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Understanding poverty-environment interactions: The Political Ecology of Smallholder Tobacco Production in Marondera District, Eastern Zimbabwe

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Department of Urban and Rural Development, Division of Rural Development
Master's Thesis • 30 HEC • Second cycle, A2E
Rural Development and Natural Resource Management – Master's Programme
Uppsala, Sweden 2016

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Credits: 30 HEC

Level: Second cycle, A2E

Course title: Master's thesis in Rural Development and Natural Resource Management

Course code: EX0777

Programme/Education: Rural Development and Natural Resource Management – Master's Programme

Place of publication: Uppsala, Sweden

Year of publication: 2016

Cover picture: Tobacco farming household members in the field, Zimbabwe (Musoma, 2016)

Maps and/or images: created by Richwell Tryson Musoma

Online publication: <http://stud.epsilon.slu.se>

Keywords: *poverty-environment interactions; environmental degradation; tobacco; political ecology; sustainable livelihoods.*

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ABSTRACT

Poverty and environmental degradation are among the severest challenges faced in the developing countries. Since the rise of the sustainable development paradigm, poverty came to be identified as one of the major causes of environmental degradation. However, there are many kinds of processes that can interact in varied ways between humans and the environment, making the poverty-environment interaction complex. In this context, the present study sought to examine if there was empirical evidence to support the poverty-environment hypothesis in smallholder tobacco production in Marondera district, Eastern Zimbabwe. The hypothesis premises that poverty encourages over-exploitation of the physical environment and this further impoverishes the environment (Scherr, 2000). The study was a qualitative case study which used household interviews, key informants and focus group discussions and secondary data. Using a sustainable livelihoods framework and drawing on political ecology, the study found that there was no significant connection between poverty and environmental degradation. Although tobacco is associated with environmentally damaging practices especially pollution through extensive agrochemicals use and land degradation through deforestation (cutting wood to cure tobacco leaves), these practices were found to be a function of household decisions and how the farmer perceives the tobacco management benefits (short-term benefits than long-term outcomes) rather than wealth. Although smallholder farmers were found to be the proximate agents/causes of the environmental degradation linked to tobacco, a chain of link analysis has shown a number of local and extra-local factors influencing this. The political ecology lens established that the environmental degradation in tobacco is more linked to political and economic factors. Policies that necessitated the growth of the tobacco industry among them the 'growth with equity' and ESAP in the 90s supported export-oriented agricultural production. Furthermore, the government of Zimbabwe's heavy dependence on tobacco (for almost 23% of its total exports and almost 10% of the national GDP) seems to have blocked serious considerations of environment concerns linked to tobacco production. The ultimate cause of the environmental degradation is therefore the international market for tobacco which creates demand at the local level rather than the poor farmers.

Key words: poverty-environment interactions; environmental degradation; tobacco; political ecology; sustainable livelihoods.

“In the end we will conserve only what we love; we will love only what we understand; and we will understand only what we are taught”. (Baba Dioum, 1968)

DEDICATION

This thesis is dedicated to my wife Warie, my best friends Tinokudzaishe and Tessie Rutendo. You more than any individual sacrificed and endured a long period without me. This thesis is as much yours as it is mine!

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my supervisor Dr. Patrik Oskarsson for his invaluable comments, constructive feedback and patience during the entire time of this thesis. I also greatly appreciate the collaboration of my research assistant Waraidzo Chikukwa. The fieldwork could have been hard without you. Lastly I thank all those who made this thesis a success especially the smallholder farmers and all the key informants.

Financial support for the master program was generously provided by The Swedish Government through the esteemed Swedish Institute Scholarship program.

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1. INTRODUCTION

1.1 Introduction

Environmental conditions and access to natural assets as well as environmental goods and services are firmly linked to livelihoods especially of those living in poverty (Carter et al, 2007). Yet, in spite of their basic significance, natural resources keep on being degraded at a disturbing rate (Hassan *et al.*, 2005). This is a cause for concern especially for rural Third World where a close connection between human wellbeing and the natural resources prevails. The connection is due to rural households' heavy reliance on biophysical assets for their livelihoods; food comes from the land, water from the ground and streams, fuel and fibre from forests, traction from oxen and fodder from pastures.

Since the rise of sustainable development paradigm, poverty came to be identified as one of the major causes of environmental degradation (Moseley, 2002), a concept that became prominent after publication of the 1987 Brundtland Commission Report (WCED), 'Our Common Future'. The Report asserts that rising poverty and unemployment increases pressure on environmental resources as more people are forced to rely more directly upon the environment. This therefore pointed out the poor as being the agents of environmental degradation. Furthermore, the famous Thomas Malthus had put forward another contentious hypothesis on the poverty-environment interaction. Malthus in the late 1700s, suggested that the rising population caused both poverty and environmental degradation (Usman, 2003). Malthus basically suggested that population will rise exponentially, while food production rise linearly. This ultimately was going to impact on food supply and lead to famines, poverty and ultimately negative effects on the environment.

These hypotheses led many researchers to study this topic to understand possible relationships between poverty conditions and environmental degradation (see, for example, Forsyth et al, 1998; and Eckbon and Bojo, 1999). Because of incidences of poverty being higher in rural areas coupled with their heavy reliance on environmental utilization for survival, these areas were considered environmental foes (Finco, 2009). Finco (2009: 533), states that;

“At this standpoint, the rural poverty condition, beyond the acceleration of natural resources degradation, could create a vicious circle situation, or a poverty-environment trap, i.e. a situation that perpetuates the poverty and environmental degradation”.

However, this assertion, which is now known as the ‘poverty-environment trap thesis’, is questioned by some authors. Reardon and Vosti (1995, cited in Finco, 2009: 534) see poverty conditions being characterized by many forms. They argue that poverty has many concepts. For example, a person can be considered poor in one aspect, say education level, but may not be poor in relation to income. They also argue that environmental degradation can be multidimensional. This further implies different linkages between poverty conditions and the environment. Nunan (2015) also sees the thesis’ portrayal lacking acknowledgement of other influencing factors especially the wider political and economic situation, which influence the connection. Furthermore, she suggests that the ‘vicious circle’ portrayal may lead to inappropriate policy responses that do not consider a wide range of ‘mediating factors’ (ibid: 8).

This being the case, this theoretical assumption and notion that poverty is both the cause and consequence of environmental degradation has undergone little empirical assessment at the local level (Moseley, 2001). Moseley (2001), argues that most research in the domain has been mainly concentrated on cross national comparisons. At local scales, the studies were often focused on the mainstream Malthusian inspired population-environment rather than poverty-environment interactions (ibid: 2).

The present study examines the prevailing wisdom of poverty-environment trap which asserts that poverty is a major cause of environmental degradation forming a vicious circle situation. This broad objective is pursued through an overarching question; that seeks to explore if there is empirical evidence to support the poverty-environment thesis in smallholder tobacco production in Marondera District, situated in the Eastern province of Zimbabwe. The question is further pursued through three specific research questions. It will try to capture the complexity of the relationship identifying a range of socio-economic and environmental variables with smallholder tobacco farming households as units of analysis using political ecology lens (Blaikie and Brookfield, 1987; Robbins, 2004; Stott and Sullivan, 2000) and livelihoods perspective (Ellis, 2000).

Political ecology examines the constantly shifting political dynamics between society and the environment. With its historical mode of analysis it is able to critique dominant narratives that explain environmental degradation (Stott and Sullivan, 2002). Particular attention is given to concerns of ecology and broadly defined political economy (Blaikie and Brookfield, 1987 cited in Robbins, 2002: 15), as well as issues of scale, space and the nature of capitalism and poverty-environment connections (Moseley, 2001). All the said issues are central to political ecology approach making it critical component to this study. On the other hand, livelihoods perspective

will complement political ecology approach. This will inspire the analysis of the combination of livelihood resources (assets/capital) that result in the farmers to follow tobacco as their livelihood strategy and its subsequent outcomes both in terms of their income and environmental sustainability.

1.2 Research questions

The overarching question is as follows;

- Is there empirical evidence to support poverty-environment thesis in smallholder tobacco production?

This question is further pursued by the following sub-questions;

- i. How are livelihood strategies constructed in relation to tobacco production, and what are the outcomes for the environment and for farmers?
- ii. What local and extra-local factors influence tobacco management/production approaches?

1.3 Justification of study

Agriculture accounts for most land use in developing countries and has a big influence on environmental quality. Again, it has remained the principal livelihood of the rural poor (Scherr, 2000). However, rural agricultural dynamics and income growth projected for the next decade pose serious challenge to achieve both environmental improvements and rural poverty reduction (ibid: 480). Many studies and policies assume poverty to be the major cause of environmental degradation forming a vicious cycle situation. This study examines this assumption in smallholder tobacco production in Eastern Zimbabwe and draws policy and research implications.

1.4 Organization of the study

This thesis is comprised of six chapters with *Chapter One* covered the introduction to the study, a historical analysis of access to the environment, adoption of tobacco and the land reform in Zimbabwe. It also lays the aim and research questions, as well as the justification of carrying out the study. *Chapter Two* presents concepts and theory underpinning the study, as well as review of literature regarding rural poverty and the environment. The chapter also presents the historical analysis on political, economic and environment in Zimbabwe and how these relates to issues surrounding tobacco production.

In *Chapter Three*, I present the research methodology, design and processes. This is also where the case study sites are presented, as well as their socio-economic characteristics. *Chapter Four* presents the research core findings (results) as informed by the household questionnaires,

key informant interviews and focus group discussions, as well as some official documents. Discussion of the results is done in *Chapter Five* and a link between results and research questions are analysed. Finally, the study concludes with *Chapter Six* which lays out the concluding remarks to the study as well as some policy recommendations that the research puts forward.

2. THEORETICAL AND CONCEPTUAL FRAMEWORK

2.1 Conventional interpretations on poverty and the environment

The long history of human-environment interactions dates back to the beginning of the 20th century when a concept of environmental determinism became popular among geographers (Moseley, 2001). The concept suggested that human behaviour was determined by the environment that was in a given area. This philosophy was however contested because of this questionable statement that argued that people's behaviour was strongly affected by nature. Environmental determinism was then followed by environmental possibilism notion, which stated that natural environments simply limited the range of choices available to a culture (ibid: 5). A shift from the two philosophies gave birth to environmentalism which emphasised on human-environment interactions and this was on how humans modify the environment. Moseley (2001: 7) argues that with this philosophy, "environmental problems were blamed on human ignorance, lack of technical expertise and excessive population growth", for example deforestation and desertification.

