up for various social groups.⁹³ A large proportion of these jobs were, however, only available to individuals who have prior experience working on construction projects and to other migrant settlers who have come to the district in search of these types of jobs.

Despite the lack of precise figures on the number of people who have been hired by the project, it was observed that few previously landless and jobless members of the community were generating a relatively better income from working with the mining

⁹³ <http://preciseethiopia.com/yayo-fertilizer-factory-300000-tons-intended-potential/>

operations. In one of the interviews, a village dweller, hired as a security guard at the factory, indicated that his monthly earning is approximately ETB 400. Compared to the income obtained from wild coffee sales, this new income is still insufficient to cover his household expenses and it involves a large amount of time at work and doing demanding tasks. Similarly, many other villagers interviewed for this study expressed the feeling that the factory could not live up to its promises and has not created enough jobs with sufficient pay to enable them to benefit from the opportunities.

Another form of benefit that was discovered through both observations and discussions with urban dwellers was the financial support generated for various social groups in the district. Those interviewed consistently mentioned that the value of houses has increased remarkably due to the high demand created by the influx of thousands of people to the area. As a result, urban and rural house owners have started to rent their houses at a relatively higher price than in the past. In order to meet the standard housing requirement of the mine workers, some of these houses have been renovated and maintained, new toilet facilities have been constructed, fences were erected and new water pipes were established without any cost implication for the local landlords. For example, the rent of a single room that used to cost ETB 70 per month prior to the inception of the COFCOP project is now estimated up to ETB 800 a month, showing 1,142% price increment. Although such a significant increase in the rent has benefited home owners, it has negatively effected the local civil servants who were previously renting these rooms at a lower rate. These groups are now forced to adjust themselves to the new higher house rent pricing in the district.

The third form of benefit is generated to service-providing households in the district. Analysis of the data showed that restaurants, bars and local coffee shop owners have started to generate significant income as a result of the arrival of new customers, mainly miners, contractors, engineers, and other factory support staff. A conversation with some of the local coffee shop owners revealed that the mining factory and the fertiliser plant has certainly had a positive influence on their local business activities and boosted their

monthly income. As explained by many local coffee shop owners, in recent times, the average daily income obtained from the sale of coffee reached ETB 110.

In sum, fieldwork suggests that a large proportion of other positive effects of the project are enjoyed predominantly by a small group of urban dwellers and relatively young and educated villagers, instead of the majority of coffee-producing villagers. Given that these villagers are the long-term residents of the villages and that the grandiose project benefits explained by the local consultant have not been shared with them as expected, it was worthwhile to explore the ongoing negative social consequences to see if the local communities are actually bearing the costs of COFCOP implementation or not. In fact, it was the analyses of the negative effects that revealed a large part of the socio-political struggles between actors.

Negative effects

According to the analysis of the interviews with expert conservationists, the negative social effects of the COFCOP are the combined outcomes of the technical and mechanical activities and processes involved at various operational stages of the COFCOP. Given that the project is at an early stage, these social effects continue to occur all the way through the lifespan of the COFCOP, and will change over time both in terms of the nature of the benefit or cost and in terms of who benefits or carries the cost. As of the date of the fieldwork, there were four major negative social effects that stemmed from the operations of COFCOP. Firstly, thousands of people have been evicted, physically and non-physically, from their property to make way for the construction of COFCOP. Some of the displacement was due to the tight and strict security measures put in place by the project that led to the restriction of villagers' access to their productive agricultural land and wild coffee farms adjoining the project site.

Secondly, the site clearing, excavation, levelling, drilling, and earthworks have become the main causes of habitat loss, particularly the degradation of large proportions of the forest biodiversity in *Achebo* and *Wutete* villages. The loss of biodiversity resources, along with the displacement, has led to the deterioration of the livelihoods of thousands

of forest-dependent households. Thirdly, the influx of large numbers of unskilled and skilled labourers to the villages introduced new ways of social interaction and behavior that conflicted with traditional lifestyles. This has created tension and antagonistic relations between village dwellers and outsiders.

As with the impact analysis of extractive industries, mainly coal mining activities elsewhere (Edwards et al., 2014; Mishra, 2009; Petkova et al., 2009; Sarma et al. 2010), the situation in the study area also confirms that forest resource-dependent local communities are exposed to a range of mining-induced risks. The following section examines the empirical data gathered from the field to critically discuss some of the key project-related activities and their effects on local communities and the ecology.

6.4.2 COFCOP-induced displacements

Cernea (2002) describes displacement as a process involving not only physical evictions of people but also the expropriation of land resource for other alternative uses. Based on this definition, individuals who have lost physical, and non-physical properties due to the inception of projects can be considered as affected people. The list of lost assets may include, but is not limited to, residential houses, important cultural heritage, productive farming lands, forest resources, grazing and fishing areas, commercial assets, income-generating opportunities, and social connections (ADB, 1998). Such was the case in the Yayo district. Earlier enthusiasm of potential benefits of the COFCOP wore off quickly when displacement of villagers from residential homes and coffee farmlands occurred. Like resource extraction elsewhere, the properties of smallholder farmers were taken through eminent domain to be used for the so-called 'public purpose in the public interest'. Although prior consent was sought, many village households were forced to give up their homes and land to the COFCOP without knowing what the long term effects of the loss of their properties could mean to their survival.

A closer examination of the secondary data suggests that the initial phases of exploration were carried out in accordance with the provisions contained in Proclamation No. 455/2005. The district and regional government officials played key roles in negotiating

with the local communities on how to best transfer the available lands from private to state ownership. Data from one of the expropriation committee members shows that the properties of roughly 2200 farming households were taken just during the first year of project implementation. This figure is anticipated to increase in the coming years when the remaining subcomponents of the project commence. The types of properties of villagers that were subject to expropriation were mainly houses, and wild coffee and agricultural farms located in the transition and buffer zones of the biosphere reserve.

Another form of displacement that can be considered as a negative effect of the project is the restriction of movement of local communities around the project site. Particularly those individuals who own wild coffee and agricultural lands situated adjacent to the COFCOP struggled to gain access to these livelihood assets. Geographically, the project site is located between residential areas and wild coffee plantations and in areas that have been used in the past as unpaved trails for farmers. Since its inception, the project has adopted a tight security system that prohibits strangers, including the local communities, from crossing or trespassing its boundaries. Interviewed villagers indicated that the restriction of movement has created difficulty in accessing their coffee farms located near the coalmine and fertiliser plant installation sites. As a result, many villagers were forced to use alternative routes and/or take a long journey to access their coffee farm because of fear of the likely intimidation and harassment by the COFCOP security guards. The main complaint with the long distances they now have to travel to access their coffee is that it increases the risk of animal attack and adds extra burdens on members of the village households. The effects were particularly noticeable on young boys and girls, who mostly engaged in harvesting coffee from the ground.

In addition to depriving villagers of their farmlands, the project also dispossessed them from their local drinking water sources. This was particularly evident in *Wutete* village where access to the local hand-dug wells and the main *Geba* River has been prohibited by the COFCOP authorities. During the field interviews, it was narrated by villagers that, prior to the inception of the project, the local communities had the right to utilise more than one water source, including the *Geba* River, all located near the project site. They

could fetch water from these sources or else wash their clothes on the stream banks without any use restriction from the local authorities. Recently, the trend seems to have changed whereby villagers started facing serious challenges in accessing their traditional water sources due to the new rules introduced by the project.

The affected local communities in the two villages lodged complaints to the project officials alleging that the COFCOP violated their constitutional rights by denying them access to the local drinking water sources. In response to these complaints, the officials took proactive steps and constructed a substitute hand-dug well in an area approximately three kilometres away from the village centre. Although the construction of the water source was a reasonable step towards addressing local needs and priorities, the lack of community participation in the designing phase seems to have impacted on the use of the new water sources by the locals. During the interviews, the villagers attested that they were not invited to take part in the site selection, planning, and execution of the water source construction. Once the construction had been completed, an inaugural ceremony was organised by the COFCOP and the local government structure to make a statement that the locals are indeed gaining benefits from the project through improved access to sufficient clean water. A few days after the ceremony, however, almost all residents refused to take water from the new location and insisted in their request to regain access to the old water sources instead of the new ones.

Analysis of data revealed the main reasons why villagers did not want to continue to use the new water source. These are related to topography, custom, and distance. As far as topography is concerned, the villagers were unhappy that the new water source was built at the bottom of a valley. In a patriarchal society, such as those in the Yayo district, where fetching water is primarily the role of the women, carrying seven-gallon jerry cans and climbing up the hill is tiresome; many cannot use it. In the past, villagers walked less than one km to get to the local water sources; this allowed them to save a great deal of their time and energy. Conversely, the new water source was constructed farther away, which requires them to travel approximately three km away from their residential area. The long distance from the new source appears to have resulted in social complications.

During the interviews, it was found that women, in particular, face such hardship due to the inconvenience in bathing and the likely exposure to sexual assault.

The second concern was associated with the proximity of the new water source to the local graveyard. The majority of the interviewed villagers explained that they do not feel comfortable to take water from near a graveyard and use it for household consumption. Besides, they perceive that the water from the new area is unhygienic and unclear with a clear health risk, such as water-borne diseases, to their children.

Such problems are common in some parts of the world where extractive industries take place. Petkova et al. (2009) reported evidence where mineworkers in Australia engaged in sexual assault and violence on local residents. When it happened in the two villages in Yayo, the local communities lodged complaints to the project officials, requesting them to come up with options of a clean and safe water supply in an acceptable location or to allow them to get access to the previous water sources. Nonetheless, such requests have not resulted in meaningful solutions and villagers have continued to struggle to get access to sufficient clean water with adequate sanitation.

6.4.2.1 Expropriated property valuation, compensation payment and local discontent

As anticipated, affected village dwellers were not simply willing to hand over their coffee forest, agricultural farming lands, and drinking water sources to the COFCOP officials. They also knew that it would be virtually impossible to negotiate the issues of land use right if the project started its operation without paying any compensation. Hence, they consistently stood together in solidarity to make sure that access and control over their farmland was guaranteed or adequate compensation paid for any expropriated property, without having to relocate.

In fact, the legislative framework in Ethiopia also pays explicit attention to these types of land expropriation issues and recognises the right for voluntary resettlement and fair compensation for evicted community groups. In Article 40 of the 1994 Constitution, it is stated that peasants have the right to obtain land without payment and that they are

protected against expulsion from land that is under their possession. In case of rural or urban land expropriation for public purposes, Article 44/2 clearly specifies:

All persons who have been displaced or whose livelihoods have been adversely affected as a result of state programs have the right to commensurate monetary or alternative means of compensation, including relocation with adequate state assistance.

In Article 40/4 and 40/5, the constitution also offers legal protection for individuals whose livelihoods are based on land resources by stating that these groups have the right to gain access to land and to get protection against any form of dispossession from their property. At a sectoral level, the government issued various proclamations and directives that provide protection and guide compensation processes for people displaced due to state sponsored programs. In this regard, Proclamation No. 455/2005⁹⁴ consists of a range of articles specifically meant to determine compensation amounts for displaced people, procedures for valuation, formation of a property valuation committee, and procedures for compensation and grievance.

In light of all these legal provisions and expectations of the affected villagers, efforts to force payments as compensation for expropriated property began in mid 2011/12 when the MetEC officials formed a committee extracted from the local, zonal, regional and federal scale government structures. Comprising a group of experts⁹⁵ and village leaders, the committee was charged with the responsibility of managing the compensation process through a participatory targeting and identification of the types of expropriated assets. A member of the committee recalled that the task of targeting villagers and their respective properties took more than four months. Primarily considered as a means of legitimising compensation process, the targeting was carried out with two principal objectives. Firstly, it was meant to offer a comprehensive framework, method, and principle for the valuation of lost assets. Secondly, it was considered that it helps to minimise, if not avoid, errors of inclusion and exclusion of the target villagers. By so doing, the targeting

⁹⁴Proclamation No. 455/2005 is the only legislative framework on the expropriation of Land Holdings for Public Purposes and Payment of Compensation.

⁹⁵ The task force includes the District Administration Office, District Agricultural Bureau, District Land and Environmental Bureau as well as village leaders.

was an essential tool for avoiding unnecessary divisions amongst the local communities over who is entitled to benefit and who isn't.

Once the targeting had been finalised, the next step was to notify the affected villagers about their respective compensation amounts and the type of property for which compensation will be paid. In connection with this, the villagers were advised to open a personal bank account with the local Commercial Bank of Ethiopia – Yayo Branch, which helps to facilitate the timely transfer of money. With cash payment starting in 2013, a year after the inception of the COFCOP, the compensation was computed for annual agricultural crops (such as maize, sorghum, and barely), perennial crops (mango, pawpaw, and orange) and garden trees and village houses and structures. As a perennial crop, customarily owned coffee farms with wild coffees were considered for monetary compensation yet exception was made for farmers who were owners of customary lands but have no plantations on it. Table 6.1 provides details of the number of affected households, the type and amount/size of expropriated property and thus status of payment in the *Achebo* and *Wutete* villages.

Table 6.1: The number of affected households and the type and quantity of expropriated property

SN	Village	Household No.	Type of expropriated properties	Quantity	Unit	Status of payment
1	<i>Achebo</i>	50	Crop fields	9.7	Hectare	Paid
			Coffee plants	30,961	Number	Paid
2	<i>Wutete</i>	162	Crop fields	84.4	Hectare	Paid
			Coffee plants ⁹⁶	23,080	Number	Paid
			Houses	14	Number	Paid
3	<i>Achebo (Sombo locality)</i>	209	Crop fields	86.2	Hectare	Pending
			Coffee plants	18,831	Number	Pending
			Houses	46	Number	Pending

Source: Yayo District Land and Environmental Protection Office (2012).⁹⁷

⁹⁶ The valuation committee assumed that a single hectare of land contains an estimated total of 3333 coffee plants. To get the exact size of the expropriated land in hectares, the total number of coffee plants have to be divided by 3333. For instance in *Achebo* village, the total expropriated coffee plants are 30 961. Accordingly, the total size of land expropriated by paying monetary compensation for the coffee crops was 9,29 hectares (i.e. 30 961/3333).

⁹⁷ This information was obtained through a personal communication with member of the compensation committee at the District Agriculture Office.

As can be summarised from Table 6.1, 180,3 hectares of crop field, 60 houses and 72 872 coffee plants (approximately 21,86 hectares of land) situated in the two villages were expropriated just during the construction stages of the office space, residential camp and fertiliser plant. It was mentioned earlier that a total of 2200 individuals were displaced to make way for the COFCOP and thus are legally entitled to monetary compensation. Nonetheless, out of the 2200 individuals, only 421 were considered for compensation payments. At the time of the fieldwork, only 321 had actually received their money whereas 100 individuals were told to wait for the next round of payments. Asked why the remaining 1779 villagers were omitted from the compensation, a member of the committee pointed at village level targeting problems and lack of land use certificates⁹⁸ as the main reasons for the omissions. The case of omitted individuals is awaiting an official decision although there is little chance that they will be considered for compensation payments.

Until today, the process of expropriating the properties of villagers remains a controversial issue. Although villagers were represented in the committee, almost all of them expressed their discontent with both the targeting and the actual compensation amount offered to them. In terms of targeting, the process excluded individuals who are not necessarily entitled to direct compensation yet suffering, directly and indirectly, from various undesired effects of the projects. These may include, among others, hazards for humans and livestock, pressure on social services, destabilisation of cohesive community members, and loss of access to essential natural resources. In terms of valuation of the expropriated properties, the amount paid to villagers was not commensurate with the worth of their property. It was explained earlier that computation was carried out on the grounds of the economic value of the physical property and the loss of possible income due to its expropriation. Villagers argued that not only did the total sum of the valuation fail to take into account the current market value of the property but also overlooked the

⁹⁸ Land use certificate and registration scheme in the Yayo district started in 2004 and the District Agriculture and Rural Development Bureau is the appropriate government organ to issue these certificates. The certificates given to individual households include: Information on the plots belonging to these households, name (and photo of household heads), location name, plot size, land quality, and the names of neighbors for each plot.

cultural and social significance of such assets. Explaining the unfairness of the compensation valuation, a villager responded by asking:

How much money is adequate for a farmer who is axed forever from accessing his land? There is nothing as annoying as the amount of money given to us to compensate for our wild coffee and agricultural land. What makes the situation very complex for us is we do not have any other profession and skill other than agricultural farming. And the land is already taken. Hence, how much compensation money is enough for us?

What baffled the villagers more was the approach used to determine the compensation for wild coffee plants. The committee classified coffee plants into 'seedling', 'young', and 'old' and assigned monetary values according to the size and age of the plants. The old plants were assigned a value of ETB 6,5⁹⁹ calculated over 10 years whereas the small seedlings were valued at a rate of ETB 2,5/plant/year, calculated over a period of one year. Analysis of the data shows that valuation did not take into account the intergenerational values of the wild coffees because village dwellers who had been expecting to use the coffee plants for many generations were forced to receive compensation calculated over a definite period of time. Explaining the flaws associated with the compensation valuation, a villager who received a total sum of ETB 65 700 recounted:

The compensation offered to me for my coffee plants was totally unfair. The amount was lower than what a thoughtful person has to pay and the valuation mechanism was rigid. Imagine, every year I used to get in excess of ETB 50 from a single coffee plant. I feel that it is abusive to give to me one-off compensation pay out of ETB 6,5/year for a tree of that worth. My coffee should have been given a reasonable value calculated over a lifetime.

Another point raised during the interviews was taking up privately owned lands without seeking any prior consent from the owners of the properties. This was particularly noted in situations where the local communities failed to agree with the compensation amount given to them; the government appears to have directly exercised its power of expropriating properties. Although villagers opposed these actions, the active

⁹⁹ Currently, ETB 1= USD 0,0479. Accordingly, ETB 6,5= USD 0,3117

involvement of the MetEC officials was enough to deal with compensation-related queries and to silence any opposition emerging from local residents. Some villagers reported that the COFCOP officials were intimidating them by taking complainers out of negotiation meetings to question and threaten them by calling them ‘anti-development element’. Given that the officials are politically powerful figures and can arrest protesters and potentially harm them, local villagers were afraid to pursue any formal protest to defend their land use rights. A villager in *Wutete* illustrated this point as:

We are afraid to boldly negotiate compensation for our property and confront the project authorities. The people who are in charge of the initiative are all big name military officials who have the power to send us to the jail.

Overall, the under-compensation and the failure of the government to listen to villagers’ queries caused considerable negative effects on the lives of the village dwellers. Further to such perceived unfairness, villagers who had received their money were forced to embark on non-agricultural business activities that are beyond the scope of their traditional knowledge and expertise. Despite descending from a generation of coffee producers and forest product gatherers, some were buying mini buses to begin a public transport business; whereas others spent their money on purchasing houses and household furnishing elsewhere in the town to undertake house renting businesses. Unfortunately, many other villagers had become insolvent and consumed their money in a period of one-year mainly due to faulty investments in non-profitable businesses, lack of saving and entrepreneur skills, and challenges to adjust to new lifestyles.

The under-compensation of expropriated property and the resultant undesired consequences fostered hostile relationships between the local communities and the COFCOP officials. Similar to the period when properties were taken and demarcated for conservation purposes, there was local opposition against the COFCOP interventions. The only difference with that of the conservation-related protest was that these new forms of opposition were not formal; instead, they were more informal, subtle and implicit. This is mainly due to the local communities’ perception of the COFCOP officials, who are mostly military officials, as more powerful than the conservationists, who are mostly in

academia and research. Opposition against the project was particularly more ardent amongst the affected local community members. This was unsurprising, considering the involuntary displacement, the prevalence of landlessness and joblessness, unfairness of the compensation, the absence of promised benefits, and the irreplaceable ecological damages caused by the project. Villagers have lodged repeated pleas to the COFCOP officials asking them to reconsider the compensation payment and correct the irregularities. However, the officials have not responded to their requests and failed to address the local concerns, stated the interviewed villagers.

6.4.3 Environmental and health impacts

At the time the thesis was written, COFCOP was at its initial stage where civil work of the plants, transportation of factory equipment, construction of infrastructures (such as roads and mine workers camps), and minor mining activities are undertaken. Once it starts full-scale operation, it is likely that the activities of the project will lead to various adverse effects on water, wild coffee plants, agricultural land, animals, and the coffee forest itself. There is general agreement amongst various national actors about the possible effects of the COFCOP on the local environment. Two actors, namely the Chemical Engineering Department of Addis Ababa University and also COFCOP officials and the pro-environment NGOs mentioned in chapter five of the thesis, however, portray diverging opinions on whether the operation should take place in the forest or not.

