‘We know the law, but we do not have a choice’: Negotiating Livelihoods and Soil Erosion in Streambank Cultivation in Gwanda District, Zimbabwe

Amanda Georginah Mabutho

Independent project • 30 credits
Swedish University of Agricultural Sciences, SLU
Faculty of Natural Resources and Agricultural Sciences
Rural Development and Natural Resource Management - Master’s Programme
Uppsala 2026

‘We know the law, but we do not have a choice’: Negotiating Livelihoods and Soil Erosion in Streambank Cultivation in Gwanda District, Zimbabwe

Amanda Georginah Mabutho

Supervisor:	Patrik Oskarsson, Swedish University of Agricultural Sciences, Department of Urban and Rural Development
Examiner:	Linley Chiwona-Karltun, Swedish University of Agricultural Sciences, Department of Urban and Rural Development

Credits:	30 credits
Level:	Second cycle, A2E
Course title:	Master thesis in Rural Development
Course code:	EX0889
Programme/education:	Rural Development and Natural Resource Management - Master’s Programme
Course coordinating dept:	Department of Urban and Rural Development
Place of publication:	Uppsala
Year of publication:	2026
Online publication:	https://stud.epsilon.slu.se

Keywords: land-use, livelihood pressure, moral economy, smallholder farmers, streambank cultivation, soil erosion, political ecology, water scarcity, vulnerability, Zimbabwe.

Swedish University of Agricultural Sciences
Faculty of Natural Resources and Agricultural Sciences
Department of Urban and Rural Development
Division of Rural Development

Abstract

This thesis examines why streambank cultivation persists in Gwanda District, Zimbabwe, despite formal restrictions and recognised environmental harm. It asks how the practice can be explained through Blaikie's political economy of soil erosion by linking rainfall uncertainty, water scarcity, environmental regulation, unequal access to productive water, household survival pressures, and farmers' land-use decisions. The study uses a qualitative single-case research design grounded in political ecology and interpretivism. Data was collected through semi-structured interviews, one focus group discussion, observation and a guided transect walk, and was analysed thematically. The data that was collected showed that streambank cultivation persists not because farmers are unaware of rules or degradation, but because rain-fed farming is unreliable, productive water sources are limited, and streambanks remain among the few spaces where crops can survive. Farmers valued streambanks for moisture, fertile soils, labour-saving water access, vegetables for household consumption, small cash income, and school-related expenses. At the same time, they recognised environmental effects including soil erosion, vegetation loss, sedimentation, water pollution, and stream disturbance. The findings further suggest that the new irrigation intervention offers an important alternative, but does not fully replace the food, income, crop choice, and autonomy that the farmers associated with older streambank gardens. The thesis argues that streambank cultivation is erosive adaptation: a livelihood strategy that is rational and morally defensible in the short term, yet environmentally unstable over time. It shows that enforcement of streambank restrictions, including the 30-metre rule, is unlikely to succeed where households lack reliable water access, inclusive irrigation, and realistic livelihood alternatives. Limitations include the single-case design, short fieldwork period, and there were no biophysical measurements and limited institutional interviews. Future research could examine whether irrigation interventions in Gwanda reduce the farmers' dependence on streambank gardens over time, and could combine farmers' accounts with soil, sediment, and water-quality measurements to assess the environmental effects of streambank cultivation more directly.

Keywords: land-use, livelihood pressure, moral economy, smallholder farmers, streambank cultivation, soil erosion, political ecology, water scarcity, vulnerability, Zimbabwe.

Foreword

This research changed how I understand environmental problems in rural communities. Before the fieldwork, streambank cultivation was perceived as an environmental issue, affecting riverine ecosystems. However, listening to farmers in Gwanda District, Zimbabwe showed me that the streambank was also a key source of livelihood for vulnerable communities. The statement that stayed with me most was, *"We know the law, but we do not have a choice."* Seeing gardens inside and close to the stream made the ecological problem more evident. The farmers' attachment to their gardens made the livelihood problem clear. This taught me the importance of a bottom-up approach. Theory helped me understand the structures shaping land-use decisions, but the farmers helped me understand the moral difficulty behind those decisions. As a Zimbabwean researcher studying abroad and returning to conduct this study, I learnt to approach the field with humility, not judgement. This thesis is therefore not only about streambank cultivation and soil erosion. It is also about the difficult choices rural households make when environmental protection and everyday survival meet in the same place.

Table of contents

List of tables

List of figures

Abbreviations

AGRITEX	Department of Agricultural, Technical and Extension Services
EMA	Environmental Management Agency
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
HHs	Households
IPCC	Intergovernmental Panel on Climate Change
NGO	Non-governmental Organization
RDC	Rural District Council
SDGs	Sustainable Development Goals
SLU	Swedish University of Agricultural Sciences
UN	United Nations
USD	United States Dollar
ZimLAC	Zimbabwe Livelihoods Assessment Committee

1. Introduction to the research

Streambank cultivation[1] in semi-arid Southern Africa is a major rural livelihood and environmental issue creating tension in rural development policy. In Zimbabwe, the prohibited farming practice, is a vital supplementary livelihood strategy for smallholder farmers living in the driest regions of the country. However, it has contributed to soil degradation, siltation and pollution of water bodies, (Denga et al., 2022; Zinhiva et al., 2017). This is an environmental dilemma, as the farming practice causes harm to the environment, but also enables vulnerable households to secure food, income, and access to water. In sub-Saharan Africa, climate variability and recurrent drought have increased the uncertainty of rain-fed farming, moreover agricultural support is weak, and farmers face an uneven access to adaptation resources (IPCC, 2022; Scoones, 2015). Smallholder farming households in the semi-arid Gwanda District of Zimbabwe, are susceptible to these pressures that limited their livelihood options. They further rely on their local natural resources base, especially the moisture-rich streambank soils and stream water, regardless of the environmental consequences (Barrett et al., 2001; Robbins, 2012). Dube et al. (2018) added that in Gwanda District smallholder farming takes place under harsh hot temperatures, risk of drought and limited access to irrigation farmers. Hence farmers adapt by adjusting farming practices (Dube et al., 2018). The continued existence of this old farming practice cannot be reduced to rule-breaking. In this study, it is explored as a livelihood decision shaped by water scarcity, poor rainfall, uneven access to resources and negotiated environmental authority. The impacts of stream bank farming, particularly soil erosion can be studied and investigated in different ways. A purely environmental explanation would focus on the site of damage, the state of vegetation, soil and water quality. These factors matter, but they may not capture the key socio-economic landscape and how farmers relate to environmental phenomena. Therefore, this study applies a political economy of soil erosion approach by Blaikie (1985) and Blaikie and Brookfield (1987) to understand the conditions that drive stream bank cultivation and its outcomes. The study explored climatic, economic, institutional, and household pressures that shape the land-use practice, as understood, justified, and negotiated by the rural communities in Gwanda district. The study analysed how the farmers everyday accounts are connected to climate issues, political-economic and governance pressures.

[1] In this thesis, streambank cultivation refers to the cultivation of crops within and close to rivers, streams and other waterbodies. According to Government of Zimbabwe (2007) farming within 30 metres of the naturally defined banks of a stream is prohibited under the Environmental Management (Environmental Impact Assessment and Ecosystems Protection) Regulations, Statutory Instrument 7 of 2007. In this case study of Basotho Village, smallholder farmers practice stream bank farming and have gardens located near and within a local stream.

1.1 Aim of the research

The aim of this thesis is to understand the persistence of streambank cultivation in Gwanda District through the political economy of soil erosion. Drawing on Blaikie (1985) and Blaikie and Brookfield (1987), this aim is explored through a chain of explanation approach adapted to account for the contemporary climatic pressures shaping smallholder farming in semi-arid Gwanda District.

1.2 Research questions

The main research question guiding the study is: **How can the persistence of streambank cultivation in Gwanda District be explained through the political economy of soil erosion?**

The study is guided by the following specific research questions:

1. How do political-economic and climatic conditions shape smallholder livelihood options in Gwanda District?
2. How do governance arrangements and access to land, water, irrigation, and agricultural support shape farmers' cultivation options?
3. How are broader and local pressures experienced at household level in relation to food security, income, labour and survival pressures?
4. How do farmers understand and justify streambank cultivation as a livelihood strategy?

1.3 Justification and Relevance of the Study

The Basotho village[2] case study is justified as it addresses a gap in how streambank cultivation is explained. Few studies have examined farmers' own interpretations of the practice, including how they explain its persistence, justify their involvement, and negotiate it within everyday livelihood pressures. This study therefore contributes by placing farmers' explanations at the centre of the analysis, tracing how they connect to climatic pressure, governance, household survival needs, and land-use decisions. The study is also empirically relevant because it focuses on Gwanda District, where smallholder farming is affected by dry climatic conditions. Moreover, in the study area there was a recently new solar powered irrigation garden. A local non-governmental organisation (NGO) established the alternative source of water, to curb the environmental damage caused by cultivation of crops along the local stream and catchment area. This enabled the study to examine both the persistence of streambank cultivation and the early impacts of the intervention of the NGO.

Theoretically, the study is justified by its use of Blaikie's political economy of soil erosion. Blaikie (1985) argued that soil erosion should be explained beyond evident physical causes, while Blaikie and Brookfield (1987) explain land degradation through a chain linking household decisions, local institutions, and political-economic structures. This approach enabled the researcher to analyse and present the complexity of environmentally risky land-use practices. The study also relates to the sustainable development goals (SDGs) 1, 2, 6 and 13, by connecting and exploring poverty, food security, water protection, climate stress, and land degradation in one local case (United Nations, 2015). The findings may contribute to fair environmental governance supported by livelihood-sensitive and culturally sensitive solutions.

[2] Smallholder farmers are rural producers working on relatively small areas of land, relying mainly on household labour and having limited access to capital, irrigation and agricultural inputs (FAO, 2012; Scoones, 2015). In this study, the term refers to HHs in Basotho Village whose livelihoods depend mainly on rain-fed agriculture and small garden production under conditions of water scarcity and climatic uncertainty.

2. Theoretical approach and analytical framework

2.1 Streambank cultivation, livelihood dependence and soil erosion

Land degradation and soil erosion are global environmental affecting livelihoods especially in the Global South. The Food and Agriculture Organization (FAO) reports that about 33% of the world's land is classified as moderately to highly degraded as result of erosion, salinisation, compaction, acidification, and chemical pollution (FAO, 2015). Global assessments estimate that up to 40% of land is degraded, affecting livelihoods, food systems, and water security (UNCCD, 2022). It is therefore noteworthy that these global concerns are relevant to this thesis because streambank cultivation links land use, water access, and livelihood insecurity. The tension is temporal and spatial. The farming practice supports market gardening activities and livelihoods. However, the widespread environmental effects accumulate over time resulting in soil loss, siltation, and declining water quality, potentially affecting river and reservoir systems beyond individual plots (Zinhiva et al., 2017; Kibena et al., 2014; Tundu et al., 2018).

Studies Southern Africa have examined this livelihoods-environment tension through different theories, methods, and empirical cases. Zinhiva et al. (2017) studied streambank cultivation along the Chiredzi River in Zaka District, Zimbabwe. They used satellite imagery, 30-metre riparian buffer mapping, transect walks, questionnaires, participatory rural appraisal, and key informant interviews. The results of the study highlighted that cultivation within prohibited riparian zones was associated with land pressure, fertile alluvial soils, residual moisture, proximity to water, higher productivity, and drought mitigation. About 60% of study respondents linked the farming practice to landlessness, however the environmental costs included river and dam siltation, water pollution, and loss of riparian vegetation (Zinhiva et al., 2017). The study demonstrated that streambank cultivation is a livelihood strategy pursued under land and water constraints.

According to Denga et al. (2022)'s systematic review of riverbank cultivation, in Southern Africa, identified that direct drivers of the farming practice were demand for arable land and climate change. Whilst, indirect drivers were population pressure, and limited knowledge. The desktop study analysed 43 publications from 2010 to 2020 and used a theory of change that was informed by the Environmental Kuznets Curve to examine the relationship between drivers of riverbank cultivation, livelihoods, and conservation strategies. Kibena et al. (2014) combined remote

sensing and water-quality analysis in the Upper Manyame catchment, showing that changes in land use have resulted in declining water quality. Tundu et al. (2018) applied the Revised Universal Soil Loss Equation to analyse sedimentation in the Mazowe Catchment. The finding revealed that how soil erosion affects river systems, reservoir capacity, and water quality.

Mugandani et al. (2012) noted that Zimbabwe's agro-ecological regions and agricultural practices are shaped by rainfall variability and growing-season length. Dube et al. (2018) further noted that recurrent drought increases uncertainty for smallholder farmers in dry parts of the country, such as Gwanda district. Moyo (2011) highlighted how agrarian livelihoods are shaped by unequal access to land, inputs, and state support. Chitongo (2019, 2021) explained how drought and water scarcity shape livelihood diversification and rural resilience in dryland Zimbabwe. Poor rainfall, limited water infrastructure and weak income opportunities pushed households diversify. Through market gardening, selling livestock, remittances, casual labour, and other survival activities as a way of spreading risk and maintaining food security (Chitongo 2019, 2021). The studies show that streambank cultivation is connected to climate stress, water scarcity, agricultural vulnerability, and uneven access to livelihood resources.

Although these studies are relevant, they leave important gaps. Much of the literature relies on catchment-level, water-quality and modelling approaches, desk top analysis which are useful for showing environmental effects. However, they are less effective in explaining how farmers understand and justify cultivation in risky places. Bryceson (2002) showed that rural African livelihoods have been reshaped by deagrarianization and the search for non-agricultural income, but where secure alternatives are limited, farming may remain central to household survival. Leach and Mearns (1996) caution against narratives that blame local land users for degradation without examining wider social and political conditions. While Forsyth (2003) argues that visible land-use practices should not be treated as self-evident explanations of environmental change. Therefore, this study connected environmental effects, political-economic conditions, governance, household pressure, and farmers' own moral and practical justifications within one framework.

This study will also explore how farmers interpret streambank cultivation through local histories, everyday experience, social expectations, and practical knowledge of the landscape. The thesis also adds structural vulnerability, moral economy and negotiated governance. Structural vulnerability explains how drought becomes more damaging when households lack secure irrigation, inputs, and alternative livelihoods (Wisner et al., 2004; Scoones, 2015). The concept of a moral economy helps explain why farmers may justify streambank cultivation as necessary for

livelihood, even when they know environmental rules exist (Scott, 1976). Negotiated governance helps analyse how formal rules such as the 30-metre restriction are interpreted, enforced, softened, or contested in everyday life (Cleaver, 2012). Empirically, the study contributes a farmer-centred qualitative case from Gwanda District.

2.2 Environmental governance and regulation in Zimbabwe

Environmental governance around streambank cultivation in Zimbabwe is shaped by formal law, historical conservation legacies and overlapping local authorities. Cultivation near streams is formally restricted through national environmental legislation, including the Environmental Management Act [Chapter 20:27] of 2002[3] and the Environmental Management (Environmental Impact Assessment and Ecosystems Protection) Regulations, Statutory Instrument 7 of 2007[4]. However, the governance of streambanks is part of a longer history in which environmental protection was closely tied to the control of African land use. Mandishona and Knight (2022) show that streambank and wetland regulation in Zimbabwe has roots in earlier conservation laws that sought to control cultivation around rivers, wetlands, and other fragile environments. This reflects Neumann's (1998) broader argument that colonial conservation often framed African land users as causes of degradation, while protecting landscapes and resources valued by colonial authorities, including settler commercial agriculture, mining interests and wildlife or national park conservation. Local livelihood was therefore not the main priority of colonial conservation policy, a legacy that helps explain why later environmental regulation could retain a protective and restrictive logic towards smallholder land use.