More recently, the discourse linked to sustainable development suggests a causal link between poverty and environmental degradation, where poverty is said to be a major cause of environmental degradation. This notion further asserts that the livelihoods of the poor are more vulnerable to effects of environmental degradation, and that the two relate as a vicious cycle. In supporting the notion that poverty is the cause of environmental degradation, The Brundtland Report (WCED, 1987, cited in Mosely, 2004:36), states that;

Those who are poor and hungry will often destroy their immediate environment in order to survive: they will cut down forests; their livestock will overgraze grasslands; they will overuse marginal lands; and in growing numbers they will crowd into congested cities. The cumulative effect of these changes is so far reaching as to make poverty itself a major global scourge

The World Bank (1996, cited in Moseley, 2001) also agrees with the above statement arguing that poorer households are more likely to degrade their environment due to lack of resources to invest in conservation and the pressure from shorter time horizons.

Lack of resources to invest stem from an idea that there is a cost that is incurred in preserving natural resources for example restoration of degraded environments say through afforestation programs or land reclamation, and the poorer are less able to meet these costs. Reardon and Vosti (1995: 1496) argues that “the poor may mine the soil through intensive cropping without accompanying investments in soil conservation”. The notion that the poor lack of resources to invest in environmental conservation prompted some scholars to contend that economic growth is prerequisite for sustainable natural resources use. This view on economic growth as the panacea for environmental conservation was also supported by the World Bank (1996: 17, cited in Moseley, 2001: 12) argues that “the prospect of strengthened economic growth in Africa presents a promise of greater resources available for environmental management...” One such chief economic growth promotion in Africa has been the facilitation of export-oriented cash crop production (Moseley, 2001). In Zimbabwe, one of such a crop has been tobacco which seen great success due to its support from the government and a wide range of institutions and policies.

The shorter time horizon explanation on why the poor are more likely to degrade the environments, stems from an idea that they are preoccupied with surviving at the present without thinking of tomorrow’s needs. This mainstream views poverty as that which leaves households with no choice but to extremely extract natural resources so that they can meet their basic needs today without considering the future. Those who are better-off (wealthier) are said to be able to consider and save for the future since their most basic needs are satisfied in the present.

The World Bank (1996, cited in Mosely, 2001: 15), further asserts that degradation of the environment reduces the productivity of the poor who mostly depend on them and this makes them more prone to extreme events. In this scenario, environmental degradation is seen to impact more the vulnerability¹ of the poor than those who are rich. One of the main reason the poor have been referred to as more vulnerable to environmental degradation than those who are better-off is the former’s high reliance on commons. This has also been supported by Scherr (2000: 481) who argues that in most regions, the poor depend more for their livelihoods on agricultural production and labour, and on common land, than do rural non-poor. According to Reardon and Vosti (1995), this greater reliance on livelihood activities based on commons has led researchers to blame the

¹ Vulnerability is “the exposure to contingencies and stress, and difficulty coping with them” Chambers (1989: 1).

poor for environmental degradation. Furthermore, the poor have less diversified livelihood strategies that are more connected to natural resources (Ellis, 2000).

The vicious cycle of poverty and environmental degradation posits that “poor people place increasing pressure on natural resource base – resulting from population growth, limited access to land or access only to marginal resources” Scherr, 2000: 481). The resulting environmental degradation then leads to more poverty and further environmental degradation.

2.2 Agriculture-environment-poverty connections: some mainstream views and their limitation

The connection between agricultural and the environment requires a detailed consideration so as to ensure long-term sustainability and to mitigate negative effects on the natural resources base (Scherr, 2000). A widely acknowledged approach in development literature recognises agricultural growth as a great strategy to benefit the poor especially the growth and stabilisation of staples production. Poverty is recognised as a constraint on agricultural growth due to poor people concentrating resources on lower-value food crops to ensure subsistence security (ibid: 481).

However, this presumed ‘economic growth’ have been contested by some authors. For example, Moseley (2001), argues that continuous economic growth and its associated high level of consumption is responsible for unsustainable environmental resources use. Other authors suggest that export orientation, rather than poverty, may be responsible for environmental degradation (ibid: 20). Cash crop production has been one of the major component of economic growth in Zimbabwe and negative environmental consequences of cash crops such as tobacco has been discussed by many researchers (e.g. Geist, 1999; Lecours *et al*, 2011; Manyanhaire and Kurangwa, 2014). It is estimated that between 2009 and 2010 in Zimbabwe, the impact of tobacco curing on wood resources was severe with an increase of 19% in hectarage of forest cleared (Manyanhaire and Kurangwa, 2014). The study estimated 0.6 hectares forest loss per each hectare of tobacco cured. The *Miombo* woodlands were cited as the major indigenous forest cleared due to their high energy value and ecological presence in tobacco growing regions of Zimbabwe that were studied (ibid: 1455). The wood clearance, exposes soil to agents of erosion thus leads to land degradation.

Moseley (2001), also argues that there is a large level of degradation occurring in rural developing countries that does not implicate the poor. He gives an example where, because of relatively higher level of capital investment associated with cash cropping, better-off farmers tend to be more involved in this agricultural economy sub-sector. For instance, tobacco farming

requires a large capital investment and usually the better-off are the ones who are able to finance such a venture. Therefore, the resultant degradation becomes an externality of the agriculture of the better off farmers, for example deforestation for tobacco curing and pollution from extensive use of agrochemicals. This is further supported by Reardon and Vosti (1995: 1504) who states that at this juncture “alleviating poverty will not reduce pollution from overuse of agricultural chemicals, the use of which increases with farmer wealth”.

The interaction between poverty and the environment requires resource specificity, as well as proper contextualisation in understanding it. The conventional view tends to describe poverty induced degradation in a generalized scenario occurring across all resources (Moseley, 2001). It should be recognised that the impact of humans on the environment may vary depending on the resource in question. For instance, the intensive agrochemicals that may result in pollution, or deforestation due to curing of tobacco can only be attributed to the better-off who have the financial capital required for this cash crop, i.e. if the poor do not get loans through contract farming. Another typical example where the rich may be responsible for degradation is in the degradation of pastures and common lands due to their tendency to have large cattle herds. Contrastingly, the poor may be responsible for soil degradation due to their lack of investment in soil conservation practices. However, Moseley (2001: 27), states that even when a single resources is studied, “the situation may be complicated by the fact that the rich and the poor often abuse or ameliorate the same type of resource in different manners”. For instance, the better-off may degrade the land through deforestation but ameliorate the same resource through afforestation. In the same way, the poor may cut down trees (deforestation), but also plant small areas of tobacco. According to Mosely (2001), all these factors suggest that specific resources under study and the type of management strategies examined may impact on the conclusion pertaining poverty-environment connections.

2.2.1 Conceptualizing rural poverty

It has been recognised that the definition and conceptualization of poverty has an influence on understanding poverty and environmental degradation (Gray and Moseley, 2005, Moseley, 2001). Since the 1980s in development research, there has been a shift away from economic contextualization of poverty to viewing it as multi-dimensional and complex (Nunan, 2015). This monetary wealth and income conception is often limited in rural Africa where most of the production and the resultant transfers happen outside formal economy. Moseley (2001), states that rural wealth is often reflected in number of cattle that a household owns, the agricultural implements, labour resources, access to land, as well as the household’s ability to produce food.

A concept of capabilities developed by Amartya Sen that became part of the shift to understand poverty, challenging the use of economic indicators in poverty will be used in this study. The concept seeks on exploring on people's capabilities (Nunan, 2015). Furthermore, Amartya Sen's concept of food entitlement is also considered in this study i.e. "a person's legitimate claims to available resources that can be converted to food (crops, land, cash, and social relations)" (Ellis, 2000: 77; Gray and Moseley, 2005: 11). Lack of these entitlements causes poverty and different entitlements on the environment results in different environmental and equity outcomes. Reardon and Vosti (1995), conceptualised poverty as lack of assets (human, social, natural, physical and financial capital). However, in the conceptualization of poverty, external or non-place-based forces that acts on local communities should also be considered. They require historically and geographically specificity that can better be explained through examination of the socio-political forces and the political economy of Zimbabwe. External forces play a powerful role in influencing access to environmental resources, their use as well as measures that can be put in place for their conservation (Bell and Roberts, 1991).

Nevertheless, the definition of wealthy by the study participants will also help form the basis of conceptualising poverty for this study in conjunction with the above factors. Participants in this study defined wealthy in terms of the number of livestock one had (especially cattle), material the house is built of (pole and mud, brick, thatch roof, tin/asbestos), farming implements (ploughs, cultivators and knap-sack sprayers) and availability of agricultural labour.

2.3 Political ecology of tobacco

Given the limitations of the mainstream views of poverty and environment on issues such as scale, space and nature of capitalism and poverty in relation to environment in the previous section, the study will partly use political ecology as an analytical approach.

Political ecology is a sub-division of geography that came out from cultural ecology (Moseley, 2001). Blaikie and Brookfield (1987, cited in Robbins, 2012:15) defines political ecology as a concept which "combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic classes and groups within society itself". With this definition, the authors' goal was to describe environmental change in terms of constrained production choices within global political economic forces in developing countries and in rural context (ibid). Stott and Sullivan, (2000:2), have argued that; "political ecology with its deeply historical mode of analysis, is able to inform on the genealogy of narratives concerning the environment, identifying power relationships supported by such narratives.

The connection between poverty and environment is however complex and context specific (Nunan, 2015; Robbins, 2012; Moseley, 2001). However, political ecologists have often distinguished between proximate and ultimate causes of the environmental degradation (e.g. Bryant and Bailey, 1997; Bryant, 1998, cited in Moseley, 2001: 36). In the context of smallholder tobacco and its associated deforestation, the proximate cause may be the farmer cutting wood to their tobacco leaves which he sells to a contracting company or at the auction floors. The contracting company if local, will in turn sell the unprocessed tobacco to an international company (usually MTCs). Therefore, in this case the ultimate cause of this deforestation is the international market for tobacco that creates the demand at the local level. Often, this international market may be supported by certain set of capitalistic relationships and government policies.

