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EMERGING NEW FARMING PRACTICES AND THEIR IMPACT ON THE MANAGEMENT OF WOODLOTS IN A1 RESETTLEMENT AREAS OF MASHONALAND CENTRAL PROVINCE IN ZIMBABWE

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ABSTRACT

The study reflected on the impact of new farming methods on the management of woodlots in A1 resettlement areas in Mashonaland Central Province in Zimbabwe. Data for the study were collected through in-depth interviews, direct observations and documentary review so as to triangulate the evidence. A structured household questionnaire was used to collect socio-economic and production data pertaining to A1 farms. The study revealed that the use of wood fuel in tobacco curing has contributed to the destruction of woodlots. Meanwhile, there is a gradual breakdown of local systems for natural resource management and the dearth of any emerging alternative institutions. The study recommended the integration of positive elements of traditional institutional set up of local communities to ensure sustainable use of natural resources and continued livelihood streams. The government should provide and empower A1 farmers with expertise on extension methods that focus on conservation and agricultural technologies that are environmentally friendly.

1. INTRODUCTION

At independence in 1980, Zimbabwe's agricultural system was characterised by dualism, a colonial legacy that divided the agricultural sector into a large-scale commercial farming sector in high potential areas and smallholder agriculture in the drier and more remote parts of the country (Deininger *et al.*, 2002). Accordingly, the government adopted a land acquisition and redistribution programme whose primary aim was to address the imbalances in land access while alleviating population pressure in the communal areas, extend and improve the base for

productive agriculture in the smallholder farming sector and bring idle or underutilsed land into full production (Palmer, 1990). Zimbabwe's land reform was implemented in two phases. The First Phase, 1980-1997 was characterised by land acquisition through the market where the government bought land on offer from white commercial farmers on a willing seller, willing buyer principle as stipulated under the Lancaster House Constitution. The Second Phase was adopted in 1999 and was largely characterised by land occupations and compulsory land acquisitions. Land occupations first emerged in the 1980s when landless people would invade white-owned commercial farms (Moyo, 1995). In the 1980s the government did not condone land occupations. Instead, the government used brutal force to drive away land occupiers (ibid). Land occupations increased and intensified in 2000 soon after the rejection of the draft constitution. The government adopted the Fast Track Land Resettlement Programme on 15 July 2000 in order to regularise the haphazard land invasions and occupations.

For various reasons the fast track land reform and resettlement programme was followed by reduced food production and pronounced decline in agriculture's contribution to overall economic growth. The greatest challenge was the capacity of the newly resettled farmers to manage natural resources in the face of emerging farming systems in resettlement areas. The management of natural resources especially woodlots was quite difficult given the multiple uses trees could be put into. This paper examined the emerging farming practices in A1 resettlement areas and their implications on land use and sustainable woodlots management.

1.1. Study Objectives

The primary aim of the study was to review and analyse impact of emerging farming practices on woodlots in A1 resettlement areas The following were the specific objectives of the study.

- To identify emerging farming systems in A1 resettlement areas.
- To evaluate the impact of emerging farming practices on land use patterns and woodlots management.
- To examine the role of institutions, local practices and tenurial arrangements related to rational and sustainable land use and management of woodlots.
- To make suggestions for policy recommendations to improve woodlot management by A1 farmers in the context of sustainable development.

1.2. Research Questions

- What are the emerging farming systems in A1 resettlement areas?
- What is the impact of emerging farming practices on land use patterns and woodlots management, in A1 schemes?
- How have institutions, local practices and tenurial arrangements related to rational and sustainable land use and management of woodlots adapted to the emerging farming systems in A1 schemes?
- What policy recommendations can be made to improve woodlot management by A1 farmers in the context of sustainable development in A1 resettlement areas?

1.3. Research Context

The study reflected on the impact of the new farming methods on the management of woodlots in A1 resettlement areas of Mashonaland Central Province in Zimbabwe.The study did not dwell on the context of natural resource management; rather it concentrated on identifying the main questions that challenge the various actors involved in woodlot management in the A1 Resettlement Schemes in Mashonaland Central Province in Zimbabwe.Mashonaland Central Province has a population 1,139,059 people representing about 8.8 percent of Zimbabwe's population (ZIMSTAT (Zimbabwe National Statistics Agency), 2012). The Province has eight districts, namely, Bindura, Centenary, Mt Darwin, Guruve, Mbire, Rushinga, Shamva and Mazowe. The three districts of Mazowe, Bindura and Shamva were selected as the study area on the basis that the districts are representative of the typical farming scenario in the province. Mashonaland Central is mainly a rural province and agriculture forms the economic base.

Prior to 2000, Mashonaland Central Province had 859 white-owned large scale commercial farms (GOZ (Government of Zimbabwe), 2003).Table 1 shows the distribution of commercial farms in Mashonaland Central Province before and after the fast track land reform and resettlement programme. Rushinga District did not have large scale commercial farms.

Table-1. Farms officially and unofficially settled under the FTLRP

District	Number of farms	Settled farms, Officially	Settled farms, Unofficially	Settled farms, Total
Bindura	149	121	4	125
Guruve	76	59	1	60
Shamva	74	41	3	44
Mazowe	431	330	45	375
Mt Darwin	39	22	1	23
Muzarabani	90	80	5	85
Rushinga	0	0	0	0
Total	859	653	59	712

Source: (GOZ (Government of Zimbabwe), 2003)

2. STUDY METHODOLOGY

The Data for the study were collected through in-depth interviews, direct observations and documentary reviews so as to triangulate the evidence. A structured household questionnaire was used to collect socio-economic and production data pertaining to A1 farms. The questionnaire was used to collect socio-economic and production data pertaining to selected individual A1 households. Issues covered by the formal household questionnaire included geo-physical information, socio-economic data, land tenure regimes and woodlots management. The questionnaire was administered to 25 A1 households in the three districts of Mazowe (13 households), Bindura (households) and Shamva (6 households). The structured formal questionnaire survey was conducted concurrently with focus group discussions and direct observations. Key informant interviews were conducted with officials from the Ministry of Agriculture, Ministry of Land Reform and Resettlement, the Environmental Management

Agency (EMA), the Forestry Company of Zimbabwe), District Administrators and local leadership (chiefs and headmen) in Mashonaland Central Province.