The former group fully supports the initiative with a suggestion that there should be a proper mitigation mechanism and implementation modality over the course of implementing project related activities. The latter group label COFCOP as ‘a necessary evil’¹⁰⁰ which is taking place in the district and that the existing government structure lacks the required capacity to implement the recommended mitigation measures. As a result, there is a good chance that it will cause enormous damage to the valuable and irreplaceable biodiversity resources of the area as well as the dedicated conservation efforts of the past years.

¹⁰⁰ It is necessary for the growth of the economy but it takes place at the expense of biodiversity loss.

As mentioned above, the COFCOP overlaps with the designated biosphere reserve and its early construction phases have already started showing signs of danger to the ecologically sensitive wild coffee conservation space. The magnitude and extent of these effects are increasing significantly due to the constant scale up of the civil works of the project in *Wutete* and the mining operation in *Achebo* villages. According to the field data, two major environmental effects can be discerned at this stage of the project implementation. The first effect was associated with the land surface and the forest population in and around the project site. As seen from the interviews and the review of the project documents, these were the direct consequences of the project activities such as site clearing, excavation, drilling, earthwork, leveling and construction of infrastructure. Table 6.2 summarised the results of the field research on the components of the project and the corresponding list of activities of each project component that are believed to have led to current undesirable local effects.

Table 6.2. Summary of various project components, phases and key activities causing adverse social and ecological consequences

<i>Main Projects</i>	<i>Phases/stage</i>	<i>Processes/Activities</i>	<i>Negative social and ecological effects</i>
Coal mine	Exploration	Site clearing, excavation, drilling	Removal of forest and coffee, ecological disturbance, noise and air pollution
	Coalmine construction	Mobilisation of workforce and materials, site clearing, excavation, haulage and maintenance	Physical and non physical displacement, competition for resources, landlessness, joblessness, forest and wild coffee loss, air and noise pollution, health effects
	Coalmine operation	Solid waste disposal, backfilling, blasting, coal extraction, Screening, crushing, mine dewatering	Expected health effects, air and noise pollution, damages to infrastructures such as roads.
Fertiliser complex	Construction	Site clearing, excavation, earthwork, levelling and construction of infrastructures	Physical and non physical displacement, competition for resources, landlessness, joblessness, forest and coffee removal, air and noise pollution, health effects
Thermal power plant	Construction	Site clearing, excavation, earthwork, levelling and construction of infrastructural services	Physical and non physical displacement, competition for resources, landlessness, joblessness, forest and coffee removal, air and noise pollution, health effects

Source: Analysis of the field data, 2015.

In addition to the information from the villagers, the extent of the damages caused by these project activities was verified through onsite personal observation. The findings of the observation were captured in photographs and are presented here in Figure 6.1. As the figure reveals, a significant amount of agricultural and forestland was cleared for the construction of mining camps, the civil works of the fertiliser facility and other buildings, preparation of dump sites, and the pit opening itself. One of the contributing factors to the land cover change in the study area, although not yet under full implementation, was the open-cast coal mining system adopted by the project. This system necessitated the removal of key wild coffee forests, i.e. in *Achebo* village. Some of these removals have been carried out intensively and over a relatively wider geographical area, whereas others took place with minimum effect to their surroundings.

Figure 6.1: Land conversion during the civil works of the COFCOP



Source: Personal observation at Wutete village, 2014.

There is a conversion of a considerable size of a mix of primary and secondary coffee forests as well as subsistence gardens. This means that biodiversity resources of significant economic and ecological worth were destroyed. These effects were quite visible in the buffer zone of the biosphere reserve with relatively lesser intensity in the core zone. Villagers reported that getting wild fruits, farming tools, thatching grasses, wild coffees, climbers and ropes and trees for hanging bee hives have been seriously affected and have become a challenge to obtain due to inadequate supply.

Apart from direct project operations, the data suggest that the conversion of the land surface was also the result of the constant movement and soil compactment of project trucks through the village. The trucks are often loaded with heavy-duty construction materials creating noise pollution and pressure on the land surface. Such movements have also severely potholed and damaged both the primary and secondary roads and ultimately contributed to the worsening of the daily public transport system (see figure 6.2).

Figure 6.2: A primary road in Wutete village potholed by trucks of the COFCOP



Source: Field observation at Wutete village, 2014.

The second major environmental effect of the construction phase of the COFCOP was on the main water sources of the study villages. Informants in *Wutete* reported that the *Geba* River has become severely polluted due to the inappropriate solid waste disposal mechanism adopted by the project. Though accurate figures on the volume of excavated soil is missing, personal observations from the area confirmed that part of the soil has been dumped directly into the *Geba* River. Villagers complained bitterly about the soil-dumping pattern since it was creating high sediment levels in the downstream of the river, causing blockage of the free flow of the river and impacting on the health of the local community. According to the district health officer, the improper soil dumping technique has turned the river stream into a mosquito-harboring site. Unlike the past years where *Plasmodium vivax* was the most common form of malaria in the villages, recent statistics indicated that most malaria infection cases are being caused by

Plasmodium falciparum. Unofficial data from the district health clinic suggested a steady increase in such cases whereby 174, 196, and 296 individuals have been diagnosed with this type of malaria in the years 2012, 2013, and 2014 respectively¹⁰¹.

On top of the malaria epidemic, another emerging form of health risk is associated directly with the arrival of a non-local working class population in the villages and the district at large. It is clear that the construction of the fertiliser plant has opened up several economic opportunities for many individuals residing in the district. With the project progressively scaling up its activities, the inflow of the working class population appeared to have increased, eventually leading to a dramatic population rise mainly in *Wutete* village. Such a demographic pattern creates a serious concern due to the possible consequences for the socio-economic and health aspects of the locales. Analysis of the interview data reveals that the migration trend influenced two major health aspects. Firstly, basic social service-providing institutions such as the local health posts and clinics host an increasing number of patients beyond their service delivery capacity. Secondly, the social interaction between the local residents and the migrants appeared to have transformed the lifestyle and sexual behaviour of some members of the villages. Many interviewed villagers sadly indicated that the arrival of the mineworkers in the village has encouraged 'hidden' forms of prostitution, ultimately leading to the risk of occurrence and prevalence of sexually transmitted diseases such as HIV/AIDS.

Compared to men, women and young girls in the community have been particularly exposed to increased health risks due to their movement around the mining site. The women's daily search for drinking water and non-existent jobs have created an opportunity for mineworkers and migrant settlers to contact and interact with local women. During the field research in 2014, I spoke to a woman, anonymously, who explained about the situation as follows:

We (women) are responsible for fetching water and also looking for daily labourer jobs, if there is any. Wherever we walk around, these mineworkers

¹⁰¹ The information was obtained through a personal correspondence with the head of the Yayo district health centre on 24/04/2014.

approach us in a friendly manner and tell us they will help us get a job in the factory. But, through time, they change approach and start to flirt (especially with the young girls). At present, there are girls and women who are involved in negotiated sexual practice. Although not in public, there are few others who are making money through such practices.

Expressing a similar concern, an interviewed villager in *Wutete* noted:

Since the construction of the new water source (mentioned above), our women and daughters have to pass nearby the project site to get some water. It is in these instances that the project workers and other migrants in our village go after them until they reach the forest and then start to negotiate for sexual acts. I even heard that the project workers offer money and buy gifts for our women and thus routinely demand sex.

In general, the ongoing construction of the COFCOP in the buffer zone has caused irreversible damage to the wild coffee genetic material and other essential biodiversity species. Restoring the degraded resources to something closer to their original state may take decades – if a comprehensive rehabilitation intervention is designed at all. Considering that the project is presently at an entry level and that there will be a possible expansion to the core zone, it is legitimate to anticipate a range of complex environmental and health risks when all the planned activities of the COFCOP are fully implemented. Some of these risks may include those indicated by Petkova et al. (2009): widespread air, noise, and water pollutions and other health risks threatening the safety of mine workers and villagers. For these reasons, a comprehensive and continuous monitoring that aims at tracing the extent, severity, and magnitude of these risks and ultimately determining their implication to the local people is necessary.

6.5 Broken promises and dissenting community voices

The Yayo district is a particularly underdeveloped area that is located in one of the poorest zones in Ethiopia. Social infrastructure such as health facilities and schools are insufficient to meet the increasing needs of the local community and the mineworkers and their families. The bad roads are severely damaged to the extent of affecting the day-to-day village-based economic activities. For all these reasons, socio-economic benefits of the COFCOP either in the form of employment creation or associated multiplier

effects and social infrastructural developments would by far exceed those obtained from forest-based livelihoods should they actually be provided.

Prior to the inception of the COFCOP, promises were in line to ensure a better life for the affected villagers through the provision of direct and indirect compensation mechanisms. Direct compensation was in the form of monetary payments for the expropriated property whereas the indirect benefits were through the provision of community development projects such as a potable water supply, public health and safety facilities and educational services. Three years down the line, however, the villagers' experience regarding the promised community development projects seems to be an unpleasant one. First, the project gave empty promises in that the anticipated infrastructure such as the construction or renovation of proper road networks, clinics, schools and decent accommodation in the villages have so far been non-existent. While three years seem too short to expect the construction of all the promised infrastructures, the period, in my view, could be sufficient to address the pressing education and health needs of evicted households and build basic facilities such as low-cost clinics and schools. Second, the provision of monetary compensation for affected villagers did not account for the lost access to various forms of forest-based benefits and the cultural and social values of the local resources.

During the field reconnaissance visits in 2014 and 2015, many villagers expressed feelings of disappointment over the broken promises. For instance, they were given assurances that any job opportunity created by the project will primarily target the local youth and that the salary will be adequate enough to improve their living standards. Not only is this an empty promise but it is also an exaggerated one because the reality on the ground suggests that villagers have been insufficiently considered in the hiring processes of the project. Villagers complained that they are given less preference due to their inexperience and that the majority of the labour forces have been recruited from other parts of the country, mainly the northern region. A report from the fertiliser project manager indicated that in 2014 and 2015, less than 80 local youths were employed as unskilled daily labourers, such as security guards and assistant excavator operators.

Linked to the employment controversy, analyses of the data revealed that there were tensions between the ethnic groups of the southwest and those of the north. The first reason for the tension was the view from the former group that the latter were taking the job opportunities and other related benefits that should primarily have belonged to them. As discussed in the earlier section, the second reason was related to the villagers' perception that the migrant settlers have introduced a new culture and lifestyle that sharply contradicts their traditional ways of living. In connection with this, villagers expressed their disappointment over the way the migrant settlers sexually assault and harass the local women and young girls. The third reason for the tension relates to the access and use of forest resources and encroachment of agricultural farmlands. Since the arrival of the migrants, the district has witnessed serious competition for local resources and space for which villagers have to work with meagre resources to survive.

Resettlement is another element of the broken promises made by the project. A proper resettlement plan accompanied by provision of replacement farming land has been promised to sustain the traditional livelihoods of the affected villagers. The issue of resettling villagers was, however, neglected once the project started its operation and thus villagers have remained in their residential area facing the adverse effects of its operation. Asked why the relocation has not been carried out until now, a government official related the reasons as the lack of appropriate institutional arrangements, lack of political will, and the shortage of funding.

Overall, the list of broken promises and the adverse impacts of the COFCOP on the livelihoods of villagers forced the majority of the affected groups to protest the mining operations. In the same manner, the local conservationists, who are now expressing concern for the welfare of the local communities, have also called for a political solution by the state. Yet, neither the local communities nor the conservationists have been able to prevent the installation of the multi complex fertiliser plant in the villages. Both the villagers and the conservationists appeared too frightened to make any formal protest since the control and governance of the project is in the hands of a militarised group within the state structure. With the current socio-political struggle over access and use of

resources seemingly becoming much more complex, only time will tell if an alliance between conservationists and local communities will be able to call attention to their concerns, and limit the mining and work towards solutions that enable sustainable development, that is development which occurs with favorable treatment of the biophysical environment, equity in terms of economic development and cultural survival.

6.6 Chapter summary

The Yayo district has once again witnessed the arrival of powerful new actors and competition for its natural resources. This time control over natural resources has shifted from professional conservationists to powerful coal mining proponents backed by the Ethiopian government and its free market, neoliberal economic growth policies and goals. Guided by the ambitious five-year GTP and following a series of negotiations both at the national and local scale, the country is embarking on the processing of coal and the construction of the first ever in-country coal-fired fertiliser complex. The implementation of the project began in 2010. Since then, a range of project activities, mainly property expropriations and civil works, has been undertaken within the transition and buffer zones of the coffee forest biosphere reserve.

These activities were contentious due to the multiple effects they have on local communities in terms of environmental, social and economic safety. Some of these effects were related to physical and non-physical displacement, dismantling of social cohesions, landlessness, joblessness, habitat loss (mainly forest and wild coffees), health risks (sexually transmitted diseases and malaria infections), and damage to local infrastructures. Another negative effect of the project relates to the compensation paid for expropriated properties. As the findings suggest, the intergenerational values of the wild coffees and the social and cultural values of the forest were not sufficiently considered while computing the redresses. Besides, out of the 2200 individuals whose properties were expropriated, only 320 were given compensation, with the remaining individuals facing an uncertain future.

Promises were made by the COFCOP officials to support the lives of the local communities. The first was through job creation. However, this opportunity has primarily benefited non-local individuals. Out of the 3000 jobs created thus far, only 2,3% of them were members of the village households. The second was through the construction of infrastructure such as water sources. Nonetheless, due to lack of proper planning and consultation, the new water source has been constructed in an inconvenient location exposing villagers, mainly women, to sexual assault and rape. The third benefit was resettlement and provision of alternative land. This has not yet come into effect and displaced villagers have still remained in the locality dealing with the adverse effects of the project. Complaints from conservationists and local communities regarding the threat of the COFCOP to the social, economic and environmental aspects of the study area were raised. Besides the complaints, villagers have opposed the operation of the project in a very informal, subtle and implicit way due to the fear of intimidation and harassment by COFCOP officials, most of which are high-ranking military officials. However, nothing concrete has been done so far to resolve the social tensions in the district. Given that these effects and complications had occurred before the COFCOP started its full operation, it is anticipated that even more sophisticated socio-political struggle will occur in the Yayo district. Only time will tell if the COFCOP officials would be willing to address the social and ecological concerns.

What the trend suggests is that there is a successive shift in control over essential natural resources in the district. During the ancient times, it was the local communities who had control over resources and which enabled the continuation of the forests over the generations, including the wild coffee. Since the customary institutions of forest resource access and use were dissolved and until 2010, more power was in the hands of professional conservationists to decide what do with the wild coffees. Nowadays, the COFCOP officials have taken over the power from the conservationists and decide on who should access, use, manage and control the wild coffees and the forest in two villages, *Achebo* and *Wabo*.

Chapter Seven: Summary of key findings, contributions, and conclusion

7.1 Introduction

The thesis explored the complex interrelations between local livelihood, conservation and coal mining in the Yayo district of southwest Ethiopia. Informed theoretically by political ecology, a core element of the study was to examine the nature of contested natural resources, the types of competing actors, and the specific strategies employed by these actors in negotiating, contesting and thus controlling the resources. As part of the competition over resources and space, a second point of interrogation was the mechanism through which resource control by a particular actor undermines the needs, aspirations and priorities of the other and thus leads to contestation between actors. The overall aim of the study was to contribute to the broader debates of the politics of resource access, control, use, and management in geographies where various interests simultaneously occur. With the field research conducted in four major villagers (*Achebo, Wabo, Gechi* and *Wutete*), the data from the in-depth interviews, participant observations, focus group discussions, transect walks and secondary sources showed that control and power dynamics over resources and spaces in the coffee forest of these areas has progressively shifted from local communities to conservationist and then lately to state-based mining proponents.

With this in perspective, this chapter offers the conclusion of the thesis and is organised in the following manner: the first section deals with a summary of the key findings. This is followed by a presentation of the contribution of the study to the broader debates of the complex interrelations between livelihood, conservation and mining in general and the issues of resource access, use and management in particular. The last section offers concise concluding remarks, key points of policy consideration and the suggested areas for future research.

7.2 Key findings of the study

7.2.1 Historical connections – the coffee forest (wild coffee) and household livelihoods in the Yayo district

A starting point of my political ecology investigation of the socio-ecological process in the study area was to examine the biophysical characteristics (after Walker, 2005) in relation to the crucial forest resources accessed, used and managed by the local communities. The analysis revealed that the communities in the case study villages live near and have utilised and managed a variety of tree species of global, national and local significance. Some of these tree species include: *Vernonia Sp*, *Podocarpus falcatus*, *Albizia gummifera*, *Schefflera abiyssinica*, *Prunus africana*, *Croton machrostachyus*, *Miletia ferugnia*, *Acacia abyssinica*, *Cordia Africana*, *Coffea arabica*, *Ritchiea albersii Gilg*, *Albizia grandibracteata*, *Aningeria adolphi-friedericii*, *Aframomum corrorima*, *Zingiber officinale*, *Piper capense*, *Ocimum gratissimum L.*, *Justicia schemperiana*, and *Dracenea fragrans*. Important to local livelihoods, global biodiversity, and the main focus of this research, however, is the wild *coffea arabica* that occurs in the same forests.

A wide array of social, economic and cultural benefits is obtained from these resources. Due to their roles as both a 'daily net' and 'safety net' resource, the lives of the communities studied have hinged upon these resources since ancient times. Some contribute to food for villagers (in the form of wild fruits and spices), whereas others provide materials for fuel wood, timber and charcoal, agricultural farming tools, and house construction. The study also found that plant species such as wild coffee and Khat are major sources of household cash income in all the villages studied.

7.2.1.1 Differentiating wild *coffea arabica* farming system

There are four different types of coffee production systems common to all the villages involved in this study, i.e. forest, semi forest, plantation and garden coffee production systems. Field work revealed that most local community members are more interested in the forest and semi-forest coffee production systems. This is mainly due to, on the one hand, the coffees obtained through these systems are wild in their nature and, on the other

hand, the coffees are perceived locally as having superior qualities in terms of aroma, taste, oiliness, drought tolerance and relative marketability. Wild coffee plays a considerable role in social, economic, cultural and religious aspects of villagers. For example, the income obtained from the sale of the coffee represents a substantial part of the household income and is used to cover virtually all their household expenses. Given the historical connection of people with the coffee and the multifarious role it plays in their lives, villagers are often reluctant to engage in alternative livelihood activities such as off-farm employment.

Another finding of this study was that wild coffee, as a plant, embraces contradicting concepts, vocabularies and terminologies that have much to do with the politics of resource control. These diverging views are contested between local wild coffee collectors and managers, who demand *de facto* ownership and emphasise their own livelihood, and formal external conservationists, who highlight the scientific elements and non-commercial values of the coffee plants in maintaining the forest biodiversity. Based on the recommendations of Dove (2005) and Robbins (2004), I examined the meanings, terminologies and interpretations assigned by each of these actors to the wild coffee plant, including their material management of the coffee plants themselves. Regarding nomenclature, the local communities identified the wild coffee using six different names such as *Bunna Gabbaa* (coffee from near the *Geba* River), *Bunna Bosoona* (forest coffee), *Buna Baggajjaa/Buna Haadhoo* (mother coffee tree), *Buna Umamaa* (natural coffee) and *Buna siimbiirron facaaftee* (*bird-sown coffee*). External conservationists have used some of these names too as a means of eliminating local communities from the access, use and management of the crop. For example, highlighting the direct interpretation of *Buna Umamaa* (natural coffee) and *Buna siimbiirron facaaftee* (*bird-sown coffee*), conservationists maintain that local communities had no historic roles in cultivating and maintaining the genetic diversity of the wild coffee and thus should not claim ownership rights in the present time.

Another area of contestation involves the taxonomic features that relate to what Dove (2005:231) calls ‘articulation of domain’ of understanding coffee as either a plant or a

crop. The wild coffee discourses of local conservation experts is all about classifying the coffee under the kingdom Plantae and presenting it as an essential component of the forest ecosystem. For this reason, any local practice intended at utilising the wild coffee is perceived as a potential for ecological disturbance. In contrast to what the so-called conservation experts think, the wild coffee discourse of local communities is that it is a 'crop' on which the survival of the long-term residents of the villages is hinged. For this reason, it is mandatory for villagers to undertake various agronomic management requirements and make use of the crop for economic ends.

The third point of contestation relates to the interpretation of the management requirements of wild coffee production. Local coffee harvesters articulate detailed agronomic management techniques for maintaining the shade under which wild coffee thrives. These agronomic operations are strictly part of the local agrarian production system essential for maximising crop productivity. Scientific external conservationists consider these human actions as deleterious to the survival of the wild coffee or as 'acts of species isolation' and a threat to their preservation.