In Zimbabwe in the 1980s, post-independence environmental governance introduced new institutions and legal frameworks governing natural resources management. Moyo (2011) showed that land and resource governance in Zimbabwe has largely shaped by unequal access to productive resources and enduring forms of control. In communal areas, formal environmental rules are mediated through local government and traditional authority. Rural District Councils translate national policy into local administration and development

[3] The Environmental Management Act [Chapter 20:27] of 2002 governs the Environmental Management Agency. The institutions 's functions include regulating and monitoring environmental management, environmental impact assessment, fragile ecosystems, pollution control and local environmental by-laws (Government of Zimbabwe, 2002). The Act identifies the Agency and its functions in sections 9 and 10.

[4] Prohibition of stream and riverbank disturbance is outlined in the Environmental Management (Environmental Impact Assessment and Ecosystems Protection) Regulations, Statutory Instrument 7 of 2007. Section 20(1) provides that no person may, without a licence issued by the Agency, cultivate, disturb natural vegetation, or alter soil on a wetland, on land within 30 metres of the naturally defined banks of a public stream, on land within 30 metres of the high flood-level of specified water bodies, or on the bed, banks or course of any river or stream (Government of Zimbabwe, 2007). The regulation states this restriction in section 20(1).

planning,[5] .Chiefs and village heads are central to the everyday regulation of land and natural resources (Chatiza, 2010).[6] Governance is therefore fragmented in a layered arrangement in which statutory and customary authorities overlap. Regulatory views focus on whether farmers obey or break the rules. However, this study was grounded in political ecology view and sought to show the farmers 's explanations on the conditions that make them break the law.

This study builds on this literature by analysing streambank regulation as lived and negotiated practice in semi-arid Gwanda. It fits directly into the political ecology framework in the next section because it treats regulation as part of the chain linking political-economic conditions, national and local governance, resource access, household livelihood pressure, and land-use decisions. Governance gaps are therefore not only failures of enforcement, but also gaps between environmental restrictions and the irrigation, extension support and livelihood alternatives needed to make compliance realistic. Hence, this section bridges the literature on streambank cultivation and the conceptual framework by showing that soil erosion is also shaped through the interaction of law, authority, resource access, and constrained livelihood choices.

2.3 Situating the Study within Political Ecology

2.3.1 Political ecology debates

This thesis is situated within political ecology, an interdisciplinary approach that examines environmental change by connecting ecological processes with power relations and wider political-economic conditions (Forsyth, 2003; Robbins, 2012). In this study, political ecology helps frame streambank cultivation as more than a local land-use problem. It directs attention to how soil erosion, water access, livelihood pressure, environmental regulation and unequal support interact in Basotho Village. Within this broader perspective, Blaikie's political economy of soil erosion provides the more specific analytical route for tracing how land-use decisions are shaped by wider political-economic and institutional conditions (Blaikie, 1985; Blaikie and Brookfield, 1987).

Political ecology scholars critique explanations that view environmental degradation as the direct outcome of poor local resource management (Robbins, 2012). This thesis frames streambank cultivation as an environmental, livelihood and governance issue. Farming close to a stream may contribute to soil disturbance, vegetation clearance and erosion, but political ecology helps to ask why some

[5] At council level, the Rural District Councils Act [Chapter 29:13] provides for natural resources conservation committees and subcommittees under section 61, including subcommittees that may exercise natural-resource functions within council wards (Government of Zimbabwe, 1988).

[6] The Traditional Leaders Act [Chapter 29:17] gives chiefs duties that include ensuring that land and natural resources are used according to law, controlling over-cultivation, over-grazing, destruction of flora and fauna and illegal settlement, and preventing degradation, abuse or misuse of land and natural resources. It also gives village assemblies functions relating to land, water and other natural resources (Government of Zimbabwe, 1998). These duties appear in section 5(1)(l), while village assembly functions appear in section 15(1)(c).

households continue to depend on such spaces despite environmental rules and risks. Forsyth (2003) argues that degradation narratives often present environmental change as self-evident, while paying less attention to the social and institutional conditions through which such problems are defined and governed. This is relevant to streambank cultivation because farming in a sensitive area may be evident, but visibility alone does not explain why the practice persists.

2.3.2 Conceptual framework

Table 1 on the next page presents the analytical framework used in this study. The framework draws on Blaikie's (1985) political economy of soil erosion and Blaikie and Brookfield's (1987) chain-of-explanation approach. It adapts these concepts to the contemporary semi-arid context of Gwanda District. Political economy is an analytical approach that examines how power, economic structures and social relations shape access to resources and livelihood choices. Blaikie's argument emerged from development debates in the late 1970s and 1980s, when soil erosion and land degradation in the Global South were often explained through technical and behavioral accounts. Blaikie challenged these explanations and explained soil erosion through the political and economic conditions under which land users operate. His work was influenced by critical development studies concerned with class, state power, colonial conservation histories, market relations and unequal access to resources. His analysis asked where erosion occurs, who is affected by it, who has the power to define it as a problem, and whose interests shape conservation policy and land use. His examples included developing-country contexts such as Nepal and Zambia, where soil erosion and conservation policy were linked to poverty, marginality, state intervention and unequal political power (Blaikie, 1985).

Table 1. Analytical framework developed for this study, drawing on Blaikie's political economy of soil erosion (1985) and Blaikie and Brookfield's chain-of-explanation approach (1987)

Political Ecology: The Broad Analytical View	
Concepts from the political economy of soil erosion in developing countries	**Application to streambank cultivation in Gwanda**
Global / international political economy and climatic conditions	climate change, recurrent drought, rainfall uncertainty, economic pressures, rural unemployment.
National policies and state structures *(land policy, agricultural support, governance)*	EMA regulation, 30-metre streambank restriction, agricultural support, irrigation policy.
Local resource access and social relations *(land distribution, class, inequality)*	water scarcity, borehole limits, irrigation access, land access, traditional authority, NGO irrigation scheme.
Household livelihood conditions *(poverty, survival pressure, vulnerability)*	food insecurity, income shortage, school-fee needs, labour demands, dependence on farming.
Land-use practices *(cultivation intensity, marginal land use)*	streambank cultivation, cultivation of ecologically sensitive areas, vegetation clearing.
Environmental degradation / outcomes *(soil erosion, land degradation)*	soil erosion, gullies, siltation, water pollution, vegetation loss.

Blaikie (1985) explains soil erosion as both a political-economic issue and a physical process. Blaikie and Brookfield (1987) further developed the concept through the chain-of-explanation approach within regional political ecology. The approach analysed land managers and their direct relations with land, then examined their relations with other land users, local society, the state, and the wider political economy (Blaikie and Brookfield, 1987, p. 27). The scholars sought to challenge single-cause explanations of degradation and show how environmental outcomes were produced through connected ecological, social, economic, and political processes.

Blaikie and Brookfield (1987) compared cases from Africa, Asia, the Pacific, and Europe. This made the concepts and approach flexible as they explained degradation through historically and geographically specific chains of explanation.

Blaikie and Brookfield's (1987) comparative work showed that land degradation does not have one universal cause. They noted that degradation was shaped by the interaction between ecological conditions, land-management practices, colonial and state policies, market pressures, common-property changes and unequal access to resources. Their key contribution was to show that soil erosion should not be explained only by result of population pressure or poor local practice. Instead, it needs to be traced through a chain of explanation linking land users' immediate decisions to local institutions, state interventions and wider political-economic conditions (Blaikie and Brookfield, 1987).

In this thesis, Table 1 illustrates a simplified version of this chain, showing how broader pressures move through governance, local resource access, household livelihood conditions, and farmer land-use practices before becoming observable as environmental outcomes. The first level of the framework in Table 1 refers to broader ***political-economic and climatic conditions.*** In Blaikie's work, this level includes broad forces such as colonial histories, market relations, economic marginalisation, and wider development processes that shape where people live, what resources they can access and how much pressure is placed on land (Blaikie, 1985). In this thesis, this level is further advanced to explore how contemporary climate pressure, rural unemployment and economic insecurity weaken rain-fed farming before farmers even reach the streambank.

The second level explored ***national policies and state structures***. Blaikie (1985) noted that these are not just background institutions. These policies and structures have an impact on land-use decisions. The state controls or influences law, land tenure, conservation policy, agricultural support, credit, pricing, taxation, and resource allocation (Blaikie, 1985, pp. 1–3). In this thesis, this level guided the study to examine how local communities perceive EMA regulation, the 30-metre streambank restriction, agricultural extension, traditional authority, and irrigation policy as shaping the conditions under which farmers make cultivation decisions.

The third level focuses on conditions of ***local resource access and social relations***. In Blaikie and Brookfield's chain of explanation, degradation is often connected to unequal access to land, water, labour, capital, and authority (Blaikie and Brookfield, 1987). Unequal control over these resources affected the parameters of choice available to land users: households with limited access to secure land, water, labour, or capital may be pushed towards more fragile areas or more intensive land use, increasing the risk of erosion and degradation (Blaikie and Brookfield, 1987, p. 69). In this thesis, this level helps examine how water scarcity, borehole limits, irrigation access, land access, traditional authority, and the NGO irrigation scheme shape the choices available to farmers. The fourth level concerns ***household livelihood***

conditions and draws on Blaikie's argument that poverty and marginality shape land-use choices, because households under survival pressure may prioritise immediate livelihood security even when those choices increase erosion risk (Blaikie, 1985). In this study household food needs and financial insecurities and needs were examined to understand how they shape land-use decisions and dependence on streambank cultivation.

The fifth level is ***land-use practice***, where the framework focuses on the decisions farmers make in managing land. Blaikie and Brookfield (1987) distinguish between direct land-management decisions and the conditions under which they are made. In their view, land users may make decisions locally, but those decisions are influenced by factors beyond them, such as access to land, labour, capital, state rules, input prices, and resource control (Blaikie and Brookfield, 1987). In this study, this level shaped questions about where farmers cultivate, why they value streambank gardens, conditions of local water infrastructure, and how the 30-metre restriction influences their choices. The last point is ***environmental degradation and outcomes***. In Blaikie's political economy, soil erosion and environmental degradation are examined as outcomes of land-use decisions made within constrained social and economic conditions, not as isolated evidence of poor farming behaviour (Blaikie, 1985; Blaikie and Brookfield, 1987). This level therefore guides the analysis of visible environmental outcomes, including in relation to the wider pressures identified above.

The framework guided how the research questions were connected. The first question addresses wider political-economic and climatic conditions; the second focuses on governance and access to land, water, irrigation, and agricultural support; the third examines household livelihood pressures; and the fourth considers farmers' own views and justifications. Used together, the concepts on the framework help to answer the main research question by tracing how linked pressures explain the persistence of streambank cultivation and its relationship to soil erosion. The framework is therefore used as an analytical guide, applying Blaikie's concepts to the empirical realities of streambank cultivation in Gwanda, not using it as a rigid model.

This chapter has positioned streambank cultivation as both a livelihood practice and an environmental concern. It has reviewed literature showing how cultivation near streams is linked to erosion and riparian degradation, and livelihoods. The chapter has also presented the analytical framework of the study. Political ecology provides the wider lens, while Blaikie's explanation helps trace how climatic pressure, governance, resource access, and household need shape cultivation decisions in Gwanda. This framework guides the empirical analysis chapter.

3. Research design and methodology

3.1 Research design

This study used a qualitative single-case study design to examine how smallholder farmers in Basotho village understood streambank cultivation in relation to livelihood pressure, environmental regulation, and soil erosion. A qualitative approach was appropriate because the study examined how farmers explained a sensitive and formally restricted practice in their own words. Without measuring erosion rates or testing statistical relationships, the study focused on how farmers connected cultivation near the stream to water access, household survival, environmental regulation, and soil erosion (Creswell and Creswell, 2018; Robson, 2002). The focus was on how farmers explained their land-use decisions, how they interpreted environmental rules, and how they made sense of the tension between securing livelihoods and avoiding soil erosion. The case examined in-depth in this study was Basotho village[7], whilst the wider research problem was streambank cultivation in Gwanda District. This clear case boundary was essential because the study did not seek to represent all villages in Gwanda District, but to use one information-rich case to understand a wider livelihood–environment problem. Within this case, attention was given to the farmers' accounts, collective discussion, observed farming practices and the recently established irrigation intervention.

A single-case study design was suitable because it allowed the research to examine riparian cultivation within its real-life context and to trace how one village-level practice was shaped by connected social, ecological and governance processes (Robson, 2002; Yin, 2018). In this case, those processes included rainfall uncertainty, water access, local authority, household survival pressure, and the newly established irrigation intervention. In this study, cultivation near the stream was not explained as an isolated farming practice. It was explored as part of political-economic and climatic pressures, governance and resource access, household livelihood pressures, farmer decision-making, and environmental outcomes. The research design was connected to the political ecology framework developed for the study, particularly Blaikie's argument that soil erosion should be explained by tracing how local land-use practices are shaped by wider political and economic conditions (Blaikie, 1985; Blaikie and Brookfield, 1987). The case also had a dynamic element because fieldwork was conducted at a time when a newly established irrigation scheme had begun to reshape the farming practice. This made Basotho Village methodologically significant, as it allowed the study to examine why riparian cultivation persists and how farmers responded when a new irrigation garden was offered to them as a sustainable alternative. The irrigation scheme therefore added analytical value by making it possible to explore continuity and change, which is the continued importance of growing crops along the stream, the limits of regulation, and the reception of an intervention intended to reduce pressure on the streambank and surrounding riparian area.

[7] "Basotho Village" is a pseudonym used in this thesis to protect the identity of the study site and the anonymity of participants. The name was chosen because Sesotho is one of the languages widely spoken in the district.

The study was guided by a constructivist worldview and an interpretivist epistemological orientation. This means that the study explored how farmers made sense of streambank cultivation in their everyday life, and in relation to the local authorities and environmental consequences (Moon and Blackman, 2014; Creswell and Creswell, 2018). This orientation was relevant because the study was concerned with farmers' own meanings and explanations: how they understood their land-use choices, how they interpreted rules around cultivation near the stream, and how they negotiated the tension between livelihood security and soil erosion. The purpose of the single-case design is therefore not statistical generalization, but analytical depth. The case was used to generate insight into how livelihood pressure, environmental regulation and soil erosion interact in one specific setting, while contributing to wider debates on political ecology, rural livelihoods, and environmental governance.

3.2 Case selection and study setting

The selected village in Gwanda District[8] was chosen as the field site because it provided a relevant and information-rich case for examining streambank cultivation, livelihood pressure, environmental regulation and emerging alternatives to cultivation near the stream. The village is located in a semi-arid district, where unreliable rainfall and water scarcity strongly affect agricultural decision-making. These conditions made the site methodologically relevant because riparian cultivation was an environmental issue and a livelihood response to the challenges of rain-fed farming. The study site is located within the Mzingwane catchment, and Basotho stream[9] feeds into the Tuli River. The Basotho stream was central to the study because streambank farming has historically been practiced along the stream. Therefore, the research problem was evident on the physical landscape of the selected village. This allowed the study to examine how farmers related to a farming practice that was familiar, locally embedded and environmentally contested.