3. LITERATURE REVIEW

In Africa, local institutions and practices have played an integral role in traditionally managing natural resources. In this context, "local practices" encompass two aspects. The first are the local approaches, methods and techniques for managing natural resources. Approaches and methods can include rules and regulations, harvesting regimes, customary tenure, and local silvicultural techniques. The second are the local institutions that are actively involved in managing natural resources. These can include NGOs, small farmers' associations, youth associations, local administrative units, traditional and local chiefs, and decentralised technical and administrative structures. In Zimbabwe, four sets of institutions have roles in natural resource management at the local level: specialist agencies, elected local government bodies, traditional institutions and state initiated community management structures.

Throughout the Sub-Saharan region, communities have established customary systems for managing all forms of natural resources, many of which try to balance equity and social justice, efficiency, sustainability and the preservation of biodiversity. Examples of such traditional systems include the local system of fishery management in the Logone River in Chad and Cameroon (Onibon *et al.*, 1995), traditional systems of land and forest management in the Nagot county of Benin (Onibon *et al.*, 1995) and local systems for managing fuel wood in the Sudano-Guinean savannah environment of the southern Sahara (Onibon *et al.*, 1995).

Such systems of natural resource management are based on dynamic institutional and regulatory frameworks that are well adapted to the social and environmental conditions of their respective milieu. In some African countries, the state has declared itself the owner of natural resources with authority over their management, but it has in practice been unable to assume this responsibility-a case of "non-functioning legality". (Onibon *et al.*, 1995) argue that the state's action in stripping traditional institutions of their age-old rights with regard to natural resource management, while these institutions in fact still carry out such management, has made them function illegally. This situation supports destructive forces both from within the community as well as from the outside. On one hand, outsiders seek to exploit its wealth value forests whilst on the other hand, destructive forces within the community are also unleashed.

Countries such as Burkina Faso, Mali, Niger and Senegal in the western Sahel, Kenya in the eastern Sahel and Tanzania, Zimbabwe and Zambia in the southern Sahel have played pioneering roles in rural forestry and participatory management of natural forests, woodlots and/or wildlife management. However, almost everywhere in the sub region the real functions of natural resource management are still carried out by indigenous institutions.The institutional and legislative framework for natural resource management in the sub-region can be distinguished by the persistence of what might be called a “sterile dualism” (Onibon *et al.*, 1995). On the one hand, the law that makes the state the main owner of natural resources is not operative either for the state or for the local people, while on the other, traditional systems remain the frame of reference for rural peasants in their management of natural resources. In Zimbabwe, the colonial

government(s) used traditional leadership institutions to control and administer the local people. The traditional leadership monitored and supervised land use practices as well as natural resource management. At independence, the government sought to reduce their power and role at all levels. In 1984 the government established a system of localised development committees; village and ward development committees (VIDCOs and WADCOs). The purported objective was to redefine the administrative structures at district and provincial levels and the relationships and channels of communication between all participants in the development at these levels in order to achieve the coordinated development of provinces and districts. Village assemblies now exist alongside the VIDCOs and WADCOs. But what is the relationship between the two? Is there competition or there is complementarity? Zimbabwe does not have an environmental policy and this has made it difficult to control the problems emanating from the land reform programme (Mubvami, 2004).

3.1. Emergence of a New Agrarian Structure

The implementation of the Fast Track Land Reform and Resettlement Programmeradically transformed the country's land ownership and agrarian structure. Table 2 shows that the Fast Track Land Reform and Resettlement Programme(FTLRRP) drastically reduced the land within the large-scale commercial sector and expanded small scale agricultural sector. A total of 6.4 million hectares (or 16.2 percent) swapped ownership while an additional 2.2 million hectares (or 5.6 percent) remained unallocated. This, to a large extent, satisfies the primary objective of the government's land reform programme of promoting equity by facilitating the access to large tracks of high potential agricultural land by the historically marginalised smallholder farmers as well as decongesting communal areas. However, the question remains: To what extent did the government meet the objective of boosting agricultural productivity and the economic empowerment of the indigenous populace through the FTLLRP without destroying the woodlots in the farming areas that were formerly conserved by white commercial farmers? In addition, pertinent questions such as the total forest cover under individual ownership, the contribution of individual woodlots to the income of A1 farmers (fuel wood, fencing, logging, pulp wood etcetera) and management practices that would enable an objective assessment of the economic benefits generated by the woodlots remained unanswered. It is answers to these questions that would provide needed information that can facilitate the identification and transfer of best practices to smallholder farmers in the management of woodlots. Accordingly, this paper endeavoured to answer these questions.