Similar to the argument by scholars (Bryant and Baily, 1997; Dove, 2005; Robbins, 2004), a political ecology analysis of the nomenclatures, taxonomies, meanings and interpretations associated with various aspects of wild coffees are not just local subjects. Rather, they involve an extra-local political element that often appeared in conservation discourses and practices. As I will show later in this chapter, the consequence of this was that they exhibited material impact on and served as tools for controlling the resource and determining laws and policies associated with access and use over them.

7.2.1.2 Gender relation in access, use and management of wild coffee and forests

Examination of gender relations in the context of wild coffee and forest biodiversity access and use was carried out on the basis of knowledge and dependence on the forest, household divisions of labour in forest-related activities and various roles ascribed to the forest biodiversity. Firstly, as far as the knowledge and dependence on the forest is concerned, the study established that, when compared with men, most women are more

knowledgeable about the tree species that are often used as supplementary food/fruit, wild spices, traditional medicine, and fuel wood. For their part, adult men forest-goers are more knowledgeable about tree species that play a substantial role in on-farm agricultural activities through the provision of shade, nectar for bees, wood for ploughing tools, timber, and charcoal. Secondly and pertaining to the household division of labour, women often undertake activities in and/or around residential houses such as vegetable gardening, fuelwood collection, and small stock husbandry. On the other hand, off-village activities, such as timber making, agricultural farming (mainly maize and sorghum), wild coffee production, charcoal making, and beekeeping, are often assigned to men.

Parallel to this, the roles assigned to men and women during coffee harvest also influence the gender dynamics in the study villages. The study revealed that coffee beans are harvested in two ways. Firstly, beans can be obtained directly from standing trees. Men harvest these coffee beans and the study found that these beans are superior in quality and relatively marketability and make up a substantial proportion of the coffee production. Secondly, coffee beans can be collected from those falling on the ground, which the women tend to collect. These beans are of lesser quality, consumed at home and make up a small proportion of the household coffee production. As such, women are more involved with the consumptive dimensions whilst men engage with the commercial distribution of the coffee beans. Due to these diverse roles, men generate a substantial part of the income and maintain a relatively better advantage over women in terms of making decisions on harvesting, processing, post-harvest handling, marketing and the utilisation of the money obtained from the sale of the crop. Rocheleau and Edmunds (1997) argue that underlying reasons for the subordination of women in accessing, controlling, managing and using forest biodiversity, i.e. such as wild coffee, is their exclusion from a formally recognised system of tenure regimes.

7.2.1.3 Customary forest and wild coffee access, use and management patterns

Depending on weather condition, land use, soil type, vegetation type, availability of river and water sources, and distance from settlement areas, the coffee forest is historically

classified by community elders into three land cover types: undisturbed canopy forest, disturbed forest, and secondary forest areas. Since the early 1990s, access and use of these forests were governed through customary laws that allowed local communities to make sustainable use of the forest without removing the branches of big trees, cutting a tree at its lower stem, and/or uprooting them for other commercial purposes. Access to forestland and wild coffee was thus secured through various arrangements such as inheritance (*Dhaalchaa*), transfer (*Dabarsuu*), lease out/contract (*Kontraata*), share-cropping (*Qiixxee*) and donation (*Kennaa*). Customary local institutions played a key role in controlling, administering and mediating these types of access, use and management rights. These institutions include the *Abbaa lafaa*, *Ciiqaashuum*, *Jarsoolii biyyaa*, *Qooroo*, *Abbaa lagaa*, *Tullaa*, *Xuuxxee*, and *Shanee* in descending order of their power.

The findings revealed that traditional land ownership systems made a positive contribution to both biodiversity conservation and social security. In terms of maintaining biodiversity, customary laws reduced destructive activities such as commercial timber production, charcoal making, and agricultural farming expansion within customarily owned forestlands. With regard to social security, villagers used their customary forestland and wild coffees as collateral to gain access to loans which were important for coping with periods of financial crises. Despite its role in maintaining biodiversity and improving local livelihoods over time, the study found that customary resources access, use, and management systems have broken down in the past due to population and market factors, government policies which encouraged migration and hence population growth, and related to the latter, competition over limited resources. Perhaps most critically the government has not recognised and supported traditional ownership and management systems but instead introduced centralised and legal systems which in actuality created an open-access situation, failing to provide robust rules for excluding use let alone for supporting ongoing management practices critical for the coffee plants to survive over time.

7.2.2 Wild coffee control by state and non-state conservationists

7.2.2.1 Apolitical explanations of wild coffee genetic diversity loss

Ecological research has already concluded that the Yayo district is a worldwide ‘biodiversity hotspot’ area, i.e. this is a region with high and exceptional biological diversity yet under impending anthropogenic threat (E.g. Gole et al., 2002). Such studies further argued that the wild coffees as well as the forest harbouring them are fast disappearing, though they do not provide insight into the politics surrounding the factors contributing to their demise. Although climate change has recently been found to be a major threat (Davis et al., 2012), expert scientific conservationists working within the study area explained wild coffee genetic diversity loss in terms of general population pressures and increased market opportunities. Following these apolitical explanations of wild coffee degradation, the state and non-state conservationists conceptualised and designed various protectionist-oriented conservation strategies intended at safeguarding the genetic materials of the coffee but which target the wrong forces for the reduction of the coffee plants.

According to the findings of this study, the first approach carried out by the GoE was the NFPA. This approach not only reclassified the forest as ‘state-owned’ property and reinforced the control of the Ethiopian central government over the wild coffees but also contributed to the weakening of local customary institutions and *de facto* access and use patterns. It was an approach that did not meet the conservation goals due to widespread encroachment and extensive forest clearance for agricultural production. Following the failure of the NFPA and funded by international donors such as the EU, conservationists came up with a second approach, known as an *in situ* conservation of the wild coffees, through keeping them in place and without collection/management pressures. Unlike the NFPA that demarcated large acres of forest areas, the *in situ* approach only focused on 10 000 Ha of protected wild coffee areas known as the ‘core zone’. However, the finding showed that the approach was ineffective to preserve the wild coffee due to key social, political and institutional factors. This has led to the adoption of a third approach, called a ‘participatory biosphere reserve model’.

Recognised by UNESCO as ‘the Yayo Coffee Forest Biosphere Reserve’, the main objective here was to reclassify the forest into three management zones: Transition, buffer and core zone.

As such, the implementation of the three approaches in the study villages was controversial. Firstly, all the approaches (including those referred to as participatory) followed non-participatory and non-transparent, authoritarian and top down, and strict and exclusionary conservation principles. Secondly, the voices, interests and priorities of local communities, i.e. the historic coffee collectors and managers, were not incorporated and addressed in the official and formal wild coffee management guidelines. Thirdly, local communities were absolutely restricted from undertaking historic coffee management practices and free movement in and around the core zone and partially from the buffer areas of the reclassified forests. As elsewhere (Ghimire and Pimbert, 1997), by strengthening the state and non-state conservationists’ control over wild coffee plants, they not only abolished traditional forms of wild coffee access, use and management practices but also weakened the socio-ecological effectiveness of customary forest institutions and rules.

7.2.2.2 Strategies adopted in wild coffee control

The study established that the progressive shift in wild coffee control from local communities to expert conservationists was ensured through four different strategies.

- ***Delineation of conservation margins through mapping and territorialisation***

By way of spatial mapping and territorialisation, which were often non-participatory, non-transparent and authoritarian, local communities were informed about the spaces and resources that belong to the conservation authorities. Similar to Peluso (1995) and Peluso and Lund’s (2011) assertions, the constructed maps by conservationists and the resultant forest enclosures allocated forest and wild coffee access and use rights only to the state and became tools for creating ‘human-free forest spaces’. The study found that they

overlooked, even criminalised, the historical interaction of the local communities with the forest, the customary ownership rights and forest product harvesting practices.

- ***Setting rules and regulations: 'DOs' and 'DON'Ts' in the core and buffer zones***

Following the nomenclature, taxonomy, and meanings associated with the wild coffee (after Dove, 2005), forest and wild coffee use patterns were redefined to the best interest and priorities of conservationists. A list of permissible and prohibited activities was developed for the conservation spaces and incorporated in the forest laws, legislations, directives and management guidelines. By so doing, a wide array of traditional forest-based livelihood activities were technically criminalised and banned from being practiced in the enclosed spaces. A major agricultural activity prohibited by conservationists was, for instance, shade management in the core and buffer zones of these spaces.

- ***Assignment of armed forest guards: Militarist control of wild coffees***

Although militaristic forest control is not clearly stated in any of the forest management, utilisation and development legislative frameworks of the country, one of the controversial characteristics of the conservation interventions in Yayo district was the provision of guns to forest guards who were recruited from the villages. The study found that the supply of arms portrayed a message and was used as a tactic to tell local communities that the forests are no longer under their ownership and control. The deployment of guards was also a symbolic representation of the state's ownership of wild coffees whereby local access and use were reframed based on state-sanctioned rules and regulations. Local communities resisted the militaristic approach by marginalising forest guards from the social, economic and cultural affairs in the villages.

- ***Legal enforcement of strict conservation rules and regulations through fines***

Lastly, another strategy used by expert conservationists to reinforce control over the wild coffee was the enforcement of rules and regulations through fines and punishment.

The fines take various forms. For example, extraction of timber and charcoal from the protected forest area may result in an imprisonment of six months to seven years. Aside from imprisonments, there were instances where monetary fines, formal warnings, and oral advice were issued as corresponding penalties for harvesting thatching grass, wild spices, and fuel woods from the conservation space.

7.2.2.3 Combined social effects of the strict conservation approaches in Yayo

As in the analysis of conservation-induced social effects elsewhere (Cernea, 2000), the introduction of protectionist conservation approaches brought undesired consequences to the lives of the long-term residents of the study villages. The first undesired social effect relates to displacement/dispossession. The study found that the mapping and territorialisation of the forest biodiversity resulted in the inclusion of economically, socially, and culturally valuable resources in the conservation territories. In the four case study villages, for instance, 645 households were reported to have lost control over their wild coffee (this does not include other NTFPs). From the entire district, 92,6% of the communities residing in and around the conservation territories have lost their right to access and use NTFPs and were no longer allowed to access productive spaces of grazing, coffee production, and other agrarian practices (Regassa, 2000:57).

The physical and non-physical displacement has impacted on the livelihood of the communities and the forest biodiversity. In terms of livelihood, it resulted in joblessness, landlessness, and reduced cash income of village households. From a conservation perspective, it created disincentives to participate in local biodiversity conservation programmes. Unlike the customary resource management practices, villagers lacked a sense of ownership and belongingness over the forest biodiversity. This situation did not only contribute to the elimination of intra-village mutual respect for individual customary forestland holdings but also led to the widespread occurrence of a typical open-access forest use system. Particularly, migrant settlers and other non-local forest users who do not have any *de facto* or *de jure* right have started to harvest 'what they want to' from the buffer and core areas in a manner that seems as if 'nothing has been prohibited'.

The second negative effect of the protectionist conservation approaches was associated with the psychological, economic, and social exclusion of affected villagers from the local scale social systems. Many community members residing in the studied villages were excluded from being members of farmers' unions and cooperatives and often struggled to access loans/credit provided by individuals and institutions. The study revealed that this is mainly due to lack of collateral such as forestland and lack of harvestable coffee to be brought to the union.

The third social effect of the strict conservation approaches relates to the dissolution of traditional institutions and customary resource access, use, and management patterns. Similar to Gururani and Vandergeest's (2014) evidence from Asian ecologies, reclassification of local forests as 'government owned' (through boundary work) and the consequent shift in the power dynamics left long-term village dwellers with little power to own, control, and govern their forestland. It also weakened the role of traditional elders and village leaders who were actively regulating resource access and use.

7.2.2.4 Local resistance towards the strict conservation approaches

The denial of access and use right over traditional wild coffees, forests and forest products and the forcible imposition of restrictive rules and regulations appeared to have provoked fierce local resistance. The local communities in the study villages did not give up their traditional agrarian and forest product harvesting practices so easily but instead attempted to reclaim their rights and renegotiate territories by engaging in 'everyday forms of resistance' (Scott, 1986) that are formal and informal in their nature. The formal resistance movement adopted by affected villagers was the submission of official petitions and appeals to the local judiciary system and zonal, regional and federal-level government structures.

The second form of resistance, which is informal in its nature, was the continuation of prohibited livelihood activities within the conservation territories. Irrespective of the enforcement of conservation rules, local communities continued to make use of the forest

products by changing their forest entrance times from day shift to night shift. Moreover, they stopped cooperating with forest guards and adopted a tactical support system where no member of the village discloses the identity of 'unauthorised' forest users where they were aware of one. The third resistance mechanism relates to setting fires. Even though conservation officials strictly banned people from setting fire to the enclosed forest areas, there was a constant practice of setting fire to the forests to clear agricultural lands and undertake beekeeping activities. Similar to a political ecology analysis of forest fires in other parts of the world documented by Holmes (2007) and Kull (2004), the use of fire by villagers in the case study areas had a political meaning in that it is an attempt of making a statement that they have a traditional right to set fire to the forest and carry out their livelihood activities in the enclosed conservation spaces.

7.2.3 Coal mining and COFCOP in the Yayo Coffee Forest Biosphere Reserve

7.2.3.1 Conceptualisation and formulation of the COFCOP

Wild coffee managed under the household model in Yayo can offer forested biodiversity and economic benefits that were valued differently by various actors. Nevertheless, in recent times, the Ethiopian government prioritised the short-term financial returns of the extraction and processing of coal minerals from conservation spaces over the preservation of the wild coffees. Two of the study villages (*Achebo* and *Wutete*) contain an estimated total of 230 million tons of coal mineral deposit in 50 km² (COMPLANT, 2007). This resource gives the country an opportunity to produce 300 000 tons of urea and the same amount of DAP per annum for the next several decades. It is also estimated that 30 000 tons of ethanol and 90 MW of electric power can be generated annually from the coal mineral. It is based on this untapped industrial mineral potential and the commitment to save millions of dollars on its fertiliser import bill that the GoE, through its GTP, envisages the construction of the first ever in-country fertiliser manufacturing complex in the study villages.

Prior to the commencement of the multi-complex fertiliser project, a number of national and international stakeholders such as the COMPLANT (China), Fichtner GmbH & Co

(Germany), and Addis Ababa University, Chemical Engineering Department (Ethiopia) conducted comprehensive geological surveys and feasibility and impact assessment studies that aimed at determining the potential of the coal for the country's economic growth and the impact the industry will have on the social, ecological and economic aspects of the district. The findings of these studies were presented to relevant federal level state agencies (such as the EEPCo, MoME, MoA, and MetEC) that showed increasing interest in extracting and processing the coal mineral for various purposes.

7.2.3.2 Local implementation and negotiation processes

Following a series of discussions, negotiations and contestations between the above actors, the COFCOP entered into implementation in 2012 with a budget of USD 540 million. The findings of this study showed that an Ethiopian-based military run industry complex, the MetEC, has been appointed by the government to undertake the construction of the multi-complex facility. Although the contractual agreement was signed in 2012, MetEC further subcontracted the civil works of the fertiliser plant to one of the mega-private construction companies in Ethiopia known as Tekle-Birhan Ambaye Construction PLC, for the same amount of money.

One of the findings of this study is that both the COFCO and coal mining sites noticeably overlap with the transition area, the protected buffer zone and also some parts of the core zone of the biosphere reserve. The geographical overlap between the extractive industry, strict conservation and local livelihood space has led to a growing degree of competition for space and resources between local communities, conservationists, and mining proponents. In these contested areas, which are characterised by changing economies, bionetworks and communities, the decisions over access, use and management of wild coffee and forests are no longer in the hands of either local communities or conservationists. The findings showed that the resource control power dynamics have now swung to the newly emerging mining proponents who benefit from Ethiopia's free market development policies.

Strong political backing from the state through the development of neoliberal policies (Bebbington et al., 2008) and strategic negotiations with local communities are the key elements that enabled the mining proponents to exert more control over these geographic spaces and resources, especially compared to the earlier professional conservationists. One aspect of the negotiation was the process of alliance building with the local communities. When making a comparison between conservationists and/or mining proponents, the study showed that the latter built a strong alliance with the local communities, although it did not last long. Unlike the conservationists who consistently failed to recognise customary right of access and use over resources and/or became unwilling to pay compensation, the mining proponents co-opted the local communities through the notions of resettling displaced individuals, creating job opportunities, building infrastructure, expanding social services and providing monetary compensation for expropriated private properties.

7.2.3.3 Social effects COFCOP and coal mining

The COFCOP fostered both negative and positive social effects. Concerning the positives, out of the promised 25 000 jobs, 3000 have hitherto been created although there is controversy regarding the fairness of who gains access to the available job opportunities. Secondly, various social groups in the district enjoyed the bulk of the financial support generated through activities such as house rent. In connection with this, some of the rented houses have been renovated and maintained, new toilet facilities have been constructed, fences were erected and new water pipes were established without any cost implication to the local landlord. Benefits were also generated for local people who are engaged in some sort of service provision activities. Restaurants, bars and local coffee shop owners have started to obtain significant income as a result of the arrival of new customers, mainly miners, contractors, engineers, and other support staff from the COFCOP.

Interestingly, the findings of this study showed that a large proportion of these and other positive outcomes of the extractive operations have been enjoyed predominantly by a small group of urban dwellers and relatively young and educated villagers, instead of the

majority of the long-term residents of the villages whose traditional livelihoods and lifestyles are strongly interlocked with the forest and the wild coffees. As shown, forest-dependent villagers have suffered from the various operations and activities undertaken during the construction phases of the plant. As of the date of the fieldwork, there were four major negative social and ecological effects that arose from the operations of COFCOP.

- ***Physical and non-physical displacement***

According to the findings of this study, roughly 2200 farming households were physically displaced, losing their crucial livelihood resources (wild coffee farms, houses, and agriculture land) to make way for the COFCOP implementation. With regard to non-physical displacements, hundreds of village residents were denied access to their coffee farms, forest areas and local water sources due to the strict security system adopted by the project. In fact, compensation was paid to the physically displaced villagers who have lost annual agricultural crops (such as maize, sorghum, and barely), perennial crops (such as mango, pawpaw, and orange), garden trees, and village houses and structures. However, the study found that compensation was calculated only for 420 out of a total of 2200 displaced individuals. As such, the amount of compensation was also unfair due to two prominent reasons. Firstly, the fact that compensation was calculated only for a definite period of time means that the valuation of private properties did not take into account the intergenerational values of the wild coffees. Secondly, not only was the total sum of the property valuation not commensurate with the present market value, it also overlooked the cultural and social worth of the expropriated household assets.

- ***Habitat loss, mainly degradation of large proportions of the forest biodiversity***

Another negative outcome of the implementation of the COFCOP relates to habitat loss and land cover change. A significant amount of agricultural and forestland has been converted to make way for the construction of the mine camps, the civil works of the fertiliser facility and other associated buildings, and preparation of dumping sites. These effects were quite visible in the buffer zone of the biosphere reserve, with a relatively

lesser intensity in the core zone where abundant and diverse biological resources are found.

The study also identified the major project-related causes of habitat loss and land cover change in the villages. The first cause is associated with key project activities such as site clearing, excavation, drilling, earthwork, levelling and construction of infrastructure that required the removal of forest and modification of the land. The second cause of land cover change is the incessant movement of project trucks that are often loaded with heavy-duty construction materials. The movement of such trucks severely potholed and damaged both the primary and secondary roads and ultimately contributed to the worsening of the daily public transport system in the locality. In addition to the ecological effects, the execution of the COFCOP negatively impacted on the availability and accessibility of the main water source of the study villages: the *Geba* River. As shown, the dumping of excavated soil into the river created a high sediment level in the downstream of the river, blocking the free flow of the river and causing it to become a mosquito-harboured zone. In addition to shedding light on the resource control by the mining officials which was evidenced through selecting dumping sites for industrial products (Bryant, 2002; Pearson, 1987), this has led to the occurrence and prevalence of a new type of malaria infection, i.e. *Plasmodium falciparum*, that threatens the health of villagers.

- ***Increased competition for space and resources and conflicts between resource users***

Since the inception of the project in 2010, there has been a tremendous influx of large numbers of unskilled and skilled labour and migrant settlers to the villages. The migration trend has impacted the lives of villagers in three major ways. Firstly, it introduced new ways of social interaction and behaviour that sharply contradicts traditional lifestyles. On the one hand, there is a growing concern over the way migrant settlers have engaged in sexual assault as well as other related harassments against local women and young girls. On the other hand, the social interaction between the local

residents and migrants gradually transformed the lifestyle and sexual behaviour of villagers whereby some local women started to engage in 'hidden' forms of prostitution. This has raised concerns over possible occurrence and prevalence of sexually transmitted diseases such as HIV/AIDS.