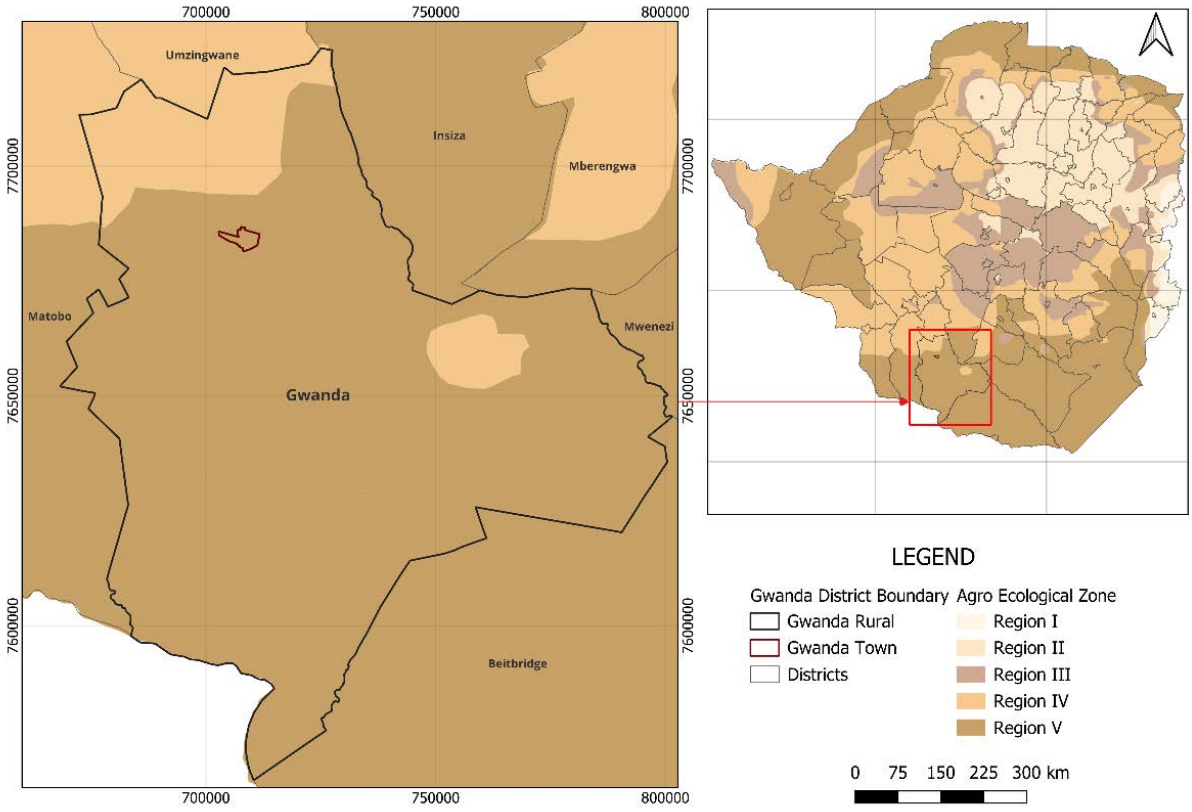
Basotho Village was also selected because of the recently established irrigation scheme. The scheme made the village especially useful for the research questions because it allowed the study to explore whether an intervention designed to reduce cultivation near the stream was experienced as a realistic alternative by farmers. Therefore, the site provided an opportunity to analyze the continued importance of cultivation near the stream, the limits of regulation, and the local reception of an irrigation-based solution. Fieldwork was conducted in February 2026, approximately four months after the establishment of the irrigation scheme. This timing was convenient because the study took place after the new intervention had

[8] Gwanda District is in Matabeleland South Province in the south-western part of Zimbabwe and is characterized by semi-arid climatic conditions, including low and highly variable rainfall, high temperatures, and recurrent droughts. The district falls predominantly within Agro-ecological Region V, which is associated with annual rainfall generally below 450 mm and high levels of rainfall variability, making it largely unsuitable for reliable rain-fed crop production (Mugandani et al., 2012; World Bank, 2022).

[9] "Basotho Stream" is a pseudonym used to protect the identity of the watercourse and, by extension, the study site and participants.

already begun to influence local farming discussions and decisions. This enabled the researcher to observe farming practices, the location of gardens, the use of the irrigation scheme and the relationship between water access and cultivation decisions.

Figure 1. Map of Gwanda District relative to surrounding provinces and agro-ecological zones in Zimbabwe. Source: Created using ArcGIS with base data from Gwanda RDC shapefiles obtained during fieldwork, 2026.



The study area characteristics directly shaped the research problem and the methods used to study it. Basotho Village allowed the research to connect interviews, the focus group discussion and observation in one village.

3.3 Ethics, positionality and field access

Ethical considerations mattered because participants were discussing a practice that is formally restricted. Participants could therefore face social or institutional risks if their identities, locations, or farming practices were disclosed. For this reason, ethical practice was not limited to obtaining consent; it also required reducing the possibility that participants could be exposed through the research process. Before each interview and the focus group discussion, the researcher explained the purpose

of the study in IsiNdebele, the local language used during data collection *(see Appendices 1, 2 and 3)*. Verbal consent was obtained before participation, including consent for audio recording. Oral consent was used because written names and signatures could create unnecessary risk in a study dealing with a legally sensitive practice. Identification details were removed from transcripts and field notes, and pseudonyms were used for participants and sensitive place identifiers. The audio recordings were stored in a pin code secured external storage device that was only accessible by the researcher. The interviews were conducted in IsiNdebele and later translated into English by the researcher, who is fluent in both languages. During translation, I focused on preserving the participants' intended meanings because some expressions could not be translated exactly word for word.

Field access was facilitated through Gwanda RDC[10], the village head, the researcher 's local supervisor[11] and an NGO representative working with the village in the new irrigation garden. The village head helped the researcher to get an opportunity to introduce and explain the study in a meeting with the local community members. Private meetings were then scheduled with willing and qualifying people who then participated in interviews. The NGO representative assisted with introductions to the new irrigation scheme beneficiaries. The researcher explained the study and invited willing and qualifying members to participate in the focus group discussion. However, this access route may have created gatekeeper pressure and bias. Therefore, the researcher made sure to thoroughly and clearly explain the study's guiding principles to the local community, to safeguard voluntary participation and privacy. The study was also cognisant of representativeness. The final sample included ten semi-structured interviews, nine with smallholder farmers and one with an NGO representative (5 women and 4 men). As well as one focus group discussion with nine farmers, 6 women and 3 men. Participants included younger adults, middle-aged farmers and elderly farmers, which helped capture different experiences.

My positionality as a Zimbabwean researcher with prior field experience of working with vulnerable rural communities, created both familiarity and distance. Shared language, cultural knowledge, and rural field experience helped me to easily build rapport with participants. However, my position as a university student studying abroad may have influenced how participants presented themselves and what they chose to emphasise. Reflexivity was therefore considered in how identity, assumptions and research questions shaped data generation and interpretation (Moon and Blackman, 2014; Prowse, 2010).

[10] The Gwanda Rural District Council granted the researcher a letter of approval to conduct the study and provided contact details of the local community leaders in the village.

[11] The researcher was awarded the SLU Global MFS scholarship to conduct the study and was therefore required to work with a local supervisor during fieldwork. The local supervisor also helped to connect the researcher with the local NGO representative, who provided useful guidance and support in accessing the study area.

3.4 Data collection methods

3.4.1 Semi-structured interviews

Semi-structured interviews were the primary data collection method because they allowed participants[12] to explain their experiences, reasoning, and interpretations in their own words, while also giving the researcher flexibility to probe emerging issues (Bryman, 2016; Robson, 2002). This was relevant for the study concerned with how farmers understood and justified the farming practice, how they interpreted environmental regulation, and how they negotiated the tension between livelihood security and soil erosion. Participants[13] were men and women from Basotho Village who were aged 18 years and above. They had relevant knowledge of local farming conditions, direct or indirect experience of cultivating crops near the stream or involved in the new irrigation scheme as beneficiaries. Participants were selected through the purposive sampling method, the criteria was relevance, experience, voluntary participation and the ability to provide informed accounts of the livelihood and environmental issues under study (Patton, 2002; Bryman, 2016). The researcher tried to ensure gender balance

The NGO interview was used for contextual understanding. It provided background on the irrigation scheme and its intended role as an alternative to streambank cultivation, while the analysis remained centred on farmers' own accounts and experiences. The interviews[14] were conversational and guided by open-ended questions linked to the study's research questions and theoretical orientation. Given the legal sensitivity of streambank cultivation, one on one interviews were useful because participants could discuss their farming practices away from wider community discussion. Interviews[15] were held in private, and where participants felt comfortable. This reduced the risk of exposing participants in front of neighbours and local leaders and allowed them to explain their land-use decisions, challenges, and household pressures in more detail. However, as some participants were identified through local leadership and NGO introductions, the sample may have favoured farmers who are active in the community and known by local institutions or connected to the irrigation intervention.

3.4.2 Focus group discussion

One focus group discussion (FGD) was conducted to complement the individual interviews by exploring shared meanings, social norms and points of agreement and

[12] A summary of participant categories is provided in ***Appendix 4***.

[13] In total, ten semi-structured interviews were conducted. Nine interviews were conducted with smallholder farmers, while one interview was conducted with an NGO representative working with the community.

[14] The interview guide in ***Appendix 1*** covered livelihood dependence on streambank cultivation, water access, perceptions of environmental change, awareness of regulation, household survival pressures and responses to the irrigation scheme.

[15] Interviews lasted between 30 and 45 minutes, were conducted in the local IsiNdebele language, audio-recorded with consent, and later transcribed to English for analysis.

disagreement within the community. The FGD[16] consisted of nine participants, six women and three men, from Basotho Village and all with knowledge and experience of streambank cultivation. According to Bryman (2016), a FGD must be conducted in a setting where interaction, disagreement and shared reasoning could be observed. This was important for an interpretivist study because meanings were expressed individually and through group discussion. The discussion was guided by open-ended questions *(see Appendix 2, for the FGD Guide)* designed to encourage interaction. Participants reflected on their experiences of streambank cultivation, its environmental effects, water access, regulation, and the new irrigation scheme. To reduce the influence of dominant voices, the researcher encouraged quieter participants to contribute, used follow-up questions and invited participants to respond to contrasting views. This helped ensure that the discussion did not only reflect the views of the most vocal participants. The participants came from the same community and were connected to the new irrigation garden. However, the discussion may not have fully represented households excluded from the scheme.

3.4.3 Observation and transect walk

In addition to interviews and the FGD, the study used observation and a transect walk to contextualize the participants' accounts. Observation helped triangulate farmers' accounts by showing how streambank cultivation appeared in practice, including the location of gardens near the stream, visible soil disturbance, vegetation clearing, erosion features and overlapping livelihood activities. Observation was conducted during the three weeks of fieldwork in February 2026. The researcher used the observation guide included in *Appendix 3* [17] to understand the farming practices along the Basotho stream and at the irrigation garden. Photographs and field notes were taken to record data. One guided transect walk was conducted along the Basotho stream and around the irrigation garden with the assistance of an NGO field officer familiar with the area. This provided contextual information on land-use patterns, the history of the irrigation scheme, and the relationship between the farming practice and the new irrigation intervention.

The observations were used to compare participants' accounts with the spatial location of gardens, water sources, irrigation infrastructure, and signs of soil disturbance. They also provided evidence of environmental concerns, including cultivation close to the stream, soil disturbance, and erosion features. Observation therefore strengthened the study by linking participants' explanations to the physical setting in which livelihood decisions were made. Field notes included both descriptive observations and reflective notes connecting what was observed to the study's analytical framework. In this way, observation was a qualitative method for understanding how riparian cultivation, livelihood pressure and soil erosion were

[16] The FGD was held at the new irrigation site on 12 February 2026. It lasted 57 minutes, was conducted in IsiNdebele, and was audio-recorded with participants' consent.

[17] Observations included the location of gardens in relation to the stream, crop types, active and abandoned gardens, apparent streambank disturbance, vegetation clearing, erosion features and other livelihood activities occurring near the stream.

experienced and enacted in everyday practice.

3.5 Triangulation and reflexivity

Triangulation strengthened the analysis as it enabled comparison between what farmers said in individual interviews, what emerged in the group discussion, and what was observed along the stream and in the irrigation garden (Robson, 2002; Creswell and Creswell, 2018). Semi-structured interviews provided insight into individual livelihood reasoning, including how farmers explained, justified, and negotiated streambank cultivation in relation to household survival, environmental regulation, and soil erosion. The focus group discussion complemented this by revealing collective norms, moral discourse and points of agreement or disagreement within the community. Observation and the guided transect walk provided a spatial and material understanding of farming practices, and apparent environmental outcomes. The NGO interview added contextual information on the irrigation scheme and its intended role as an alternative to the farming practice. Triangulation was used to compare how the phenomena under study appeared across different forms of evidence. The interviews showed personal justifications, the focus group revealed how these justifications were socially normalized, and observation showed how cultivation continued close to the stream despite awareness of regulations. Reflexivity was therefore applied in interpreting consistencies and tensions between what participants said, what was collectively discussed, and what was evident in practice (Prowse, 2010; Creswell and Creswell, 2018).

3.6 Data analysis

The qualitative data collected was analysed using thematic coding and analysis. This approach was relevant because the study aimed to identify patterns of meaning, reasoning, and explanation. Thematic analysis was suitable for this study because it provided a flexible method for coding qualitative empirical material and identifying patterns of meaning across interviews, the focus group discussion and observation notes (Braun and Clarke, 2006). This was suitable for interpreting how participants explained streambank cultivation in relation to livelihood pressure, regulation, and environmental change, while remaining consistent with qualitative case-study analysis (Robson, 2002; Creswell and Creswell, 2018).

The study used a theory-informed thematic analysis with inductive coding. The data collection tools were informed by the study's research questions and conceptual framework. However initial coding of the data collected was primarily inductive, as codes were developed from participants' accounts, observation notes, and fieldwork memos. The study's conceptual framework provided sensitising concepts that helped to organise and interpret emerging patterns without forcing the data into predetermined categories (Bowen, 2006). In this sense, the conceptual framework guided the analysis without functioning as a rigid deductive coding template.

Before coding, data collected, was transcribed and translated from IsiNdebele to English by the author, who is fluent in both languages. Coding was conducted manually through repeated reading of transcripts, observation notes, and fieldwork diary. The steps of analysis were preparation of data, coding, grouping similar codes, comparing coded material, and creating themes that were relevant to the research questions and the framework of the study, (Robson, 2002). The researcher marked repeated explanations, contradictions, and points of emphasis. Examples of the initial codes included rainfall uncertainty, water scarcity, borehole limits, inherited gardens, food security, fear of fines, uneven enforcement, environmental awareness, soil erosion, irrigation exclusion, amongst others.

These codes were then grouped into broader analytical themes that corresponded with the framework developed in Chapter 2. Climate issues and failed upland farming were connected to political-economic and climatic pressures. The 30-metre rule, fines and uneven enforcement were connected to national and local governance. Water scarcity, borehole conditions, irrigation access, and reduced crop autonomy were connected to local resource conditions. Food security and school-related expenses were connected to household livelihood conditions. Inherited gardens, normal practice, moral distinctions, and survival justification were connected to land-use practices and justification. Environmental awareness, soil erosion, vegetation clearing, and streambank disturbance were connected to environmental degradation and outcomes.

Notes made during coding helped the researcher navigate between data, codes, themes, and theory while keeping interpretation grounded in participants' accounts and observed practices. The final stage of analysis interpretation and analysis using the themes and concepts of the framework. This process shaped the organisation of Chapter 4, where the empirical material is presented through the same analytical chain developed in Chapter 2.

3.7 Limitations of the study

This study had limitations that shaped the scope and type of claims that could be made. The study was based on a single qualitative case in Basotho Village. This allowed for in-depth analysis of farmers' experiences, but it also meant that the data collected could not be statistically generalised to all villages in Gwanda District. The study also did not include quantitative environmental assessments, such as soil testing, hydrological measurements and satellite mapping. Environmental processes along the stream are influenced by several factors, including rainfall variability/intensity, soil type, upstream land use, amongst others. Therefore, the study does not make technical claims about the exact cause or scale of environmental degradation. Instead, it analyses how farmers understood these changes and how visible signs of soil disturbance, vegetation clearing and streambank cultivation related to the wider livelihood and governance pressures examined in the thesis.