Table-2. Land ownership patterns in Zimbabwe in 1980 and pre- and post FTLRRP period

Land Sector Category	Independence (1980)		Pre-FTLRRP (1999)		Post-FTLRRP (2003)	
	Area (ha)	*Proportion* (%)	*Area* (ha)	*Proportion* (%)	*Area* (ha)	*Proportion* (%)
Communal Land	16 400 000	41.4	16 400 000	41.4	16 400 000	41.4
Large-Scale Commercial	15 500 000	39.1	11 208 000	28.3	2 614 000	6.6
Small-Scale Commercial	1 188 000	3.0	1 980 000	5.0	1 980 000	5.0
Phase I Resettlement	0	0.0	3 500 000	8.8	3 500 000	8.8
State Land	6 512 000	16.5	6 512 000	16.5	6 512 000	16.5
A1 model	0	0.0	0	0.0	4 200 000	10.6
A2 model	0	0.0	0	0.0	2 200 000	5.6
Other (unallocated land)	0	0.0	0	0.0	2 178 000	5.5
Totals	**39 600 000**	**100.0**	**39 600 000**	**100.0**	**39 600 000**	**100.0**

Sources: (Rukuni, 1994; Moyo, 1995; 2005; GOZ (Government of Zimbabwe), 2003)

Two models of settlement were adopted during the fast-track land resettlement programme, namely the A1 model and A2 model. Model A1 was for the generality of landless people, with a villagised and self-contained variant while model A2 was a commercial settlement scheme comprising small, medium and large-scale commercial settlement (GOZ (Government of Zimbabwe), 2003). Under A1 villagised model, homesteads are in villages with a common grazing area akin to communal areas while self-contained A1 plots are used for both crop cultivation and livestock. A total of 127,192 households were resettled under the A1 model, while 7,260 households were allocated land under the A2 model (ibid). In principle, A1 households were supposed to be allocated five hectares of arable land in the wetter regions and ten hectares in the drier regions and grazing area of between seven and sixty hectares (Ministry of Lands Agriculture and Rural Resettlement, 2001). This land allocation policy was designed for equitable distribution of appropriated land to accommodate as many beneficiaries as possible, which inadvertently restricted resettled farmers to "subsistence" agriculture as opposed to commercial farming activities that historically characterised much of the expropriated land. The A2 model provides for four categories of varying farm sizes including small-, medium- and large-scale farms, and peri-urban plots. Table 3 shows farm size variations for A1 and A2 models in different agro-ecological zones.

3.2. Land Use Systems in Resettlement Areas

According to Mubvami (2004), the environmental impact of the FTLRRP is closely linked to the land use systems that are being created under the programme in given geographical areas. Table 3 shows three land use systems and their corresponding subsystem(s).

Table-3. Farm size variations for A1 and A2 Models

Agro-Ecological Region	A1 Farm Size (ha)			A2 Farm Size (ha)			
	Arable	*Grazing*	*Total*	*Small-Scale*	*Medium-Scale*	*Large-Scale*	*Peri-Urban*
I	5	7	12	20	100	250	2 - 30
IIa	5	10	15	30	200	330	2 - 30
IIb	5	15	20	40	250	400	2 - 30
III	10	20	30	60	300	500	2 - 30
IV	10	30	40	120	700	1500	2 - 30
V	10	60	70	240	1000	2000	2 - 30

Source: (Ministry of Lands Agriculture and Rural Resettlement, 2001)

Table-4. Land use systems in resettlement areas

System	Subsystem(s)
Farming	Cultivation Grazing
Mining	Gold panning
Settlement	Residential Institutional (schools, churches) Industrial Commercial

Source: (Mubvami, 2004)

The systems and their subsystems had various impacts on the environment in A1 resettlement areas. There is a very close relationship between the farming and settlement systems in terms of their utilisation of resources and resultant impacts on the environment. As noted above, an A1 farm consisted of residential land, cultivation land and a common grazing land. Given that Mashonaland Central is endowed with gold deposits, there is often increased conflict between farming (agricultural activities) and mining particularly gold panning which is illegal.

Vegetation cover is one element that has been largely affected by all the three land use systems in A1 resettlement areas. Forest clearing for farming and construction of residential and institutional settlements is one of the major impacts of the FTLRRP.United Nations Development Programme (2002) estimates the loss of woody vegetation at 1.4 percent while the land for cultivation expanded by 2 percent throughout the country. The loss of forest and vegetation cover during the fast track land reform resulted in the destruction of animal habitats and this should be an area of concern to policy makers. Surveys by the Ministry of Environment and Tourism after the FTLRRP indicated a depletion of natural resources in areas allocated to the new settlers (Mubvami, 2004). What was the institutional and legal framework in the face of these environmental problems? The fast track land reform started without a formal legal and institutional framework (Masiiwa and Chipungu, 2004) and was only formalised in December 2001 through the Rural Land Occupiers (Protection from Eviction) Act. The rapid implementation of the FTLRRP meant that the role of some government agencies responsible for environmental protection such as the Ministry of Environment and Tourism were overlooked.

4. DISCUSSION OF RESEARCH FINDINGS

For various reasons the fast track land reform was followed by reduced food production, pronounced decline in agriculture's contribution to export earnings, employment and overall economic growth. The greatest challenge was the capacity of the newly resettled farmers to manage natural resources in the resettlement areas. Prior to the FTLRRP, the white commercial farmers jealously guarded their farms against both wildlife and wood poachers and any other intruders including gold panners. For example, the white commercial farmers had security personnel to patrol and apprehend trespassers. One reason for rampant destruction of the environment in A1 resettlement areas was the institutional gap to enforce laws and regulations.

Another reason has to do with the selection of settlers where there was destruction of social fabrication in that people of different and divergent cultural backgrounds were allocated plots in the same locality. Furthermore, it was difficult to enforce government regulations regarding natural resource management to a politically democratic populace that had differing socio-economic and political power bases as discussed in this section. The newly appointed chiefs and headmen in the resettlement areas had no power to craft social laws on woodlots management and to enforce them. Thus management of natural resources especially woodlots was quite difficult given the multiple uses trees can be put into.

4.1. Land Holdings in the A1 Resettlement Areas

According to Table 3 land allocations for A1 model were based on five hectares arable and seven to fifteen hectares grazing land, yielding a total of 20 hectares per beneficiary. Table 5 shows that there is not much variation between policy specification on average A1 plots and the actual in Mashonaland Central Province.