Coupled with conservation and extraction-induced physical and non-physical displacements as well as perturbing biodiversity loss, the arrival of other groups of people resulted in growing competition for livelihood resources and spaces ultimately contributing to the deterioration of the standard of living of thousands of forest-dependent households. The study found that obtaining various forest products such as wild fruits, farming tools, thatching grasses, wild coffees, climbers and ropes and trees for hanging beehives, has recently become a serious challenge. For all these reasons, tensions and antagonistic relations between long-term village dwellers and newly arriving outsiders have surfaced in the district, raising fears of ongoing social upheaval and conflict.

7.2.3.4 Unfulfilled promises by the COFCOP

Prior to the inception of the COFCOP, the concerned government officials made a series of promises to raise the standard of living of the local communities through the provision of various forms of direct and indirect compensation. Nonetheless, three years into implementation, the grandiose promises of benefits have not been materialised. These include, firstly, the anticipated infrastructure such as the construction or renovation of proper road networks, clinics, schools and decent accommodation in the villages have so far been non-existent. Secondly, the provision of monetary compensation for affected villagers did not account for the lost access to various types of forest-based benefits and the cultural and social values of the local resources. Thirdly, villagers have insufficiently been integrated into the jobs hitherto created by the COFCOP. In 2014 and 2015, not more than 70 local youths were employed as unskilled daily labourers such as security guards and assistant excavator operators. This accounts for 2,3 % of the total jobs that have actually been created and 0,3% of the total number of job opportunities pledged by the COFCOP. Fourthly, although resettling villagers was one of the promises made

during the negotiation stage, the findings of this study showed that a proper resettlement of the affected villagers became a neglected subject once the project started its operation.

7.3 Contributions of the study

Drawing on the empirical evidence from the villages in the Yayo district, the thesis has demonstrated the social, ecological and political processes involved in local livelihood, conservation and extraction, identified diverse competing actors and interests, pointed out the strategies adopted either by conservation experts and the mining proponents in gaining control over resources and also the social effects of such externally induced interventions on local communities. By so doing, the thesis has contributed to the body of knowledge in general, and the political ecology subfield in particular, in five different ways. Firstly, it offered a nuanced understanding of how power and control over the genetic material of plant species and other non-biological natural resources progressively shift from one actor to the other depending on changing ecologies, values, community dynamics, economies, and state policies and strategies. Secondly, the study unpacked the various strategies adopted by competing resource users to gain access to and control over specific resources and how a changing resource control practice disrupts social, ecological and political processes at the local scale and results in resistance and hostile relations between competing actors.

Thirdly, by way of examining the nature of competing interests over resources and spaces (i.e. a plant genetic material of high breeding value (wild coffee), coal mineral deposits of considerable industrial importance and biodiversity resources with key macro- and microeconomic roles), this study has made a contribution to the understanding of the socio-ecological intersection between livelihoods, conservation, and extraction. Fourthly, several scholars have studied various aspects of the wild *coffea arabica* occurring in the Ethiopian coffee forests. With past research focusing mainly on the issues of habitat loss and wild coffee genetic material erosion, much of the explanation tended to take an apolitical position (for example, Gole et al., 2002) with no adequate consideration of the socio-political struggles surrounding firstly, conservation and secondly, mining.

This research thus moves a step further in bringing the issues of politics to the centre of the analysis of the interrelations between livelihood, conservation and extractive-led development. The great deal of emphasis given to the political dimensions of resource access, use, management, and control provides a fertile basis for a more comprehensive understanding of the loss of biodiversity resources and the impoverishment of local communities and the complexities and challenges facing Ethiopia's goal to follow a path of sustainable development.

Lastly, by uncovering the historical and contemporary practices and policies associated with scientifically and economically essential resources in a biodiversity hotspot setting and linking them with dominant global discourses and practices of resource control, this study has contributed to the broader debates over the value of customary resource rights and governance institutions, the social impacts of conservation and the latest round of problems associated with extraction and resource control trajectory in and beyond formally protected forest areas. The latter is particularly important, as effective conservation must move beyond protecting islands of biodiversity (if they could even exist) to landscape level conservation.

Scholars have examined socio-ecological changes using a political ecology framework (Blaikie and Brookfield, 1987; Blaikie, 1985; Bryant and Bailey, 1997; Neumann, 1992; Watts, 2001). By way of analysing the interconnection between politics, knowledge, and power (Adam and Hutton, 2007; Bryant and Bailey, 1997; Peet and Watts, 1996), questions related to the dominance of particular ideas, concepts and understandings in biodiversity preservation have been raised and discussed. Nonetheless, these questions did not give sufficient attention to the complex interrelations of livelihoods, conservation and extraction and thus provided limited policy options for fostering socially just and resilient natural resource access, use and management systems. Through an analysis of competing interests over plant genetic material, coal mineral and forest-based livelihood and the values, policies and practices assigned to particular resources, both in the past and present time, this study discussed the successive shift in forestland and wild coffee

control patterns and what this changing trajectory means to the interest and priorities of different actors. This has implications for contemporary endeavours of creating and maintaining trade-offs between the livelihoods of local communities based on wild coffee and forest rights, biodiversity preservation as a national and global heritage and coal extraction – all critical in the pursuit of sustainable development. Hence, the contribution of this study is, in this type of setting, understanding the shifts in how dominant interests were able to wrest control over resources, how the forests of the Yayo district should be best used, and who benefits and loses from these regimes.

The study rests on the comprehensive traditions of political economy since it discusses the social relations of production, their emphasis on access and control over natural resources and the politics that underpins these relations. By way of addressing apoliticism, integrating political conflicts, paying a great deal of attention to marginalised rural communities and highlighting on societal disparities, this study converges to neo-Marxist theories. However, it detaches from neo-Malthusian approaches or population pressure theories by placing less emphasis on the assumption that high population pressures eventually results in natural resource degradation. As the study found out, one of the underlying reasons for the failure of protection modes of wild coffee management has been the lack of recognition of customary resource access, use and management practices not just the rise in population per se.

7.4 Rethinking livelihoods, conservation, and extraction

This study has increased understanding of the dynamics pertaining to the control over forests and wild coffee and its threats and conservation in the southwest of Ethiopia during changing stages in global conservation strategies and most recently, during a period of economic liberalisation enabling private corporate economic activity in hitherto remote resource frontiers. In the face of many actors competing for the use of resources with and/or without having any legal entitlement, this study has identified three major competing actors who claim legal right to make use of the resources of the district: local communities, expert conservationists and mining proponents. The resource access, use,

and management practice in the study area suggests that local communities have merely been witnesses without material involvement in the articulation process of the need for either conservation or extraction. Meanwhile, they have become the victims of the effects of these external interventions in terms of physical and non-physical displacement, diminishing livelihood base and sociocultural disruptions. While suggesting local participation and inclusion on paper, both the conservation and extraction approaches are in fact authoritarian and exclusionary with limited short-term benefits to the local communities. The exclusion of communities is the result of a policy formulation process that only involved the state and non-state technocrats but not long-term resource dependent villagers.

Considering the findings of this study, there is a need to rethink existing biodiversity conservation and resource extraction policies and strategies if states such as Ethiopia are to take concerns of poverty alleviation, biodiversity conservation and economic growth through sustainable development seriously. I suggest the following points that can perhaps aid in rethinking conservation and extraction approaches:

- Externally imposed conservation and extractions are often conceptualised and formulated based on a 'one fits all' fashion. Yet, there are social, ecological, economic and cultural differences between inhabitants of various geographical spaces. Even within a particular region, local communities are far from being homogenous in terms of their interaction with livelihood sources and lifestyle. Thus, it is crucial that both conservation and extraction efforts should be formulated in a way that sufficiently considers the historic and ongoing interaction of various social groups with the local resources.
- The policy evolution of conservation and extraction projects and programmes appeared to have been exclusionary of local interests, needs and priorities. As such, most of these policies reflect the ideas of those who are well connected with state functionaries and better equipped with the scientific knowledge and explanations of biophysical characters and economic worth of the resource in question. In order to address this, policies on extraction and conservation should

make the best use of local inputs and indigenous knowledge, not just at the implementation stage but also throughout the policy development cycle. This may require 'political will' and flexibility of the powerful conservation and extraction actors to accommodate the views, opinions and perspectives emerging from specific localities.

- Protectionist-oriented conservation programmes that are based merely on scientific knowledge tend to follow apolitical routes in explaining environmental problems and suggesting solutions. Thus, there is often no space to capitalise on and benefit from customary resource access, use and management practices. For instance, in the case of the Yayo district, the exclusionary principle, which already appeared ineffectual, continued to perpetuate a classic open access resource use mechanism, ultimately leading to increasing rates of biodiversity loss. Therefore, policies and practices should attempt to systematically integrate historical and traditional resource ownership, use, and management systems with scientific approaches if a balance has to be reached between livelihoods and conservation.
- As far as resource extraction is concerned, mining actors are often powerful in influencing decisions pertinent to locations where industrial by-products should be generated and dumped into the physical environment. These environments are, however, often the livelihood base of many local communities. For this reason, any planning that has to do with mitigating the possible risks of extractive industries to both the environment and the health and safety of people has to start by paying adequate attention to the social, cultural, economic, religious and political realities at the local scale.
- Finally, elsewhere it has almost become a common practice to publicly claim that conservation and extraction stand to generate direct and indirect benefits for local communities residing in areas hosting these interventions. Although the possibilities for benefits from both interventions exist, there is an urgent need to actualise these benefits in observable results. The first action in this regard could be the provision of fair and acceptable compensation to affected communities

who were forced to lose their resources to make way for the interventions.

7.5 Suggested areas of further research

The focus of this study was on the ways in which resources, especially wild coffees, are accessed, used, controlled and managed by various actors. Within this study, the extents to which livelihood, conservation and extraction activities overlap were examined. Given that a study involving people and their physical environment is a complex undertaking requiring the application of a range of theories and methods, it is useful to undertake a comprehensive and interdisciplinary investigation of various salient aspects in the study area as well other similar settings.

This study suggests at least three areas of future investigation and research. First, this study has focused mainly on how wild coffees are accessed and used by local communities. Following the work of Siebert and Belsky (2014), wild coffee production at the intermediate scale used in the Yayo district was likely to be sustainable and to certainly contribute to forest biodiversity. Future research could elaborate on how these wild coffee systems contribute to forest biodiversity and thus how coffee-based livelihoods and biodiversity conservation need not be viewed as in conflict but complementary.

Secondly, and the more difficult aspect, is how to reconcile coffee livelihoods, biodiversity and coal mining. This study was undertaken at an early phase of coal mining which will be further developed into a large-scale mining and fertiliser producing operation in the study area. Acknowledging that such operations are already bringing severe social, ecological and economic impacts to Yayo, a comprehensive follow-up research on the implications of the extractive industry to biological diversity, land and water resources, health and safety of local people, social interactions, and village economies is worthwhile; especially once the COFCOP starts to operate fully.

Thirdly, given the growth in migration and hence population pressure and competition for resource and space in the Yayo district, land use conflict is inevitable. Who will benefit

and who will lose as the mining and fertiliser plants become fully operational is very important to track, as well as what its consequences are for the forest and wild coffees. How might additional communities be affected beyond the four villages studied here? Are zones of social upheaval and conflict likely to occur? How will the Ethiopian government respond? How should it? It is important to monitor these issues. Hence, further research should focus on understanding these conflicts and on identifying resource governance institutions that could potentially mediate these conflicts.



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Bibliography

- Abebaw, D. and Virchow, D. (2003). The microeconomics of household collection of wild coffee in Ethiopia: Some policy implications for in situ conservation of *Coffea arabica* genetic diversity. *Fourth Bioecon workshop on the economics of biodiversity conservation*, 28-29.
- Adams, W. (2001). *Green development: Environment and sustainability in the Third World*. Routledge.
- Adam, W. and Hutton, J. (2007). People, parks and poverty: Political ecology and biodiversity. *Conservation and Society* 5(2): 147-183.
- Adams, W., Aveling, R., Brockington, D., Dickson, B., Elliott, J., Hutton J., Roe, D., Vira, B., and Wolmer, W. (2004). Biodiversity conservation and the eradication of poverty. *American Association for the Advancement of Science* 306. 1200 New York Avenue NW, Washington, DC.
- Aerts, R., Hundera, K., Berecha, G., Gijbels, P., Baeten, M., Van Mechelen, M., and Hermy, M. (2011). Semi-forest coffee cultivation and the conservation of Ethiopian Afromontane rainforest fragments. *Forest Ecology and Management*, 261:1034–1041.
- Agrawal, A. (1995). Population pressure=Forest degradation: An over simplistic equation. *Unasylva*, 181(46): 50-58.
- Agrawal, A. and Redford, K. (2006). Poverty, development and biodiversity conservation: Shooting in the dark? *WCS working paper* 26:1-50.
- Agrisystems Limited. (2001). *Coffee Support Project, Ethiopia: Formulation Report July 2001*. Agrisystems House, United Kingdom.
- Ahmed, W. (2008). Fossil fuel energy resources of Ethiopia. *A bulletin of the Chemical Society of Ethiopia*, 22(1): 67-84. Petroleum Operations Department, Ministry of Mines and Energy, Ethiopia.
- Akalu, A. (1982). *The process of land nationalization in Ethiopia. Land nationalization and the peasants*. LiberLaeromedel/Gleerup.
- Alem S. and Muche R. (2009). *Causes of frequent fire occurrence in Mount Ziqualla Forest*. In Proceedings of a Workshop on Tackling the frequent forest fire incidence in Ethiopia, Occasional Report 2/2009, Addis Ababa, Ethiopia.

- Angelsen, A. and Wunder, S. (2003). Exploring the forest–poverty link: key concepts, issues and research implications, *CIFOR Occasional Paper*, 40: viii-58, CIFOR, Bogor, Indonesia.
- Anley, Y., Bogale, A., and Haile-Gebriel, A. (2007). Adoption decision and use intensity of soil water conservation measures by smallholder subsistence farmers in Dedo District, Western Ethiopia. *Land degradation and development journal*, 18:289-302.
- Asian Development Bank (ADB) (1998). *Handbook on Resettlement: A Guide to Good Practice*. Asian Development Bank. Manila, Philippines.
- Asres, T. (1996). Agroecological zones of southwest Ethiopia. *Materialien Zurostafrikaforschung*, Heft 13, Geographische Gesellschaft Trier.
- Ayee, J., Soreide, T., Shukla, G. P., and Le, T. M. (2011). Political economy of the mining sector in Ghana. *World Bank Policy Research Working Paper Series*, Vol.
- Ballard, C. and Banks G. (2003). ‘Resource Wars: The anthropology of mining’, *Annual Review of Anthropology*, 32: 287–313.
- Balmford, A. and Whitten, T. (2003). Who should pay for tropical conservation and how could the costs be met? *Oryx* 37 (2): 238-250.
- Banks, G. (2002). *Papua New Guinea Baseline Study*. International Institute for Environment and Development, England, Great Britain.
- Bassett, T. J. and Koli Bi Z. (2000). Environmental discourses and the Ivorian Savanna. *Annals of the Association of American Geographers*, 90(1): 67-95.
- Bassett, T. and Zimmerer, K. (2004). Cultural ecology. Gaile, G. and Willmott, C. (ed.), *Geography in America at the dawn of the twenty-first century*, Oxford: Oxford university press.
- Batisse, M. (1986). Developing and focusing the biosphere reserve concept. *Perspective in resource management in developing countries*, 1: 160-177.
- Baugh, J., Hallcom, A., and Harris, M. (2010). Computer assisted qualitative data analysis software: A practical perspective for applied research.” *Revista del Instituto Internacional de Costos* 6: 69-81.
- Baxter, P. and Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The qualitative report* 13(4): 544-559.

- Baxter, P., Hultin, J., and Triulzi, A. (1996). *Being and becoming Oromo: Historical and anthropological enquiries*. Nordic Africa Institute.
- Bebbington, A. (Ed.). (2011). *Social conflict, economic development and the extractive industry: Evidence from South America* (Vol. 9). Rutledge.
- Bebbington, A. and Bury, J. (2013). *Subterranean struggles: New dynamics of mining, oil, and gas in Latin America*. University of Texas press.
- Bebbington, A. and Williams, M. (2008). Water and mining conflicts in Peru. *Mountain Research and Development*, 28(3), 190-195.
- Bebbington, A., Bornschlegl, T., and Johnson, A. (2013). Political economies of extractive industry: from documenting complexity to informing current debates. *Development and Change*, 00(0):1-16.
- Bekele, M. and Berhanu, L. (2001). State of Forest Genetic Resources in Ethiopia. Sub-Regional workshop FAO/IPGRI/ICRAF on the conservation, management, sustainable utilization and enhancement of forest genetic resources in Sahelian and North-Sudanian Africa (Ouagadougou, Burkina Faso, 22-24 September, 1998). *Forest Genetic Resources Working Papers, Working Paper Forestry Department, FAO, Rome*.
- Bell, F., Bullock, S., Hälbich, T., and Lindsay, P. (2001). Environmental impacts associated with an abandoned mine in the Witbank Coalfield, South Africa. *International Journal of Coal Geology*, 45(2): 195-216.
- Belsky, J. (2002). Beyond the natural resource and environmental sociology divide: Insights from a transdisciplinary perspective. *Society and Natural Resources*, 15(3): 269-280.
- Berg, B. (2001). *Qualitative research methods for the social sciences* (4th Ed.). California: Allyn and Bacon.
- Berisso, T. (1995). Deforestation and environmental degradation in Ethiopia: the case of Jam Jam province. *Northeast African Studies*, 2(2):139-155.
- Beyene, D. (2014). *Assessing the impact of UNESCO biosphere reserves on forest cover change. The case of Yayu Coffee Forest Biosphere Reserve in Ethiopia*. Unpublished thesis, Wageningen, The Netherlands.
- Biersack, A. (2006). Reimagining political ecology: culture/power/history/nature. *Reimagining political ecology*, 3-42.
- Bisrat, Y. and Heemann, W. (1985). *Report on the coal occurrences of Jiren*. EIGS,

Addis Ababa, Unpublished report.

- Blaikie, P. (1985). *The political economy of soil erosion in developing countries*. Longman.
- Blaikie, P.M. (1994). *Political Ecology in the 1990s: An evolving view of nature and society*. CASID Distinguished Speaker Series No. 13, Centre for Advanced Study of International Development, Michigan State University
- Blaikie, P. and Brookfield, H. (1987). *Land degradation and society*. London and New York: Methuen.
- Blaikie, P. and Jeanrenaud, S. (1997). Biodiversity and human welfare. Ghimire K., and Pimbert M., (ed.). *Social change and conservation*. Earth scan publishing limited, UK.
- Blake, S., Strindberg, S., Boudjan, P., Makombo, C., Bila-Isia, I., Ilambu, O., ... and Maisels, F. (2007). Forest elephant crisis in the Congo Basin. *PLoS Biol*, 5(4): e111.
- Brandon, K., Redford, R., and Sanderson, S. (1998). *Parks in peril: People, politics and protected areas*. Island press, Washington DC, USA.
- Brechin, S., Wilshusen, P., Fortwangler, C., and West, P. (2002). Beyond the square wheel: Toward a more comprehensive understanding of biodiversity conservation as social and political process. *Society and Natural Resources*, 15:4-64.
- Brechin, S., Wilshusen, P., Fortwangler, C. and West, P. (2003). *Contested nature: promoting international biodiversity with social justice in the twenty-first century*. State University of New York Press, New York, USA.
- Bridge, G. (2004). Contested terrain: mining and the environment. *Annual Review of Environment and Resources*, 29:205-259.
- Briggs, C. (1986). *Learning how to ask: a sociolinguistic appraisal of the role of the interview in social science research*. Cambridge: Cambridge University Press.
- Brockington, D. (2008). Corruption, taxation and natural resource management in Tanzania. *The Journal of development studies*, 44 (1): 103-126.
- Brockington, D. (2003). Injustice and conservation: Is 'local support' necessary for sustainable protected areas? *Policy matters*, 12: 22-30.