The ultimate cause of environmental degradation are linked to structural inequalities that can be found both at local and global level of environment change (Moseley, 2001). Watts (2000, cited in Moseley, 2001: 37), argues that social relations of production and exchange are central to understanding land use decisions, as well as in answering questions such as why, and for whom environmental change is a problem. Hu and Lee (2015) in their Public Health Policy paper on ‘Tobacco Control and Tobacco Farming in African Countries’, reports asymmetric relationships between farmers (seller) and buyers of tobacco leaf. They give two examples related to structural conditions that create power imbalances when small farmers sell their tobacco under contract or auction system. Under the contract system, the farmer sells to tobacco leaf companies (contractors), who provide them with loans for inputs and often decides on the tobacco grades and then set prices.

“Tobacco farmers are often trapped in a vicious cycle of poverty and indebtedness. After paying their loans, farmers’ income is often in the negative, when they factor in their labor costs and those of their family members”. (Hu and Lee, 2015: 43)

Such unfavourable terms of trade, squeeze the poor, who in turn over-exploit their environment (Moseley, 2001). “As such, the rich, and their economic system are ultimately responsible for environmental degradation” (ibid: 37).

Under auction system, the supposed advantages that the farmers should get when buyers bid against each other disappear usually due to limited competition. This is the case with the Zimbabwean 2014 tobacco selling period. According to the Tobacco Industry and Marketing Board (TIMB), a quasi-privatised parastatal, only “three auction floors were once again licenced to operate” (TIMB, 2014: iv). Almost a quarter of the 216.2 million kilograms of tobacco that was sold in 2014 went through auction system (ibid: iv). This structural condition is also echoed

by Hu and Le (2015: 43) who asserts that “governments often issue licences to a limited number of buyers at auction markets”. As in the case with contract system, buyers under auction system also grade the leaves, making the farmers price takers, thus showing an imbalance of power in tobacco trade.

2.4 Rural livelihoods and the environment

A livelihood perspective recognizes the diversity of survival strategies that rural people use and that these economic activities are interconnected to social linkages such as kinship (Nunan, 2015). Tobacco farming is one of the important livelihood activities for the rural people in Marondera district. Therefore, understanding the connection between poverty and environmental degradation in smallholder tobacco farmers requires knowledge of their wider livelihood context. A ‘livelihood comprises the asset (natural, physical, human, financial and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by individual or household’ (Ellis, 2000:10). A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capability and assets, while not degrading the resources base” (Chambers and Conway, 1992).

In the context of smallholder tobacco production in Marondera district, a livelihoods approach will be used to understand the combination of livelihood resources (assets/capital) that result in the farmers to follow tobacco as their livelihood strategy and its subsequent outcomes both in terms of their income and environmental sustainability. To enable an in-depth analysis of the socio-political forces that influence poverty and land degradation, the research will not use the whole livelihood framework (Nunan, 2015). The sustainable livelihoods framework can be used to have a holistic understanding of a household or individual’s livelihood strategies and their outcomes. The framework is a tool that can be used to understand how household livelihood systems interact with the outside environment which may be natural or policy and institutional (FAO, 2005). It is usually the case that there are internal and external forces that acts upon the smallholder farmers in their decision making to follow a certain livelihood strategy and the framework offers effective tool for the contextual analysis of these factors.

There are five concepts that are crucial for the understanding of the linkages within the framework i.e. the vulnerability context, livelihood assets, institutions, livelihood strategies and livelihood outcomes.

Vulnerability context refers to unpredictable events that can weaken livelihoods and cause households to fall into poverty (FAO, 2005). This frames the external environment (trends, shocks and seasonality) in which households exist for example natural disasters, changes in

economy/markets, trends in governance (including politics) and population. According to Moseley (2001: 30), “environmental change may not necessarily enhance the vulnerability of the poor more than that of the rich”. Instead, he points out that the risk associated with environmental degradation may push the poor to limit, or manage risk more than those who are better-off. Reardon and Vosti (1995), argues that the poor are more able to diversify into non-agricultural activities than the wealthier households. This then means that they become less vulnerable to land degradation and their less dependence on land means their little opportunity to impact the land.

Livelihood assets are linked resource base that are endowed to a household and can be human, natural, financial, physical and social. Human capital represents skills, knowledge and ability to labour and good health that together enable people to pursue different livelihood strategies. At household level, the human capital can be considered to be the amount and quality of labour available (DFID, 2001). Natural capital are natural resources useful for livelihoods. These includes land, forests and water. The financial resources used to achieve a livelihood objective forms the *financial capital*. Basic infrastructure and producer goods required to support livelihoods are part of the physical capital for example ploughs and barns required to cure tobacco. Lastly, the *social capital* include kin networks, socio-political voice and influence (FAO, 2005). The household assets are influenced by the vulnerability context as well as policy and institutional context.

Policy and institutions refers to man-made external factors that influence the choice of livelihood alternatives open to different categories of people. These also influence access to assets and vulnerability to shocks (FAO, 2005). **Livelihood strategies** are “the range and combination of activities and choices that people make in order to achieve livelihood goals” (ibid: 4). Households adapt livelihood strategies over time in response to changing environmental and economic conditions. Chikukwa (2014), argues that smallholder farmers took tobacco as a livelihood strategy in response to the collapse of maize marketing system as well as the economic environment that opened up good prospects for the cash crop. The fifth concept is **livelihood outcomes** which are what households achieve through their livelihood strategies such as food security, health and environmental sustainability. Negative outcomes may include food and income insecurity as well as loss of assets.

In the context of smallholder tobacco farmers the combination of livelihood resources (different capitals/assets) result in their ability to follow a livelihood strategy which in turn has different outcomes (Scoones, 1998:3 cited in Nunan, 2015: 111). Tobacco production with other

livelihood strategies for example livestock, remittances and access to common pool resources make up their livelihood portfolio. Marondera district smallholder farmers take different pathways usually with seasonal variations and these change over time. For instance, before the land reform when most farmers were using marginal lands with poor agronomic characteristics, subsistence farming, off-farm activities (exchange of labour on other farms) and non-farm activities were their main activities for obtaining livelihoods. Nunan (2015) argues that the strategies chosen are strongly linked with assets and structure and processes (policy and institutions) that influence options available for these rural farmers. Nunan further states that livelihood strategies adopted by households or individuals may be through necessity rather than choice. For many Zimbabwean farmers, tobacco production is through necessity as the traditional crops are not profitable to them anymore (Chikukwa, 2014).

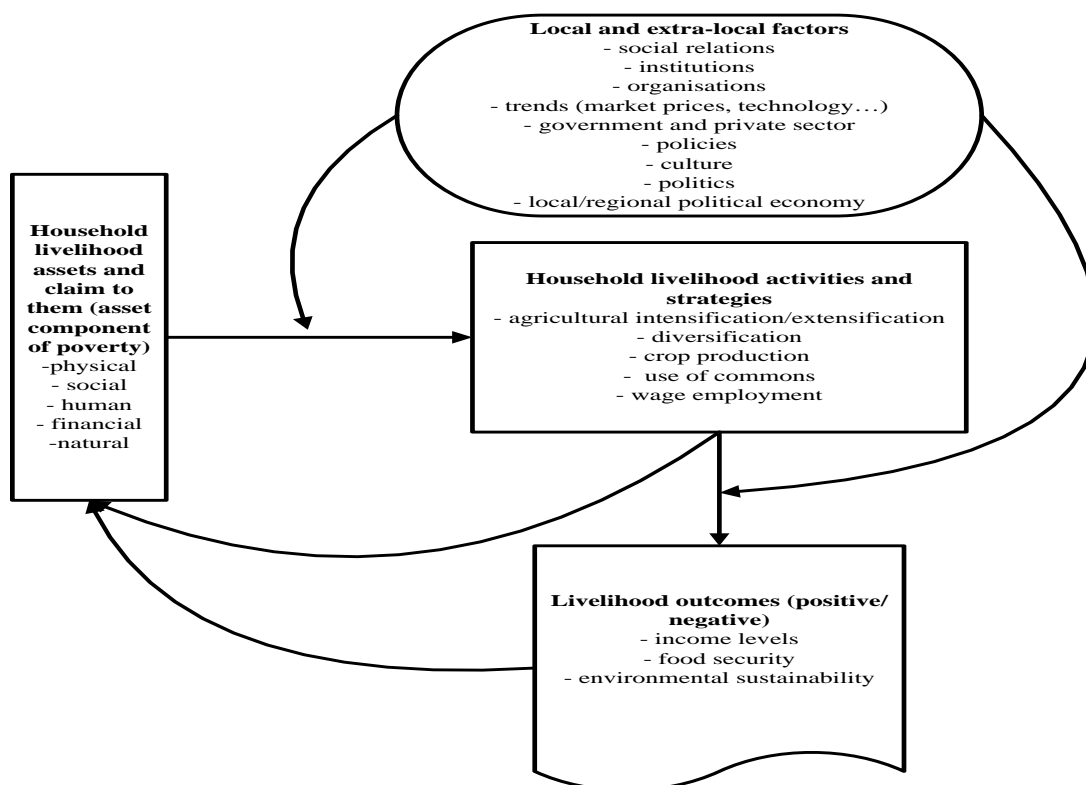
Successively, livelihood strategies that are followed by farmers have implications for livelihood outcomes. In this case of poverty – environment links, wellbeing (or income) and a more sustainable use of natural resources base have to be understood. In a study on degradation and societal crisis linked to tobacco production in Malawi, Kotsila and Turhan (nd), state some striking facts. In 2005, the country was the 7th largest exporter of tobacco in the world and this accounted for almost 70% of its foreign earnings. However it was 14th on the world's poorest with some of the globe's lowest human development indicators – 65% of population living below poverty line. This may reflect that although tobacco is being the major export, it is not contributing much to the national human development. Poverty among tobacco farmers have also been cited as being caused by debt traps as farmers are in due to contract farming and poor tobacco quality (Chikukwa, 2014).

Above this, it is estimated that between 2009 and 2010 the impact of tobacco curing on wood resources was so severe with an increase of 19% in hectareage of forest cleared (Manyanhaire and Kurangwa, 2014). The study estimated 0.6 hectares forest loss per each hectare of tobacco cured. *Miombo* woodlands were the major indigenous forest cleared due to their high energy value and ecological presence in tobacco growing regions of Zimbabwe that were studied (ibid: 1455). The wood clearance, exposes soil to agents of erosion thus degrades land. The livelihood outcome from such a practice is therefore unsustainable to natural resource base. Studies conducted in Kenya have also pointed to ecosystem disruptions caused by tobacco production (Kibwage, 2009:25 cited in Lecours *et al*, 2011: 193). Among the environmental degradation documented in Kenya are, felling of trees for curing, soil erosion, transformation of perennial streams to seasonal streams and water pollution from agrochemicals used in tobacco production.