The sensitivity of streambank cultivation as a legally restricted practice may have

influenced participants' responses. Although confidentiality, oral consent and private interview settings were used to reduce risk, some participants may still have under-reported their involvement or framed their practices in socially acceptable ways. This limitation was partly addressed through triangulation of data. Moreover, the study focused on smallholder farmers' perspectives and included only one NGO representative as an external actor. Claims about formal enforcement are based on farmers' accounts, NGO contextual information and field observation since other government stakeholders were not interviewed. The analysis therefore focused on farmers' experiences, and not providing a full institutional account of enforcement and policy interpretation.

Another limitation was that the observations and transect walk were conducted over a short fieldwork period and during one season. They provided a glimpse of farming practices and environmental conditions, not a full account of seasonal variation. The study was conducted over one school semester, with data collection conducted over a short fieldwork period. Since the transect walk was guided by an NGO officer involved in the local irrigation intervention, what was shown and explained may have been shaped by the officer's knowledge of, and role in the scheme. This limitation was addressed by using the transect walk alongside interviews, the FGD and independent observation. The irrigation scheme had been established 3 months before fieldwork. Therefore, the study assessed early perceptions and immediate effects, not long-term impacts. These limitations shaped the scope of the study but did not invalidate its contribution.

4. Empirical material and analysis

This chapter presents and analyses the empirical material from Basotho Village, drawing on farmers' narratives, the FGD, observation and the guided transect walk. It is organized according to the adapted explanation developed in Chapter 2, drawing on Blaikie's political economy of soil erosion. The chapter traces how political-economic and climatic pressures connect to governance, local resource conditions, household livelihood pressure, land-use practices and environmental outcomes. It also shows how streambank cultivation is described, justified and negotiated by farmers, while also analyzing how these everyday practices relate to soil erosion and environmental change. The chapter refers to individual interview participants as Interviewee 1 to Interviewee 10 and FGD participants as Participant 1 (P1) to Participant 9 (P9).

4.1 Political-economic and climatic pressures: insecure farming under semi-arid conditions

> "For us here farming has always been our main way of surviving. We depend on rain, but the problem is that the rains are no longer dependable like before. Sometimes they come late, sometimes they just stop. People started relying more on the gardens along the stream, because at least there is water there and crops can survive. We have this new irrigation garden, but it is still new, we have not even harvested any crops from it. people still depend on the old gardens."

The statement above was made by Participant 1 (P1) during the FGD conducted on 12 February 2026. P1, a female smallholder farmer aged 40–50, was responding to a question about how farming and their livelihoods had changed. She explained how changing rainfall patterns had increased reliance on streambank gardens. The phrase *"sometimes they come late, sometimes they just stop"* shows how rainfall uncertainty was affecting farming at various stages: before planting, during crop growth and before harvest.

In applying the framework, this evidence showed that streambank cultivation is influenced by the wider political-economic and climatic pressures. In Basotho Village, participants described streambank cultivation as a response to poor rainfall and also connected it to insecure work, weak income, expensive inputs, unstable markets, limited water infrastructure and the declining reliability of rain-fed farming. These pressures narrowed the choices available to households and made the streambank attractive because other farming spaces had become increasingly uncertain.

The participants of the study described rainfall uncertainty as one of the main pressures affecting farming. They described rainfall progressively low and unpredictable. Farming calendars no longer provided the same guidance, and crop failure remained possible even after households had invested in labor, inputs and

time. Interviewee three[18], a 35-year-old female smallholder farmer, made a similar description as she attributed rainfall uncertainty to fear of total crop loss:

> *"We are continuously at risk of total loss, our crop yields are continuously declining with each farming season. We try our best and work very hard in our farms but most of the crops just dry up."*

This meant that farming remained risky even when households worked hard, because rainfall uncertainty could still disrupt planting, crop growth and harvesting. Interviewee three also described how changing rainfall had disrupted older seasonal knowledge:

> *"Seasons have changed, climate change has made shifts. Before, we used to know the seasons and plant around October, September now the rainfall is unpredictable, we have started planting in January even in March."*

Her account shows how broad and contemporary climatic pressure became evident at household level through the change in weather patterns. Delayed and interrupted rainfall affects planting decisions, wastes labour, and reduces food availability. Zimbabwe's recent drought conditions reflect both climate variability and climate change. According to the Government of Zimbabwe (2024), the 2023/24 El Niño-induced drought severely interrupted the agricultural season. Rainfall started late, there were dry spells as the country received below-normal rainfall by the end of February 2024. The report also noted crop failure, reduced water and pasture availability, food insecurity, and pressure on agriculture, water, sanitation, energy and rural livelihoods (Government of Zimbabwe, 2024). Mwadzingeni et al. (2022) situate the drought impacts within the climate-change context, arguing that Zimbabwe is becoming more arid because of declining rainfall and rising temperatures, while droughts and floods are increasing in frequency and severity. ZimLAC (2025) add that prolonged mid-season dry spells were the most common shock reported by rural households, affecting 62.9% of households, followed by cash shortages at 57.4% and crop pests at 34.6%. This relates to the empirical findings from Basotho Village.

Rainfall uncertainty therefore represents the first climatic pressure in the framework. This disrupted farming calendars, increased the risk of crop failure, and helped explain why streambanks became attractive as moisture-retentive farming spaces. Within the framework, rainfall uncertainty represents one of the wider

[18] Interviewee 3 interviewed 14 February 2026. She has lived in Basotho Village throughout her life and described rain-fed farming as her household's main livelihood. Her household included her husband, mother-in-law and two children, and she also noted that her husband engaged in part-time artisanal gold panning while farming remained central to household survival. She cultivated small grains, maize and vegetables near the streambank.

climatic pressures that shaped farmers' land-use decisions (Blaikie, 1985; Blaikie and Brookfield, 1987).

However, some participants highlighted that they were making efforts to adapt to the changing weather patterns and not solely relying on the streambank gardens. They described using conservation agriculture, rainwater harvesting methods, planting small grain crops, and reducing the area they planted. Interviewee two[19] explained that conservation agriculture and rainwater harvesting had helped her household reduce the risk of complete crop loss during low-rainfall years:

> *"Learning more about conservation agriculture and rainwater harvesting has helped our family to improve yields and avoid complete loss during years with less rainfall."*

Interviewee 4, a 55-year-old male smallholder farmer also explained how rainfall uncertainty had made farmers more cautious in their planting decisions. Rather than planting everything at once, households now waited, observed the rainfall pattern and sometimes reduced the area planted to avoid losing all their seed input in case the rainy season stopped earlier than expected:

> "We no longer just plant everything at once, we wait and try to get a weather forecast before I decide when to plant. We have also reduced the size of the land I plant, because it is difficult to manage a big field when the rains are poor."

These accounts are insightful because they show that farmers are adapting. Farmers also reported receiving support from AGRITEX extension officers through the Pfumvudza/Intwasa conservation agriculture programme, which promotes climate-smart farming practices such as minimum soil disturbance, mulching, and crop rotation among smallholder farmers in drought-prone regions (Dube and Chitakira, 2025). However, these adaptation efforts did not remove the need for streambank gardens. The efforts by the farmers to adapt to the dry conditions, challenges explanations that present farmers turning to streambank cultivation as ignorance. Farmers were trying to respond to climatic pressure, but the available resources were not enough to support rain-fed farming or off farm alternatives.

Blaikie (1985) argued that environmental degradation, particularly soil erosion in the Global South, is a result of the social, economic, and institutional conditions that shape land-use decisions. The farmers in Basotho village narrated their experiences in relation unreliable rain-fed agriculture, high input costs, limited employment, weak income opportunities, and inadequate irrigation water. Under

[19] Interviewee 2 was interviewed at her homestead on 14 February 2026. She lived in a household of eight, farmed about two hectares of land and had previously been fined by the Chief for cultivating within the prohibited 30-metre streambank area. At the time of the interview, she had stopped streambank cultivation after becoming a beneficiary of the new irrigation garden. Her account is important because it links environmental regulation to drought, water scarcity, household food needs and the role of livelihood alternatives.

these conditions, streambank gardens became one way of securing food and income. This was clear in the focus group discussion, where P6, a male smallholder farmer aged 40–50, linked farming difficulty to input costs and poor market returns:

> "Another challenge is pests and the cost of farming inputs. Many of us cannot afford pesticides to control pests in both the gardens and the upland fields. When pests attack crops like tomatoes, okra and leafy vegetables, the harvest becomes poor. Selling the vegetables is not always easy. Farmers harvest the same crops at the same time, so the market becomes flooded. I once harvested a lot of chillies and okra from my garden, but it was difficult to find buyers. Even when buyers came, they offered low prices, the income we get from farming is not always stable."

This shows that streambank cultivation was also shaped by the unstable economics of smallholder farming. Interviewee one,[20] gave a similar account, explaining that the village had long been known for selling vegetables from streambank gardens, local shops, and restaurants. However, she also noted that because many households were growing similar vegetables, the market became flooded and farmers sometimes sold at lower prices to avoid losses. Streambank cultivation was therefore an income strategy, but not a secure one. It provided cash when crops sold well, but income could quickly fall when farmers harvested the same vegetables and local markets became flooded.

Interviewee two explained that her husband had a government job, but *"the little salary does not sustain the family,"* while also noting that fertilizer was expensive and drought had reduced livestock holdings. She had lost a large share of livestock to recurrent droughts. Livestock function as a household safety net, however when drought led to the reduction in livestock holdings. It perpetuated dependence on market gardening. Interviewee four, [21] made a similar point by comparing his household with previous generations.

> He said that his parents had cattle that could be sold during drought, while he did not have many cattle and had to rely on piece jobs to supplement farming. He described his household as surviving through farming and casual labour but added that *"farming on its own is no longer enough."*

[20] Interviewee 1 was a 33-year-old female smallholder farmer interviewed at her homestead on 11 February 2026. Her account is relevant because it shows women's dependence on inherited streambank gardens, rainfall uncertainty and household food security. She explained that streambank gardens provided vegetables such as tomatoes, onions and kale for household consumption and sale, while also helping with school fees and basic household needs. Her interview also links streambank cultivation to moist and fertile soils, land fragmentation, limited cattle for ploughing, environmental awareness, the 30-metre rule and the limits of the new irrigation garden.

[21] Interviewee 4 was a 55-year-old male smallholder farmer. He was interviewed on 17 February 2026. He lived in a household of seven. His household combined farming with casual labour, including building work, but farming was the key source for food and household support. His account is relevant because he described streambank gardens as a food and income "cushion" during dry periods, while also showing how the new irrigation garden had reduced, but not fully removed, dependence on old streambank gardens.

Interviewee three described the absence of secure work directly: *"There are no jobs here."* Interviewee one also showed that income insecurity extended beyond the village. Her husband's job in South Africa was unstable, while farming remained central to supporting her children through food production and market gardening. Across the interviews, livelihood diversification existed, but it was weak and uncertain. Casual labor, migration, government salaries, artisanal mining and informal work supplemented farming, but they did not replace it. ZimLAC (2025) report indicated that rural households relied on casual labor, food crop production and remittances. Basotho village located within the province that recorded the lowest average monthly household income in April 2025, at USD 98, (ZimLAC, 2025).

The empirical findings relate to Ellis (2000) and Barrett et al. (2001), who showed that rural households often combine farming with other income sources to manage risk. The Basotho Village case adds to this literature by showing the limits of livelihood diversification. Piece jobs, remittances, informal work and small livestock activities existed, but they did not remove dependence on farming. This reinforces Bryceson's (2002) argument that agriculture may become less dependable without a strong non-farm economy emerging to replace it. In Basotho Village, households continued to depend on farming even when farming had become more uncertain.

The political-economic pressure was also evident in the cost of producing and selling crops. Farmers faced crop pests, expensive pesticides, fertilizer costs, weak bargaining power and uncertain vegetable markets. These conditions made streambank gardens attractive because they offered a better chance of producing crops for both food and sale, even if income remained unstable. Interviewee ten, the NGO field officer supported this interpretation, noting that a baseline study conducted before the establishment of the irrigation garden, had identified drought, climate change, unreliable rainfall and food insecurity as key drivers of streambank cultivation. The field officer's interview was relevant because it showed that the irrigation intervention was designed in response to the same pressures that the farmers described.

The data collected also corresponds with Zimbabwean studies[22] on climate stress and smallholder farmers livelihoods. Mbereko et al. (2018) show that households in Gwanda respond to drought and rainfall variability by wetland farming, replanting, use of drought resistant crop varieties, livestock sales and informal trading. While Ndlovu et al. (2020) show that water-harvesting practices are used by smallholders but were limited by labor and technical demands. This study showed how climate stress and economic insecurity made streambank gardens an alternative for farmers. Unreliable rainfall, high input costs and unemployment kept farmers dependent on streambank cultivation for food, income and school-related

[22] ZimLAC's 2025 noted that for the 2024/25 season, the province in which Basotho village is located, Matabeleland South province, had recorded the lowest average total cereal harvest among 10 the provinces. This was 166.7 kg per household, compared with the national average of 399.4 kg. This suggests that agricultural insecurity in the province and district is structural and not only the result of one failed season (ZimLAC, 2025).

needs. This reveals that the practice was a response to livelihood uncertainty. Denga et al. (2022) identify climate change, drought, limited arable land and unsustainable livelihoods as drivers of riverbank cultivation. Zinhiva et al. (2017) adds that cultivation along the Chiredzi River is linked to moisture, fertile alluvial soils, drought mitigation and proximity to water. The study confirmed these drivers but also showed how they were experienced at household level.
Reflecting on Blaikie's (1985) political economy of soil erosion, the data of the study show that the streambank is an outcome of broader climatic and economic challenges. It is the point where wider pressures affecting smallholder farmers are translated into everyday farming practice. Although Blaikie's study was developed in the 1980s, it remains relevant to this study because it directs attention beyond the immediate act of cultivation to the conditions that shape land-use decisions. In Basotho Village, unreliable rainfall, weak income, limited employment, costly inputs and inadequate irrigation alternatives were translated into continued reliance on streambank gardens. Streambank cultivation can therefore be conceptualized as a form of erosive adaptation under structural vulnerability. The farming practice reduced immediate livelihood risk by helping households cope with drought, water scarcity and income insecurity, but it may also create longer-term environmental pressure.

4.2 National and local governance: regulation, enforcement and the limits of compliance

Environmental governance in Basotho Village was not a process moving smoothly from law to farmers' compliance. Formal regulation restricting cultivation close to streams was in place, and farmers were aware of the 30-metre rule[23]. However, obedience to the law was shaped by local realities. Farmers interpreted and negotiated the rules through household livelihood needs, water scarcity, and limited alternatives. This connects to Blaikie's explanation because the state, local authorities and conservation rules are not outside the process of soil erosion; they shape the conditions under which farmers decide where and how to cultivate (Blaikie and Brookfield, 1987). Blaikie (1985) highlighted that soil erosion should be traced through the laws, institutions, resource access, and livelihood pressures that shape land-use decisions. In this study, the 30-metre buffer was an environmental protection rule and a governance condition that affected farmers' access to moist and productive land, as perceived by the local community.

The 30-metre streambank restriction was known among the interviewees and FGD participants. Farmers explained that local leaders, AGRITEX and EMA had communicated that cultivation of crops should not be conducted close to the stream.

[23] The 30-metre rule refers to Zimbabwe's Environmental Management (Environmental Impact Assessment and Ecosystems Protection) Regulations, Statutory Instrument 7 of 2007. Section 20(1) restricts cultivation, vegetation disturbance or soil alteration within 30 metres of the naturally defined banks of a public stream without a licence from the Environmental Management Agency (Government of Zimbabwe, 2007).