- Brockington, D. (2002). *Fortress conservation: the preservation of the Mkomazi game reserve, Tanzania*. James Currey, Oxford, UK.
- Brockington, D. and Igoe, J. (2006). Eviction for conservation: A global overview. *Conservation and society*, 4(3): 424-470.
- Brockington, D. and Schmidt-Soltau, K. (2004). The social and environmental impacts of wilderness and development. *Oryx international journal of conservation*, 38 (2): 140-142.
- Brockington, D., Duffy, R., and Igoe, J. (2008). *Nature unbound: conservation, capitalism and the future of protected areas*. Earthscan.
- Brockington, D., Igoe, J., and Schmidt-Soltau, K. A. I. (2006). Conservation, human rights, and poverty reduction. *Conservation Biology*, 20(1): 250-252.
- Brooks, T. M., Mittermeier, R. A., da Fonseca, G. A., Gerlach, J., Hoffmann, M., Lamoreux, J. F., ... and Rodrigues, A. S. (2006). Global biodiversity conservation priorities. *science*, 313(5783), 58-61.
- Brosios, J. (2006). Common ground between anthropology and conservation biology. *Conservation biology*, 20: 283-685.
- Brown, K. (1998). The political ecology of biodiversity, conservation and development in Nepal's Terai: Confused meanings, means and ends. *Ecological economics*, 24:73-87.
- Brown, K. and Moran, D. (1993). *Valuing biodiversity: the scope and limitations of economic analysis*. London: Centre for Social and Economic Research on the Global Environment.
- Brown, K. and Pearce, D. W. (1994). *The causes of tropical deforestation: the economic and statistical analysis of factors giving rise to the loss of the tropical forests*. UBC Press.
- Bryant, R. (2002). Non-governmental organizations and governmentality: 'Consuming' biodiversity and indigenous people in the Philippines. *Political studies*, 50(2): 268-292.
- Bryant, R. (1998). Power, knowledge and political ecology in the third world: a review. *Progress in physical geography*, 22(1): 79-94.
- Bryant, R. (1997). Beyond the impasse: the power of political ecology in third world environmental research. *Area*, 29 (1): 5-19.

- Bryant, R. (1992). Political ecology: an emerging research agenda in third-world studies. *Political geography*, 11 (1): 12–36.
- Bryant R. and Bailey S. (1997). *Third world political ecology*. New York: Routledge.
- Bulcha, M. (1988). *Flight and integration: causes of mass exodus from Ethiopia and problems of integration in the Sudan*. Nordic Africa Institute.
- Bury, J. (2005). Mining mountains: neoliberalism, land tenure, livelihoods, and the new Peruvian mining industry in Cajamarca. *Environment and planning A*, 37(2): 221-239.
- Buscher, B. (2010). Anti-politics as political strategy: neo-liberalism and transfrontier conservation in South Africa. *Development and change*, 41(1): 29-51.
- Carswell, G. (2006). Multiple historical geographies: responses and resistance to colonial conservation schemes in East Africa. *Journal of historical geography* 32(2): 398-421.
- Castro, G. (2000). *Natural resource management*. A draft discussion paper submitted to the World Bank.
- CBD (2008). *Protected areas in today's world: their values and benefits for the welfare of the planet*. Montreal: Technical Series no. 36.
- Cernea M.M. (2002). *The Compensation Principles and the New Economics of Displacement and Resettlement*. Prepared for the Conference on “Moving Targets: Displacement, Impoverishment and Development.” Cornell University, November 9-10, 2001.
- Cernea, M. M. (2000). Impoverishment risks, risk management, and reconstruction: A Model of population displacement and resettlement. *Risks and reconstruction: Experiences of resettles and refugees (np)*.
- Cernea M.M. (1997). *The Risks and Reconstruction Model for Resettling Displaced Populations*. The World Bank. Washington DC, USA.
- Cernea, M. and Schmidt-Soltau, K. (2006). Poverty, risks and national parks: policy issues in conservation and resettlement. *World development*, 34(10): 1808-1830.
- Chambers, R. (1994a). The origins and practice of participatory rural appraisal. *World development*, 22(7): 953-969.
- Chambers, R. (1994b). Participatory rural appraisal (PRA): Analysis of experience. *World development*, 22(9): 1253-1268.

- Chape, S., Harrison, J., Spalding, M. and Lysenko, I. (2005). Measuring the extent and effectiveness of protected areas as an indicator for meeting global biodiversity targets. *Philosophical transactions of the royal society*, (360): 443–455.
- Chapin, M. (2004). A challenge to conservationists. *World Watch Magazine*, 17(6): 17-31.
- Chatty, D. and Colchester, M. (2002). Introduction: Conservation and mobile indigenous peoples. Chatty, D. and Colchester, M. (ed.), *Conservation and Mobile Indigenous Peoples: Displacement, Forced Settlement and Sustainable Development*. New York: Berghahn Books:1-20.
- Coad, L. (2007). *Bushmeat hunting in Gabon: socio-economics and hunter behaviour*. PhD thesis, University of Cambridge.
- Coad, L., Campbell, A., Miles, L., and Humphries, K. (2008). The costs and benefits of protected areas for local livelihoods: a review of the current literature. *Working paper*, UNEP World Conservation Monitoring Centre, Cambridge, UK.
- COFCOP (2011). *Executive summary: Environmental and Social Impact Assessment of the Coal mine, Coal based Fertilizer Complex and Thermal Power Plants*. Consultant: Chemical engineering department, faculty of technology, Addis Ababa University, Ethiopia, Unpublished document.
- COFCOP (2009). *Environmental and Social Impact Assessment of the Coal mine, Coal based Fertilizer, Chemical and Thermal Power Plants of Wittete Locality: Inception Report*. Consultant: Chemical engineering department, faculty of technology, Addis Ababa University, Ethiopia, Unpublished report.
- Coffey, A. and Atkinson, P. (1996). *Making sense of qualitative data: complementary research strategies*. Thousand Oaks, CA: Sage
- Colchester, M. (2000). Self-determination or environmental determinism for indigenous people in tropical forest conservation. *Journal of conservation biology*, 14(5): 1365-1367.
- Colchester, M. (1997). Salvaging nature: indigenous people and protected areas. Ghimire K. and Pimbert M., (ed.), *Social change and conservation*. Earthscan publishing limited: UK.
- Colchester, M. (1994). *Salvaging nature; indigenous people protected area and biodiversity conservation*. Discussion paper No. 55, UNRISD/WRM/WWF/, Geneva.

- Colchester, M. (1993). Pirates, squatters and poachers: the political ecology of dispossession of the native peoples of Sarawak. *Global Ecology and Biogeography Letters*, 158-179.
- COMPLANT (2007). *Final geological report on the detailed explorations of the Wutete Mine-field*. Addis Ababa, Ethiopia, Unpublished report.
- COMPLANT (2005). *Environmental Impact Assessment of the Feasibility study report of Yayo Coal mine and Thermal Power Complex Project*, Addis Ababa, Ethiopia, Unpublished report.
- Corbin, J. M. and Strauss, A. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA
- Corson, C. (2011). Territorialization, enclosure and neoliberalism: non-state influence in struggles over Madagascar's forests. *Journal of Peasant Studies*, 38(4): 703-726.
- Coyne, I. (1997). Sampling in qualitative research. Purposeful and theoretical sampling; merging or clear boundaries?. *Journal of advanced nursing*, 26(3), 623-630.
- Crummey, D. (2000). *Land and society in the Christian Kingdom of Ethiopia: from the Thirteenth to the Twentieth Century*. University of Illinois Press.
- CSA (2014). *Agricultural Sample Survey: A Report on Land Utilization (Private peasant holdings, Meher Season*, Addis Ababa, Ethiopia.
- CSA (2007). *Population and housing census of Ethiopia-2007*. Addis Ababa, Ethiopia.
- CSA and ORC Macro (2006). *Ethiopia Demographic and Health Survey: 2005*. Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Agency and ORC Macro.
- Cuba, N., Bebbington, A., Rogan, J., and Millones, M. (2014). Extractive industries, livelihoods and natural resource competition: Mapping overlapping claims in Peru and Ghana. *Applied Geography*, 54(2014): 250-261.
- Davis, A. P., Gole, T. W., Baena, S., and Moat, J. (2012). The impact of climate change on indigenous arabica coffee (*Coffea arabica*): predicting future trends and identifying priorities. *PloS one*, 7(11), e47981.

- Deininger, K., Byerlee, D., Lindsay, J., Norton, A., Selod, H., and Stickler, M. (2011). *Rising global interest in farmland: Can it yield sustainable and equitable benefits?* Washington, D.C., The World Bank.
- Dewalt, K., Dewalt, B., and Coral, B. (1998). Participant observation. Bernard H.R. (ed.), *Handbook of methods in cultural anthropology*. Walnut Creek, CA: AltaMira Press: 259-299.
- Dove, M. (2005). Shade: Throwing light on politics and ecology in contemporary Pakistan. Paulson, S. and Gezon L. (ed.), *Political ecology across spaces, scales, and social groups*. New Brunswick, NJ: Rutgers University Press.
- Dove, M. R. (1985). Swidden Agriculture in Indonesia: The Subsistence Strategies of the Kalimantan Kant (Vol. 43). Walter de Gruyter.
- Down, C. and Stocks, J. (1977). *Environmental impact of mining*. London, UK: Applied Science Publications.
- Downing, T. E. (2002). *Avoiding new poverty: Mining-induced displacement and resettlement* (Vol.52). International Institute for Environment and Development.
- Dulloo, M. E., Hunter, D., and Borelli, T. (2010). Ex situ and in situ conservation of agricultural biodiversity: major advances and research needs. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*, 38(2): 123-135.
- Dulloo, M. E., L. Guarino, F. Engelmann, N. Maxted, H. J. Newbury, F. Attere and B. V. Ford Lloyd (1998). Complementary conservation strategies for the genus *Coffea*: a case study of Mascarene *Coffea* species. *Genetic Resources and Crop Evolution*, 45 (6): 565-579.
- Edwards, P. and Abivardi, C. (1998). The value of biodiversity: where ecology and economy blend. *Biological conservation*, 83 (3): 239-246.
- Edwards, D. P., Sloan, S., Weng, L., Dirks, P., Sayer, J., and Laurance, W. F. (2014). Mining and the African environment. *Conservation Letters*, 7(3), 302-311.
- EFAP (1994) *Ethiopia Forest Action Program. Final Report*. MoNRDEP. EFAP, Secretariat. Addis Ababa.
- Emerton, L. (2001). The nature of benefits and the benefits of nature. Why wildlife conservation has not economically benefited communities in Africa. Hulme, D. and Murphree, M. (ed.) *African wildlife and livelihoods: the promise and performance of community conservation*, London, UK: James Currey: 208–226.

- Epstein, P. R., Buonocore, J. J., Eckerle, K., Hendryx, M., Stout Iii, B. M., Heinberg, R., ... and Glustrom, L. (2011). Full cost accounting for the life cycle of coal. *Annals of the New York Academy of Sciences*, 1219(1): 73-98.
- Escobar, A., (1996). Constructing nature: elements for a poststructural political ecology. Peet, R., Watts, M. (ed.), *Liberation Ecologies: Environment, Development, Social Movements* Routledge, London: 46–68
- Escobar, A. (1995). Imagining a post-development era? Critical thought, development and social movements, *Third world and post-colonial issues*: 20-56.
- EWNHS (1996). *Important bird areas of Ethiopia: a first inventory*. Addis Ababa: Ethiopian Wildlife and Natural History Society.
- Fairhead, J. and Leach, M. (2003). *Science, society and power: environmental knowledge and policy in West Africa and the Caribbean*. Cambridge University Press.
- Fairhead, J. and Leach, M. (1998). *Reframing deforestation: global analyses and local realities with studies in West Africa*. Psychology Press.
- FAO (2008). *Trade barriers faced by developing countries' exporters of tropical and diversification products*. Information note number 5, March 2008.
- FAO (1968). *FAO coffee mission to Ethiopia 1964–1965*. FAO, Rome, Italy.
- Ferguson, J. (1990). *The anti-politics machine: " development," depoliticization, and bureaucratic power in Lesotho*. CUP Archive.
- Ferraro, P. (2008). *Protected areas and human wellbeing*. Conference paper. Economics and conservation in the tropics- strategic dialogue (January 31-February 1, 2008).
- Feyissa, N. (2008). Forest resources of Oromia National Regional State. Proceedings of a workshop entitled 'Policies to Increase Forest Cover in Ethiopia' and organized by Environmental Economics Policy Forum for Ethiopia (EEPFE) Ethiopian Development Research Institute (EDRI), Addis Ababa, Ethiopia
- Feyissa, R. (2001). *Forest resources ownerships and use rights and the role of communities in forest management*. In *imperative problems associated with forestry in Ethiopia*, Proceeding of a workshop organized by the Biological Society of Ethiopia, Addis Ababa, Ethiopia.

- Finer, M., Jenkins, C., Pimm, S., Keane, B., and Ross, C. (2008). Oil and gas projects in the western Amazon: threats to wilderness, biodiversity, and indigenous peoples. *PLOS One*, 3(8): e2932.
- Fichtner (2006). *Yayo Coal mine and Coal-fired Thermal Power Implementation Project: Comprehensive Environmental and Social Impact Assessment Study*, Addis Ababa, Ethiopia, Unpublished report.
- Fisher, B. and Christopher, T. (2006). Poverty and biodiversity: measuring the overlap of human poverty and the biodiversity hotspots. *Ecological economics*, 62: 93-101.
- Forsyth, T., (2005). The political ecology of the ecosystem approach for forests. Sayer, Jeffrey and Maginnis, Stewart, (eds.) *Forests in landscapes: ecosystem approaches to sustainability*. Earthscan, London, UK, 2005:165-176.
- Forsyth, T., (2003). *Critical Political Ecology: The Politics of Environmental Science*. Routledge, London.
- Friis, I. (1992). Forests and Forest Trees of Northeast Tropical Africa. *Kew Bulletin Additional Series No. 15*. HMSO, London.
- Gardner, A. (2003). The New Calculus of Bedouin Pastoralism in the Kingdom of Saudi Arabia. *Human Organization*: 62 (3): 267-276.
- Gatzweiler, F. W. (2005). Institutionalising biodiversity conservation-The case of Ethiopian coffee forests. *Conservation and Society*, 3(1):201-223.
- Gashaw, M. (2001). *Survival strategy and ecological performances of plants in regularly burnt savannah woodlands and grasslands of western Ethiopia* In: Proceedings of Round Table Conference on Integrated Forest Fire.
- GEF (Global Environment Facility) (2006). *Sustainable Development of the Protected Area System of Ethiopia (SDPASE)*. Project document.
- Geisler, C. (2003). A new kind of trouble: evictions in Eden. *International social science journal*, 175:69-78.
- Getahun. B. and Sebhat. B. (1988). *A progress report on the fieldwork around Mendi, Wollega administrative region*. Unpublished report. EIGS, Addis Ababa.
- Getahun. B., Yirga T., and Miniye, B. (1993). *Detail geologic mapping, subsurface exploration, Geochemical Studies and Reserve Evaluation of Coal and Oil Shale Resources at Dilbi-Moye Basin*. Unpublished report. EIGS, Addis Ababa.

- Getaneh, F. (2008). *Remote sensing and GIS assisted participatory biosphere reserve zoning for wild coffee conservation: the case of Yayo forest*. Unpublished Masters Thesis, Ethiopia: Addis Ababa University.
- Gezon, L. (2005). Finding the global in the local: environmental struggles in Northern Madagascar. Paulson, S., Gezon, L., and Watts, M. (ed). *Political ecology across spaces, scales, and social groups*. New Brunswick: USA, Rutgers University press: 135-153
- Gezon, L. and Paulson, S. (2005). Place, Power, Difference: multiscale research at the dawn of the twenty-first century. Paulson, S., Gezon, L., and Watts, M. (ed). *Political ecology across spaces, scales, and social groups*. New Brunswick: USA, Rutgers University press: 1-16
- Ghimire, K. and Pimbert M., (1997). Social change and conservation: an overview of issues and concepts. Ghimire K. and Pimbert M. (ed), *Social change and conservation* London: Earth scan publishing limited, UK.
- Goldblatt, M., Gelb, S. and Davies, G. (2002). *Macroeconomics and sustainable development in Southern Africa: synthesis report of South African study*. Development Bank of South Africa. Midrand, South Africa.
- Gole, T. (2004). *Forest biodiversity, forest functioning and NTFP production*. Unpublished consultancy report, Non-timber Forest Products Research and Development Project in SW Ethiopia, Mizan-Teferi.
- Gole, T. (2003). Vegetation of the Yayu forest in SW Ethiopia: impacts of human use and implications for *in-situ* conservation of wild *Coffea arabica* L. Populations. *Ecology development series*, (10): 1-171.
- Gole, T. (2002). *Conservation and use of coffee genetic resources in Ethiopia: Challenges and opportunities in the context current global situations*. Power point presentation, Center of development research, University of Bonn, Germany.
- Gole, T. and Denich M. (2001). *Subsistence in a mount forest Ecosystem: the case of South West Ethiopia*. In the proceedings of the World mountain symposium 2001,30 September- 4 October 2001 Interlaken, Switzerland.
- Gole, T., Borsch, T., Denich, M., and Teketay, D. (2008). Floristic composition and environmental factors characterizing coffee forests in southwest Ethiopia. *Forest Ecology and Management*, 255 (7): 2138-2150
- Gole, T., Denich, M., Teketay, D., and Vlek P.L.G. (2002). Human impacts on coffee Arabica gene pool in Ethiopia and the need for *in-situ* conservation. Engles J.,

- Ramanatha Rao V., Brown A.H.D and Jackson M. (ed.). *Managing plant genetic Diversity*. Oxon: UK: CAB International.
- Gole T., Senbeta F., Tesfaye K., and Getaneh F. (2009). *Yayo coffee forest biosphere reserve nomination form*. September 2009, Addis Ababa, Ethiopia, Unpublished document.
- Gole, T., Teketay, D., Denich, M and Borsch, T. (2001). *Diversity of traditional coffee production systems in Ethiopia and their contribution for the conservation of coffee genetic diversity*. In: proceedings of the conference on international agricultural research for development, Deutscher Tropentag- Bonn, 9-11 October 2001. University of Bonn, Germany.
- Glaser, B. and Strauss, A. (1967). *The discovery of grounded theory*. Chicago: Aldine.
- Graneheim, U.H. and Lundman, B. (2003). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24: 105-112.
- GSE (Geological survey of Ethiopia) (2009): *Investment opportunities in Coals of Ethiopia*, Addis Ababa, Ethiopia.
- Guest, G., Arwen, B., and Laura, J. (2006). How many interviews are enough? : An experiment with data saturation and variability. *Field methods*, 18(1): 59-82.
- Gururani, S. and Vandergeest, P. (2014). Introduction: New Frontiers of Ecological Knowledge: Co-producing Knowledge and Governance in Asia. *Conservation and Society*, 12(4): 343-351.
- Hein, L. and Gatzweiler, F. (2006). The economic value of coffee (*Coffea arabica*) genetic resources. *Ecological economics*, 60:76-185.
- Hens, L. and K Boon, E. (2005). *Causes of biodiversity loss: a human ecological analysis*.
- Hilson, G. (2002). An overview of land use conflicts in mining communities. *Land use policy*, 19(1): 65-73.
- Himmelfarb, D. (2006). *Moving people, moving boundaries: the socio-economic effects of protectionist conservation, involuntary resettlement and tenure insecurity on the edge of Mt. elgon national park, Uganda*. Agro forestry in landscape mosaics working paper series, World Agroforestry Centre.
- Holloway, I. (1997). *Basic concepts for qualitative research*. Oxford: Wiley-Blackwell.

- Holmes, G. (2014). Defining the forest, defending the forest: Political ecology, territoriality, and resistance to a protected area in the Dominican Republic. *Geoforum*, 53: 1-10.
- Holmes, G. (2007). Protection, politics and protest: Understanding resistance to conservation. *Conservation and society*, (5) 2: 184-201.
- Holt, F. (2005). The catch-22 of conservation: indigenous people, biologists, and cultural change, *Journal of human ecology*, 33 (2): 199-215.
- Huang, G., Zhou, W., and Ali, S. (2011). Spatial patterns and economic contributions of mining and tourism in biodiversity hotspots: A case study in China. *Ecological Economics*, 70(8):1492-1498.
- Hundera, K. (2007). Traditional forest management practices in Jimma zone, South West Ethiopia. *Ethiopian Journal of Education and Sciences*, 2(2): 1-10.
- Hurd, W. (2006). Rangers by birth. *Cultural survival quarterly issue*: 30(2): 33.
- Hurley, P. and Ari, Y. (2011). Mining (dis) amenity: The political ecology of mining opposition in the Kaz (Ida) Mountain region of western Turkey. *Development and Change*, 42(6): 1393-1415.
- Hutton, J. and Leader-Williams, N. (2003). Sustainable use and incentive-driven conservation: realigning human and conservation interests. *Oryx*, 37(02):215-226.
- Hutton, J., Adams, W. and Murombedzi, J. (2005). Back to the barriers: changing narratives in biodiversity conservation. *Forum for Development Studies*, 32 (2): 341–370.
- IBC (2014). *Ethiopia's fifth national report to the Convention on Biological Diversity*, Ethiopian Biodiversity Institute, May 2014, Addis Ababa Ethiopia.
- Igoe, J. and Brockington, D. (2007). Neoliberal conservation: A brief introduction. *Conservation and Society*, 5(4), 432.
- Illy, E. and Illy, A. (2015). Biochemistry- the complexity of coffee: One of life's simple pleasures is really quite complicated. *Scientific American Summer 2015*:10
- Ishwaran, N., Persic, A., and Tri, N. H. (2008). Concept and practice: the case of UNESCO biosphere reserves. *International Journal of Environment and Sustainable Development*, 7(2): 118-131.