Table-5. Average arable plot sizes for A1 farms

A1 Resettlement Scheme Model	Sample Proportion [%]	Mean ($\bar{x}$) ha	Standard Deviation (s) ha	Minimum ha	Maximum ha
A1 Villagised	96.95	6.134	2.031	3.000	12.000
A1 Self-Contained	3.05	22.333	21.220	6.000	30.000

Table 6 shows the political dimensions of the fast track land reform programme. The political leaders outnumbered the traditional leaders at all levels of local governance and always prevailed on issues to do with agricultural activities such as the distribution of inputs from the government and management of natural resources in A1 resettlement schemes. The same political leaders had played a prominent role on the allocation of plots during the fast track land reform programme.

Table-6. Political power bases in the resettlement areas

Level of Political Leadership Size (n)	Sample
District Party Leaders	18
Branch Party Leaders	36
Village Party Leaders	34
Cell Party Leaders	12
Non-Partisan/Ordinary Party Members	200
Total	**300**

4.2. Accessible Grazing Area

A cursory analysis of the size of grazing land that is entitled to households falling in different resettlement schemes portray a somewhat improvement in grazing resource access, especially when considering the fact that a typical communal land household has access to less grazing resources. The estimated area under grazing per household in communal areas ranges from an average of 10.4 hectares to 12.4 hectares (Guveya, 2006). Access to grazing land, just like arable land, is also governed by numerous localised laws and regulations. Shared grazing areas have the challenges of non-excludability and a lack of upper set limits for grazing land accessed by individual members. In addition, grazing areas are characterised by free-rider problems especially in initiatives to improve pastures.

4.3. Land Tenure Regimes

The FTLRP has witnessed a shift in land tenure systems from private land holdings to state land. Land redistribution also significantly changed land rights, access rights and their administration. There is, however, uncertainty surrounding the form and security of tenure in both A1 and A2 schemes. In the new resettlement areas, the tenure form provided to A1 farmers is akin to that in the communal areas being based upon "customary" forms of allocation, regulation and adjudication. The issue of tenure insecurity has been identified as a strong disincentive in the current land reform programme. Identified land tenure issues include:

- uncertainties and insecurities in some areas over "evictions" for re-planning and illegal occupation,
- boundary disputes,
- grazing land conflicts,
- resource poaching by people from neighbouring communal areas,
- illegal settlers or "squatters",
- excess cattle kept on behalf of communal area farmers,
- residential and infrastructure use disputes, and
- the administrative authority of traditional structures.

The study identified the major land tenure issues as the uncertainty surrounding the resettlement programme (cited by 30 percent of the households who responded to the question), the failure to access farming resources (13 percent) and the failure to access credit (9.4 percent). These dilemmas and sentiments were closely linked to the method used to acquire the land. The survey established that 93 percent of the interviewed farmers had offer letters in their possession as evidence and a somewhat guarantee of security for their access to land. The remainder (seven percent) of the farmers accessed the land through invasions and/or occupations and licenses and were not sure of their continued stay on the farms.

4.4. Changing Land Use Patterns in Mashonaland Central Province

Prior to 2000, large-scale commercial agricultural production in Mashonaland Central Province was dominated by tobacco, maize, soybeans and winter wheat. The predominance of sandy soils in the Province made tobacco the major commercial crop in terms of both the cropped area and the number of farmers involved in the enterprise. Maize and groundnuts were often grown in rotation with tobacco in order to enrich the soil. Secondary agricultural enterprises included potato, paprika, sorghum, horticulture, beef and dairy production.

The supremacy of tobacco production indicates to the likely threats on woodlots management in A1 resettlement areas. Before the land reform programme, white commercial farmers were able to manage natural resources and woodlots on their own. This relieved the government of monitoring and supervision roles on the use and management of natural resources. With the advent of the land reform, the supremacy of cotton production (especially among the smallholder farmers) over maize production dropped, but the threat on woodlots increased as more farmers switched to tobacco production. The favourable auction price for tobacco has lured a significant number of smallholder farmers. Among the smallholder tobacco farmers, a significant number of them had acquired agricultural assets such as tractors, vehicles and more livestock.

Figure 1 shows the emerging land use patterns in A1 resettlement areas. Maize, which is the local staple crop, has replaced tobacco as the dominant crop in Mashonaland Central Province. The emerging dominance of the maize crop is also a result of recurrent droughts that ravaged the country since the onset of the FTLRRP and the government's drive towards restoring food security at national and household levels. This, in turn has also contributed to a shift in land use patterns from cash crops (that have been the mainstay of the large-scale commercial farming sector) to food crops in the resettlement areas.

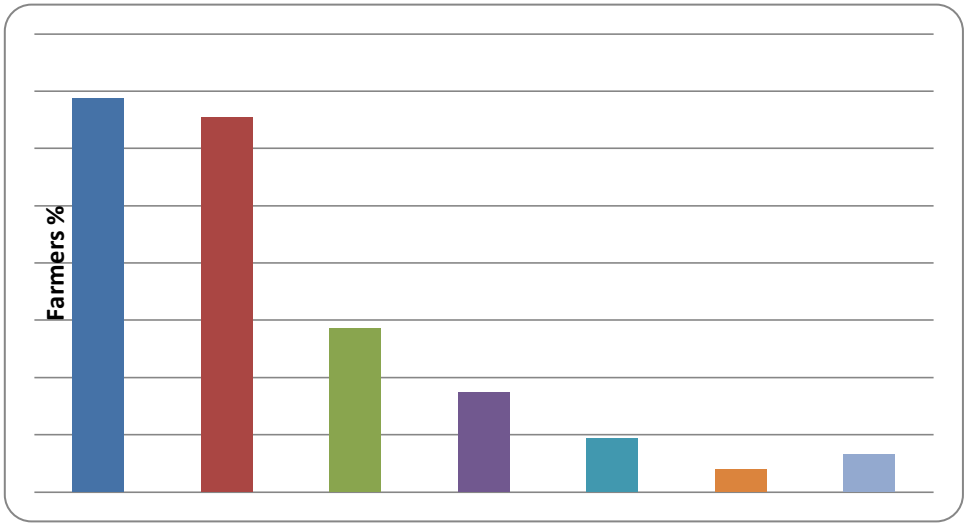

Figure-2. Emerging land use patterns in A1 resettlement areas

*Other refers to diversified livestock production, wildlife and eco-tourism and gold panning.