2.5 Conceptual framework

The conceptual framework (Figure 2.1) considers the research questions (see section 1.6) within political ecology and sustainable rural livelihoods perspectives. Poverty is conceptualised to be a function of household livelihood asset component and the household's claim to the assets. Assets considered are natural resources, social, physical, financial and human capitals. It is conceptualised that asset endowment of a household determine their decisions and behaviours in terms of livelihood activities and strategies selected. The household, as well as the local community's activities and strategies in turn influence and determine the asset components of poverty. The livelihood outcomes of strategies adopted feedback to determine the assets component of poverty. Local and extra-local forces governs the connection that is found between assets and household activities and strategies, and as well as the connection between household strategies and livelihood outcomes. The local and extra-local forces (local and regional political economy) together determine how humans interact with the environment for example; policies, property regimes, local and regional political economy, vulnerability and culture.

Fig 2.1: Conceptual framework on poverty and environment relationships



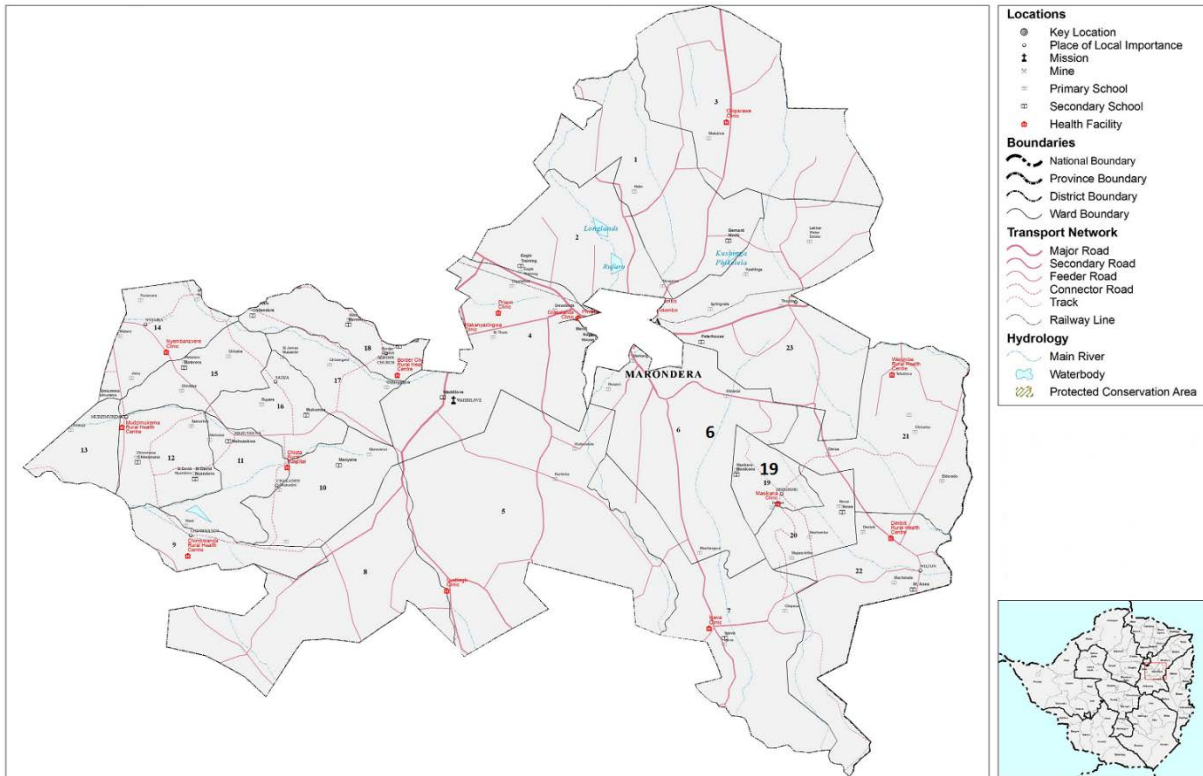
3. RESEARCH METHODS AND STUDY AREA

3.1 Research area

Tobacco production in Zimbabwe is mainly in the central, northern and north-eastern parts of the country. These areas receive relatively high rainfall (at least 1000mm/year) and also have high relative humidity that is good for tobacco production. The research area was in Marondera district which is in the north-eastern part of Zimbabwe under Mashonaland East province. This was an attractive area for this kind of research because it contains both subsistence farmers and households who are connected to the larger global market economy through cash crops, especially tobacco. This mixture of farmers allows a more nuanced understanding of how households interact with natural resources base (Moseley, 2001). Furthermore, I have experience working in this area as a government official in the agricultural development sector. This provided an advantage for the study since much of the wider ecological, socio-economic, as well as cultural dynamics of the area were already known by the researcher.

Figure 3.1 below is the map illustrating Marondera district's 23 Wards. The present study was carried out in two Wards which are Ward 6 and Ward 19. Ward 6 has a total population of 7682 and 1993 households which has an average household size of 3.9 (ZIMSTAT, 2012). The area has A1 farmers (after the Fast Track Land Reform Program) who are individual households with at least 6 hectares of arable land, a designated homestead in a village and a common grazing land for livestock (ZIMSTAT, 2011). Ward 19 is under Svosve Communal Lands (formerly Tribal Trust Lands during colonial era) where the land reform initially started from in 2000. According to the 2012 National Census, it has a population of 3073 people with 783 households. Its average household size is 3.9 people per household (ZIMSTAT, 2012). Most of the farmers in Ward 19 live in villages and have private areas for cropping but common grazing lands. They are much into subsistence agriculture but are also engaging in cash cropping with tobacco being the most significant cash crop. Their land size average 2.1 hectares. The percentage distribution of population in Marondera by urban to rural is 13.5 to 86.5 respectively (ZIMSTAT, 2012).

Figure 3.1: Map showing Marondera Rural by Wards and the study sites



3.2 Methodology and research strategy

The plan and procedures that guided this study (research approach) was chosen based on philosophical assumptions that the researcher held, procedures of inquiry (research design) and research methods (Creswell, 2014). I adopted a *constructivist perspective* with the belief “that human beings construct meanings as they engage with the world they are interpreting” (ibid: 8). Studying these various meanings will lead to understanding complex viewpoints not narrow meanings that are attached to the problem. This understanding cannot be possible with a postpositivist worldview that is based on observation and measurement of objective reality that exists “out there” in the world. Of further importance was the contested history of land holdings in which the colonial legacy looms large over present day settlements as is evident from the FTLP process and related political turmoil. The research therefore had to stay neutral in its political perspective in the field.

The study had a flexible and epistemological instability orientation Bryman (2008). This means that the study was flexible and open to changes in its objectives, research questions as well

as the methods throughout the research process. This was guided by the experiences in the field. Flexibility has an advantage because it “enhance the opportunity of genuinely revealing the perspectives of the peoples you are studying” (ibid: 389).

A case-study approach using qualitative research was used. Qualitative epistemology recognizes the importance of locating the research within a particular social, cultural and historical context (Silverman, 2014). In the present study, the context was that the farmers are smallholder tobacco producers who started growing the cash crop after the land reform program in 2000. Qualitative research was used in the present study as it allows seeking of information using verbal description of real-life situations (ibid). With this type of research methodology, interpretation of processes and meaning was possible using theoretically based concepts.

Because qualitative research methodology recognizes placing a particular real-life context, a qualitative case study suited well for this study which sought to understand the relationship between poverty and environmental degradation. According to Yin (2009), a case study method is a preferred method when ‘how’ or ‘why’ questions are posed, where the researcher has little control over events and the focus is on a contemporary phenomenon within a real-life context. It also allows for an in-depth analysis of the case and then be able to situate the case within a wider theoretical discussion. However, the case study method has widely been criticised for providing little means for scientific generalisations (Yin, 2009). Furthermore, critics have pointed out to its loyalty to specific research outcomes. According to Yin (2009), this allows biased views to infiltrate data collection and findings. However, my constructivist perspective finds researcher objectivity applicable in all aspects of research designs. Again, the constructivist approach allowed me to be conscious of my pre-defined assumptions regarding the present study than having a *positivism* approach (Silverman, 2014).

The study used of Participatory Rural Appraisal (PRA) techniques and household interview survey in Ward 6 and 19 of Marondera District in Eastern Zimbabwe. Semi-structured interviews were employed with a mixture of both closed and open-ended questions to 30 heads of households involved in tobacco production i.e. 15 households per ward. For this study, a household was defined as “composed of a group of people living in the same dwelling space who eat meals together and have at least one common plot together or one-income generating activity together (for example, herding, livestock, business, or fishing) and acknowledge the authority of a man or woman who is the head of household” (Beaman and Dillon, 2012: 128). A stratified random selection was done taking into consideration proportions of three wealth classes (better-off, poor and very poor).

These class rankings were established through participatory social mapping with focus groups selected from each ward. As a way to establish the use, distribution and state of natural resources and land use in the two wards, a transect walk was used. Furthermore, data was gathered from face-face interviews with key informants who had access to information on tobacco production and environment degradation in the two wards. The key informants were; Village Heads (gatekeepers), an Extension Worker for the areas, District Extension Officer, Tobacco Contract-Farming Company Representative, Tobacco Industry Management Board Officer and the Environment Management Agency Officer.

Document analysis was also used to support the data collected through the methods mentioned in the previous paragraph. This kind of data allowed the research to capture and understand influences occurring at higher scales for example governmental policies as well as market conditions. These documents include published journals, books, organization data and web-based materials. Importance was put on official documents and reports from the government, environment and tobacco organizations. For a further triangulation, participant observations were carried out to understand what the farmers are practicing in reality and to have an insight into their local indigenous knowledge, behaviour and motives and how these affect their farming practices (Yin, 2009).