However, for farmers, the buffer zone was an environmental protection measure preventing access to the moist and productive part of the streambank where crops had a better chance of surviving. This livelihood-environmental dilemma was expressed by Interviewee 2, a 56-year-old female farmer who had previously been fined by the Chief for cultivating within the prohibited area:

> ***"If we avoid the thirty meters zones, we remain with very little land. And the fertile part is closer to the water. We know the law, but we do not have a choice."***

This statement captures the central governance tension in the study. The participant does not deny the law. She explains why compliance was difficult before she benefited from the new irrigation garden. Avoiding the buffer zone where streambank cultivation is prohibited to her meant losing access to the moist and fertile land that contributed to her household harvests. The rule was therefore experienced as environmental regulation and a restriction on livelihood. This supports Zinhiva et al. (2017), whose study along the Chiredzi River highlighted that streambank and riverbank cultivation were institutionally condemned but beneficial to the vulnerable rural communities because of moisture, fertile soils and drought-buffering benefits. The case study adds detailed accounts of how regulation is negotiated at household level. Some farmers continued market gardening along the stream not because they dismissed environmental rules, but because compliance threatened access to productive land. The FGD also showed that regulation was known but difficult to enforce under livelihood pressure. Participants described fines and penalties including a fine of a goat in extreme cases. However, warnings and fines did not fully stop the practice. FGD Participant P7, a female smallholder farmer aged between 70–80 years, explained that when crops dry in upland fields and livestock are affected, people *"return to the stream because they feel they have no other option."* This demonstrates that rules alone did not stop the farming practice, as compliance becomes difficult when environmental protection is not supported by secure livelihood alternatives. This finding corresponds with an Auditor-General's assessment that EMA struggled to regulate wetland and streambank cultivation because protection orders were not always issued consistently or effectively enforced (Office of the Auditor-General, 2021).

Political ecology perspectives help explain why governance is not always neutral. Robbins (2012) and Forsyth (2003) show that environmental regulation often distributes responsibility, access and blame unevenly. In Basotho Village, governance operated through government stakeholders including EMA, AGRITEX, Gwanda RDC, the village head, the chief and the NGOs. These institutions did not form one simple system of authority. Instead, they created a layered field in which rules were communicated, adjusted, resisted, enforced unevenly and sometimes negotiated. This reflects Cleaver's (2012) argument that institutions are shaped in practice, as formal rules are interpreted through everyday social relations and livelihood pressures.

The empirical findings also reveal contradictions in enforcement. On paper, the law appears universal; however, in practice, participants described enforcement as socially embedded. P6, a male smallholder farmer aged 40–50, explained that enforcement was not always experienced as equal:

> *"*Some people are treated differently. People let us tell the truth and not sugarcoat things (FGD participants laughed). There are people who are well known in the village, it is not easy for the village head to confront them. But smaller farmers can be told to move their gardens. Sometimes the rules depend on the situation and who is involved. There are some people who have big farms that are near the stream."

This suggests that authority operated through relationships, status, and the moral difficulty of removing people from a livelihood source. Enforcement was technical and social. Interviewee five also linked resistance to perceptions of leadership inconsistency. He explained that some farmers questioned why they were being asked to leave their gardens while a local leader was believed to have a large farm close to the stream. FGD Participant P4 also compared Basotho Village with nearby areas, saying that streambank cultivation was still widely practised in other villages along another nearby stream and one major river in the district, while their village faced stricter banning. This suggests that enforcement was perceived as uneven between people, but also across space. However, Interviewee 6 argued that the ban applied to everyone and did not favour villagers with more money or more cattle. This contrast highlighted how local governance was uneven and differently interpreted by farmers.

Farmers expressed confusion because the rules appeared be changing and more enforced in their village compared to other villages. In the FGD, P6 explained that farmers all along they were encouraged to farm thirty metres away from the banks of the stream by the local leaders and EMA. Then over the past years they were required to fence the gardens and plant trees to reduce soil erosion, but as of October 2025 all gardens strictly were banned. Regulation was presented as a negotiated and shifting local process. This uncertainty helps explain why some farmers felt like the ban was sudden and unfair. Especially considering that had already invested labour, fencing, trees, and crops in their gardens. In this sense, governance shaped not only what farmers were allowed to do, but how they understood fairness, authority, and loss.

The Basotho Irrigation Scheme[24] was established as an alternative to end market gardening activities along the stream. The NGO Field Officer explained that farmers turned to streambanks because of drought, food insecurity, and limited alternatives. He emphasised that enforcement alone would not work unless an alternative farming space with irrigation water was provided first. The irrigation scheme was a resource alternative and a governance tool. Beneficiary households were required to abandon streambank cultivation as a condition for joining the cooperative. Interviewee ten also explained that the beneficiaries had to sign binding pledge forms, committing to abandoning the gardens along the stream.

However, the irrigation scheme also shows the limits of institutional solutions. It accommodated 42 out of 110 households in the village. It introduced cooperative farming with limited individual crop choice. The beneficiary farmers had to adjust to shared decision-making. This challenges development narratives that present irrigation or donor interventions as neutral. The scheme may reduce streambank cultivation for some households, but it does not fully replace the autonomy, crop diversity, and household food functions of individual streambank gardens. It also creates new forms of inclusion and exclusion because those outside the scheme remain more exposed to the same pressures that drove streambank cultivation in the first place.

Therefore, national, and local governance shapes whether farmers comply, negotiate or continue farming in prohibited areas. However, government stakeholders were not interviewed, therefore this analysis does not claim to represent the official position of government or traditional authorities. It focuses on how governance was experienced by farmers.

[24] Basotho Irrigation scheme is a pseudonym used to protect the identity of the irrigation site and the community. The garden was established in October 2025 by a local NGO as an alternative farming space for households previously involved in streambank cultivation. According to the NGO field officer, the intervention included JoJo tanks, a solarised water point, drip irrigation, fencing, a water committee, a constitution and a maintenance fund. The 1,5 Hectares garden was intended to support food security while reducing cultivation along the stream, although access was limited to selected beneficiary households and did not include all households in the village.

4.3 Local resource conditions: water access, land and uneven alternatives

"Water!"

This was the immediate response from several FGD participants when asked about the main challenges they were facing in their agricultural activities and the reasons farmers cultivated near the stream. The answer captured the central resource problem in Basotho Village. Water scarcity influenced where farmers cultivated, what they planted, how much labour they used, and whether crops survived. In this study, water scarcity refers to the limited availability of, and unequal access to, reliable water for household and agricultural use. Water scarcity results from low water supply, inadequate infrastructure and institutions failing to balance different water needs (UN-Water, n.d.). In Basotho Village, this included low unpredictable rainfall, a limited number of borehole and inadequate irrigation water.

The evidence from Basotho Village shows that the farmers where susceptible to water scarcity, inadequate irrigation infrastructure, and unequal access to boreholes. These local resource conditions determined where farmers could cultivate their crops. In Blaikie and Brookfield's explanation, farmers make land-use decisions locally, but their decisions are shaped by socio-economic factors that may be beyond their control (Blaikie and Brookfield, 1987). This is directly relevant to Basotho Village because limited productive water, few functional boreholes, unequal access to private water sources, limited irrigation space, unreliable upland fields, and high input costs perpetuated farming along the stream.

Water scarcity emerged as the most immediate local condition shaping agricultural practice in Basotho Village. During the FGD, participants mentioned several farming challenges, including pests, livestock damage, poor soils, and expensive inputs. However, water scarcity and water related challenges emerged as the main problem affecting agricultural productivity. This finding corresponds with studies from Gwanda showing that adaptation is shaped by water scarcity[25], rainfall variability and uneven access to support. Mbereko et al. (2018) show that climate adaptation in Gwanda is not only a technical response to drought, but is shaped by institutions, power, and resource access. The Basotho case supports this literature by showing how water scarcity becomes a direct driver of streambank cultivation.

[25] According to ZimLAC (2025) in rural Matabeleland South province where Gwanda district is located, boreholes or tube wells were the main drinking-water source for 50.7% of households, while 13.7% depended on surface water. Nationally, 27% of rural households used improved water sources but spent more than 30 minutes collecting water, showing that access to water infrastructure was uneven.

However, water scarcity in Basotho Village was also produced through weak infrastructure and unequal access to water technologies.

> Interviewee one linked continued streambank cultivation to water-access constraints in the village. She explained that before the establishment of the new irrigation garden, the village with 110 households had three old bush-pump boreholes, of which only one was functional. She further noted that borehole water was reserved for household use and livestock, not for gardening. This meant that farmers without private boreholes, deep wells or shallow wells within their homesteads had few practical alternatives to streambank cultivation.

Interviewee 3, a 35-year-old female smallholder farmer, linked streambank cultivation to the absence of reliable water infrastructure. For her, streambank cultivation was not a preferred farming practice, but one of the few available options where irrigation access remained limited:

> *"If there were proper irrigation systems many farmers would prefer to farm there instead of near the stream. The streambank gardens are currently the most available option even though they are prohibited."*

Interviewee six [26] added: *"If I had a borehole, even a shallow well at home, I would be covered."*

Farmers explained how dependence on streambank gardens was also influenced by the absence of household-level productive water. The FGD data also showed that access to water infrastructure in the village was unequal. FGD, P5 a young female smallholder farmer aged 20–30 explained:

> *"That is mostly for people who have financial means. For the rest of us, it is not easy because drilling a borehole costs a lot of money."*

During fieldwork, the researcher visited one household with borehole and water-storage tanks in their homestead. The owner did not practise streambank cultivation because they had a garden and drip irrigation system within the homestead. This example suggests that household-level water infrastructure can reduce dependence on streambank gardens, but only for households that can afford it. Borehole access is costly in Zimbabwe.[27] Interview 7 also raised concerns that the community might

[26] Interviewee 6 interviewed on 25 February 2026. He described streambank cultivation as a long-standing inherited practice, explained older farmers' adaptation to stricter enforcement, and linked reduced dependence on streambank gardens to access to reliable water alternatives.

[27] Borehole costs are used here as indicative market estimates not official prices. Mutare Boreholes (2024) estimates drilling and casing a 40-metre borehole at about USD 1,000, with additional costs for water storage and pumping equipment. Borehole Experts Zimbabwe (2024) lists solar pump, tank, tank stand, labour and related installation components as additional costs. These costs are high when compared with ZimLAC income estimates: USD 119 average monthly household income for Gwanda in April 2024 and USD 98 for Matabeleland South in April 2025 (ZimLAC, 2024; ZimLAC, 2025).

face challenges to maintain the new solar and pumping systems, when the donor leaves. However, interviewee ten the NGO representative indicated that there was a maintenance fund financed by the community and a trained waterpoint committee to try and safeguard the sustainability of the water point.

FGD Participant P7 also described the limits of communal boreholes:

> "We only have about three bush pump boreholes in this area, and one of them is old and sometimes the water comes out rusty. There are about 110 households in the village, those few boreholes are not enough, and they are also very heavy to pump."

Dube (2012) found that 67% of surveyed rural communities in Gwanda depended on community-managed water sources, boreholes, and protected wells, yet 60–70% of these sources were reported as non-functional in most wards. Therefore, water scarcity and drought affected the whole village, but households did not experience it in the same way. Households with access to private boreholes, irrigation, livestock, remittances, or alternative income sources had greater capacity to avoid streambank cultivation than those without such resources. This reflects structural vulnerability because environmental stress became more severe for households with fewer resources. As Wisner et al. (2004) argue, hazards become damaging through people's vulnerability, while Scoones (2015) shows that livelihood options depend on access to assets and institutions. In Basotho Village, households without reliable water, irrigation, livestock, or alternative income had fewer ways to avoid streambank cultivation.

However, FGD Participant P9, a male smallholder farmer aged 60–70, argued that larger water infrastructure would make enforcement more feasible:

> "I think that everyone has a role, our government has no money, for me I think the government should help bring bigger water infrastructure to the area. A pipeline from the major river to supply water to this ward and our village. There is plenty of water in that river. If such a pipeline was established by the government, then households could then try to raise money to connect their homesteads to the main pipeline. If people had reliable water sources like that, then even when EMA comes to stop stream-bank cultivation it would make sense, because villagers would already have another option for watering their gardens."

This account suggests water infrastructure was understood as both a household need and a public responsibility. Observation data gathered during the transect walk confirmed what participants described. Several gardens were located close to the Basotho stream. This spatial concentration of gardens near the water source confirms access to water strongly shaped farming patterns. The location of gardens reflected the practical need to remain close to moisture in a dry and uncertain farming environment. The streambank became attractive because it brought several

resources together in one place: water, moist soil, perceived fertility, and lower labour demands.
FGD Participant P9 explained:

> *"The soil near the stream is very fertile compared to the fields. The soil is good for vegetables. Even maize can grow better there."*

For farmers watering by bucket, distance from water shaped the daily effort needed to keep crops alive. FGD Participant P8, a female smallholder farmer aged 30–40, explained:

> *"I usually use a bucket, so if the water is close, it is not physically straining. But if the field is far away it becomes very tiring to carry water many times."*

This is relevant to the study's framework that shows that cultivation decisions were shaped by unequal access to productive land and water, (Blaikie, 1985). In Basotho Village, the streambank reduced labour pressure because water was close to the crops. Participants also connected streambank cultivation to small and fragmented upland fields, poor soils, pests, expensive pesticides, and fertilisers. These challenges made farming away from the stream more costly and less secure. Streambank gardens reduced some of these pressures because moisture was nearby, vegetables could be grown all year round, and water could be carried over shorter distances. Local resource access therefore needs to be recognized with labour demands, land quality, and household capacity.
The Basotho Irrigation Scheme partially changed the local resource conditions but did not remove the underlying constraints. The scheme was introduced as an alternative farming space meant to reduce cultivation along the stream while supporting household livelihoods. The NGO representative described the garden as equipped with water tanks, a solarised water point, drip irrigation, a hosepipe and bucket backup system, fencing, a water committee, a constitution, and a maintenance fund. However, farmers' accounts show that the scheme was experienced as partial and uneven. Its reach remained limited because only 42 of the village's 110 households were accommodated. Interviewee two argued that it would be difficult to convince households who did not benefit from the irrigation garden to leave streambank cultivation, because removing them *"without another plan"* would disturb their livelihoods.

However, Interviewee 6, a 67-year-old male farmer and irrigation garden beneficiary, gave a more positive view. He said people were sceptical at first, but were slowly adapting:

> "When we were removed from the streambank gardens, it was difficult to understand and adapt, especially for women and youth. People were doubtful of the new garden,

but now I think they are slowly adapting. The irrigation garden is a good initiative that will also benefit young people in the future."

However, FGD Participant P3, a female smallholder farmer aged 30–40, gave a critical view. She said her *"heart"* was still in the old stream gardens:

> **"Even though now we have benefited from this new irrigation garden, my heart is not fully here. I miss the convenience of the garden I had near the stream. There I could easily grow vegetables without too much stress about water. Here we must follow schedules for watering and share the system with others. Sometimes my heart and soul are still in those gardens near the stream. If I were given a chance to go back, I would go back to my garden without thinking twice."**

In the FGD, P5 added that the cooperative garden reduced household freedom because farmers were growing sugar beans and had to agree collectively on crop choices, unlike in their former streambank gardens where they could grow vegetables, onions, and tomatoes for household needs. These contrasting views show that the irrigation garden was both welcomed and contested. It offered water and a formal alternative to streambank cultivation, but it also introduced new limits around crop choice, autonomy, household food needs and required collective decision-making. The main contradiction at the local resource level is that an alternative may exist, but still fail to replace the flexibility, autonomy, and food-crop diversity that farmers valued in streambank gardens. The presence of an irrigation scheme therefore did not automatically mean the presence of a complete livelihood alternative.

4.4 Household livelihood conditions: food, income, school fees, and survival pressure

At household level, climatic and economic pressures became everyday struggles over food, income, school costs, labour, and the fear of failing to provide for their families. This is where the political economy of soil erosion becomes evident through household survival pressures. Blaikie (1985) shows that poverty and marginalisation shape land-use choices because households facing insecurity may prioritise immediate livelihood needs over environmental protection. In Basotho Village, farmers described market gardening along the stream as part of household survival.