- Stanculescu, D. and Scholer, M. (2011). *Ethiopian coffee quality improvement project: 2011 aid for trade global review: case story*. International Trade Centre, Geneva.
- IUCN (2005). *Benefits beyond boundaries*. Proceedings of the fifth world parks congress. World Conservation Union. Cambridge: UK
- IUCN (1997a). *World conservation congress: resolutions and recommendations*. Gland: Switzerland.
- IUCN (1997b). *Indigenous people and sustainability*. International books, Utrecht, The Netherlands.
- IUCN (1994). *Guidelines for protected area management categories*. The World Conservation Union (IUCN), Cambridge: UK.
- Juffe-Bignoli, D., Burgess, N. D., Bingham, H., Belle, E. M. S., de Lima, M. G., Deguignet, M., ... and Kingston, N. (2014). Protected planet report 2014. *UNEP-WCMC: Cambridge, UK*.
- Jorgensen, A. (2010). Transport costs and the relevance of externalities. *Retrieved, 2(9): 2012*.
- Jotte, Z. (2010). *Institutions, incentive and conflicts in coffee forest use and conservation: the case of Yayo forest in Illu Abba Bora Zone, Southwest Ethiopia*. PhD dissertation. University of Bonn, Germany.
- Kajoba, G. (2002). *Land Use and Land Tenure in Africa: towards an evolutionary conceptual framework*. Sustainable Agriculture Initiative Workshop, Council for the Development of Social Science Research in Africa, Dakar.
- Kaoneka, A. (2000). *Forest sector review: trends and prospects*. Paper presented at the Tanzania National Research Program Workshop Dar es salaam, Tanzania.
- Keeley, J. and Scoones, I. (2000). Knowledge, power and politics: the environmental policy making process in Ethiopia. *The Journal of Modern African Studies*, 38(01): 89-120.
- Kigenyi, F., Gondo, P., and Mugabe, J. (2002). *Practice before Policy: An analysis of policy and institutional changes enabling community involvement in forest management in Eastern and Southern Africa* (No. 10). IUCN.
- Kitachew, W. and Tesfaye, B. (1978). *Reported lignite occurrences near Wolaita Sodo*, EIGS, Addis Ababa, Ethiopia, Unpublished report.

- Kitula, A. G. N. (2006). The environmental and socio-economic impacts of mining on local livelihoods in Tanzania: A case study of Geita District. *Journal of cleaner production*, 14(3): 405-414.
- Kleiber, P. (2004). Focus groups: more than a method of qualitative inquiry. Lapan S.D and Kathleen D., (ed.), *Foundations for research methods of inquiry in education and the social sciences*. Lawrence Erlbaum Associates, London.
- Kramer, R., Schaik, C. V. and Johnson, J. (1997). *Last stand: protected areas and the defense of tropical biodiversity*. Oxford University Press.
- Kremen, C. (2005). Managing ecosystem services: what do we need to know about their ecology? *Ecology letters*, 8 (5): 468–479.
- Kubsa, A., Mariame, A., Amante, G., Lipp, H.J., and Tadesse, T. (2003). WAJIB: an alternative forest conservation approach for Ethiopia's forests. XII World Forestry Congress, Quebec, Canada.
- Kufa, T. and Burkhardt, M. (2011). Plant composition and growth of wild *Coffea arabica*: Implications for management and conservation of natural forest resources. *International Journal of Biodiversity and Conservation*, 3(4):131-141.
- Kull, C. (2004). *Isle of fire: the Political ecology of landscape burning in Madagascar (Vol. 245)*. University of Chicago press.
- Labouisse, J. (2006). *Summary of passport data of coffee germplasm maintained at Jimma Agricultural Research Centre (JARC)*. Unpublished research, Ethiopian Institute of Agricultural Research, Jimma, Ethiopia.
- Labouisse, J. P., Bellachew, B., Kotecha, S. and Bertrand, B. (2008). Current status of coffee (*Coffea arabica* L.) genetic resources in Ethiopia: implications for conservation. *Genetic Resources and Crop Evolution*, 55(7): 1079-1093.
- Lee, T., Sodhi, N. and Prawiradilaga, D. (2007). The importance of protected areas for the forest and endemic avifauna of Sulawesi (Indonesia). *Ecological Applications*, 17(6): 1727-1741.
- Lightbourne, M. (2006). *The legal environment of seed markets in Ethiopia - Is coffee faring better outside the FAO multilateral system?: In Assessing the Economic Implications of Different Models for Implementing the Requirement to Protect Plant Varieties: Case Study on Ethiopia*. IPDEV Work Package 6: London, UK.

- Little, P. E. (2007). Political ecology as ethnography: a theoretical and methodological guide. *Horizontes Antropológicos*, 3(se), 0-0.
- Lockwood, J. A. (1999). Agriculture and biodiversity: finding our place in this world. *Agriculture and Human Values*, 16(4): 365-379.
- Lopoukhine, N., Crawhall, N., Dudley, N., Figgis, P., Karibuhoye, C., Laffoley, D., ... and Sandwith, T. (2012). Protected areas: providing natural solutions to 21st Century challenges. *SAPI EN. S. Surveys and Perspectives Integrating Environment and Society*, (5):2.
- Luxner, L. (2001). Ethiopian coffee industry: overcoming difficulties. *Tea and Coffee Trade Journal*: 174. Online at: <http://www.teaandcoffee.net/0201/special.htm>
- Lynch, B. D. (2012). Vulnerabilities, competition and rights in a context of climate change toward equitable water governance in Peru's Rio Santa Valley. *Global Environmental Change*, 22(2): 364-373.
- Mackenzie, A. (2005). Land Tenure and Biodiversity: an exploration on the political ecology of Murang'a district, Kenya. Paulson, S. and Gezon, L. (ed.), *Political ecology across spaces, scales, and social groups*. New Brunswick, NJ: Rutgers University Press.
- Marcus, H. G. (2002). *A history of Ethiopia: Updated edition*. University of California Press.
- Marshall, M. N. (1996). Sampling for qualitative research. *Family practice*, 13(6):522-526.
- Mateo, N., Nadeer, W. and Taayo, G. (2001). *Bio-prospecting in encyclopedia of biodiversity*. 1: 471-478. Academic press. New York.
- McCann, J. (1995). *People of the plow: An agricultural history of Ethiopia 1800-1995*. Madison: University of Wisconsin Press.
- Mckee, J. (2007). *Ethiopia: Country environmental profile*. Report prepared for EC delegation, Addis Ababa, Ethiopia.
- McNeely, J. and Miller, K. (1984). *National parks, conservation and development: the role of protected areas in sustaining society*. Washington, DC: Smithsonian Institution Press.
- McNeely, J.A., Gadgil, M., Leve`que, C., Padoch, C., and Redford, K., (1995). Human influences on biodiversity. Heywood, V.H. (ed.), *Global Biodiversity*

Assessment. Cambridge University Press, United Nations Environment Programme (UNEP), Cambridge: 711–821.

- Meijer P. C., Verloop N., and Beijaard D. (2002). Multi-method triangulation in a qualitative study on teachers' practical knowledge: an attempt to increase internal validity. *Quality and quantity*, 36 (2): 145–167.
- Melaku, B. (2003). *Forest Property Right, the Role of the State and Institutional Exigency: The Ethiopian Experience*. Doctoral Thesis. Uppsala, Swedish University of Agricultural Sciences.
- Mellor, J. W. (2002). *Poverty reduction and biodiversity conservation: The complex role for intensifying agriculture*. WWF Macroeconomics Program Office, Washington, DC.
- Meyer, F. G. (1965). Notes on wild *Coffea arabica* from southwestern Ethiopia, with some historical considerations. *Economic Botany*, 19(2): 136-151.
- Meyer, F.G., Fernie L.M., Narasimhaswamy R.L., Monaco L.C., and Greathead, D.J. (1968). *FAO Coffee mission to Ethiopia: 1964–1965*. FAO, Rome, Italy.
- Miller, K., Allegretti, M. H., Johnson, N., and Jonsson, B. (1995). Measures for conservation of biodiversity and sustainable use of its components. *VH Heywood and RT Watson. Global Biodiversity Assessment*. London: Cambridge University Press/UNE.
- Million B. and Leykun B. (2001). *State of forest genetic resources in Ethiopia*. Prepared for The sub-regional workshop FAO/IPGRI/ICRAF on the conservation, management, sustainable utilization and enhancement of forest genetic resources in Sahelian and North-Sudanian Africa (Ouagadougou, Burkina Faso, 22-24 September 1998).
- Miranda, M., Burris, P., Bingcang, J.F., Shearman, P., Briones, J.O., Vina, A.L., and Menard, S. (2003). *Mining and Critical Ecosystems: Mapping the Risks*. World Resources Institute, Washington DC.
- Mishra P.P., (2009) Coal Mining and Rural Livelihoods: Case of the Ib Valley Coalfield, Orissa. *Economic and Political Weekly*, 44(44): 117-123.
- MOFED (2010). *Growth and Transformation Plan: 2010/11-2014/15. Volume I, Main Text*. Addis Ababa: Ministry of Finance and Economic Development (MoFED), Ethiopia.
- MoME (2009). *National Report on Mining, presented to the UN Commission on Sustainable Development (UNCSD)*, Addis Ababa, Ethiopia, 2009.

- Morse, J. (2010). Determining sample Size. *Qualitative health research*, 10(1): 3-5.
- Mulongoy, K. J., and Chape, S. (2004). Protected areas and biodiversity. *An Overview of Key Issues. CBD Secretariat and UNEP-WCMC, Montreal, Canada and Cambridge, UK.*
- Myers, N. (1988). Threatened biotas:"hot spots" in tropical forests. *Environmentalist*, 8(3):187-208.
- Myers, N., Mittermeier, R. A., Mittermeier, C. G., Da Fonseca, G. A., and Kent, J. (2000). Biodiversity hotspots for conservation priorities. *Nature*, 403(6772): 853-858.
- Naughton-Treves, L., Holland, M. B., and Brandon, K. (2005). The role of protected areas in conserving biodiversity and sustaining local livelihoods. *Annual review of environmental resources*, 30: 219-252.
- Neuendorf, K. A. (2002). *The content analysis guidebook*. Thousand Oaks, CA: Sage.
- Neumann, R.P. (2009). Political ecology: theorizing scale. *Progress in Human Geography*, PP:1-9.
- Neumann, R.P. (2005). *Making political ecology*. Hodder Arnold, London
- Neumann, R.P. (2000). Land, justice, and the politics of conservations in Tanzania. Charles Z., (Ed.), *People, Plants, and Justice: the politics of nature and conservation*. New York: US: Colombia University Press.
- Neumann, R.P. (1998). *Imposing wilderness: Struggles over livelihood and nature preservation in Africa*. University of California Press, London.
- Neumann, R.P. (1997). Primitive ideas: protected area buffer zones and the politics of land in Africa. *Development and change*, 28(3): 559-582.
- Neumann, R.P. (1995). Local challenges to global agendas: Conservation, economic liberalization and the pastoralists' rights movement in Tanzania. *Antipode* 27(4):363-382.
- Neumann, R.P. (1992). Political ecology of wildlife conservation in the Mt. Meru area of northeast Tanzania. *Land degradation and rehabilitation*, 3(2): 85-98.
- Nieuwenhuis, J. (2007). Analyzing qualitative data. Maree, K., (ed), *First steps in research*. Van Schaik Publishers. 1064 Arcadia Street, Hatfield, Pretoria, South Africa.

- Nune, S. (2007) Ethiopian government efforts to increase forest cover: a policy oriented discussion paper. Bane *et al.*, (2008) (ed.), *Policies to increase forest cover in Ethiopia. A Policy Workshop* organized by Environment economics policy forum for Ethiopia and Ethiopian Development Research Institute, 2008, Addis Ababa, Ethiopia.
- Oates, J. F. (1999). *Myth and reality in the rain forest: how conservation strategies are failing in West Africa*, University of California Press, Berkeley.
- OECD (1999). *Handbook of incentive measures for biodiversity. Design and Implementation*, OECD, Paris, France.
- O'Faircheallaigh, C. (2013). Extractive industries and Indigenous peoples: A changing dynamic? *Journal of Rural Studies*, 30: 20-30.
- O'Faircheallaigh, C. (1998). Resource development and inequality in indigenous societies. *World Development*, 26(3): 381-394
- Oldfield, S. (1988). *Buffer zone management in tropical moist forests: Case studies and guidelines*. Gland, Switzerland: IUCN.
- Osorio, N. (2002). The global coffee crisis: a threat to sustainable development. Submission to the World Summit on Sustainable Development, Johannesburg, 2002. In *presentation to the ICO World Coffee Conference*, at www.eldis.org/csr/coffee.htm.
- Ostrom, E. (1990). *Governing the commons*. Cambridge University Press, Cambridge, United Kingdom.
- Ostrom, E., Gardner, R., and Walker, J. (1994). *Rules, games, and common-pool resources*. University of Michigan Press.
- Owen, J. and Kemp, D. (2014). Mining and community relations: Mapping the internal dimensions of practice. *The Extractive Industries and Society*, 1(1): 12-19.
- Pankhurst, A. (2002). *The influence of the state and market on local level management of natural resources: Case studies of forests, irrigation and pasture sites in South Wello, Ethiopia*. BASIS CRSP, Wisconsin-Madison.
- Parry, B. (2000). The fate of the collections: social justice and the annexation of plant genetic resources. Zerner, C. (ed.), *People, plants and justice: the politics of nature conservation*. Columbia university press, New York, US.

- Paulos, D. and Demel, T. (2000). *The need for forest coffee germplasm conservation in Ethiopia and its significance in the control of coffee diseases*. Proceedings of the workshop on control of coffee berry disease (CBD) in Ethiopia, 13-15 August 1999, Addis Ababa, Ethiopia.
- Paulson, S. (2005). Gendered practices and landscapes in the Andes: the shape of asymmetrical exchanges. Paulson, S. and Gezon, L. (ed.), *Political ecology across spaces, scales, and social groups*. New Brunswick, NJ: Rutgers University Press: 174-195.
- Paulson, S., Gezon, L., and Watts, M. (2005). Politics, Ecologies, Genealogies. Paulson, S. and Gezon L. (ed.), *Political ecology across spaces, scales, and social groups*. New Brunswick, NJ: Rutgers University Press: 17-37.
- Pausewang, S. (1990). *Meret Le Arrashu. Ethiopia: options for rural development*. Zed Books Ltd, London and New Jersey, 187-198.
- Pearce, D. (2001). Valuing biological diversity: issues and overview. In: OECD (ed.), *Valuation of Biodiversity Benefits: Selected Studies*. OECD, Paris, France.
- Pearce, D. and Moran, D. (1994). *The economic value of biodiversity*. 120 Pentonville road, London N1 9JN: Earth scans publications limited.
- Pearson, C. S. (1987). Environmental standards, industrial relocation, and pollution havens. *Multinational Corporations, Environment and the Third World: Business Matters*, 113-28.
- Peet, R. and Watts, M. (1996). *Liberation ecologies: environment, development, social movements*. London; New York: Routledge, 1996.
- Peet, R. and Watts, M. (1993). Development theory and environment in the age of market triumphalism. *Econom. Geog.*, 69 (3): 227–253.
- Peluso, N. (1995). Whose woods are these? Counter-mapping forest territories in Kalimantan, Indonesia. *Antipode*, 27(4): 383-406.
- Peluso, N. (1993). Coercing conservation? The politics of state resource control. *Journal of global environmental change*, 3(2): 199-217.
- Peluso, N. (1992). The political ecology of extraction and extractive reserves in east Kalimantan, Indonesia. *Development and change*, 23(4): 49-74.
- Peluso, N. L. and Lund, C. (2011). New frontiers of land control: Introduction. *Journal of Peasant Studies*, 38(4): 667-681.

- Peluso, N. L. and Vandergeest, P. (2001). Genealogies of the political forest and customary rights in Indonesia, Malaysia, and Thailand. *The Journal of Asian Studies*, 60(03): 761-812.
- Pendergrast, M. (1999). *Uncommon grounds: the history of coffee and how it transformed our world*. Basic Books, New York, USA.
- Perrings, C. and Gadgil, M. (1978). Conserving biodiversity and reconciling global public benefits. Kaul, I. (ed.). *Providing global public goods*. Oxford publishers: 532-555.
- Perrow, M. and Davy, A. (2002). *Handbook of ecological restoration: Restoration in practice* (Vol. 2). Cambridge University Press.
- Petit, N. (2007). Ethiopia's coffee sector. A better or a bitter future?" In *Journal of Agrarian Change*, 7(2): 253.
- Petkova, V., Lockie, S., Rolfe, J., and Ivanova, G. (2009). Mining developments and social impacts on communities: Bowen Basin case studies. *Rural Society*, 19(3): 211-228.
- Pimbert, M. (2004). *Institutionalising participation and people-centered processes in natural resource management*. IIED.
- Pimbert, M. and Pretty, J. (1997). Parks, people and professionals: putting 'participation' into protected area management. *Social change and conservation*: 297-330.
- Pretty, J. N. and Pimbert, M. P. (1995). Beyond conservation ideology and the wilderness. In *Natural Resources Forum* (19)1:5-14. Blackwell Publishing Ltd.
- Rangan, H. (1997). Property vs. control: the state and forest management in the Indian Himalaya. *Development and change*, 28 (1): 71-94.
- Rangan, H. (1995). Contested boundaries: State policies, forest classifications, and deforestation in the Garhwal Himalayas. *Antipode* 27(4): 343-362.
- Rashid S., Tefera N., Minot N., Ayele G. (2013a). *Fertilizer in Ethiopia: An assessment of Policies, value chain and Profitability*. IFPRI Discussion Paper 01304, Washington DC, USA.
- Rashid, S., Tefera, N., Minot, N., and Ayele, G. (2013b). Can modern input use be promoted without subsidies? An analysis of fertilizer in Ethiopia. *Agricultural Economics*, 44(6): 595-611.

- Regassa, A. (2000). *A study report on Chora-Gabba: forest and coffee in conflict*. Environmental protection and land use planning team, Iluu Abba Bora zone Agricultural Development Department, Mettu, Ethiopia. Unpublished research report.
- Reid, W. (1998). Biodiversity hotspots. *Trends in ecology and evolution*, 13(7): 275-280.
- Reusing, M. (1998). *Monitoring of forest resources in Ethiopia*. Internal report for Ministry of Agriculture natural resources management and regulatory department, Addis Ababa: Ethiopia.
- Ribot, J.C. (2002). *Democratic decentralization of natural resources: Institutionalizing popular participation*. World Resources Institute, Washington DC.
- Ribot, J. C. and Peluso, N. L. (2003). A Theory of Access*. *Rural sociology*, 68(2): 153-181.
- Richerzhagen, C. and Virchow, D. (2002). Sustainable utilization of crop genetic diversity through property rights mechanisms: the case of coffee genetic resources in Ethiopia. *International journal of biotechnology*, 9(1): 60-68.
- Righi, S., Lucialli, P., and Bruzzi, L. (2005). Health and environmental impacts of a fertilizer plant—Part I: Assessment of radioactive pollution. *Journal of environmental radioactivity*, 82(2):167-182.
- Robbins, P. (2004). *Political Ecology: Critical Introductions to Geography*. Blackwell Publishing.
- Rocheleau, D., and Edmunds, D. (1997). Women, men and trees: Gender, power and property in forest and agrarian landscapes. *World development*, 25(8), 1351-1371.
- Rocheleau, D., Thomas-Slayter, B., and Wangari, E. (2013). *Feminist political ecology: Global issues and local experience*. Routledge.
- Roe, D. (2008). The origins and evolution of the conservation poverty debate: a review of key literature, events and policy processes. *Fauna and flora international, Oryx*, 42(4): 491–503.
- Roe, D. and Elliott, J. (2005). *Poverty-conservation linkages: A conceptual framework*. London: International Institute for Environment and Development, Poverty and Conservation Learning Group.