4.5. Lease Arrangements and the Emergence of Informal Land Markets

The apparent underutilisation of available arable land resources has created an opportunity for informal lease arrangements for arable land. Although only a negligible proportion of the interviewed farmers (1.4%) admitted their involvement in sub-letting of arable land during the formal questionnaire survey, informal discussions with Agricultural Extension Officers revealed the existence of an informal land market within the resettlement areas. For example, arable plot holdings of about one hectare in the A1 villagised schemes which are well below the average arable plot allocations stipulated in official government policy could provide ample evidence of subletting and/or the existence of squatters. The practice of subletting arable land is common in some communal areas, where most civil servants based at rural service centres or schools who do not have arable land of their own, sublet pieces of land from communal farmers to meet their food security requirements. In the A2 resettlement schemes, some resettled farmers are leasing land to former white commercial farmers. Daily News on Sunday (2012) quoted President Robert Mugabe as saying;

Land is not being utilised fully, some of the land is being farmed by whites.

According to Hanyani-Mlambo (1995), the practice of subletting arable land is also rife in Phase I resettlement schemes where "squatters" lease land from bona fide beneficiaries who hold permits for individually-allocated plots.

4.6. Non-Agricultural Land Uses in A1 Resettlement Areas

In addition to the diversified crop and livestock production systems, 7.1 percent of the A1 farmers are also involved in a number of non-agricultural socio-economic activities. In the communal areas non-agricultural socio-economic activities such as brick moulding and community-vegetable gardening are usually done during the dry season and do not interfere with

crop cultivation. This practice is not unique to Zimbabwe, but is quite prevalent in most countries in the tropics. According to Ruthernberg (1980) tropical livelihoods, encompassing farming systems in the tropics are more diversified and complex as compared to somewhat homogenous and specialised systems associated with the temperate regions. Predominant non-agricultural and income-generating activities and details of the intensity of each activity in A1 resettlement areas are shown in Table 7.

Table-7. Non-agricultural land uses in A1 Resettlement Schemes

Alternative Land Use Options	**Proportion of Farmers Involved (%)**
Wildlife/Eco-Tourism	3.3
Brick Moulding	0.9
Industrial/Commercial Operations	0.5
Gold Panning	0.5
Hunting	0.1
Keeping Livestock for Other Farmers	0.5
Subletting of Arable Land	1.4
Total	**7.2**

Contrary to the picture portrayed by the paltry figures in Table 7, key informant interviews and informal discussions with various stakeholders in the study area confirmed that a significant proportion of A1 farmers were utilising their plots for alternative land use options. Though not mentioned in Table 7, fuel wood extraction for sale in cities was often practised by some A1 farmers. Deforestation for fuel wood was worsened by inadequate power supply in the country and lack of alternative fuel sources in both resettlement areas and urban areas. In some areas, poaching of firewood on resettled farms was largely because of laxity in security in the farming areas. Again, the sensitivity of the issues involved, the insecurity of tenure and the limited study period presented limitations to the research study. This necessitates the need for more in-depth qualitative analytical studies in the area.

4.7. Reasons for and Prevalence of Forest Clearing in A1 Resettlement Areas

Table 8 shows the major reasons for cutting down trees and levels of prevalence in A1 resettlement areas. As observedalready, the fast track land reform brought its own challenges to the environment particularly forest resources that were put under pressure from high numbers of people who were settled without the required institutional framework to manage natural resources. The immediate needs of settlers in the form of shelter and food defined their livelihood-based demands on the natural resources. Table 8 shows that whereas the prevalence of cutting down trees for farm expansion and domestic use had significantly declined from 2005, the incidence of cutting down trees for purposes of drying tobacco was still high in A1 resettlement

areas. This was because most A1 farmers could not afford to buy coal to cure their tobacco. The former white commercial farmers benefitted from economies of scale to use coal for curing tobacco unlike the resettled farmers. The A1 farmers demolished coal-firing tobacco bans and replaced them with smaller ones that used firewood. The rate of deforestation should be of particular interest to policy makers because the cost goes beyond the losses of forest products alone, extending to such indirect costs as decreased agricultural productivity and potential loss of forest resources for future generations. Fuel wood still remains the major source of energy for the rural population. One of the major reasons for environmental degradation in the resettlement areas was deforestation which was caused by the use of wood as a source of energy or fuel. Addressing the energy needs of farmers becomes a pre-requisite for sustainable management of woodlots in A1 resettlement areas. However, the major challenge is how to manage the energy-based livelihoods of the farmers in the face of unclear land tenure. Related to the use of fuel wood for cooking was the use of trees as construction materials in the resettlement areas. Farmers used pole and dagga and/or farm-burnt bricks to construct their houses, and granaries. The use of wood fuel for burning farm bricks had resulted in increased deforestation. Poles were used to construct pens for cattle, goats and sheep. There was very little monitoring on the impacts of these activities on the environment. Although there was no quantitative data on the impact of the fast track on natural resources, the damage on the environment could be substantial.