3.3 Participants in the study

Central to this study was the term smallholder tobacco farmer. It is therefore vital to give clarity on what is meant by these terms in this thesis. Smallholder in this study was used to “describe a wide range of rural producers with the common denominator that they have comparatively small land holdings” (Jacobson, 2013). However, this definition obscures other factors that may be important in considering the organisation of farming, for example quality of land, access to credit, market or labour (ibid: 48). This is also supported by ETI (2005) that argues that the definition of smallholder varies according to crop, social, cultural, economic and political context. In the present study, smallholder farmers were defined by land size that they have and their relatively low production volumes. The agricultural organization in Zimbabwe recognise A1 farmers as those with an average of 6 hectares of land while communal farmers have an average of 2.1 hectares (ZIMSTAT, 2011). The study therefore recognised both A1 and communal farmers as smallholder farmers because they have relatively small land area than other agriculture land holding categories.

A household was the basic unit of analysis in this study. It is a usually used in livelihoods research as the smallest unit of analysis, “composed of a group of people living in the same

dwelling space who eat meals together and have at least one common plot together or one-income generating activity together (for example, herding, livestock, business, or fishing) and acknowledge the authority of a man or woman who is the head of household” (Beaman and Dillon, 2012: 128). The fieldwork interviewed 30 household heads from 15 households in each ward (i.e. 15 A1 scheme farmers and 15 communal farmers) and carried out two focus group discussions in the two case study areas (Ward 6 and 19).

3.4 Data collection, processing and analysis

The fieldwork started in February and took three months. Data collected through household interviews was recorded through writing, and where possible aided by recordings i.e. only with permission from participants. As argued by Yin (2009), a single case like this calls for intensive data collection at the same site and requires a “team” of investigators. As such, I engaged a research assistant who helped in the collection of data. The assistant was trained before the field work so as to acquaint them with the scope of the research. Typically, I trained them on all the research study’s phases including theoretical concepts that were underpinning the study as well as the case study methods that were to be employed.

After collecting the data, I reflected upon it and related it to the study’s research questions. This raw data was reviewed under many interpretations searching for patterns in it (Stake, 1995). As argued by Yin (2009: 126), the “data analysis consists of examining, categorising, tabulating, testing, or otherwise recombining evidence to draw empirically based conclusions”. The ideographic details was related to the theoretical concepts that underpinned the study. In other words, the analysis was guided by the theoretical concepts. Presentation and tentative conclusions were drawn according to issues or themes found in the gathered data.

The sub-sections below explain how the overarching question was dealt with as well as other sub-questions that emanated from the main question.

3.4.1 Is there empirical evidence to support poverty-environment thesis in tobacco production?

In order to examine the claim that poor households are responsible for environmental degradation, the research focused on tobacco production/management practices that the farmers were engaged in. Emphasis was put on the type of fuel that different farmers of different wealth classes were using i.e. the better-off, poor and very poor. Agronomic practices for each respective group, informed the relationship that is between the environment and humans (e.g., crop rotations, use of agrochemicals...). Amount of livestock and farming implements informed the extent to which a household is able to cultivate, the wealth status as well as possible impact on

the environment, for example households with relatively many cattle were the ones most responsible for overgrazing and agriculture land intensification.

I emphasised on deforestation as it is frequently linked to be one of the major cause of land degradation, with tobacco curing being the main cause of the deforestation (EMA, 2014; Forestry Commission of Zimbabwe, 2016). Other aspects that were considered were the household demography, land tenure and land holding size. Data collection used semi-structured and structured questions, focus group discussions, key informant interviews and gray literature (research reports, policy papers, internet, government documents...), and analysed using simple descriptive statistics (percentages) to describe the wealth, agriculture management.

3.4.2 How are livelihood strategies constructed in relation to tobacco production, and what are the outcomes?

To understand how decisions to adopt a strategy or an activity were taken, the study focused on asking questions regarding to both factors that are internal and external to a household. Farmers were asked what influenced their livelihood strategies at household level, local level and national level. The linkages between farmers and the wider global market was understood through key informant interviews as well as gray literature. In doing so, the study managed to establish potential 'chain of explanations' on how livelihood strategies were constructed. The resulting outcomes from selected strategies were examined focusing on income, food security and environmental impacts (establishing if the outcomes are positive or negative).

3.4.3 Understanding the political ecology of tobacco production

The last research questions was be dealt with using political ecology as an analytical approach. This was; *What local and extra-local factors influence tobacco management/production approaches?*

In seeking to understand local and extra-local factors that may be at play, I reviewed local practice for potential links to external factors such as policies and incentives. A chain link analysis was used to understand the connections between policies, structures and the wider political-economic process. Historical analysis was also used to understand human-environment connections and what influenced the relationships. Data was collected which sought to understand why farmers were taking tobacco as a livelihood strategy, their management and effects on the livelihoods outcomes. Documents (grey literature) were used as secondary data to understand the political-economic processes operating at broader spatial scales.

3.5 Scope and Delimitations

The present study did not conduct an in-depth analysis of all environmental degradation issues associated with smallholder tobacco production but mainly focused on poverty and its assumed relation to deforestation (wood resources) in smallholder tobacco production. This was because taking a broader view of environmental degradation involves working with many aspects for example pollution, land and water resources which requires a great deal of time, and some technical and scientific considerations. Furthermore, there are narratives that are pointing to tobacco as the main cause of deforestation and linking it to recurrent poverty in smallholder farmers especially those in contract farming.

3.6 Research Ethics

The issue of land is a bitterly contested political issue in Zimbabwe and my fieldwork has to remain sensitive to this. This was not only the case with households who are farming as in this case study but also with key informants who were not only individuals but also representatives from various organizations for example the government and local authorities. Some appointments for discussions and interviews were postponed or moved indefinitely. Furthermore, there was a tendency of expecting some “token of appreciation” either in cash or kind for one to be interviewed and share information.

For these matters, the researcher ensured that there was assurance of confidentiality. Names and other details that can identify a participant were not captured in the present study. Every participant was informed about the objectives of the study and how it may contribute to agriculture knowledge in the country. Furthermore, their consent was sought on carrying out the interviews, recordings as well as taking of photos. The research did not have funding to cover up for some expected token of appreciation and this became a challenge in obtaining data in the field. However, since the researcher has worked with the farmers in the areas of the case study for over four years, there was active participation by the farmers who took part in the interviews. Engaging an extension officer for the area as a field assistant helped mask the above challenges due to their knowledge of the area, the local administration and the whole community at large. Extension officers are usually trusted government officials in rural communities and agricultural settings of Zimbabwe and this added-up to ease access to the smallholder farmers and to the study data collection.

4. RURAL POVERTY AND THE ENVIRONMENT IN TOBACCO

4.1 Livelihood asset endowment

In order to examine potential variations in environmental management as a function of household wealth, farming households were grouped into three categories (very poor, poor and better-off). These three categories or classes of wealth were used in examining the impact of farmers on environmental degradation and in turn how this environmental change impacted households' vulnerability. Household wealth was based on the asset endowment of interviewed farmers as informed by both individual interviews and focus group social mapping. The wealth status of the study areas was mainly based on household livestock (especially cattle) and other physical assets like farming implements and the type of houses. In the social mapping, landholding (land size) was not considered by the farmers as something that contributed to wealth ranking.

The average of household respondents (household heads) in was 44 years. It was found that very poor households had a relatively high dependence rate of 7 people as compares to those who were poor who had a dependence rate of almost 5 people. The number was almost the same with those who were better-off who also had almost 6 people. However, it was observed that very poor households had a lot of dependents as children who were under the age of 12 years as compared to the other two classes who had many dependents above the age of 18 years.

In all other assets (cattle and other physical assets), the trend showed an increase from those who were very poor to those who were better-off. An exception was on small livestock where those who were considered to be very poor had a high number of goats and chickens than those in the intermediate class (poor households). The land size that was allocated to tobacco and food crop production also showed an increasing trend with wealth class. Almost 92% farmers interviewed stated that they owned the land, with 6.2% stating that they were leasing land. When asked on land tenure status, 1.8% declared that they did not own the land since the tenure system was not clear if they owned the land or if it still remained government property. One 'A1' farmer echoed these sentiments saying;

"I do not own this land since I only have an offer letter that does not state the tenure period. The government owns this land and can take it and resettle anyone at any time"

Almost all the farmers in Ward 19 were settled in the area for many years with others reporting to have been there since 1980. This was not the same with Ward 6 which have the majority being

settled there for up to 15 years. Up to 90% of the smallholder farmers in Ward 6 were settled in the area between 2000 and 2001 when the FTLRP started.

4.2 Livelihood activities and strategies

All farmers interviewed were involved in agriculture as their main livelihood and income strategy. In all wealth classes, tobacco was the main cash crop cultivated under dryland together with maize and in some cases groundnuts, cowpeas and sorghum. However, on average, those who were very poor cultivated a relatively small size of tobacco as compared to the other two classes. The very poor on average dedicated only 0.4 ha to tobacco whilst the intermediate class gave an average of 1.2 ha and the better-off used an average of 2.1 ha for tobacco. It was found however that the two former classes (very poor and poor), allocated a relevant big piece of their total cultivated land to food crops such as maize and cowpeas that they did with the cash crop tobacco. This was different with those who were better-off who had much of their cultivated land under tobacco than any other crop. The research established that the main cause of this trend was because of the cost of inputs associated with tobacco production as well as different farmer choices.

All very poor farmers, commented that they were involved in off-farm activities to a larger extent than on-farm activities. They provide wage or exchange labour to the other two wealth classes within their communities and also in some large scale commercial farms that are found near their communities. Besides basing their livelihoods mainly of agriculture, 50% of those in the intermediate class confirmed that they were also involved in off-farm activities with exchange of labour to other farmers, especially those who were better-off within their community. They are however also involved in exchanging labour for food and other things like clothing. 27% of this class, also commented that they were involved in obtaining income from their local environmental resources chief among them, firewood and mushroom. These are sold to urban areas that surround their rural communities. Concerning non-farm income sources, half of those who were very poor, receive remittances from their relatives (especially grandchildren and children) who are staying in urban areas. Almost 33% of those who are poor also get urban to rural remittances from their husbands who work in the city.

4.2.1 Decision making on livelihood strategies to follow

The research established that all households had almost the same reasons for choices they were making when engaging in livelihood activities and strategies. Chief among them was the need to survive. They confirmed that all the strategies they were taking were those that they

thought were best for them to earn a living. Asset endowment also is another factor the households considered when choosing livelihood strategies. For example, the very poor and poor farmers commented that they were allocating small pieces of their cropping land to tobacco rather than food crops due to the former demanding a lot of inputs (financial, labour...) compared to the food crops they were growing. The high input required for tobacco meant that those who did not have enough financial capital to purchase agrochemicals and to pay for its higher demand for labour would opt for something with relatively reasonable requirements like maize or sorghum. Credits through contract farming helped some of the tobacco farmers who were in the poor category as well as those who were better-off to grow tobacco.