Participants described farming as necessary for household survival. Across the interviews and focus group discussion, participants presented farming as a source of livelihood, through which families eat, raise children, pay school-related costs,

and reduce dependence on buying food. Interviewee one, a female smallholder farmer, explained that:

> Farming is very important to me, I cannot survive without farming. When I harvest maize, millet, and sorghum well, I do not buy mealie-meal from the shops. I do not buy vegetables. Here in the rural areas, we depend on agriculture for our livelihoods, farming is our job.

This statement showed how farming was valued as a source of livelihood and for self-employment. The participant did not separate farming from work, food, and household survival, as she described it as the foundation of rural life. A similar pattern appeared in other interviews. Interviewee two stated that farming *"means everything"* to her adding that when farming is disturbed, she feels *"cold and empty."* Interviewee three added that:

"Our lives depend on our harvest crop yields, buying food every month is not possible."

These accounts show that farming remained central at household level not because it was secure, but because it was the main available way of meeting daily food and income needs. This relates to Scoones' (2015) livelihood perspective, where household survival depends on access to assets and strategies that allow people to secure a living under uncertain conditions. In Basotho Village, farming, streambank gardens, casual labour, migration, fishing, artisanal mining, livestock, and remittances formed part of the livelihood mix, but these alternatives were uneven and unreliable. Farming therefore remained the main fallback activity, even when rainfall, inputs and markets made it insecure. Streambank cultivation therefore emerged as a household strategy for managing insecurity. The streambank offered moisture, vegetables, small income, and a better chance of harvest when rain-fed farming failed.

The household significance of streambank gardens was evident in farmers' accounts of children's schooling and school-related expenses. Data collected highlighted that streambank cultivation formed part of a small household economy through which food, income and children's education were connected. This was expressed strongly by Interviewee 5, a male farmer, who linked his former streambank garden directly to his ability to educate and provide for his children:

"When my children requested money to buy books and other school material I had the money. My wife and I did not bother our neighbors or relatives asking them for money to take care of our children, we did not bother anyone. We told ourselves that as long as we are able-bodied and in good health we were going to try our best to support our family and we managed to do so in the gardens along the stream."

After stricter enforcement following the introduction of the irrigation garden in October 2025, he added:

> *"Now we are not growing anything in the old gardens. As it is my children do not have school uniforms, we are struggling to buy them books, they do not have anything, now we rely on piece jobs for us to make money."*

Interviewee five also gave a breakdown of the amount of money[28] that he used to make per month from selling the vegetables. His explanation revealed how streambank cultivation was connected to dignity, responsibility, and household security. The participant described streambank cultivation as a substitute for formal employment. His account also shows that farming income was translated into books, uniforms, school fees, and daily household needs. Losing access to the streambank garden was therefore an environmental adjustment but also disrupted a household system for sourcing food and income.

Another male farmer, Interviewee 4 also explained that market gardening was important for his household because *"there was always relish and something to sell from the garden."* Streambank cultivation produced food for direct consumption and cash for wider household needs. Within this study, streambank cultivation contributes to both food availability[29] through direct production of vegetables, and food access through income generation used to purchase essential household food items. The FGD participants agreed and explained how losing streambank gardens affected their household diets.

FGD Participant P1, a female smallholder farmer, explained:

> "Now that we have been forced to leave our gardens our diets have been affected. we used to grow tomatoes and green vegetables, especially kale, which we like very much. That is what we are used to eating with sadza[30]. But now we do not have those vegetables anymore. We are forced to go and buy cabbage from the shops, and honestly many of us do not even like cabbage because we are not used to it. (participants nodded in agreement). Before we did not need to buy tomatoes and onions because we had them from our own gardens. Now we must buy and it is not easy because money is not always

[28] Interviewee 5, interviewed on 19 February 2026, lived in a household of eleven, including his wife and nine children. He had one kale garden of approximately 30m² and another tomato garden of approximately 50m², both located near the stream. Based on the amounts he gave during the interview, these were converted to approximately USD 144 per month from kale sales and approximately USD 179 per month from tomato sales. He also stated that the new irrigation garden plots were smaller, about two beds, compared with the six to ten beds he previously cultivated for tomatoes and kale. Monetary amounts were converted from South African rand to US dollars for consistency and are used as approximate values, not exact income measurements.

[30] Sadza is a staple food in Zimbabwe, usually prepared as a thick starch porridge from ground maize meal, millet meal or sorghum meal

> available, sometimes we struggle with relish at home, that is why you will still find some people going back to check their old gardens near the stream, especially where they had vegetables and fruit trees."

Labour also shaped household livelihood pressure. Streambanks were valued because water was close and could be carried by bucket over shorter distances. The empirical material also revealed a gendered pattern of everyday labour in streambank cultivation. Women were repeatedly described as central to the daily maintenance of gardens, especially watering, weeding, harvesting, and preparing food from the produce. During the focus group discussion, P4, an elderly female smallholder farmer explained:

> *"Mostly it is women who do the farming along the stream. Even us older women, we go there to cultivate because we are the ones who cook food at home. You will find women waking up early going to the gardens to water vegetables or to remove weeds."*

A male participant in the FGD, P9, added that men helped with heavier tasks such as clearing land, digging, carrying manure, and women usually managed the gardens daily, sold the vegetables and prepared food for the household. Interviewee seven also noted that men assisted women in the gardens. However, this study did not systematically measure the full division of labour across households. This gender perspective highlights how restrictions on streambank cultivation may mostly affect women because they often bear the responsibility of safeguarding household food security.

A key contradiction in the material is that farmers often recognised environmental damage, but still prioritised household survival. Interviewee one expressed that:

> "We see the damage done to the environment by streambank cultivation but at the same time we must eat. There is no balance, our main concern is survival. Yes, we can see the damage, but we do not take it to heart."

Interviewee two made the same point through the question of children:

> "*If I stop farming there, I will reduce my harvest. If the harvest is reduced, my children suffer. Which one do I choose, the stream or my children? It is difficult."*

This captures the moral economy of streambank cultivation. Scott (1976) argues that where subsistence is insecure, survival carries moral weight because households judge decisions through the need to protect basic food and livelihood security. In Basotho Village, farmers did not justify streambank cultivation by denying environmental harm. They justified it through responsibility to children, food, school fees, and household survival. Protecting the stream mattered, but

feeding the family was more immediate. Interviewee four also connected this tension to poverty and hunger, explaining that people *"survive the way they can"* because hunger is the main problem. These accounts show that streambank cultivation was not justified through ignorance. This does not mean that environmental harm becomes acceptable. Instead, environmental rules become difficult to follow when household survival is threatened. This tension reflects the wider livelihood-conservation dilemma identified in studies of streambank and riverbank cultivation, where farming near water supports rural households while also contributing to erosion, siltation, and riparian degradation (Zinhiva et al., 2017; Denga et al., 2022).

At the household level, streambank cultivation therefore appears as a practical and morally defensible strategy for supporting livelihoods, even though farmers also recognised its environmental risks. However, this study did not quantify household income, crop yields, or food security levels, as it is explanatory and not statistical.

4.5 Land-use practices and justification: inherited gardens, normalisation and moral reasoning

This section focuses on land-use practice, the fifth level of the framework. At this level, the analysis moves from the pressures shaping farmers' choices to how those choices were acted out and justified in everyday farming. Blaikie and Brookfield (1987) argue that land users make decisions locally, but those decisions are shaped by the conditions under which farmers make choices available to them, including access to land, labour, capital, state rules, input prices, and resource control. Farmers described streambank cultivation as old, inherited and locally familiar. Interviewee six, a male farmer, recalled the farming method from his grandmother's time:

> *"I started streambank cultivation a long time ago when my grandmother was still alive and farming. We found our grandmother practicing it, it is an old practice."*

FGD participant P3 also explained:

"*Some of these gardens are old and have been there for many years. In some families the gardens were even passed down from parents to children. People became used to them as part of their livelihood."*

These statements show that streambank cultivation in Basotho Village was not a new or unusual response to recent drought alone. Participants described it as an inherited practice embedded in family histories and local ways of farming. The practice remained a familiar part of local farming life, showing that environmental rules were negotiated in practice, and not just accepted or rejected. Interviewee five

also explained how streambank gardens were connected to local systems of land allocation and household establishment:

"*Those gardens were allocated this way, when one got married and started their life with their partner, they would be allocated a garden along the stream and a farm near their homestead, but now they do not want us to farm in those gardens, the laws have changed."*

However, interviewee seven, a male farmer, explained he had found unused space and self-allocated a garden plot for himself near the stream. The recent strict bans were perceived as environmental regulation changing rules around a long-standing livelihood arrangement. This is essential to note because streambank and wetland regulation in Zimbabwe has a longer history of controlling cultivation in areas considered environmentally fragile. Mandishona and Knight (2022) show that Zimbabwe's wetland and streambank laws developed through changing conservation policies that sought to protect rivers, wetlands and riparian areas from cultivation and disturbance. Neumann (1998) helps situate this historically by showing how conservation rules in African contexts have often regulated local land use from above, sometimes treating rural livelihood practices as environmental threats without fully accounting for local dependence on those spaces. In Basotho Village, this history matters because farmers remembered streambank gardens as inherited land.

Streambank cultivation had also become normalised overtime. FGD participant P8, a female smallholder farmer aged between 30–40 years, explained:

"In our community it is a usual and a normal farming practice."

This statement highlights normality. The participant further explained why the practice remains socially acceptable, because of drought, lack of water sources and survival needs. This made it difficult for farmers to perceive streambank cultivation as wrongdoing. P8 also said that *"nature belongs to God"* suggesting moral or spiritual understandings of land and nature as a resource for sustaining human life. The key point to note is that streambank cultivation persists partly because it is embedded in collective understandings of ordinary farming and household survival. However, this dynamic is changing, as local leaders, warnings, fines, and the new irrigation scheme are gradually redefining the practice as environmentally restricted.

This empirical data indicates why land-use practices cannot be separated from social relations. Streambank cultivation was associated with effort, responsibility, and household provision. Data collected showed that the practice was also sustained

by moral judgements about work. In the FGD, P4, an elderly female smallholder farmer, said:

> *"The only people without gardens are the lazy ones. I tell you because if someone is hardworking, they will try to find space and start cultivating something along the stream."*

Although P4 was a beneficiary in the irrigation garden, she still described the former streambank gardens as legitimate livelihood spaces. This moral framing was reinforced when the researcher asked whether some people might avoid streambank cultivation because they wanted to follow the law. Several participants in the FGD rejected this strongly. P4 argued that when drought strikes and your family needs food, *"you cannot just sit and watch,"* while P7 added that

> *"When a person does not have their own borehole or a reliable source of water source and still does not have a garden, people will say that person is lazy."*

P4 and P7 's explanations show that streambank cultivation was an economic activity, judged through ideas of work, responsibility, and household provision. In the FGD, participants suggested that a person without a garden, borehole or other reliable source of income could be viewed as failing to make enough effort to support the household, even if that person were respecting environmental rules. Scott's moral economy is relevant to this view because it helped explain why farmers justified cultivation through the ethics of survival not through denial of environmental harm (Scott, 1976). However, these land-use practices also had physical consequences, which are discussed in the next section on environmental degradation and outcomes.

4.6 Environmental degradation and outcomes: erosion, siltation and contested responsibility

This concept of the framework explores environmental degradation and outcomes. According to Blaikie's political economy of soil erosion, soil erosion is not examined here as isolated evidence of poor farming behavior, but as the material outcome of land-use decisions made under constrained social, economic and institutional conditions (Blaikie, 1985; Blaikie and Brookfield, 1987). In Basotho Village, these outcomes included soil disturbance, cleared vegetation, small gullies, sedimentation and concerns about water pollution. The streambank therefore becomes the place where the earlier levels of the chain become visible in the landscape: political-economic and climatic pressure, governance, local resource access, household livelihood pressure and farmers' land-use decisions. This section examines those environmental outcomes while keeping them connected to the wider conditions that shaped cultivation along the stream.

Participants of the study also described environmental outcomes resulting from streambank cultivation in concrete terms. Interviewee two, who had previously cultivated within the prohibited buffer area and had been fined, explained:

> *"There is a lot of soil erosion along the stream, this has caused gullies that have destroyed dust roads and pathways. When we spray pesticides in the gardens and use fertilizers, they would definitely pollute the water, and that, we know very well."*

This highlights that some farmers recognized environmental damage. The explanation is based on her experience and everyday observation and not technical measurement, but it still pointed to ecological changes observed by farmers. In the same interview, she also linked streambank cultivation to declining water levels in the stream and the increasing growth of algae and water reeds. Interviewee two also explained how shallow ponds dug inside the stream bed to fetch underground water were trapping livestock and resulting in the death of goats, sheep, and cattle. The concerns about fertilisers, algae and reeds also correspond with water-quality studies in Zimbabwe that showed that land-use change and agricultural runoff can affect water quality, while fertiliser-related nutrient pollution may contribute to eutrophication, aquatic weed growth and algal blooms (Kibena et al., 2014; World Bank, 2014).

> Other participants gave similar explanations in the FGD. In response to a question about whether participants had observed or discussed environmental changes linked to streambank cultivation, P6 explained that opening gardens along the stream required cutting trees and removing natural vegetation. He stated that cutting down trees and clearing grass resulted in washing away of soil. FGD, P2 also described the environmental change over time, recalling that when they were young the stream was much narrower, while now it had widened because the banks were slowly collapsing. These accounts suggest that farmers were aware of environmental degradation. They had observed soil movement, stream widening, vegetation loss and water-related disturbance over time.

Other participants of the study gave contrasting explanations of environmental change. Some linked erosion, gullies, and water pollution along the stream to natural processes over time. Interviewee 6, a 67-year-old male farmer, argued that he had not seen degradation in his own garden and suggested that heavy rains were a major cause of soil erosion, not streambank cultivation. Interviewee 3, a 35-year-old female farmer, expressed this uncertainty:

> *"I think it is just nature taking its course, soil erodes over time."*

This showed that farmers explained environmental change in different ways, which may shape how they understand responsibility, regulation, and the need to change farming practices. The NGO representative, Interviewee 10, broadened the environmental concern and explained how baseline studies conducted connected streambank cultivation affected for communities located downstream of the

Mzingwane catchment area. This strengthens the interpretation that environmental outcomes may extend beyond the cultivated plot. Soil erosion and water pollution are localised problems, they may affect the wider stream and other users downstream. In this sense, Blaikie's political economy of soil erosion becomes empirically useful. Soil erosion appears at the streambank, but the processes leading to it are connected to water scarcity, household survival, regulation, limited alternatives, and multiple uses of the stream corridor. Leach and Mearns (1996) also challenge scholars that perceive local farmers as the main cause of degradation without considering the wider pressures affecting their decisions. Forsyth (2003) similarly shows that environmental change is not self-explanatory. It must be interpreted through evidence, power relations and the meanings given to land use by local people.

Moreover, the observation and transect walk[31] data revealed that streambank disturbance was associated with several activities along the stream corridor, not streambank cultivation only. This included livestock movement, grazing, fishing activities in an upstream dam and brick moulding near the watercourse. These activities may also disturb soil and vegetation and contribute to sediment movement. During observation and the transect walk, streambank gardens were observed within and just beyond the 30-metre buffer zone along the Basotho stream. Distances from gardens to the stream were estimated by foot pacing, therefore, the measurements were used as field estimates, not precise survey measurements. In several places, the streambank showed exposed soil, reduced vegetation cover, and small erosion gullies. There was bare land showing signs of vegetation clearance near the streambank. Silt deposits were noted in a garden with maize and bananas inside the stream channel (Figure 2). As a result, the direction of water flow appeared to be disturbed and diverted. However, Bhebhe et al. (2013) highlighted that river siltation and environmental damage in Gwanda were also a result of informal gold mining, overgrazing, and deforestation. Moyo and Phiri (2023) identified high demand for energy, mopane worms harvesting, household upkeep, and cattle kraal fencing as drivers of deforestation in Gwanda. Therefore, there are this highlights that there are lot of factors fuelling soil erosion and environmental degradation in the study areas besides the prohibited farming practice.