Table-8. Reasons for cutting down trees and levels of prevalence

	Activity	Details	2000- 2005	After 2005
1	Farm expansion	Resettled farmers on the periphery of the farm expanded their plots and invaded borderline woodlots	Very high	low
2	Domestic use	Cutting down trees for; Home construction Firewood Cattle pens Sale in towns as fuel wood	 Very High High High Moderate	 Moderate High Low Moderate
3	Tobacco drying	Farmers not affording coal cut down trees. Some farmers destroyed the traditional tobacco bans that used coal and constructed smaller ones that use wood.	High High	High High
4	Hunting and gold panning	Hunting account for most of the veld fires in the province. Gold punning is done but largely outside farms–in the common grazing areas or along rivers.	High High	Moderate Low

5. CHALLENGES TO WOODLOT MANAGEMENT IN A1 RESETTLEMENT AREAS

In Table 9, we show dominant characteristic features of resettled farmers that affect the management of woodlots in A1resettlement schemes.

Providing security of tenure is often seen as a precondition for intensifying agricultural production and a prerequisite for better natural resource management and sustainable development. According to UNECA (United Nations Economic Commission for Africa) (2003) increased security of tenure in productive resources leads to enhanced and sustainable agricultural

production. Figure 3 shows that secure land tenure is correlated positively with the quality of resource management.

Table-9. Characterisation of resettled farmers that may affect woodlots management

Characteristic feature	Details
Divergent sources of power	Political power overpowered local leadership powers. No one to control the resettled farmers. The same vandalism that was witnessed on the original white farmer cascaded to the original white farmers' property and now to the environment. Traditional roles for chiefs and headmen on woodlots management were destroyed. Control on woodcutting is viewed as tantamount to sabotaging the resettlement programme.
Economic status	General poverty leads to the non-maintenance of electricity. Not affording alternative sources of energy like paraffin, gas and coal resulted in resorting to cutting down trees for firewood for domestic use or sale in towns and drying tobacco.
Common ownership	Common ownership of resources as opposed to single ownership before the resettlement leads to resource abuse through open access.
Low levels of education	Most farmers have low levels of education to appreciate the importance of nature conservation. Information dissemination is also difficult. Extension workers only focus on farming extension services fearing confrontations on woodlots management.
Land Tenure Regimes	The following challenges militate against instituting a standardised and a well functioning woodlots management system: Uncertainties on land holdings due to evictions especially for those without offer letters. Boundary disputes. Grazing land conflicts. Resource poaching by neighbours. Illegal settlers or "squatters". Excess cattle kept on behalf of farmers in adjacent communal areas. Residential and infrastructure use disputes. The destruction of administrative authority of traditional structures which have been superseded by political structures.

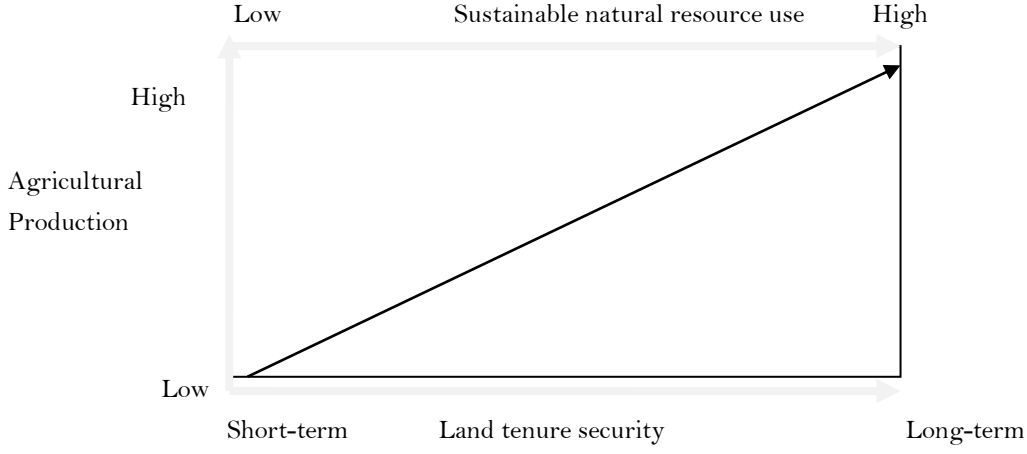

Figure-3. Linkages between land tenure security, agricultural production and sustainable natural resource use

Source: UNECA (2003)

Rural people generally need both secure individual rights to farm plots and secure collective rights to common pool resources upon which whole villages depend. This implies that farmers are more likely to make long-term land investments if their security of tenure is secure because they have an incentive of increased future benefits from the investment.UNECA (2003), observes that despite the frame of reference for the system of land tenure (communal or individual) there is evidence that secure property rights are linked to a higher propensity to invest in tree planting, manuring, soil and water conservation and other permanent improvements.

Some A1 farmers experienced tenure insecurity because of land encroachment and invasion by illegal settlers. The affected farmers cannot prevent invasions without legal protection. To compound this problem is the fact that the role of traditional structures in land tenure administration in the resettlement areas is ill-defined. The majority of farmers were not sure about their continued existence on the allocated plots although their usufruct rights are protected by the government (United Nations Development Programme, 2002) Their fears are worsened by conflicting statements (particularly during the early stages of the FTLRP) from government and political leadership that the settlers should not construct permanent structures.

To broaden the perspective on the relationship between security of tenure and sustainable land use, key informants were asked about the main agricultural activities and environmental management in the resettlement areas. The key informants identified deforestation and soil erosion as the most pressing environmental problems. According to the key informants the major reasons for forest clearing include cutting down trees to pave way for crop cultivation, home construction and firewood as well as veld fires caused by hunters. Deforestation should be of particular interest to policy makers because it has negative implications on agricultural productivity and loss of forests for future generations. The major causes of soil erosion in the study area included veld fires, continuous cropping, cultivation on steeply sloped land, limited crop rotation and overgrazing due to excess cattle kept on behalf of communal area farmers.

5.1. Way Forward on Woodlots Management

Table 10 shows some of the methods used by the government to protect woodlots in A1 resettlement areas immediately after the fast track land reform programme.