Another household factor that was found to be influencing the livelihood strategies taken by the farmers was the household internal power relationships. It was established that in almost 67% of all households where men were household heads, the decision to grow tobacco came from men. Tobacco was considered to be a 'man's crop' in these households and men would determine the size of land to be allocated to tobacco for each successive cropping season, gather required inputs (especially negotiating a contract) as well as organise the marketing. Food crops were said to be 'women's crops'. This was also nearly the same with those who had livestock. Cattle were more considered to be men's assets or the household assets whilst small livestock were women's responsibility. However, almost 75% of the farmers commented that in most cases they opt for an activity or household strategy due to necessity rather than choice. In this case, most farmers cited opting for tobacco because it was the only crop offering a well-structured marketing system as well as the only crop which was offering ready cash as compared to other crops they may need to grow like maize.

4.3 Tobacco management/production practices and the environment

From a conservation farming perspective, the ideal tobacco farming will be that which encourages minimum use of agrochemicals, conserve the soil and make use of sustainable fuel sources for curing purposes. In terms of soil management, organic inputs are recommended as well as other management practices like crop rotation, intercropping and fallowing.

4.3.1 Agrochemicals and tobacco

All farmers showed knowledge on agrochemicals' benefits in tobacco production in terms of having an inorganic nutrient provision from fertilizers and control of pests and weeds from pesticides and herbicides. However, they also know that there are a host of problems associated with them especially health risks and pollution. All farmers agreed to be using agrochemicals in

their agriculture though tobacco having the most use. However, there was a difference in the extent (or amounts) of use by each wealth class and as well between contracted and non-contracted farmers.

Firstly, poor farmers reported that if not on contract, they use little agrochemicals because they are expensive and it will be unaffordable for them to buy all of the required agrochemicals. Compared to other crops, farmers commented that tobacco is an input intense crop compared to any other crop they grow. According to an Agritex officer, the costs of inputs required for a hectare of tobacco was almost three times that of maize. This showed why it was nearly impossible for the lower wealth classes to grow tobacco without external support of inputs given on contract system. For households under contract system, all inputs are provided. However, according to a key informant from a contracting company called Shasha Tobacco Company, many poor farmers who were under contract system of tobacco production were not using all the given and recommended agrochemicals. He commented that because the farmers needed to meet their immediate household daily needs like food, they were resorting to selling the agrochemicals at a 'give away' price. This left them with little or no agrochemicals for the contracted tobacco hence obtaining poor harvests and low incomes from tobacco.

On average, agrochemical use has shown to increase with the wealth status of a household though there is generally a high use of agro-chemicals going on with smallholder tobacco production.

4.3.2 Integrity and management of forests

While many agronomic and economic factors being important, availability of wood resources was cited by farmers to be an important consideration to choosing tobacco as a crop to grow. In ward 19 there are few tobacco farmers as compared to those in ward 6 for this reason. According to a focus group discussion in ward 19, this was partly due to a relatively low wood resources found in the area. A transact walk with the focus group in both research areas confirmed the same observation that wood resources were few in ward 19 that in ward 6. The two focus groups commented that of all the tobacco production in the areas, wood cut from the community forests that were publicly accessible to any household was the source of fuel to cure tobacco leaves. However, a key informant in ward 6 asserted that the area was using forest resources following the set community regulations which required one to inform and get permission from the village committee first whenever 'green' wood was to be cut especially for tobacco curing and building since these two required a substantial amount of wood. He further commented that such regulations were not enforced when one was using forest in his/her own land. Additional to that,

he commented that regulations from Environment Management Agency (EMA) and Forestry Commission were being observed in his area.

This was not the same with ward 6 where a key informant said there were no community regulations on accessing wood resources. However, he agreed that the community was aware of the regulations set by the Forestry Commission and EMA with regards to wood resources although the institutions were 'not present' to enforce the regulations. All farmers agreed that they also knew about the regulations that were in place as well as initiatives by Tobacco Research Board (TRB) and a grower's association called Sustainable Afforestation Association (SAA) that is encouraging farmers to plant fast growing Eucalyptus/gum trees for use as a fuel for curing tobacco.

According to farmers' responses, 86% of the tobacco farmers are using wood cut from common forests as their only source of fuel to cure tobacco leaves. Those using either charcoal or wood as their fuel energy, accounted for 11.7% of the respondents, with only 2.3% saying that they are using Eucalyptus trees that they either buy from neighbouring farms or obtain from their established household plantations. However, the research observed that in both areas, all the plantations established by the farmers were new and the trees still too small to provide them with required wood. This shows that those who responded as getting wood from their own plantations were not giving honest responses.

Because the fieldwork could not establish the link between wealth status and the amount of wood resources used by tobacco farmers, estimates were established using approximate yields of the farmers and their average size of land under tobacco. Using the average land size of land under tobacco for each wealth category (i.e. 0.45 ha for very poor, 1.2 ha for poor and 2.8 ha for better-off farmers), the households required 18.5m³, 44.4m³ and 103.6m³ of wood respectively each growing season using an estimated 37m³ of wood required per tonne of tobacco², and an average yield of 1.2 tonnes yield for smallholder tobacco farmers (Agritex Informant, Fieldwork, 2016).

² An estimated 37m³ of wood is required per tonne of tobacco cured (Manyanhaire and Kurangwa, 2014; Geist, 1999)

Fig 4.1: A tobacco farmer showing pile of coal she had not used from three previous growing seasons (Picture: Musoma, 2016)



An observation from the farmers who had coal provided to them as part of the inputs by the contractors, established that this type of fuel was not being used by the farmers. The initiative to give coal to farmers as a substitute for using wood fuel is part of the contractors' way to reduce deforestation. Many farmers cited difficulties in using coal as a reason for not using it and rather opting for wood (Figure 4.1). One farmer in ward 6 said;

“We are not used to coal for curing our leaves...it is difficult to control the temperatures and we may end up burning the leaves hence obtaining low grade tobacco! After all we have a lot of wood resources that we cannot even finish...” (Respondent, Fieldwork, 2016)

4.3.3 Farmers' perceptions on causes of deforestation

The research found out that there is unchecked cutting down of trees in Ward 6 more than in Ward 19. Follow-up questions with focus group discussions and household questionnaires on the environment were posed on deforestation causes. Almost 86% of the interviewed farmers blamed deforestation on tobacco farmers who were cutting down indigenous trees for curing their tobacco and their household energy needs. However, 10% pointed to failures of the government to pass strict regulations on deforestation. They commented that the responsible authorities (EMA and Forestry Commission) were not enforcing the regulations on access to forest resources and in some cases being bribed whenever they find someone cutting down trees. However, a key informant from TIMB entirely blamed the farmers for deforestation. He expressed that farmers

were not following their recommendation to engage in afforestation. He also pointed out that tobacco buyers on their part have established the Sustainable Afforestation Association (SAA) to plant woodlots that will be given to tobacco farmers as part of their sustainability programs in tobacco production.

The other 4% of the farmers commented that deforestation has been an ongoing process since the colonial era and cannot be blamed on the current farmers. A farmer said:

“The degradation either due to deforestation or otherwise has been going on for sometimes even before FTLR. Whites also used wood and more dangerous chemical for tobacco production for example use of Methyl bromide to fumigate the soil in tobacco seedbeds. This dangerous chemical was only banned by our black government. It is only that now there is an increase in black people owning land and growing tobacco my son...This also means a rise in deforestation...do you see that my son?” (Respondent, Fieldwork, 2016).

From the above farmer’s comment, it seems that the respondent did not consider deforestation to be caused by the new black farmers. Instead, deforestation according to the farmer existed since the colonial era.

However, besides tobacco curing the other cause of deforestation was pointed on the need for firewood and the need to open up new land for cultivation due to an increasing population. Some areas around Ward 19 are almost devoid of trees. An extensionist with AGRITEX mentioned that one hectare of tobacco requires up to 2.2 tonnes of wood to cure the tobacco. Geist (1997) estimated the volume of wood consumed to cure a kilogram of tobacco to be at between 5kg to as high as 130kg. Furthermore and as argued by Manyanhaire and Kurangwa (2014), most farmers are using indigenous trees of the Miombo variety like *Julbernardia globiflora*, *Brachystegia* spp. and *Combretum* spp.

4.4 Tobacco farming and local factors shaping household livelihood and natural resources use

According to the fieldwork findings, those who are better-off are more involved in tobacco production than those who are poor. This has been shown by the relatively greater proportion of land being allocated for tobacco cultivation than for food crops. Trends over the past five years on production however, showed that all better-off –farmers increased the size of land under tobacco, whilst 72% of the intermediate class commented having increased. This change in tobacco production for the mentioned different wealth classes, help to explain in part the changes in wealth.

When asked on comparative wealth status since they started tobacco production, almost all farmers commented that there was an increase in all indicators put on a five point scale. These indicators were; food availability, access to health, education, water and sanitation and purchasing power of basic needs. From the interviews, 63.1% of the smallholder farmers reported that food availability in their households increased since they started growing tobacco whilst 26.8% indicated a decrease. On the category of access to health care, 24% of the farmers commented an increase whilst the rest reported that there was no change in their access to health care. A significant increase in access to education by the farmers' children of up to 42% was also reported whilst 58% commented that the trend has remained the same since they started taking tobacco into their livelihood portfolio. Access to safe water also increased by 23.6% as well as sanitation which stood at an increase of 47%.

4.5 Tobacco and its connections with national and international political economy

Grey literature (policy papers, research documents, government and institutional documents) formed the understanding of how tobacco production is connected to national and international political economy informed through a chain link analysis.

4.5.1 Policies and their implications on tobacco production in Zimbabwe

Major policy changes in Zimbabwe

According to FAO (2003), three main policy initiatives affected agricultural activities in Zimbabwe. Firstly, being the “*growth with equity programme*” pursued by government between 1980 and 1990. This program was enacted to redress colonial legacy through supporting smallholder farmers. The high degree of government involvement in the agricultural sector by independence was seen as a way towards achieving food self-sufficiency as well as food security. However by 1986, the government took some measures to encourage production through export incentives which included Export Retention Schemes and Export Revolving Fund. The Zimbabwean Government also stimulated export production indirectly through setting up a relatively low price for the traditional maize crop which made many farmers to concentrate on cash crop like tobacco and coffee that fetched good prices and had ready export markets (FAO, 2003).