The photographs below were taken during fieldwork in February 2026 and support the observation and transect walk data. They show streambank gardens along the

[31] Fieldwork was conducted during February 2026. Observation was carried out through 3 visits to the new irrigation garden and nearby streambank cultivation sites, with focused observation visits on 13, 20 and 27 February 2026. A guided transect walk was also conducted with a local NGO field officer to observe the spatial relationship between the irrigation garden, streambank gardens, water sources and observable environmental changes.

Basotho stream, cultivation close to and inside the stream channel, exposed soil, livestock activity, and brick moulding near the watercourse. The photographs are visual field evidence showing how cultivation and other livelihood activities overlapped with visible environmental disturbance. Participants of the study emphasised vegetable production for household use and sale. The transect walk showed most gardens also had fruit trees such as lemon, mango, banana, and guava.

Figure 2. Banana trees and maize planted in a garden within the stream channel, showing the overlap between cultivation and water flow. (Source: author's field photograph, February 2026.)

Figure 3. Garden with kale and tomatoes within the 30-metre buffer of the Basotho stream. (Source: author's field photograph, February 2026).

Figure 4. Soil disturbance and livestock activity near the streambank. (Source: author's field photograph, February 2026).

Figure 5. Soil disturbance and brick moulding activity near the streambank. (Source: author's field photograph, February 2026).

Long-term effects of streambank cultivation may be underestimated when the practice is viewed only as a household livelihood strategy. In 2025 a newspaper report described how streambank cultivation near Seboza Dam in Gwanda District, deforestation and sand poaching were identified by environmental officials as the key causes of land degradation, dam siltation, river-course change, and repeated flooding at Seboza Primary School (Dube-Matutu, 2025). This report provides a local example of how unsustainable land-use practices can produce effects beyond individual gardens, affecting schools, infrastructure, and future community needs. According to Barnett and O'Neill's (2010) concept of maladaptation, streambank cultivation can be conceptualised as a maladaptive form of erosive adaptation. The practice responds to immediate water scarcity and livelihood pressure, but may increase longer-term vulnerability through soil erosion, sedimentation, pressure on water resources and loss of productive land. Dube et al. (2018), in the study of Gwanda District, add that smallholder adaptation strategies can face sustainability limits over time.

In conclusion, this chapter has shown that streambank cultivation in Basotho Village is shaped by several connected pressures. Unreliable rainfall, unstable income, irregular regulation, limited water access, and household responsibilities reduced farmers' options and made cultivation along the stream necessary for many households. At the same time, inherited gardens, ideas of hard work and the value of older streambank gardens normalised a practice that farmers also knew was environmentally risky. The field evidence shows that soil erosion, sedimentation and streambank disturbance are linked to constrained livelihood choices. It also recognises that cultivation interacts with other activities such as livestock movement, grazing, and brick moulding. The chapter therefore shows that environmental degradation and household survival are connected in the everyday decisions farmers make about where and how to cultivate.

5. Conclusion

This study aimed to answer the question: How can the persistence of streambank cultivation in Gwanda District be explained through the political economy of soil erosion? The answer is that streambank cultivation persists through a chain of connected pressures, not because farmers are ignorant or unwilling to follow environmental law. In Basotho Village, cultivation along the stream, and the erosion risks connected to it, emerged from climate change, water scarcity, limited irrigation access, weak livelihood alternatives, household survival pressure, and the everyday negotiation of environmental rules. The streambank became attractive because it offers what upland fields increasingly fail to provide, that is moisture, fertile soil, water access, and a better chance of harvest, especially during drought spells.

The first research question asked how wider political-economic and climatic conditions shape smallholder livelihood options in Gwanda District. The study found that rainfall uncertainty and drought have weakened the reliability of rain-fed farming. Farmers described weather changes, crops failure, and harvests becoming less dependable even when households invest labour and time. These climatic pressures are worsened by expensive inputs, unemployment, weak agricultural support, and few secure alternatives outside farming. This means that households do not approach streambank cultivation from a position of free choice. Their options are already narrowed before they reach the stream.

The second research question asked how governance arrangements and access to land, water, irrigation, and agricultural support shape farmers' cultivation options. Environmental rules exist and are known, especially the restriction on cultivating close to the stream. However, the existence of rules does not automatically produce compliance. Farmers understand the law, but they also experience it as a restriction on access to the moist and fertile land that supports household survival. This is captured clearly in the statement: *"We know the law, but we do not have a choice."* Governance in Basotho Village is therefore not simply a matter of law and enforcement. It is negotiated through local authority, fines, warnings, drought conditions, social relationships and the availability or absence of alternatives. This reveals a central contradiction: environmental rules may be necessary for protecting the stream, but they become difficult to follow when compliance removes one of the few remaining livelihood spaces.

The third research question asked how wider and local pressures are experienced at household level in relation to food security, income, labour, and survival. The empirical data suggested that farming remains central to everyday life. Farmers

described agriculture as the means through which households eat, raise children, buy school materials, and avoid total dependence on shops. Streambank gardens were more than farming plots; they formed part of a small household economy. They provided vegetables for relish, small income, school-related expenses, and a sense of dignity. Stopping streambank cultivation is therefore not only an environmental decision. For many households, it is also a question of food, children, and survival.

The fourth research question asked how farmers understand and justify streambank cultivation as a livelihood strategy. The study found that farmers do not justify the practice by denying environmental harm. Many recognised soil erosion, vegetation loss, disturbance of the stream and water pollution. However, justified the farming practice as necessary, inherited and supporting their responsibility to provide to their households. The practice was socially normalised because it was historically embedded and those who cultivated were often seen as hardworking people in the community. This moral reasoning showed that streambank cultivation is tied to the farmers' dignity, care, responsibility, and the fear of not being able to provide for families.

Overall, analysis showed the dynamic and complex factors that shape land use practices and their impacts. Climatic change and climate variability in Gwanda district have further weakened rain-fed farming. Poor condition and limited access to water infrastructure fuel household pressure. Household survival needs create pressure to keep producing food. Farmers then make decisions that are rational in the short term, but environmentally risky over time. The observed soil disturbance, cleared vegetation, gullies, and cultivation close to or inside the stream channel are therefore not isolated outcomes of individual behaviour. They are evident environmental outcomes of a wider chain of constrained livelihood decisions.

The main contribution of this study is that it explains streambank cultivation as erosive adaptation. This means a livelihood strategy that is rational and morally defensible in the short term, but environmentally unstable in the long term when structural conditions remain unchanged. The study supports Blaikie's political economy of soil erosion by showing that land degradation must be traced through wider political-economic and ecological conditions (Blaikie, 1985; Blaikie and Brookfield, 1987). However, it also extends the explanation by showing that structure alone is not enough. Farmers are constrained, but they are not passive. They interpret rules, justify choices, remember old practices, judge one another morally and evaluate alternatives through the everyday ethics of survival. This is where moral economy, structural vulnerability and negotiated governance add depth to the explanation. Moreover, this was a contemporary case study.

The study also shows that alternatives matter, but only if they are accessible, flexible, and grounded in farmers' livelihood needs. The Basotho Irrigation Scheme is essential because it recognises that farmers cannot be removed from streambanks without support. It offers a more organised farming land and has the potential to reduce pressure on the stream. However, its limits are also clear: it accommodates only some households, introduces cooperative rules, limits crop choice. It also does not replace the farmers 's need for autonomy, convenience, and household food provision from individual streambank gardens.

The main policy implication is that enforcement alone cannot resolve streambank cultivation. The 30-metre rule may be environmentally critical, but it is unlikely to succeed where households lack reliable water, irrigation infrastructure, affordable inputs, and viable livelihoods. Environmental protection must therefore be linked to livelihood support. This means expanding inclusive irrigation, supporting household-level wells and boreholes where appropriate, strengthening extension services, involving farmers in intervention design, and allowing alternatives to support both food crops and income crops. In the future, further research must be conducted to assess effectiveness of the Basotho Irrigation Scheme, in reducing streambank cultivation and improving household food security. Future studies in the district could also include biophysical measurements of soil erosion and water quality of the stream to complement the farmers' accounts and field observations. Incorporating government stakeholders and traditional leaders in future studies would strengthen the understanding of the institutional side of enforcement and support. Comparative studies across different villages in Gwanda District would help show whether the empirical findings from Basotho village reflects the same pattern or more specific local conditions. The broader implication is that sustainable rural development must not separate environmental protection from the survival of the households who depend on it.

References

Barnett, J. & O'Neill, S. (2010). Maladaptation. Global Environmental Change, 20(2), 211–213. https://doi.org/10.1016/j.gloenvcha.2009.11.004

Barrett, C.B., Reardon, T. & Webb, P. (2001). Nonfarm income diversification and household livelihood strategies in rural Africa: concepts, dynamics, and policy implications. *Food Policy*, 26 (4), 315–331. https://doi.org/10.1016/S0306-9192(01)00014-8

Bhebhe, D., Kunguma, O., Jordaan, A. and Majonga, H. (2013). A case study of the perceived socio-environmental problems caused by illegal gold mining in Gwanda District, Zimbabwe. Disaster Advances, 6(10), pp.70–76.

Blaikie, P.M. (1985). *The political economy of soil erosion in developing countries*. Longman.

Blaikie, P. & Brookfield, H. (eds.) (1987). *Land degradation and society*. Methuen.

Borehole Experts Zimbabwe (2024). May 2024 price list for a 0.5HP solar water pumping system. Available at: https://www.boreholeexperts.co.zw/p/pumping-system-price-catalogue.html [2026-05-15].

Bowen, G.A. (2006). Grounded theory and sensitizing concepts. International Journal of Qualitative Methods, 5(3), 12–23. https://doi.org/10.1177/160940690600500304

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Bryceson, D.F. (2002). The scramble in Africa: reorienting rural livelihoods. *World Development*, 30 (5), 725–739. https://doi.org/10.1016/S0305-750X(02)00006-2

Bryman, A. (2016). *Social research methods*. 5th ed. Oxford University Press.

Chatiza, K. (2010). Can local government steer socio-economic transformation in Zimbabwe? Analysing historical trends and gazing into the future. In: de Visser, J., Steytler, N. & Machingauta, N. (eds). *Local government reform in Zimbabwe: a policy dialogue*. Community Law Centre, University of the Western Cape. https://uwcscholar.uwc.ac.za/bitstreams/e228d8a2-9023-4d58-8cd2-c85b054e7506/download [2026-04-08]

Chitongo, L. (2019). Rural livelihood resilience strategies in the face of harsh climatic conditions: the case of Ward 11, Gwanda, South, Zimbabwe. Cogent Social Sciences, 5 (1), 1617090. https://doi.org/10.1080/23311886.2019.1617090

Chitongo, L. (2021). Climate resilience strategies and livelihood development in dry regions of Zimbabwe. In: Nhamo, G., Chikodzi, D. & Dube, K. (eds). Sustainable Development Goals for Society Vol. 2: Food Security, Energy, Climate Action and Biodiversity. Cham: Springer, pp. 225–235. https://doi.org/10.1007/978-3-030-70952-5_15

Cleaver, F. (2012). *Development through bricolage: rethinking institutions for natural resource management*. Routledge. https://doi.org/10.4324/9781315094915

Creswell, J.W. & Creswell, J.D. (2018). *Research design: qualitative, quantitative, and mixed methods approaches*. 5th ed. SAGE Publications.

Denga, R.V., Ncube, M., Marambanyika, T., Simwanda, M. & Vinya, R. (2022). Systematic review of drivers of riverbank cultivation, human livelihoods and conservation in Southern Africa. *African Journal of Rural Development*, 7 (4), 445–466. https://afjrdev.org/index.php/jos/article/download/349/291 [2026-02-10]

Dube-Matutu, S. (2025). School a victim of unsustainable environment practices. The Herald Online, 16 March. Available at: https://www.heraldonline.co.zw/school-a-victim-of-unsustainable-environment-practices/ [2026-05-16].

Dube, S.S. & Chitakira, M. (2025). Role of policies and institutional frameworks in sustaining conservation agriculture: a critical review of Pfumvudza/Intwasa programme in Zimbabwe. Discover Agriculture, 3, 28. https://doi.org/10.1007/s44279-025-00363-9

Dube, T. (2012). Emerging issues on the sustainability of the community based rural water resources management approach in Zimbabwe: a case study of Gwanda District. International Journal of Development and Sustainability, 1(3), pp.644–655.

Dube, T., Mlilo, C., Moyo, P., Ncube, C. & Phiri, K. (2018). Will adaptation carry the future? Questioning the long-term capacity of smallholder farmers' adaptation strategies against climate change in Gwanda District, Zimbabwe. *Journal of Human Ecology*, 61(1–3), 20–30. https://doi.org/10.1080/09709274.2018.1452866

Ellis, F. (2000). *Rural livelihoods and diversity in developing countries*. Oxford University Press.

FAO (2012). Smallholders and family farmers. Food and Agriculture Organization of the United Nations. https://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Factsheet_SMALLHOLDERS.pdf [2026-04-20]

FAO (2015). *Status of the World's Soil Resources*. Rome: Food and Agriculture Organization of the United Nations.

Forsyth, T. (2003). *Critical political ecology: the politics of environmental science*. Routledge.

Government of Zimbabwe (1988). *Rural District Councils Act [Chapter 29:13]*. Government Printer.

Government of Zimbabwe (1998). *Traditional Leaders Act [Chapter 29:17]*. Government Printer.

Government of Zimbabwe (2002). *Environmental Management Act [Chapter 20:27]*. Government Printer.

Government of Zimbabwe (2007). *Environmental Management (Environmental Impact Assessment and Ecosystems Protection) Regulations, Statutory Instrument 7 of 2007*. Government Printer.

Government of Zimbabwe (2024). *2024 El Niño-induced drought disaster: domestic and international appeal for assistance*. Government of Zimbabwe.

https://www.unicef.org/zimbabwe/reports/2024-el-nino-induced-drought-disaster-domestic-and-international-appeal-assistance [2026-02-03]

IPCC (2022). *Climate Change 2022: impacts, adaptation and vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press. https://www.ipcc.ch/report/ar6/wg2/ [2026-02-24]

Kibena, J., Nhapi, I. & Gumindoga, W. (2014). Assessing the relationship between water quality parameters and changes in landuse patterns in the Upper Manyame River, Zimbabwe. *Physics and Chemistry of the Earth, Parts A/B/C*, 67–69, 153–163. https://doi.org/10.1016/j.pce.2013.09.017

Leach, M. & Mearns, R. (eds) (1996). *The lie of the land: challenging received wisdom on the African environment*. James Currey.

Mandishona, E. & Knight, J. (2022). Historical changes in wetland management legislation and practices in Zimbabwe, and their implications. *Wetlands Ecology and Management*, 30, 1197–1211. https://doi.org/10.1007/s11273-022-09888-y

Mbereko, A., Chimbari, M.J. & Mukaratirwa, S. (2018). The political ecology of stakeholder-driven climate change adaptation: case study from Ntalale ward, Gwanda district, in Zimbabwe. *Jàmbá: Journal of Disaster Risk Studies*, 10 (1), a419. https://doi.org/10.4102/jamba.v10i1.419

Moon, K. & Blackman, D. (2014). A guide to understanding social science research for natural scientists. *Conservation Biology*, 28 (5), 1167–1177. https://doi.org/10.1111/cobi.12326

Moyo, N. and Phiri, K. (2023). *Localised climate-related security risk assessment: Zimbabwe case study: A case study in Gwanda District, Matabeleland South Province, Zimbabwe*. The Hague: Global Partnership for the Prevention of Armed Conflict. Available at: https://www.gppac.net/resources/localised-climate-related-security-risk-assessment-zimbabwe-case-study (Accessed: 17 May 2026).