The government instituted regulations to the effect that all tobacco farmers must buy and use coal for tobacco curing. Forcompanies involved in tobacco contract farming, they must include the provision of coal to the farmers as part of theirpackage. In addition, all tobacco farmers are required to buy eucalyptus tree seedlings to replace the cut down trees. Thishas been met with challenges. The first challenge was that some A1 farmers destroyed the traditional bans that used coal and have constructed smaller bans that use firewood. The traditional bans were meant for large producers that required a lot of coal. The new bans cannot use coal and farmers are not keen to reconstruct coal-firing bans. This explains why truckloads of coal distributed to the districts and to chiefs' homesteads (during 2002-2007) were not collected as the farmers did not havethe money to buy the coal and lacked vehicles to ferry the commodity to their farms. This has left the farmers with one option to cure their tobacco- using fuel wood. Also, the destroyed forests include indigenous trees that are difficult to replace and not necessarily the eucalyptus

trees whose seedlings are supplied by the government. The eucalyptus trees take up a lot of water and contribute to the drying up of land thereby posing a threat to traditional water supplies especially wells.

Table-10. Way forward on woodlots management and possible challenges

	Possible solution	Implementing Agents	Challenges
1	Legislation enforcement	Chiefs, headmen and councillors (local leaders), Environmental Management Agency, Forestry Company and Zimbabwe Republic Police	Inadequate policing to enforce compliance. Resettlement areas are heavily polarised areas where anything against settler farmers could be misconstrued to mean opposition to land reform.
2	Education and awareness	Environmental Management Agency, Department of Agriculture and Extension Non Governmental Organisations	Inadequate resources and inculcated negative perception of Non Governmental Organisations.
3	Use of coal to cure tobacco	Rural District Councils, Tobacco Growers Associations and Tobacco Input Support Providers (contract farming)	High cost, transport challenges and inappropriate tobacco bans.
4	Reforestation and aforestation	Environmental Management Agency, Department of Agriculture and Extension VIDCOs andWADCOs Local Leaders Environmental Management Agency and Forestry Company	Monitoring and supervision challenges. The programme focuses on exotic species at the expense of traditional species that are destroyed.

5.2. Governance and Institutional Framework for Woodlot Management

A1 resettlement areas were formerly commercial farming areas. During the FTLRRP, each wholesome commercial farm was subdivided into a number of A1 plots and allocated to a number of diversified households. Prior to 2000, these areas fell under the Rural District Councils. During that time, the white commercial farmers could effectively look after the woodlots. The white commercial farmers used coal to cure their tobacco, regulated and controlled the cutting down of trees on their farms and had enough security to patrol and apprehend wood poachers and any other trespassers. Although the A1 farms fall under the Rural District Councils, there seem to be an institutional gap where other institutions responsible for managing local areas have been sidelined. In principle, communal areas are administered by local government structures of village and ward development committees. Role definitions between the VIDCOs and WADCOs and traditional structures are not clear, which culminate in role conflict in many cases. Traditional structures are non-existent in A1 resettlement areas. A1 resettlement areas have brought people of different and diverse backgrounds. The problem of institutional gap is worsened by the unmitigated democratic power base of A1 farmers and the absence of government agencies and ministries dealing with environmental issues. The FTLRRP was heavily politicised and to date political affiliation seem to determine one's continued stay on A1 farms. The political structures within A1 farms are very powerful to the extent that even existing institutions such as the Rural District Councils have problems to enforce environmental

regulations. What is required are clear local governance structures in A1 farms where normal reporting structures as defined under the Rural District Council Act are clearly outlined. The institutional gap identified above creates challenges for effective monitoring and enforcement of the relevant legislation dealing with environmental issues in A1 resettlement areas. This calls for establishment of a new framework to ensure and guarantee effective enforcement of deterrent penalties for environmental damage in the resettlement areas. The government will have to capacitate and re-empower the local governance structures such as VIDCOs and WADCOs. The starting point however, will be the removal of impediments to effective environmental protection by depoliticising environmental management in the resettlement areas.

6. CONCLUSION AND POLICY RECOMMENDATIONS

An investigation of common property management for woodlots in resettlement areas in Zimbabwe revealed a gradual breakdown of local systems for natural resource management and the dearth of any emerging alternative institutions for such management. In the communal areas where most of the resettled farmers came from, a distinction is made between grazing area (ufuro) and ploughing area (urime) and cattle have to be grazed at a safe distance from the cultivation area. Crop cultivation is confined to large, carefully selected and consolidated blocks of arable land often ringed by homesteads. Beyond these residential "lines" lay undefined woodland and grassland, the so-called "grazing areas". The displacement of white commercial farmers by the black indigenous farmers has contributed to a reduction of forest cover in the resettlement areas as forest and woodland resources come under immense pressure from increased wood fuel collection, clearing of forests for agriculture, illegal and poorly regulated timber extraction for construction, hunting and grazing. Accordingly, we suggest that advocacy of common pool resource systems has to be tampered with critical analysis in the new resettlement schemes. There is need to improve the security of tenure of the resettled farmers. Lack of security has seen increased incidences of conflict among the farmers fighting for the same plots (Mubvami, 2004). The result has been intensified exploitation of natural resources on the allocated farms as farmers compete for the same resources. The study found that fire was the major threat and contributed to a significant loss of woodlots in A1 resettlement areas of Mashonaland Central Province. Precautionary measures against fire should be instituted. This can be done by establishing and constructing fire guard(s). In addition to establishing and maintaining fireguards, fire protection should be participatory and coordinated in the village and between villages. For example, a villager wishing to use fire for his or her agricultural activities should obtain permission from the village head. In addition, other villagers should be alerted in case the fire will get out of control.