It was in the early 1990s when the earlier policies were failing to be sustained when the government embarked on the World Bank and International Monetary Fund (IMF) inspired economic reform strategies termed *Economic Structural Adjustment Program* (ESAP). This was a five year neo-liberal market-driven policy measure that had a premise that the market must

control the economy started in Zimbabwe in March 1991. Liberalisation and agricultural marketing deregularisations brought in many opportunities for export agriculture especially cash crop production, tobacco production included. Under the trade liberalisation, many measures that were designed to protect the domestic industries were removed so that the local industry compete and become efficient on the international market. These measures may be part of the reason why the tobacco production increased between 1990 and 1995. The total national production increased from 130 394 tonnes to 198 380 during that period.

The land reform which started in 2000 became another policy that had an implication on the tobacco production. Although the tobacco production figures dropped since its inception in 2000, more smallholder farmers diversified into tobacco production. This was partly because the land reform programme had opened up opportunities for new farmers as well as other farmers who were settled in marginal lands to access suitable arable land. According to TIMB (2014), the number of smallholder farmers involved in tobacco production increased from 74 514 in the 2012/13 season to 86 097 in the 2013/14 season.

Organised and structured tobacco industry

The tobacco industry in Zimbabwe is the most organised agricultural industry in the country. The first claim to successful tobacco production in Zimbabwe was in 1894 (TIMB, 2015). By 1910, the first auction sales took place which were however abandoned in 1914 because of over-production and lack of competition among the buyers (ibid: 5). An orderly marketing system was only established in 1935 through some legislation pressured by growers' associations. This produced the Tobacco Marketing and Levy Act of 1936 that saw the formation of the Tobacco Marketing Board (now the Tobacco Industry and Marketing Board or TIMB). The Act also enacted compulsory selling of tobacco through auction floors. Its amendment in 1997 brought about TIMB as well as collection of tobacco levies by the Ministry of Agriculture, Mechanization and Irrigation Development from the growers' and buyers' associations (ibid: 6). The tobacco marketing systems changed in 2004 allowing the introduction of contract buying and marketing of tobacco.

In 2011, Zimbabwe ranked as world's sixth largest producer of tobacco with the crop being the top of agricultural commodities for export (FAO, 2015). The Zimbabwean tobacco sector, previously dominated by large scale commercial farmers (LSCF) who were whites also generated significant employment, with six percent of the population obtaining their livelihood from tobacco production. The industry is composed of growers, unions, merchants, agro-dealers, financiers, processors and manufacturers with some auxiliary institutions responsible for training

and research (TIMB, 2015). These institutions are all linked to the TIMB which is also responsible for licensing auction floors as well as companies involved with contract growing and marketing operations. The quasi-private parastatal also issues out permits to all tobacco exporters.

Commenting how the structure of the Zimbabwean tobacco industry has contributed to an increased tobacco production, Joseph Hanlon (co-author of 'Zimbabwe Takes Back its Land), asserts that with an "organised and structured support for tobacco and not for food crops, farmers are therefore correctly responding to the market" (Financial Gazette, 2015).

Besides offering a structured market, the industry has contractors who offer farmers inputs so that they can produce the tobacco and pay after their sales. This arrangement has also seen many farmers opting for tobacco production because it help them mask the lack of financial resources required in tobacco production. Contract farming is providing inputs on credit and even infrastructural support with building 'rocket' tobacco barns.

About 89% of the tobacco farmers are under contract farming and stated that they are into this arrangement because it provides them with all inputs that they cannot afford on their own. On income that they get, 76% confirmed getting enough income as compared to other crops they grow under rain-fed production. In contrast, about 20% mentioned tobacco's low prices, high inputs costs and poor grades as a major cause for inadequate income that can sustain their livelihood. The remaining 4% were in-between the two opinions and could not answer if they were getting enough income from tobacco or not. All farmers who are under contract farming agreed that they are getting enough prices and income from their respective contract companies.

The tobacco industry also provides robust training and extension to tobacco farmers so as to increase the production. TIMB in conjunction with Agritex, TRB and Farmer Development Trust conducts calendar based training for smallholder farmers (TIMB, 2015). There are training centres located in the country's four traditional tobacco growing regions namely, Trelawney (Mashonaland West Province), Panorama (Mashonaland Central Province), Dozmerry (Mashonaland East Province) and Nyamazura (Manicaland Province) (ibid: 9). This training program targets training 20 000 farmers annually. On the other hand, TRB conducts research on improving tobacco quality and is the only institution with exclusive rights to flue-cured tobacco research in Zimbabwe.

Framework Convention on Tobacco Control (FCTC)

Zimbabwe is one of the 168 countries which acceded to the World Health Organization's Framework Convention of Tobacco Control (FCTC). The framework which is the first global

treaty on health was adopted on May 21 2003 under the WHO constitution's Article 19. The treaty is an agreement that seeks "to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke" through enacting some universal standards stating dangers of tobacco and limiting its use (WHO FCTC, 2008). The FCTC's provisions include rules that govern the production, distribution, taxation and sale of tobacco. This is likely to impact economies of countries who depend on tobacco like Zimbabwe as well as the livelihood of local people including the growers themselves. However, the FCTC acknowledges this negative impact to farmers and is encouraging Parties to help tobacco farmers diversify to other crops as enacted by Articles 17 of FCTC (WHO FCTC, 2008).

Although this being the case, a qualitative study by Lown *et al* (2016) based on 542 documents concludes by saying that the country's decision to accede to the FCTC is not in *bona fide*. They assert that given the country's long history of opposing the treaty, there is no honesty and sincerity of their intention. They see the status of Zimbabwe as a party creating "opportunities for it to undermine ongoing efforts to implement and strengthen the treaty" (Lown *et al*, 2016: 8).

4.5.2 Government views on tobacco: economy versus environment

The environmental problems associated with tobacco production are not new to the government. This can be seen by many policy initiatives surrounding the tobacco industry. Of importance to note and concerning deforestation are the 'afforestation program' and 'rocket barns program' which are all being spearheaded by the Tobacco Industry Marketing Board. This program is encouraging construction of rocket barns which have been said to be efficient in energy use as well as giving quality cured leaves. The government, introduced an afforestation levy that is payable by all tobacco farmers when they deliver their tobacco for sales. TIMB and TRB are also encouraging farmers to plant fast growing gum trees for use as fuel to cure tobacco (TIMB, 2015). The tobacco buyers on their part are also encouraging the same to farmers and have established the Sustainable Afforestation Association (SAA) that is planting wood plantations that will be availed to farmers once they become mature enough to be used as fuel wood. According to TIMB (2015), the target by SAA is to achieve sustainability once 30 000 hectares of woodlots have been grown. This according to the association will thus eliminate use of indigenous trees for tobacco curing. On the other hand the TIMB has established a revolving fund to assist smallholder farmers in building 'rocket barns'. TIMB (2015), asserts that these types of barns are wood efficient and produces better quality leaves than traditional barns.

Although these initiatives are starting to be seen in some communities, there is little urgency in them. Although there are laws that influence woodland and forest resources use in Zimbabwe, (e.g. Natural Resources Act of 1942, the Forest Act of 1948 (amended 1982) and the Communal Land Forest Produce Act of 1987); all which regulates and in some cases restricts forest products use, they are not strictly being enforced. This may be because of tobacco's contribution to both the national economy and towards rural livelihoods. Almost 50% of all agricultural exports and almost 23% of the gross total exports comes from tobacco (FAO STAT, 2015). Therefore, the economic gains from tobacco may be affecting the government's views on its environmental problems especially deforestation.

5. DISCUSSION OF RESULTS

This chapter discusses the findings from the field in relation to the research questions and the conceptual framework. Based on the conceptual framework, measurable indicators were grouped to come up with assets and how they influence decisions and behaviours for activities and strategies for households within different wealth classes and how the strategies in turn influenced the assets. Secondly, how outcomes from the strategies influenced/feedback to determine assets. Thirdly, how the local and extra-local factors governed the connection between assets and strategies. These are together used to discuss the political ecology of smallholder tobacco production in Marondera District and the connections that are between poverty and the environment.

5.1 Rural assets as a determinant of livelihood activities and strategies

Rural assets that formed the classification of wealth in the study were mainly physical assets (livestock, agricultural implements, type of house...). Landholding did not form part of this asset wealth component as it was not considered as a measure of wealth in focus group discussions. The findings showed that those who were better-off had more of the considered assets than those who were on the lower classes. All wealth classes interviewed were involved in agriculture as their main livelihood and income strategy and this confirms Ellis' (2000) observation that agriculture is the main livelihood strategy that the rural folks are involved in. Although the findings showed that all wealth classes were taking tobacco as their main cash crop, the land size under tobacco increased with the wealth of a household. Those who were better-off cultivated tobacco on a relatively bigger size of land due to; (i) they afforded the high costs of production,

(ii) they had farming implements required to till the land and engage in tobacco (ploughs and ploughing oxen), (iii) they had better opportunities to obtain loans/contracts for tobacco production, and (iv) available labour from their adult dominated households.

This observation is supported by DFID (1999) which asserts that people's access to different levels and combination of assets influences their capacity to engage into a livelihood activity or strategy. However, it was found that those who sat at the two lower classes of wealth (very poor and poor) had a comparatively wide range of livelihood strategies than those who were better-off. For example the very poor and poor households were engaged in on-farm activities (own-account farming), off-farm activities (wage labour provision) and non-farm income strategies (e.g. remittances). This is contradicting to Ellis' (2000) assertion that those with more assets tend to have a greater range of strategies to secure their livelihoods.

Besides asset endowment, there were factors that were found to influence households' decisions on choosing an activity/strategy. Almost 75% of the respondents pointed out that they took tobacco into their livelihood portfolio because it was the only cash crop offering a ready market and offering contracts. This finding is supported by Ellis (2000) who distinguishes household decision on an activity to be determined by necessity and choice. In this case, tobacco production was found to be grown due to necessity. According to Ellis (2000), this is when a household's decision is based on an involuntary and distress reason that pushes it to select a given activity or strategy. The other reason that was cited to be determining why the farmers opted for tobacco was the household power relations. Tobacco is considered to be a men's crop in the research area. Men had power in cash crop decision-making therefore even deciding on the size of land allotted to its production, the contract as well as its management practices. Doss (2001) states that more often men are viewed as being responsible for cash crops, while women are responsible for subsistence crops like maize.