- Roe, D. and Elliot, J. (2004). Poverty reduction and biodiversity conservation: rebuilding the bridges. *Fauna and flora international, Oryx*, 38 (2):137-139.
- Ros-Tonen M., Fred Zaal F., and Dietz, T. (2005). Reconciling conservation goals and livelihood needs: New forest management perspectives in the 21st Century. Ros-Tonen, M. and Dietz, T. (ed.), *African forests between nature and livelihood resources: interdisciplinary studies in conservation and forest management*. Lewiston NY: The Edwin Mellen Press.
- Sanderson, S. and Redford, K. (2003). Contested relationships between biodiversity conservation and poverty alleviation. *Fauna and flora international, Oryx*, 37(4): 389–390.
- Sarma, K., Kushwaha, S. P. S., and Singh, K. J. (2010). Impact of coal mining on plant diversity and tree population structure in Jaintia Hills district of Meghalaya, North East India. *New York Science Journal*, 3(9): 79-85.
- Shackleton, S., Paumgarten, F., Kassa, H., Husseelman, M. and Zida, M. (2011). Opportunities for enhancing women's economic empowerment in the value chains of three African non-timber forest products (NWFPs). *International Forestry Review*, 13(2): 136–151.
- Schelhas, J. and Lassoie, J. (2001). Learning conservation and sustainable development: An interdisciplinary approach. *Journal of Natural Resources and Life Sciences Education*, (30): 111-119.
- Schmidt-Soltau, K. and Brockington, D. (2004). *The social impacts of protected areas*. In *World Conservation Congress, Bangkok, Thailand* (Vol. 20). Accessed from: <http://www.social-impact-of-conservation.net/>
- Schmitt, C. and Grote, U. (2006). *Wild coffee production in Ethiopia: the role of coffee certification for forest conservation*. Report project 'Conservation and use of wild populations of Coffea arabica in the montane rainforest of Ethiopia', Bonn, Germany.
- Schmitt, C., Senbeta, F., Denich, M., Preisinger, H., and Boehmer, H. (2010). Wild coffee management and plant diversity in the montane rainforest of southwestern Ethiopia. *African Journal of Ecology*, 48(1), 78-86.
- Schubert, J. (2005). *Political ecology in development research: an introductory overview and annotated bibliography*. IP 7 working paper. Bern, NCCR North-South.
- Scott, J. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. Yale University Press.

- Scott, J. (1990). *Domination and the arts of resistance: Hidden transcripts*. Yale University press.
- Scott, J. (1986). Everyday forms of peasant resistance. *The journal of peasant studies*, 13 (2): 5-35
- Scott, P. (2001). *Bio-prospecting as a conservation tool: history and background*. In crossing boundaries in park management: Proceedings of the 11th conference on research and resource management in parks and on public lands. Washington, D.C.
- Senbeta, F. (2006). Biodiversity and ecology of Afromontane rainforests with wild coffee arabica L. Populations in Ethiopia. *Ecology and development series*, (38): 1-144.
- Senbeta, F., and Denich, M. (2006). Effects of wild coffee management on species diversity in the Afromontane rainforests of Ethiopia. *Forest Ecology and Management*, 232(1): 68-74.
- Senbeta, F. and Teketay, D. (2003). Diversity, community types and population structure of woody plants in Kimphee forest, a unique nature reserve in southern Ethiopia. *Ethiopian Journal of Biological Sciences*, (2):169-187.
- Senbeta, F., Gole, T. W., Denich, M., and Kellbessa, E. (2013). Diversity of Useful Plants in the Coffee Forests of Ethiopia. *Ethnobotany Research and Applications*, (11): 049-069.
- Seyoum, A. (2009). *Microeconomics of wild coffee Arabica genetic resources conservation in SW Ethiopia: Forest zoning and economic incentives for conservation*. Doctoral thesis at Humboldt Univ. Berlin. Shaker Verlag, Aachen.
- Shackleton, S., Paumgarten, F., Kassa, H., Husselman, M., and Zida, M. (2011). Opportunities for enhancing poor women's socioeconomic empowerment in the value chains of three African non-timber forest products (NTFPs). *International Forestry Review*, 13(2): 136-151.
- Sharan A., Sharma S., and Govind P., (1994). Impact of coal mining on social ecology. A tentative note. Dhar B.B and Saxena N.C (ed.). Socio economic impact of environment. Akashi publishing House. New Delhi: 46-65.
- Siebert, S. F., and Belsky, J. M. (2014). Historic livelihoods and land uses as ecological disturbances and their role in enhancing biodiversity: An example from Bhutan. *Biological Conservation*, 177: 82-89.

- Smith, C. P. (2000). Content analysis and narrative analysis. *Handbook of research methods in social and personality psychology*, 313-335.
- Soule, M.E. (1986). *Conservation Biology: The Science of Scarcity and Diversity*. Sunderland, Massachusetts: Sinauer Associates, Inc
- Spielman, D. J., Kelemwork, D. D., and Alemu, D (2011), *Seed, fertilizer, and agricultural extension in Ethiopia*. ESSP II Working Paper 20. Washington, DC: International Food Policy Research Institute (IFPRI).
- Starks, H. and Trinidad, S. (2007). Choose your method: a comparison of phenomenology, discourse analysis, and grounded theory. *Qualitative health research*, 17(10):1372-1380.
- Stellmacher, T. (2007). The historical development of local forest governance in Ethiopia: From imperial times to the military regime of the Derg. *Africa Spectrum*, 519-530.
- Stellmacher, T. (2006). *Governing Ethiopian coffee forests: a local level institutional analysis in Kaffa and Bale mountains*. Ph.D dissertation. Rheinischen Friedrich-Wilhelms- Universität zu Bonn, Germany.
- Stellmacher, T. and Mollinga, P. (2009). The institutional sphere of coffee forest management in Ethiopia: local level findings from Koma forest, Kaffa zone. *International journal of social forestry*, 2(1): 43-66.
- Stonich, C. (1993). 'I am destroying the land!' the political ecology of poverty and environmental destruction in Honduras. *American anthropologist*, 97(2): 413-414.
- Sutcliffe, J. P., Wood, A., and Meaton, J. (2012). Competitive forests—making forests sustainable in southwest Ethiopia. *International Journal of Sustainable Development & World Ecology*, 19(6): 471-481
- Svarstad, H. (2005). A global political ecology of bio prospecting. Paulson, S. and Gezon, L.(ed.), *Political ecology across spaces, scales, and social groups*. New Brunswick, NJ: Rutgers University Press: 239-256.
- Sylvian, P.G. (1958) Ethiopian Coffee—its significance for the world coffee problems. *Economic Botany* (12): 111–139.
- Sylvain, P.G. (1955). Some observations on Coffee arabica L. In Ethiopia. *Turrialba* 5(1–2): 37–53.

- Taabazuing, J., Luginaah, I., Djietror, G., and Otiso, K. M. (2012). Mining, conflicts and livelihood struggles in a dysfunctional policy environment: the case of Wassa West District, Ghana. *African Geographical Review*, 31(1), 33-49.
- Tacconi, L. (2007). Decentralization, forests and livelihoods: Theory and narrative. *Global Environmental change*, 17(3): 338–348
- Tadesse, D. and Bekele, M. (2004). *Constraints and potential of local forest management systems in southwest Ethiopia*. Unpublished report, NTFP Research and Development Project Mizan-Teferi, Ethiopia.
- Tadesse, D., Gole, T., and Senbeta, F. (2006). Deforestation of afro-montane rainforests in Ethiopia. Sanchez I.B, and Alonso C.L., (ed.) *Deforestation research progress*. Nova Scotia publishers: 20-39
- Taye, E. (2002). *Inventory of wood species in Yayo forest*. Forest genetic resource conservation project (FGRCP), Institute of biodiversity conservation and research (IBRC) and German technical cooperation (GTZ), Technical report No. 4. Addis Ababa, Ethiopia.
- Teketay, D. (1999). History, Botany and Ecological requirements of Coffee. *Walia*, 20: 28-50.
- Teketay, D. (2001). *Vegetation types and forest fire management in Ethiopia*. In: Proceedings of Round Table Conference on Integrated Forest Fire management in Ethiopia, 19-20 September 2000, Addis Ababa, Ethiopia.
- Terborgh, J. (1999). *Requiem for Nature*, Island Press, Washington, DC.
- Tesema, T. (1996). Traditional and modern cooperatives among the Oromo. Baxter, P., Hultin, J., and Triulzi, A. (ed.), *Being and becoming Oromo: Historical and anthropological enquiries*. The Red Sea Press Inc, Asmara, Eritrea.
- Tesfaye, T. and Thomas, B. (2004). *Wild Arabica Coffee Populations Under Severe Threat: Farmers Perception of Existence, Access to and Conservation Needs in the Montane Rainforests of Ethiopia*. Conference on International Agricultural Research For Development Deutscher Tropentag Berlin, 5-7, October 2004.
- Tewelde, B.G. (1990). *The importance of Ethiopian forests in the conservation of Arabica coffee gene pools*: In proceedings on the 12th plenary meeting on AETFAT, Hamburg 4-10 September 1988: 65-72.
- Toli, T. (2006). *Coffee forest conservation: local-level institutions influencing the conservation and use of coffee forests in southwest Ethiopia* (Vol. 72). Margraf.

- Turton, D. (2002). The Mursi and the elephant question. Chatty, D. and Cholchester, M. (ed.), *Conservation and mobile indigenous people: displacement, forced resettlement and sustainable development*. Berghahn Press, New York: 97-118.
- UN (2013). *World Population Prospects: The 2012 Revision, Volume I*, Department of Economic and Social Affairs, Population Division, New York, USA.
- UNCED (1992). *Convention on Biological Diversity*. United Nations Conference on Environment and Development, Geneva
- UNDP-GEF (2005). *Sustainable Development of the Protected Area System of Ethiopia*, 2005, Ethiopia.
- UNESCO (2000). *Biosphere Reserves: Special Places for People and Nature: Illustrated Synthetic Report*, UNESCO, Paris, France.
- UNESCO (1996). *Biosphere Reserves: the Seville Strategy and the Statutory Framework of the World Network of Biosphere Reserves*. Paris, UNESCO.
- UNESCO (1995a). *Statutory Framework of the World Network of Biosphere Reserves*. UNESCO's Man and Biosphere Program (MAB). UNESCO, PARIS.
- UNESCO (1995b). *The Seville Strategy for Biosphere Reserves*. UNESCO, PARIS.
- UNESCO (1985). *Living in the Environment*. UNESCO/UNEP.
- UNESCO (1974). *Task force on criteria and guidelines for the choice and establishment of biosphere reserves*. Organized jointly by UNESCO and UNEP, *Final Report*. UNESCO-MAB Report Series No. 22, Paris, France
- USDA (2015). *Coffee annual report: Ethiopia*. Office of Agricultural affairs of the US Embassy in Ethiopia.
- USDA (2013). *Coffee annual report: Ethiopia*. Office of Agricultural affairs of the US Embassy in Ethiopia.
- Vandergeest, P. and Peluso, N. L. (1995). Territorialization and state power in Thailand. *Theory and society*, 24(3): 385-426.
- Vayda, A. and Walters, B. (1999). Against political ecology. *Human Ecology*, 27(1): 167-179.
- Veiga, M. M., Scoble, M., and McAllister, M. L. (2000). Mining with communities. *Mine Closure: Iberoamerican Experiences*, 143.

- Vernhes, R. (1989). *Biosphere reserves: the beginnings, the present and future challenges*. Gregg, W.P., Krugman, S.L., and Wood, J.D. (ed.), Proceedings of the Symposium on Biosphere Reserves, National Park Service, Atlanta: 7–20.
- Volkman, J. (2008). *Assessment of certification options for wild forest coffee in Ethiopia*. CoCE Project Report, Subproject 5.4. Bonn, Germany.
- Wakjira, F. (2006). *Biodiversity and ecology of Afromontane rainforests with wild Coffea arabica L. populations in Ethiopia*. Cuvillier.
- Walker, P. (2007). Political Ecology: where is the politics? *Progresses in Human Geography*, 31(3): 363-369.
- Walker, P. (2005). Political ecology: where is the ecology? *Progress in Human Geography*, 29(1): 73-82.
- Watts, M. (2001). Petro-violence: community, extraction, and political ecology of a mythic commodity. *Violent environments*, 189-212.
- Weber, R., Butler, J. and Larson, P. (2000). *Indigenous people and conservation organizations: experiences in collaboration*. World Wild-life Fund (USA), Washington, D.C.
- West, C. and Brechin, S. (1991). Resident people- and national parks: social dilemmas and strategies in international conservation. *American ethnologists*, 21(2): 435-436.
- West, P. and Brockington, D. (2006). An anthropological perspective on some unexpected consequences of protected areas: Issues in international conservation. *Conservation biology*, (20)3: 609–616
- West, P., Igoe, J., and Brockington, D. (2006). Parks and people: the social impact of protected areas. *The annual review of anthropology*, (35):251–77.
- Wilkie, D., Morelli, G., Demmer, J., Starkey, M., Telfer, P., and Steil, M. (2006). Parks and people: assessing the human welfare effects of establishing protected areas for biodiversity conservation. *Society of conservation biology*, 20(1): 247–249.
- Wilshusen P., Brechin, S., Crystal, L., Fortwangler, C., and West, P. (2002). Policy reviews: re-inventing a square wheel: critique of a resurgent ‘protection paradigm’. *Society and Natural Resources*, (15): 17-40.
- Winterhalder, B. (2002). Behavioral and other human ecologies: critique, response and progress through criticism. *Journal of ecological anthropology*, 6: 4-23.

- Woldetsadik, W. and Kebede, K. (2000). *Coffee production systems in Ethiopia*. In: Proceedings of the workshop on control of Coffee Berry Disease in Ethiopia Addis Ababa (Ghion Hotel) 13-15 August 1999. Addis Ababa, Ethiopia.
- Wolela, A. (1985). *Report on the drilling results of Jiren coal occurrences* (Unpublished report). EIGS, Addis Ababa.
- Wood, A. (1993). Natural Resource Conflicts in southwest Ethiopia: State, Communities, and the Role of the National. *Nordic Journal of African Studies*, 2(2): 83-99.
- Wood, A. (1983). The decline of seasonal labour migration to the coffee forests of southwest Ethiopia. *Geography*, 68(1): 53-56.
- Worku, A. and Zewde, W. (2009). *Forest Fire in Asebot Forest: causes, impacts and implication for sustainable management of the ever fragmented dry afro-montane forests in Ethiopia*. In Proceedings of a workshop on tackling the Frequent Forest fire incidence in Ethiopia, Occasional Report 2/2009, Addis Ababa Ethiopia.
- World Bank (2014). *Strategic Assessment of the Ethiopian mineral sector*. Final Report. Addis Ababa, Ethiopia.
- World Bank (2012). *World Development Indicators*. Washington DC, USA.
- World Bank (2004). *HIV/AIDS and mining*. Accessed from articles under extractive industries: <http://www.worldbank.org/ogmc/wbminingaids.htm>
- World Bank (2002). *World Bank operational manual, OP4.12*. World Bank, Washington DC.
- WRI (2005). *World Resources 2005 – The Wealth of the Poor: Managing ecosystems to fight poverty*. Washington DC, Available at: <http://www.wri.org/publications>.
- WWF (1996). *WWF statement of principles: indigenous people and conservation*. Gland, Switzerland.
- YARDO (2012). *The 2012 annual agricultural production status of the Yayo district*. Unpublished report. Yayo district, Ethiopia.
- YARDO (2005). *Unpublished Official report*. Yayo District, Illubabor Zone, Ethiopia.
- Yeraswork, A. (2000). *Twenty years to nowhere: property rights, land management and conservation in Ethiopia*. Lawrenceville, NJ, USA, Red Sea Press.

- Yin, R. (2003). *Case study research: design and methods (Applied social science research methods)*. London, Sage Publications Ltd.
- Young, J. (2006). *Peasant revolution in Ethiopia. The Tigray People's Liberation Front, 1975-1991*. African Studies, Cambridge
- Zerihun, D., Admase, A., Solomon, T., Lema, A., and Fekadu, H. (1998). *Report on the result of subsurface exploration for coal deposit at Achibo-Sombo (Yayu-Illubabor) area*. Unpublished report, Ethiopian Mineral Resource Development Corporation, Addis Ababa.
- Zimmerer, K. (2000). The reworking of conservation geographies: Non-equilibrium landscapes and nature-society hybrids. *Annals of the association of American geographers*, 90(2): 356-369.

Proclamations and Regulations

- Megeleta Oromiya 72/2003. Forest Proclamation of Oromia, July 9, 2003, Finfinnee, Ethiopia.
- Proclamation Number 678/2010. Federal Democratic Republic of Ethiopia A proclamation to promote sustainable development of mineral resources, Addis Ababa.
- Proclamation Number 56/2007. Federal Negarit Gazeta of the Federal Democratic Republic of Ethiopia 13th Year No. 56 Addis Abeba 4th September 2007. Forest Development, Conservation and Utilization Proclamation.
- Proclamation Number 456/2005. Federal Democratic Republic of Ethiopia Rural Land Administration and Land Use, Addis Ababa, Ethiopia.
- Proclamation Number 455/2005. Federal Democratic Republic of Ethiopia Expropriation of Landholdings for Public Purposes and Payment of Compensation Proclamation.
- Proclamation Number 381/2004. Federal Negarit Gazeta of the Federal Democratic Republic of Ethiopia 10th Year No. 16, Addis Ababa 13th January 2004. Institute of Biodiversity Conservation and Research Establishment (Amendment).
- Proclamation Number 299/2002. Federal Democratic Republic of Ethiopia Environmental Impact Assessment Proclamation. Addis Ababa, Ethiopia.
- Proclamation Number 1/1995. Constitution Of The Federal Democratic Republic Of Ethiopia, Addis Ababa Ethiopia.

Proclamation Number 71/1975. Proclamation to Provide for the Nationalization of Rural Land, Addis Ababa, Ethiopia.



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WESTERN CAPE

Appendices

Appendix 2.1: Letter of support from the PhD supervisor, Professor Julian May.



Appendix 2.2: Ethical clearance letter from the UWC Higher Degrees committee



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OFFICE OF THE DEAN DEPARTMENT OF RESEARCH DEVELOPMENT

28 January 2013

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape has approved the methodology and ethics of the following research project by:
Mr KK Suleman (Institute for Social Development)

Research Project: A political ecology of Arabica coffee gene pool conservation: The Case Yayo Coffee Forest, South-Western Ethiopia.

Registration no: 13/01/3

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

A handwritten signature in black ink, appearing to read 'Josias'.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

Private Bag X17, Bellville 7535, South Africa
T: +27 21 959 2988/2948 . F: +27 21 959 3170
E: pjosias@uwc.ac.za
www.uwc.ac.za

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a place to grow, from hope
to action through knowledge

Appendix 2.3: Research permit from the Oromia Region Agriculture and Rural Development Bureau.

21/05/05
500'01/12/07

Waajjira Qonnaa Godina I/A/Booraaf

Mattuu

Dhimmi Isaa :- Deeggarsa gochuu ilaala

Xalayyaa lakk. UWC Student no. 3210300, guyyaa 15 January 2013 "Institute for social development "UNIVERSITY OF THE WESTERN CAPE" irraa barreeffameen barataa Yuunversitii kan ta'an Obbo Kaassahuun Kalifaa Suleman qorannoo PhD(dissertation) mata duree Socio economic investigation of Arabica coffee gene pool conservation in case "Yayu coffee forest" jedhamu irraatti qorannoo PhD isaanii gaggeessu akkadanda'ani fi deeggarsa akka goonuuf nu gaafatanii jiru.

Kanaafuu Waajjirri keenya sadarkkaa Godinaa jiru, Aanaalee projektichi keessatti ammataman keessaatti qorannoo isaanii akka gaggeesuu danda'an deeggarsa akka gootaniif gaafachaa .Raawwii dhaf akka isiin gargaaruuf xalayyaa yuunversiticha irraa barreeffamee footoo koppii waliin qabsiisnee oisirii erguu keenya ni beeksifna..

Nagaa Wajjin

Dachaasaa Dhiqqaasaa Kuraan
Sad. I/A/ Hogganaa Biirootti
Gaggeessaa Adhiojii
Eks. N/Omicha Eunaa

G/G

- Obbo Kaasahun Klifaaf


Bakka Jiranitti

- Adeemsichaaf

Appendix 2.4: Research permit from the Yayo District Administration Office.