The use of firewood to cure tobacco in A1 resettlement schemes has contributed to extensive destruction of forests. We recommend the reconstruction of coal-firing bans. These would require communal ownership by farmers within the same village. However, although local farmers cut down trees for energy and construction purposes, there has been an increase in the demand for firewood in neighbouring towns due to erratic electricity supplies experienced from 2000 to date.

Meanwhile, there is need for research on environment-friendly methods of curing tobacco such as sun and air curing. Sun curing is already being used in Iran, Turkey, Romania and Greece. This could be a long term solution to woodlot.

destruction due to tobacco curing. This would entail abandoning high value Virginia tobacco for burley tobacco which can be air cured. An increased role of local communities in natural resource management has recently been widely advocated as a solution to the problem of environmental degradation in developing countries (Virtanen, 2001). This observation is based on the essential nature of rural communities that they are clearly bounded, socially homogenous and based on shared norms. The challenge in A1 resettlement areas is that the farmers have different social and cultural backgrounds. The role of traditional structures in land tenure administration in the resettlement areas is ill-defined. There need for the government to capacitate and re-empower local institutions to enforce environmental conservation within their communities. What came out of the study was that local authorities do not hold real decision-making powers within their communities. The breakdown of traditional leadership and power structures and the creation of parallel political power structures have resulted in the breakdown of controls by local leadership on woodlots management. It becomes imperative to start considering the capacity of local institutions as a complement to government-decentralized institutions of VIDCOs and WADCOs.

Based on the findings in this study, the following recommendations to help improve woodlot management and reverse deforestation in the resettlement areas are put forward.

- Give power to chiefs or decentralised land administration structures to monitor and enforce sustainable land use practices including woodlot management. This will entail training the local leadership in sustainable land management.
- Provide clear security of tenure to the resettled farmers including water rights, technology, inputs, training and extension services.
- Provide and empower A1 farmers with expertise on extension methods that focus on conservation and agricultural technologies that are environmentally friendly.
- Develop community groups on environmental management. Such groups would coordinate efforts to protect the environment particularly woodlots.
- Total ban of high-value flue-cured tobacco in preference of burley tobacco which does not require curing using wood or coal.
- All companies that provide contract farming to tobacco farmers should establish a policy requiring them to have their own woodlots.

REFERENCES

Daily News on Sunday, 2012. Mugabe warns dubious farmers. Daily News on Sunday. [Accessed June 17, 2012].

Deininger, K., H. Hoogeveen and B.H. Kinsey, 2002. Benefits and costs of land reform in Zimbabwe with implications for Southern Africa. Paper Presented at the Center for Study of African Economies Conference, Understanding Poverty and Growth in Sub-Saharan.

GOZ (Government of Zimbabwe), 2003. Report of the presidential land review committee. Main report. Harare: Government of Zimbabwe.

Guveya, E., 2006. A socio-economic analysis of the potential of using tradable grazing rights for grazing resource management in Zimbabwe's communal areas. Unpublished D.Phil. Thesis. University of Zimbabwe.

Hanyani-Mlambo, B.T., 1995. Farmers, intervention and the environment: A case analysis of government initiatives, local level perceptions and counter strategies on conservation forestry in Chinyika resettlement scheme. Zimbabwe. MSc. Thesis. Wageningen Agricultural University.

Masiiwa, M. and L. Chipungu, 2004. Land reform programme in Zimbabwe: Disparity between policy design and implementation in Masiiwa M. (eds) Post-independence land reform in Zimbabwe: Controversies and impact on the economy. Harare: Friedrich Ebert Stiftung and Institute of Development Studies, University of Zimbabwe.

Ministry of Lands Agriculture and Rural Resettlement, 2001. The agricultural sector of Zimbabwe: Statistical bulletin. Harare: Government of Zimbabwe. Availiable from: http://afraf.oxfordjournals.org/content/89/355/163.full.pdf+html. Access date [12 February 2011].

Moyo, S., 1995. The land question in Zimbabwe. Harare: SAPES Books.

Moyo, S., 2005. Land redistribution: Allocation and beneficiaries. Research monograph. Harare: African Institute of Agrarian Studies (AIAS).

Mubvami, T., 2004. Impact of land redistribution on the environment. In Masiiwa M. (eds) post independence land reform: Controversies and impact on the economy. Harare: Friedrich Ebert Stiftung and Institute of Development Studies, University of Zimbabwe. pp: 71-89.

Onibon, A., B. Dabire and L. Ferroukhi, 1995. Local practices and the decentralization and devolution of natural resource management in French-speaking West Africa. Food and Agriculture Organisation. Available from http://www.fao.org/docrep/x3030E/x3030e08.htm [Accessed 9 May 2011].

Palmer, R., 1990. Land reform in Zimbabwe, 1980-1990. Oxford Journals, African Affairs.

Rukuni, M., 1994. The evolution of agricultural policy: 1890 – 1990. In Rukuni, M. and Eicher, C. (eds) Zimbabwe's agricultural revolution. Harare: UZ Publications. pp: 15 – 39.

Ruthernberg, H., 1980. Farming systems in the tropics. 3rd Edn., Oxford: Oxford University Press.

UNECA (United Nations Economic Commission for Africa), 2003. Land tenure systems and sustainable development in Southern Africa, ECA/SA/EGMM.Land/2003/2, Lusaka: UNECA, Southern Africa Office.

United Nations Development Programme, 2002. UNDP interim mission report, January 2002. Harare: UNDP.

Virtanen, P., 2001. Evolving institutional framework for community-based natural resource management in Mozambique: A case study from Choa Highlands. African Studies Quarterly, 5(3). Available from http://www.africa.ufl.edu/asq/v5/v5i3a8.pdf [Accessed 30 May, 2012].

ZIMSTAT (Zimbabwe National Statistics Agency), 2012. Census 2012 preliminary report. Harare: ZIMSTAT.