5.2 Wealth-tobacco management practices and the environment

Use of agrochemicals

It has been found that a household's level of commitment in tobacco production has a direct bearing on many of the agricultural management practices it employs. The use of agrochemicals was found to be popular within all wealth classes. However, those who were better-off tended to use more agrochemicals than the households in lower wealth classes. Firstly, this was because the better-off households either accessed contract inputs or could afford the expensive agrochemicals required in tobacco. Secondly, those who were better-off had relatively allocated big sizes of their plots to tobacco as compared to the other households who had food crops having larger cultivated

land area. The other reason for a low agrochemical use by the lower wealth households was reported to be because they resorted to selling their inputs (if obtained from contractors) to cater for their immediate household needs like food. Therefore use of agrochemicals increased with increase in wealth.

Forest resources use (deforestation)

From the research findings, it was established that wood was the primary source of fuel to cure tobacco within all households. Almost all farmers in ward 6 were getting the wood from common forests which were accessible to everyone. However, in ward 19 there were set regulations that controlled access to forest resources, especially wood. This may be due to the fact that this area still enjoys the communal ownership of resources which is placed under the custody of traditional leaders who are also responsible in controlling their use (Makanyisa *et al*, 2012). Although there are set national laws regulating and in some cases restricting use of wood resources, the laws were reported to be loose in these areas.

The link that can therefore be established between wealth and use of forest resources can be an approximation. I suggest that the better-off households engaged in tobacco production use more wood resources than those who are poor because they also cultivate tobacco on relatively big sizes of land. However, it is hard to make a convincing case that wood resources use in tobacco is higher with those who are better off than the other wealth classes. This is because the differences are based on estimations using the average amount of tobacco cured by each class. This method of estimate does not factor in variations due to type of barns used, state of wood and the specie as well as the farmer's knowledge on curing and improving curing efficiency. Musoni *et al* (2013, cited in Manyanhaire and Kurangwa, 2014), supports this by asserting that 98.5% of energy may be lost due to inefficient barns. Therefore it is not enough to judge wood resource use by amount of tobacco cured or wealth class, but a lot of factors needs consideration.

5.3 Farmers' perception on causes of deforestation

Most farmers (86%) blamed tobacco production and household energy needs for the deforestation in the area with 10% pointing out that it was due to regulation failure therefore the government was to blame. However, 4% of the respondents pointed out that the farmers were nothing to blame. They reported that deforestation was an ongoing process that started in the colonial period when white farmers started tobacco production. This is supported in many researches where tobacco farmers are seen as proximate cause of deforestation. However, there are ultimate causes of this environmental degradation attached. Lipton (1997, cited in FAO, 2003)

states that it is irrational to expect people knowingly to behave in ways that destroy the resources which should be used in future unless they have pressure to do so.

5.4 Local political ecology of tobacco

Although the better-off households were more involved in tobacco production, almost 72% of those in the intermediate wealth class reported to have increased their land size allocated to tobacco. This I suggest is partly due to the viability of tobacco as compared to other crops. This is also supported by Maravanyika (1997, cited in Khumalo, 2013:56) who states that tobacco is commercially viable, with one hectare being 22 times more profitable than cotton and 57 times than maize. It is also reported that tobacco is getting much attention in terms of government extension than other crops. This is evident as the government agency for agricultural extension Agritex has some specialist that are only dedicated to tobacco production. This is not the same with other crops.

5.5 Regional political ecology of tobacco production

The connection of tobacco to the broader national and regional political economy can be explained as the ultimate cause of deforestation associated with tobacco. Policies and programmes that support tobacco production in Zimbabwe are linked in a chain to the broader political economy.

5.5.1 Policies and their implications on tobacco production in Zimbabwe

Major policy changes and their impact on tobacco production

There are three main frameworks that can help explain the growth of the Zimbabwean tobacco industry since independence. The first is the '*growth with equity programme*' that was put forward by government to support smallholder agriculture between 1980 and 1990. It was meant to promote agricultural production through giving export incentives to farmers. The government also stimulated export production through setting up relatively low price for maize which was the traditional crop for farmers. This forced the farmers to concentrate on tobacco that the white settlers introduced as a cash crop in the colonial era.

Economic Structural Adjustment Program (ESAP) also influenced the growth of tobacco production through liberalisation and agricultural market deregularisations. This brought in opportunities for export agriculture to improve. During the time of this World Bank and IMF supported policy (1990 to 1995), tobacco production increased from 130 394 tonnes to 198 380 tonnes.

Tobacco industry in Zimbabwe

The well-structured and organized tobacco industry also opened up for an increased tobacco production. The industry offers structured markets that are ready for farmers. Farmers are also offered with contract farming system where they can obtain loans for inputs and pay when they deliver their tobacco for sale. This system encourages increased production since many smallholder farmers cannot afford the expensive inputs required in most cash crops. The contract system also offers relatively high prices that auction floors. The industry also has auxiliary institutions that are responsible for research, training and as well extension.

5.5.2 Economic contributions of tobacco versus the environment

Zimbabwe is the major flue-cured tobacco producer in Africa and occupies fifth position in the world. The cash crop contributes almost 50% of total agricultural exports, almost 23% of total national exports as well as almost 10% of the national GDP (FAO, 2015). According to TIMB (2014), the production increased from 58.5 million kilograms in 2010; 123.5 million kilograms in 2011; 132.5 million kilograms in 2012; 144 million kilograms in 2013; and 216 million kilograms in 2014 (ibid: iv).

Although there has been concerns linking tobacco to environmental degradation especially as a result of deforestation, such concerns seem not to be followed. According to Zimbabwe's Forestry Commission, almost 20% of the 330 000 hectares of natural forest lost annually are cut for curing tobacco (Forestry Commission, 2005, cited in IRIN, 2014). Despite this, the government is not being strict on forest conservation and regulations in the tobacco growing areas.

6. CONCLUSION

This study sought to understand the poverty-environment connections in smallholder tobacco production embedded within a sustainable livelihoods perspective and political ecology lens. The overarching objective was to examine on a local level if there was empirical evidence to support the poverty-environment thesis within smallholder tobacco production in Marondera district in Eastern Zimbabwe. The hypothesis is that poor farming households engage in more damaging natural resources management practices than better-off farming households. It therefore puts the poor as the proximate agents of environmental degradation. To investigate this hypothesis, three questions informed the study.

The first question sought to examine how livelihood strategies (and therefore activities) were constructed in relation to tobacco production, and the livelihood outcomes connected to them. Within this context, an examination was made on what farmers considered when choosing a livelihood strategy/activity. Basically, it was found that household considerations revolved around two factors, which are necessity or choice. It was found that the farmers' first reason for growing tobacco was because of the relatively better income that it offered than other crops they were able to grow for example the traditional maize crop. Furthermore, they pointed out that tobacco unlike any other crop had ready markets and for this reason, it was reasonable for them to engage in tobacco production. Another reason was that there is a great chance to get loans for inputs under the contract farming system. Almost 75% of the interviewed smallholder farmers were under contract farming system. According to TIMB (2014), during the 2013/14 growing season, almost 66% of the farmers were under contract farming system. The ability to get inputs on credit thus can be seen to have influence on farming households' decision to grow tobacco.

Besides this, it has been found that household power relations also influenced the choices of livelihood activities to take. Tobacco like other cash crops, is regarded to be men's crop and in all male-headed households men had the overall decision on the growing of tobacco. Women were considered to be responsible for subsistence crops like maize, cowpeas and sorghum. In many cases, men were also exclusively responsible for signing contracts with the tobacco contracting companies as well as its marketing.

However, there was a tendency of an increase in tobacco production with an increase in wealth. Those who were better-off had tobacco given large sizes of land than the poor. This was because the better-off afforded the high inputs and labour that tobacco production required. They also had higher amounts of the required farming implements (plough oxen and ploughs) than poorer households. It was evident that tobacco created wealth and this further gave rise to increased production. Therefore it can be deduced that there was a tight connection between taking tobacco as a livelihood activity and the pre-existing asset endowment (wealth) of a household.

The second and third questions sought to understand the political ecology of poverty-environment interactions and tobacco production in Marondera District. The first question was to determine what local and extra-local factors influenced the tobacco management approaches. The two management approaches that were relevant to the study were high use of agrochemicals which is the probable cause of environmental degradation through pollution and use of wood resources which caused deforestation. The findings established that although there are concerns

in many studies on extensive agrochemical usage in tobacco, the farmers do not single out tobacco production as a cause of agrochemical related environmental degradation. They consider every crop production to be using agrochemicals and thus responsible for pollution. Wood resources use is not being controlled and the regulations are loose. Every tobacco farmer in the studied area is using tobacco despite some of them being provided with coal by their contract farming companies. Tobacco management practices are mainly a function of household decisions and how a farmer perceives the management benefits. Short term goals are usually the major concerns than long term outcomes in all wealth classes. The income that comes with tobacco production (wealth) also leads to increased opportunity to grow more tobacco.

The last question was to understand the political and economic processes and how they are linked to factors that influence tobacco production approaches. Results from the study have found out that rather than poverty driving environmental degradation in Eastern Zimbabwe, it seemed linked to the political and economic processes of the export-oriented Virginia tobacco. The colonial era saw a 'boom' in tobacco production and an introduction of export-oriented Virginia tobacco. This production was maintained in the post-colonial era through the work of some parastatals like TIMB which had monopoly control over local tobacco marketing. The production increase over the years was maintained through guaranteed market through auction selling and contract farming which provided inputs on credit to farmers. Policies that followed independence like 'growth with equity program' and ESAP also favoured tobacco production through liberalisation and agricultural market deregularisations. Conditions were put that supported export-oriented agricultural production. Other policies which have encouraged an increase in tobacco production includes provision of education and extension to tobacco farmers which is part of the government's initiative to promote tobacco production. The government of Zimbabwe depends on tobacco for nearly 25% of its total exports and 10% of the gross national GDP. This dependence makes it difficult for the government to seriously consider the long term viability and sustainability of tobacco. Again, the focus on the notion on poverty in environmental discourse has allowed the government to avoid thoughtful discussion on tobacco production. There is great need therefore for mainstreaming poverty-environment linkages which according to Usman (2003), involves integrating poverty-environment interactions into policy-making, budgeting and implementation processes at all level in the country.

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