Moyo, S. (2011). Three decades of agrarian reform in Zimbabwe. *The Journal of Peasant Studies*, 38 (3), 493–531. https://doi.org/10.1080/03066150.2011.583642

Mugandani, R., Wuta, M., Makarau, A. & Chipindu, B. (2012). Re-classification of agro-ecological regions of Zimbabwe in conformity with climate variability and change. *African Crop Science Journal*, 20 (Supplement s2), 361–369.

Mutare Boreholes (2024). Borehole drilling costs or prices in Zimbabwe and everything you need to know about boreholes. Available at: https://www.mutareboreholes.co.zw/2024/09/borehole-drilling-prices-in-zimbabwe.html [2026-05-15].

Mwadzingeni, L., Mugandani, R. & Mafongoya, P.L. (2022). Risks of climate change on future water supply in smallholder irrigation schemes in Zimbabwe. *Water*, 14 (11), 1682. https://doi.org/10.3390/w14111682

Ndlovu, S., Mathe, B., Phiri, K. & Nyathi, D. (2020). Factoring water harvesting into climate change adaptation: endogenous responses by smallholder farmers in Gwanda

district, Zimbabwe. *Cogent Social Sciences*, 6 (1), 1784652. https://doi.org/10.1080/23311886.2020.1784652

Neumann, R.P. (1998). *Imposing wilderness: struggles over livelihood and nature preservation in Africa*. University of California Press.

Office of the Auditor-General (2021). *Value for Money Audit Report of the Auditor-General on Protection of Wetlands by the Environmental Management Agency under the Ministry of Environment, Tourism and Hospitality Industry*. Harare: Office of the Auditor-General.

Patton, M.Q. (2002). *Qualitative research and evaluation methods*. 3rd ed. SAGE Publications.

Prowse, M. (2010). Integrating reflexivity into livelihoods research. *Progress in Development Studies*, 10 (3), 211–231. https://doi.org/10.1177/146499340901000302

Robbins, P. (2012). *Political ecology: a critical introduction*. 2nd ed. Wiley-Blackwell.

Robson, C. (2002). *Real world research: a resource for social scientists and practitioner-researchers*. 2nd ed. Blackwell Publishers.

Scoones, I. (2015). *Sustainable livelihoods and rural development*. Practical Action Publishing. https://doi.org/10.3362/9781780448749

Scott, J.C. (1976). *The moral economy of the peasant: rebellion and subsistence in Southeast Asia*. Yale University Press.

Tundu, C., Tumbare, M.J. & Onema, J.-M.K. (2018). Sedimentation and its impacts/effects on river system and reservoir water quality: case study of Mazowe Catchment, Zimbabwe. *Proceedings of the International Association of Hydrological Sciences*, 377, 57–66. https://doi.org/10.5194/piahs-377-57-2018

UNCCD (2022). Global Land Outlook, second edition: Land Restoration for Recovery and Resilience. Bonn: United Nations Convention to Combat Desertification. Available at: https://www.unccd.int/resources/global-land-outlook/global-land-outlook-2nd-edition [2026-05-12].

United Nations (2015). *Transforming our world: the 2030 Agenda for Sustainable Development*. United Nations. https://sdgs.un.org/2030agenda [2026-03-14]

UN-Water (n.d.). *Water scarcity*. https://www.unwater.org/water-facts/water-scarcity [2026-05-08]

Wisner, B., Blaikie, P., Cannon, T. & Davis, I. (2004). *At risk: natural hazards, people's vulnerability and disasters*. 2nd ed. Routledge.

World Bank (2014). *Rapid assessment, identification, and characterization of water pollution and source degradation in Zimbabwe*. Zimbabwe Water Forum Policy Note 12. Washington, DC: World Bank.

World Bank (2022). Zimbabwe Country Economic Memorandum: boosting productivity and quality jobs. World Bank. https://doi.org/10.1596/38224

Yin, R.K. (2018). *Case study research and applications: design and methods*. 6th ed. SAGE Publications.

ZimLAC (2024). Matabeleland South Rural Livelihoods Assessment Report 2024. Zimbabwe Livelihoods Assessment Committee. Available at: https://www.fnc.org.zw/wp-content/uploads/2024/09/Matabeleland-South-RLA-2024-Report.pdf [2026-05-15].

ZimLAC (2025). Zimbabwe Livelihoods Assessment Committee 2025 Rural Livelihoods Assessment Report. Zimbabwe Livelihoods Assessment Committee. Available at: https://www.agric.gov.zw/wordpress/wp-content/uploads/2020/07/2025-ZimLAC-Rural-Livelihoods-Assessment-Report_web.pdf [2026-05-15].

Zinhiva, H., Murwendo, T. & Rusinga, O. (2017). Streambank cultivation along Chiredzi River in Zaka District, Zimbabwe: an activity widely practiced but institutionally condemned. *International Journal of Agriculture, Environment and Bioresearch*, 2 (5), 79–96.

Popular science summary

This study explored why farmers in Gwanda District, Zimbabwe continue to grow crops along streambanks. The study area is in Zimbabwe ‘s driest region, where rainfall is low and unreliable. As a result, farmers can no longer depend on their fields to produce enough food. Because of this uncertainty, streambanks have become essential places for market gardening. The soil is moist and fertile, and water is available even during dry periods. For many households, these gardens help provide food and income for their families. The research data was collected using interviews with farmers, a group discussion, and observations in the village. Farmers highlighted that they are aware that farming close to the river damages the environment. They mentioned soil erosion, siltation, water pollution and loss of vegetation. However, they continue to practice streambank farming because they feel they have no other reliable option. One farmer explained that they knew the rules, but it was difficult to stop the old practice. The study shows that this situation reflects a deeper problem where people must balance protecting the environment with preserving their livelihoods. New irrigation projects offer some hope, but they do not yet reach everyone and do not fully replace the benefits of streambank gardens. The main message of this study is that environmental protection must be combined with alternatives, improving access to water, irrigation, and farming support.

Acknowledgements

I would like to thank the Swedish University of Agricultural Sciences for the knowledge, academic environment and support that enabled me to conduct and write this thesis. I am especially grateful to my supervisor, Professor Patrik Oskarsson, for his guidance and support throughout the research and writing process. I would also like to thank the Swedish Institute for the Swedish Institute Scholarship for Global Professionals, for making it possible for me to pursue my dream of furthering my studies in Sweden. I am equally grateful to SLU Global for awarding me the Minor Field Studies scholarship, which enabled me to travel to Zimbabwe and conduct the fieldwork for this study. Deep gratitude also goes to my husband, family, friends and classmates for their support throughout this journey.

Appendix 1: Semi-structured Interview guide

Introductory Statement / Participant Information and Consent Script

My name is Amanda Georginah Mabutho. I am a postgraduate student at the Swedish University of Agricultural Sciences in Sweden, studying towards a Master's degree in Rural Development and Natural Resource Management. I am conducting a study that seeks to understand the perspectives of local communities on streambank cultivation, and how it relates to livelihoods and environmental degradation. I am collecting information through interviews to understand farmers' experiences. Your participation is voluntary. You are free to refuse to participate, to decline to answer any question, or to stop participating at any time without giving a reason. With your permission, I would like to audio-record the interview and the recording will be used only for academic purposes. Your real name will not be used in the thesis, and any identifying information will be removed or generalized in the final thesis. The audio recordings, notes and transcripts will be stored securely and accessed only by the researcher for the purpose of this thesis.

If you agree to participate and agree for the interview to be audio-recorded, please confirm verbally and we will proceed.

Purpose

To explore individual experiences, motivations, and perceptions of streambank cultivation, Negotiating Livelihoods, and soil erosion in Streambank Cultivation.

Understanding livelihood

Can you tell me a little about yourself and your household?

What are your main sources of livelihood?

How important is farming for your household? Challenges? probe (Climate, Resources)

Streambank cultivation Practice

Can you describe how farming along the stream is practiced in this area?

When did you start (or notice people start) cultivating near the stream?

What crops are usually grown along the streambanks, and why those crops? What makes people decide to farm along the stream and not elsewhere?

How do droughts, rainfall changes, or land shortages influence this practice?

Besides the availability of water, are there other reasons why some people engage in streambank- cultivation?

Probes:

Seasonal changes, Access to water and land, Differences between streambank gardens and other fields

Negotiation

•What are the benefits of streambank cultivation?

•What are the risks or problems?

•How do you personally balance food needs with environmental concerns?

Environmental outcomes

•Have you noticed any environmental changes along the stream over time? Probe (about erosion, etc?

•What do people say causes these changes?

Governance and Rules

Are there any rules or laws about farming near stream, who explains these rules to farmers?

How are these rules enforced in practice?

Are there times when rules are ignored or negotiated? Why?

Power

Whose voices are heard when decisions about streambank cultivation are made?

Do some groups benefit more than others?

Are people affected differently?

Solutions and the Future

In your view, what should be done about streambank cultivation?

What kind of support would help farmers protect both livelihoods and the environment?

Appendix 2: Focus Group Discussion Guide

Introductory Statement / Participant Information and Consent Script

My name is Amanda Georginah Mabutho. I am a postgraduate student at the Swedish University of Agricultural Sciences in Sweden, studying towards a Master's degree in Rural Development and Natural Resource Management. I am conducting a study that seeks to understand the perspectives of local communities on streambank cultivation, and how it relates to livelihoods and environmental degradation. I am collecting information through this focus group discussion to understand farmers' experiences. Your participation is voluntary. You are free to refuse to participate, to decline to answer any question, or to stop participating at any time without giving a reason. With your permission, I would like to audio-record the discussion and the recording will be used only for academic purposes. Your real name will not be used in the thesis, and any identifying information will be removed or generalized in the final thesis. The audio recordings, notes and transcripts will be stored securely and accessed only by the researcher for the purpose of this thesis**.** A focus group involves other participants, I cannot fully guarantee what other participants may say outside the group. However, all participants are asked to respect each other's privacy and not repeat personal information shared during the discussion.

If you agree to participate and agree for the discussion to be audio-recorded, please confirm verbally and we will proceed.

Purpose

To explore shared norms, debates, disagreements, and collective meanings around streambank cultivation. Negotiating Livelihoods and soil erosion in Streambank Cultivation.

Opening and Ground Rules

Everyone's view is important.

Speak freely but respect others.

No names will be used in reporting.

Community Livelihoods

How have livelihoods in this community changed over the years?

What challenges do people face in farming today? (climate, resources)

Streambank cultivation as a Community Practice

Why is streambank cultivation common in this area?

Who practices it most, and who does not?

How is it viewed in the community?

Rules, Authority, and Enforcement

What rules exist about farming along stream?

How are these rules applied in reality? *Are some people treated differently than others?*

Environmental outcomes (Soil erosion, environmental degradation)

What environmental problems are discussed in the community? As a community, have you observed or discussed any environmental changes or problems that may be linked to streambank cultivation?

How do people justify streambank cultivation despite these concerns?

Conflict and Power

Have there been conflicts related to stream cultivation?

How are conflicts resolved?

Who has the power to decide what happens along the stream?

Collective Solutions

What solutions do people discuss among themselves?

What role should government, traditional leaders, and farmers play?

What changes would make regulations fair?

Appendix 3: Observation and transect walk guide

I obtained from the village head, a local gatekeeper. This permission allowed me to access the stream area and observe the physical setting of streambank cultivation. This was access permission, not consent on behalf of individual community members. The transect walk focused on environmental and spatial features, including garden location, proximity to the stream, vegetation clearing, erosion signs, abandoned plots, crop types and the relationship between the stream and the irrigation scheme. The observation did not aim to collect identifiable personal information, individuals encountered during the transect were not named or described in ways that could identify them. Where field notes referred to specific gardens or locations, identifying details were generalised in the thesis. Photographs and notes were used for academic purposes and stored securely together with the rest of the research material. No photographs showing identifiable individuals, homesteads or private personal details were included in the thesis.

Purpose

Observation focused on the stream, gardens, cultivation patterns, erosion signs, vegetation clearing, proximity to the stream and the irrigation scheme, not on identifying individuals.

Physical Environment

Observe and record:

Distance of fields from the Basotho stream

Signs of erosion, siltation, vegetation loss

Crop types and irrigation methods

Evidence of seasonal farming

Farming Practices

General patterns of activity observed, without recording names, faces or identifying personal details.

Tools and techniques used.

Collective vs individual labour

Time of day and season

Governance in Practice

Symbolic markers (pegs, signs, boundaries)

Appendix 4: List of interviewees and FGD participants

Code	Participant description	Interview context	Key points
Interviewee 1	Female smallholder farmer, 33	Homestead interview, 11 Feb 2026	women's dependence on inherited streambank gardens, rainfall uncertainty, and household food security.
Interviewee 2	Female smallholder farmer, 56, previously fined	Homestead interview, 14 Feb 2026	direct experience of enforcement, fines, conservation agriculture, and transition to the irrigation garden.
Interviewee 3	Female smallholder farmer, 35	Homestead interview, 14 Feb 2026	response to drought, poverty, limited jobs, and household survival needs.
Interviewee 4	Male smallholder farmer, 55, irrigation garden beneficiary	Interview near garden, 17 Feb 2026,	livelihood diversification through piece jobs and the role of streambank gardens as a food and income cushion.
Interviewee 5	Male smallholder farmer/fisher, 49	Interview near dam and stream, 19 Feb 2026,	income loss, school fees, enforcement, cooperative garden limitations, and livelihood disruption.
Interviewee 6	Male smallholder farmer/fisher, 67, irrigation garden beneficiary	Interview near dam, 25 Feb 2026	streambank cultivation as an inherited practice and explains older farmers' adaptation to stricter enforcement.
Interviewee 7	Male, smallholder farmer, 44	Interview near Tuli, 13 February 2026	cultivated outside the 30-metre buffer but stopped after stricter enforcement/intervention
Interviewee 8	Female, smallholder farmer, age not recorded	Homestead,16 February	Irrigation garden member
Interviewee 9	Female, smallholder farmer, 26	Homestead.19 February 2026	experience of combining farming with temporary urban livelihood activities.
Interviewee 10	Local NGO representative involved at irrigation garden	irrigation garden interview, 27 Feb 2026	Provides institutional explanation of the irrigation project, environmental objectives, and livelihood-support logic.

FOCUS GROUP DISCUSSION PARTICIPANTS

Code	Gender	Age range
P1	Female	40-50
P2	Male	20-30
P3	Female	30-40
P4	Female	60-70
P5	Female	20-30
P6	Male	40-50
P7	Female	70-80
P8	Female	30-40
P9	Male	60-70

Appendix 5: Declaration of AI use

This thesis follows the AI policy of the Division of Rural Development level 2, which allows limited AI use during preparations but not as part of the submitted thesis document. All research design, data collection, analysis, interpretation, argumentation, and final responsibility for the submitted thesis remain my own.

During preparation the following AI tool was used:
Grammarly-grammar and punctuation checking tool.
I used Grammarly for proofreading to check spelling, grammar, and punctuation in Microsoft Word. I did not use the tool to generate thesis content. I reviewed all suggested corrections manually and accepted only corrections that did not change the meaning of the text.

Publishing and archiving

Approved students' theses at SLU can be published online. As a student you own the copyright to your work and in such cases, you need to approve the publication. In connection with your approval of publication, SLU will process your personal data (name) to make the work searchable on the internet. You can revoke your consent at any time by contacting the library.

Even if you choose not to publish the work or if you revoke your approval, the thesis will be archived digitally according to archive legislation.

You will find links to SLU's publication agreement and SLU's processing of personal data and your rights on this page:

- https://libanswers.slu.se/en/faq/228318

☒ YES, I, Amanda Georginah Mabutho, have read and agree to the agreement for publication and the personal data processing that takes place in connection with this.