Gandeele 6th F

Lakki 103/274/2008
Guyyaa 26/7/2008


Moortummaa Oromiyaa Oromiyaa tiif
Godina Oromiyaa
Wajjira Buqalimaa Aanaa Yaayyoo
DANCEE HAAQEE HAAQEE WAAJJIIN
DAA'IRIC BIYYE WAAJJIIN

Bulchiinsaa Gandaa Waaboo, Geecii, Wuxatee, Aciboo tiif


B/I

Dhiinmi isaa Deegarsa kennuu ta'a

*Akkuma Mata Duree Irraatti ibsuu Yalaameettii Barataa Universtii of Western Cape south Afircaa kan ta'an **Obbo Kassahun Kalifaa** kan jeedhamanu hojii **socio Economic investigation on Coffee arabica Conservation in yayu District** irraattii Qorannoo gaggeesuuf gama keenyaan deegarsii gandoolee isaan filataniittii akka bareefamuuf nu gaafatanii jiru*

Kanumafuu barataan kun hojiiwwaan gandaa keessan irraatti qorannoo Gaggeessamuuf Namootaa isaan barbadan haala mijeesuufidhan deegarsa barachiisaa ta'ee akka godhamuuf ni beeksifna

Nagaa Wajjiin
*Posta e Lamu*
1/Ge/Wajjira Buqalimaa
Aanaa Yaayyoo
DANCEE HAAQEE HAAQEE WAAJJIIN
DAA'IRIC BIYYE WAAJJIIN



G/G

Obbo Kassahun Kalifaa tiif

Yaayyoo

Appendix 2.5: Semi-structured interview guide

Guide for informants from local Communities

Section A. General

1. Key Informant ID and village name:
2. Background information: Age, Occupation, Education, and Marital Status of the informant.

Section B. Historic livelihoods

- 1) What are the biodiversity species available in the locality and utilised by your family and others? Which do men, women, young girls and boys use?
- 2) How do women and men differ in terms of their engagement in forest-based livelihood activities?
- 3) Pertaining to wild coffee, what are the different local names, meanings, quality parameters and use values associated with it?
- 4) What does historic wild coffee collection look like? Who collects? What type of method is used? How much is collected at a time? What are the challenges of coffee collection?
- 5) How is wild coffee traded? Who sells? How often and how much volume is sold each year? Which market outlets are used? How far are they from the village? To whom do you sell the wild coffees?
- 6) What is the price of wild coffee locally? Who decides prices and on which criteria? How is information on prices obtained?
- 7) How do you compare the income from wild coffee sales with that of off-farm activities? Which one do you prefer and why?
- 8) Are there unions or cooperatives? Are you a member? If yes, what are the benefits to members? If not, why?
- 9) Are there challenges surrounding wild coffee trading? If yes, please explain them.

Section C. Customary forest and wild coffee access, use and management

- 1) How do you describe the customary access and use right of the coffee forest and wild coffees? What is allowed and what is not?
- 2) Who is responsible for providing access and use right permits? How are decisions made and on what criteria?
- 3) Were there complaints about the traditional permit system? What were the main areas of complaint?
- 4) How were individual forest and wild coffee boundaries set? Which customary institutions played roles in designating these private ownership boundaries?
- 5) Who decides and enforces customary rules over forest access and use right? Were these rules effective?
- 6) Do women have equal rights in access and use of wild coffee and forests? If not, what are the differences?
- 7) What were the challenges in the traditional management of the coffee forest and wild coffees?
- 8) What was the role of the state in the day-to-day functions of the customary systems?
- 9) What are the things that you like and dislike about the forest management system?

Section D. Changes on the Coffee forest and proposed management approach

- 1) What is your assessment of the current status of the wild coffee and forest? What are the main reasons for these changes happening? What type of consequences do these changes have on your lives?
- 2) What should be done to safeguard it?
- 3) Are there any ongoing wild coffee management approaches other than the traditional systems? How and when did you hear about the approaches? Who informed you?
- 4) Who brought them and what are your perceptions regarding the approaches?

- 5) What were the key processes involved in enacting and implementing the conservation approaches?
- 6) What were the roles and responsibilities of local villagers in the process? Which members of the community participated? How were they selected? In what aspect did they participate? Do you believe it will reduce the pressure on the forest?
- 7) What are the positive and negative changes that have happened since the introduction of the new conservation? In what way do these changes affect the lives of villagers as well as customary access, use, and management resources?
- 8) What were your reactions to these changes? Are there any cases of option?
- 9) If conservation is to succeed, what are the things that you would like to be considered?

Section F. Perceptions on Coal mining

- 1) When did you hear about the coal mining for the first time? Who informed you?
- 2) Have you participated in the planning and execution of the coal-mining programme? In what capacity?
- 3) What processes were undertaken before starting the implementation of the coal mining? What and by whom were benefits promised to be given to the communities?
- 4) What are the different types of the properties of villagers that were expropriated to make way for the mining?
- 5) Has compensation been paid? How was the valuation made? Is it commensurate with the current value of the property? If not, how and why?
- 6) What are the existing advantages and disadvantages of the coal mining to the lives of the local communities and the forest and wild coffees?
- 7) Have you made complaints? To whom and what was the response obtained?

Guide for informants from the state and non-state conservationists

Section A. General

- 1) Key Informant ID
- 2) Background Information: Age, Occupation, Education, Designation, Duration of the Job in the sector.

Section B. Livelihood means wild coffee collection and Trading

1. How do you describe the natural resource endowments of the Yayo district?
2. Who are the various user groups in the area and what are their main sources of livelihoods?
3. What are the different land use systems and how was the forest allocated for use?
4. What are the traditional wild coffee harvesting /cultivation and trading practices? In what ways do these affect the wild coffee genetic material?
5. How do the local people collect the wild coffee?
6. How is it traded? To whom is the coffee sold? What is the local selling price of coffee and what are the criteria for pricing (criteria for high and low price)?

Section C. Management approach of the wild coffee?

- 1) What changes are happening in the coffee forest and with the wild coffee, and what do you think are the main reasons?
- 2) What types of forest coffee management approaches have been adopted? How was the strategy initiated and when did it begin? Who prescribed the strategy and how did it evolve through time?
- 3) Why are they preferred than other possible approaches?
- 4) Are the local communities aware about the various conservation approaches? If yes, what do they know, how did they know, by whom, when? If not, why?

- 5) Which part of the community knows or needs to know? Or who has access to what information? And why? How is this knowledge generated and transmitted/shared?
- 6) What were the processes involved in the conservation approaches in defining specific geographical spaces?
- 7) Who are the local, national, and global level actors involved in the wild coffee management and what are their respective roles?
- 8) How were wild coffee conservation rules developed and enacted? Who develops and approves them?
- 9) Which activities are permitted and/or banned? Why?
- 10) How are illegal forest users regulated? Are their legal frameworks? How were they developed?
- 11) Are they effective in safeguarding wild coffee? If not, why?

Section D. Use and Access of wild coffee after boundary making

- 1) How do you describe the right and responsibilities of the local communities over the conserved spaces?
- 2) To which part of the conserved forest do the people get access? Who provides permits? And how are decisions made to give permits? Who is involved in the process?
- 3) How does the reclassification of the forest boundaries affect the local people and the ecology?
- 4) Were there complaints stemming from the adoption of new conservation approaches? If so, what are the areas of complaints?
- 5) If conservation is to succeed, what are the things that you would like to be considered?

Section F. Perceptions on coal mining

- 1) When did the coal mining start? What do the early phases look like? What do you think the justification for the mining is?

- 2) How has it evolved over time? And what are the current operational phases of the initiative?
- 3) Who were involved in the initiative? What were your roles in the formulation and implementation of the program?
- 4) To what extent do the mining and conservation overlap? How did you negotiate boundaries between the two?
- 5) In what ways does the mining affect the biodiversity status and local livelihoods? Which activities of the mining have contributed to these effects?
- 6) What are the expropriated properties? Who made the valuation and how was the calculation made?
- 7) How much money has actually been paid? Were there complaints about the compensation? What are the types of complaints?

Guide for Yayo COFCOP Officials and other coal mining advocates

Section A: General

- 1) Key Informant ID:
- 2) Background Information: Age, Occupation, Education, Marital Status, Designation, Duration of the Job in the sector.

Section B. Background information on the coal mining initiative

- 1) How do you describe the natural resource endowment in the Yayo district? What direct and indirect goods and services do you get from the forest?
- 2) When was the COFCOP programme started? Why was the Yayo district chosen for the mining the COFCOP?
- 3) What were the processes carried out before starting the operation? (Contents and procedures related to base-line survey, feasibility studies, negotiations with government and community, etc)
- 4) How and when did you get access to the land that you are working on?

- 5) How much land were you given? Where is it located? (Inside or outside the protected area)?
- 6) Were the local people consulted about this? Who was consulted and what were their reactions?
- 7) What are the various activities of the CFCOP that you think might interfere with livelihood and conservation?
- 8) In your opinion, what were the positive and negative changes that happened in the area after the inception of the CFCOP operation?
- 9) Was the factory land a settlement area? If yes, what happened to the residents/local people? When, how many and where were they relocated?
- 10) How did the negotiations take place? Who mediated the process?
- 11) Were the local communities given compensation? In what form? Were they happy with it? If not, why?
- 12) What are the advantages of the factory's presence for local communities?
- 13) Were there conflicts between the factory and the local communities? What was the reason? And when? Who was involved? How was it negotiated? And what solutions were given?

Appendix 2.6: Focus group discussion guide

Section A. Customary forest and wild coffee access, use and management practices

1. What are the various forest products used by village dwellers?
2. In what ways do villagers use these forest products? (E.g. cultural, spiritual / religious, economic, recreational /aesthetic?)
3. How do you describe the *de jure* and *de facto* rights or claims long-term villagers have over the access, use and management of the forest products, especially the wild coffees?
4. What are the various local names (and also corresponding meanings) assigned to the wild coffees?
5. How do you describe the qualities and features of the wild coffee as compared to the garden/plantation coffees?
6. Who are the various user groups attempting to use the wild coffee and the forest?
7. What direct goods and services do these different user groups extract from the forest and the coffee? What are the mechanisms through which they access, use and manage the forest biodiversity?
8. What do you think the positive and negative impacts of these groups are on the forest and wild coffee?
9. Can you explain how forests and wild coffees were managed traditionally? What were the various historic land use systems and their attributes?
10. Are there informal traditional institutions who had roles in deciding over access, use and management of the wild coffee and enforcing traditional rules? What are their specific roles and how did they operate in the past and in the present?
11. Were the traditional rules effective? What were the challenges in their implementation?

Section B. Perception on wild coffee and forest status and existing resource governance strategies

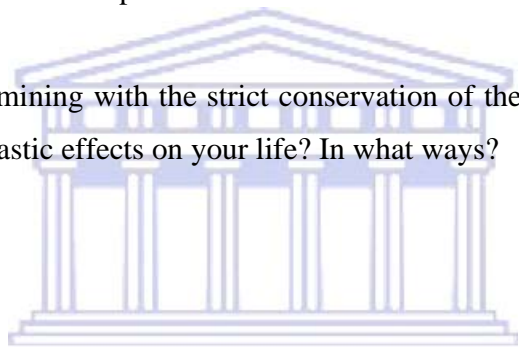
1. What are the major social, ecological, political and economic phenomena in and around the forest during the past decades, i.e. in terms of the condition of the forest and the wild coffee population, local livelihood system, population dynamics and political regime changes?
2. What are the various management approaches that have been introduced externally to safeguard the wild coffee?
3. When were they introduced and who brought them?
4. How was the reaction of the long-term villagers? Did the local communities participate in the planning and implementation of the programmes? If so, in what ways and to what extent did they participate?
5. What are the different management zones (and their features) in the new conservation schemes and how do you describe the access to them?
6. What is allowed in each zone and what is not? Why?
7. To which of the zones do you like to have access to? Why?
8. Which actors are allowed to enter in to the different zones? Why are they allowed and what do they do there? How do you feel about it?
9. What happened during the local implementations of the programmes? (Positive or negative scenarios)
 - Conflicts (when, what happened, between whom, how was it resolved)
 - Physical and non-physical displacement (when, how many people were subject to physical and non physical displaced, how were these negotiated negotiations with the affected communities)
 - Which properties of the villagers were included in the demarcated area?
 - What was done in return to support the affected community members? When, by whom and in what form?
10. What does the situation look like after the implementation of the programme?
 - What are the advantages and disadvantages of such a zoning system to the local people?

- What benefits and costs do these approaches bring to the local communities and the ecology?
 - Are they necessary and sufficient to conserve the forest biodiversity, especially the wild coffees? Why?
 - Can they take place within a working forest-timber, wild coffee collection, mining, and recreation? In what way?
 - What are the enforcement mechanisms for enacting the rules and regulations of the protected areas? Who is responsible for patrolling the boundaries of the conservation areas? How are they assigned? What are their tasks and in what ways do they fulfill their responsibility? To whom are they accountable?
 - How do people get access to the resources in the protected areas? What procedures are followed?
 - Are there scenarios of conflict between forest and wild coffee protectors and the local communities/users? How often and what are the reasons?
11. What is your overall assessment of the new conservation approaches? Are you happy with it? If not, how do you prefer the wild coffee to be conserved? Can this substitute the externally induced conservation approaches?

Section C. Opinions on COFCOP and coal mining programs in the Yayo district

1. What do you know about the coal-mining programme? When did it start and who brought the programme?
2. What was the earlier process prior to the implementation of the programme? The negotiations processes? Who were the local and non local actors involved in the negotiations?
3. What were the issues discussed during the negotiation process in terms of the nature and magnitude of the mining industry and the promised benefits to the local communities?

4. What were your reactions during the negotiation (i.e. prior to the inception of the programme)?
5. What were the processes involved during the inception stage of the COFCOP? (i.e. the type, nature and amount/size of expropriated property, number of physically and non physically displaced people, compensation payment ...)
6. What are the positive and negative outcomes after the inception of the mining operations and COFCOP? (Please describe the benefits and costs in terms of their effect socially, economically, culturally and on the forest ecology).
7. Are you happy with the operations involved in the COFCOP undertaking? If not, why? How do they positively and negatively affect the lives of villagers?
8. To what extent are the promised benefits fulfilled? Which of them were not fulfilled?
9. Comparing the mining with the strict conservation of the wild coffee, which one has had more drastic effects on your life? In what ways?



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Appendix 5.1: The plan of action and the list of members of the taskforce for the planning and execution of Yayo biosphere reserve approach.

Activities	Plan per year					
	2007	2008	2009	2010	2011	2012
Digitizing						
Collecting and compiling research results						
Verification on the ground						
Public awareness						
Opening information center						
Task force meeting						
Fund raising activities						
Implementation advisory board						
Bring the information to the stakeholders						
Bring results to the map						
Public information on BR zonation						
Preparation of the nomination form						
Sending nomination form to UNESCO						
Establishment of BR management office						
Members of the Task force						
<ul style="list-style-type: none"> • Addis Ababa University • Ethiopian Coffee Forest Forum(ECFF) • Illubabor Zone Administration Office • Illubabor Zone Forest Enterprise (IZFE) • Illubabor Zone Agriculture and Rural Development Office (IZARDO) • Institute of Biodiversity Conservation • Jimma Agricultural research Centre(ARC) • Jimma University 			<ul style="list-style-type: none"> • Menschen für Menschen • Oromia Bureau of Agriculture and Rural Development • Oromia Forest and Wild Life Enterprises • Geba Doggi Coffee Improvement Project (CIP-IV) • Six Wereda adjacent to the forest Bureau of Agriculture and Rural Development 			

Source: Minutes of the first biosphere reserve task force meeting

Appendix 5.2: BR nomination form signed by the local, regional and national actors.

5.1 Signed by the authority/authorities in charge of the management of the core area(s):

Institution: Oromiya Forestry and Wildlife Enterprises, Ilubabor Branch

Full name: *[Signature]*

Title: Gaddafaa Nagaraa Hojii Gaggeessaa

Date: 08/09/09

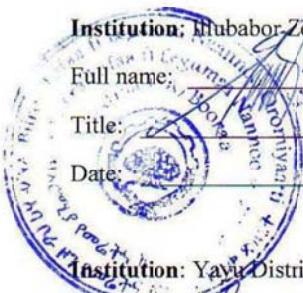


Institution: Ilubabor Zone Land and Environmental Protection Office

Full name: *[Signature]* Admaasuu Tashoomaa

Title: አድማስ ተሽሙ

Date: 08/09/09



[Handwritten notes]
I/A/ Bulcha
Booraa



Institution: Yayu District Administration

Full name: *[Signature]* Balaa ChooBaqqalaa Ke

Title: አድማስ ተሽሙ

Date: 08/09/09



Institution: Hurumu District Administration

Full name: *[Signature]* Tesfik Jamaal Usman

Title: አድማስ ተሽሙ

Date: 08/09/2009



Institution: Dorani District Administration

Full name: *[Signature]* Tastaayee Wadaajoo Ishoo

Title: አድማስ ተሽሙ

Date: 08/09/09



Title: Mis/Baadiyyaa G/1/A/ Booraa
Date: 09/09/09

Institution: Chora District Administration
Full name: [Signature]
Title: [Signature]
Date: 09/09/09



5.3 Signed as appropriate by the National (or State or Provincial) administration responsible for the management of the core area(s) and the buffer zone:

Institution: Oromiya National Regional Government
Full name: [Signature]
Title: [Signature]
Date: 12/09/09



Institution: Bilo-Nopha District Administration
Full name: [Signature]
Title: [Signature]
Date: 09/09/09



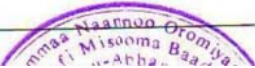
Institution: Alge Sachi District Administration
Full name: [Signature]
Title: [Signature]
Date: 09/09/09




5.2 Signed by the authority/authorities in charge of the management of the buffer zone(s):

All institutions listed under 5.1 above and the following:

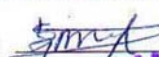
Institution: Illubabor Zone Agriculture and Rural Development Office
Full name: [Signature]
Title: [Signature]



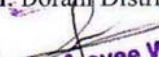
5.4. Signed by the authority/authorities, elected local government recognized authority or spokesperson representative of the communities located in the transition area.

Institution: Yayu District Council
Full name:  Darajee Wadajoo Gammadaa
Title: የ.ሲ.ወ. ገዢ ገዢ
Date: 08/09/09

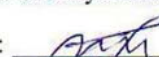


Institution: Hurumu District Council
Full name:  Yoosef Abbeba Alamuu
Title: የ.ሲ.ወ. ለዘ ገዢ
Date: 08/09/09




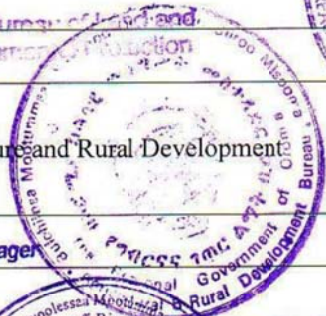
Institution: Doram District Council
Full name:  Tastaayee Wadaajoo Ishoo
Title: የ.ሲ.ወ. ገዢ
Date: 08/09/09




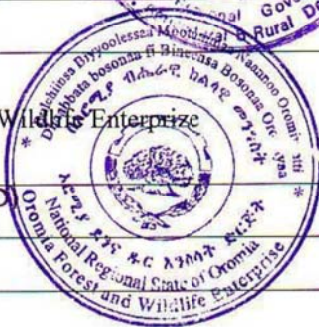
Institution: Oromiya Bureau of Land and Environmental Protection
Full name:  Diribu Jamal
Title: Head Bureau of Land and Environmental Protection
Date: 13/09/09



Institution: Oromiya Bureau of Agriculture and Rural Development
Full name:  Dechassa Dugassa Kussa
Title: Coffee Development Extension Manager
Date: 13/09/09



Institution: Oromiya Forestry and Wildlife Enterprise
Full name:  Girma Amente (PhD)
Title: General Manager
Date: 13/09/09



Institution: Bilo-Nopha District Council

Full name: Beiqsadu Waqineh

Title: _____

Date: 09/09/09



Institution: Alge-Sachi District Council

Full name: Bechal Dimgeta

Title: _____

Date: 09/09/09



Institution: Chora District Council

Full name: Mohamed

Title: _____

Date: 09/09/09



5.5 Signed on behalf of the MAB National Committee or focal points

Institution: UNESCO MAB National Committee of Ethiopia

Full name: Zerihun Kebede (PhD)

Title: State Minister

Title: _____

Date: _____



Appendix 6.1: The design of the Yayo COFCOP, a multi-complex facility consisting of two urea manufacturing plants, one DAP manufacturing plant and a coal-fired thermal power plant.



Appendix 6.2: Images from google earth to show the exact location of the mine and COFCOP site and their overlap with the forest area.

