



Livelihoods after Land Reform in Zimbabwe

Working Paper 14

My Land, My Resource: Assessment of the Impact
of the Fast Track Land Reform Programme on the
Natural Environment, Kadoma District, Zimbabwe

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The land reform that has unfolded in Zimbabwe since 2000 has resulted in a major reconfiguration of land use and economy. Over 7 million hectares of land has been transferred to both small-scale farm units (the A1 model) and larger scale farms (the A2 model). The land reform has had diverse consequences, and there is no single story of what happened and its implications.

The Institute of Development Studies (University of Sussex, UK), the Institute for Poverty, Land and Agrarian Studies (PLAAS, University of the Western Cape, South Africa), the African Institute for Agrarian Studies (AIAS, Harare), the Centre for Applied Social Sciences Trust (CASS Trust, Harare) and the Ruzivo Trust (Harare) came together to support a small grant competition aimed at generating new case study insights based on original and recent field research by young Zimbabwean scholars. The aim was to bring together solid, empirical evidence from recent research in the field. There were over 70 applicants, and 15 small grants were offered. The result is this Working Paper series. All papers have been reviewed and they have been lightly edited. In all cases however they remain work-in-progress.

Today policymakers are grappling with the question of ‘what next’? How can a new agrarian structure be supported, and a vibrant rural economy be developed? Yet such discussions are often taking place in a vacuum, with limited empirical data from the ground and overshadowed by misperceptions and inappropriate assumptions. We hope this series – together with the wider research work being undertaken by our organisations and partners – will help to enhance policy making through a solid evidence base.

As these papers clearly show, there have been highly varied impacts of the post-2000 land reform: on rural livelihoods, on agricultural production, on markets and the economy, on farm workers and employment, on the environment and on institutions and governance arrangements, for example. And these impacts have played out in very different ways in different places. These papers cover a range of themes and offer insights from across the country.

They add up to a complex picture, but one that offers key pointers for the way forward. They counter the excessively pessimistic picture often painted about Zimbabwe’s land reform, yet highlight important failings and future challenges. We very much hope that they are widely read and shared, with the insights made use of as Zimbabwe charts its way forward.

Professor Ian Scoones, Institute of Development Studies, UK

Professor Ben Cousins, Institute for Poverty Land and Agrarian Studies, South Africa

Professor Sam Moyo, African Institute for Agrarian Studies, Harare

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The small grant competition was coordinated through the Livelihoods after Land Reform research programme (www.larl.org.za).

Summary

The Fast Track Land Reform Programme (FTLRP) is the defining instrument for Zimbabwe's future development prospect. It brought an end to the colonial division of land and has resulted in major changes in land use on the former Large Scale Farming sector. The paper, grounded in a political ecology framework, provides a case study of three resettled communities in Kadoma District, Zimbabwe. Household surveys, interviews, Landsat and GIS based techniques are used to document and explore spatial patterns of resource use, landscape structure and changes and their significance on livelihoods and environmental impacts. The clearing of woodland, bushland and grassland for settlement, cultivation and energy consumption has reduced vegetation cover and will initially lead to lowered biological productivity and impacts on soil conditions. Furthermore, household livelihood strategies in response to the resettlement process, climatic variability and macroeconomic environment, have been to engage in the sale of firewood, gold mining, gold panning and sand abstraction. These activities are likely to impact negatively on runoff processes, particularly the transport of sediment and trigger gully erosion (Fox et al 2007) and in the long term if unabated lead to land degradation.

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Acronyms

AGRITEX	Department of Agricultural, Technical and Extension Services
ESAP	Economic Structural Adjustment Program
FTLRP	Fast Track Land Reform Programme
GDP	Gross Domestic Product
GMB	Grain Marketing Board
MDC	Movement for Democratic Change
ZANU PF	Zimbabwe African National Union – Patriotic Front Party

Introduction

Redistributive land reform is a recurring theme of contemporary development discourse in southern Africa (Chimhowu and Hulme 2006). In the first decade of the 21st Century the agrarian sector and the racial distribution of land in Zimbabwe went under rapid and major transformation through the Fast Track Land Reform Programme (FTLRP). This programme was triggered by nationwide 'politically motivated and organised' (Chigumira 2006; Fox et al. 2007; Clover and Eriksen 2009) occupations of largely white owned large scale commercial farms after Zimbabweans rejected a new draft Constitution at a referendum in February 2000. A Constitutional amendment of April 2000 provided the legality for undertaking and institutionalizing the FTLRP.

By 2003 the government of Zimbabwe had acquired approximately 6,422 farms covering 6,500,000 hectares of land (Utete 2003; Moyo 2005). Between 2000 and 2003, approximately 130,000 households were resettled under the FTLRP (Utete 2003) a relatively high figure compared to the 71,000 households (Sachikonye 2003) resettled between 1980 and 1997, an indication that rate of resettlement was 'faster' under the FTLRP. Land Audits (Ministry of Land, Land Reform and Resettlement 2006) indicate, that by February 2006, about 156,000 households were resettled on 6,800,000 hectares.

The FTLRP was associated with the modification of existing settlement models in the form of a communal subsistence farming model A1 (either as a villagised or self contained model variant) and commercial farming model A2 (with variants of small, medium, large and peri-urban farm models). The programme has taken place under adverse macroeconomic and unstable political conditions, which will be discussed later, in which recipients have responded differently.

Reviews of emerging literature indicate that FTLRP has resulted in significant changes in spatial patterns of resource use, landscape structure and changes on the former Large Scale Farming sector. It is hypothesised that the livelihood strategies in response to the resettlement process, climatic variability and macroeconomic environment will lead to exploitation of natural resources. This is likely to reduce vegetation cover, impact on soil conditions and runoff processes, especially the transport of sediment and trigger gully erosion thereby leading to lowered biological productivity (Fox et al. 2007). In the long term if unabated land degradation may occur and impact the quality of life of resettled farmers.

Therefore this paper aims to unravel the livelihood practices and strategies of resettled farmers at three farms in Kadoma District, Zimbabwe, their spatial patterns of resource use and in turn assess the impact of these activities on the natural environment and sustainability thereof through a political ecology framework. By so doing contribute to scant research on the broader livelihood and survival strategies developed by peasant households within their environment (Moyo 2005) and on the 'debate on and controversy surrounding the impact of FTLRP on land degradation and economic productivity' (Fox et al. 2007:212). The paper builds on empirical work collated in 2004 and 2005.

I start, in accordance with a political ecology framework, with an examination of the national political and socio-economic environment followed by a description of the theoretical framework and methods used in the study. I then proceed to the local level through an initial description of the case studies, then an examination of the livelihood practices and strategies prior to and after resettlement and land cover changes within these three localities. This leads to a discussion of agricultural productivity and resource usage and lastly recommendations for agrarian reform and practice in Zimbabwe's newly resettled areas.

Political economic environment

Strong linkages exist between Zimbabwe's agrarian policy and both its macro-economic and political environment which affect agriculture either positively or negatively (Chigumira 2006:16). As such Fast Track Land Reform needs to be understood in the context of the poor socio-economic and politically unstable environment in Zimbabwe, for this adds pressure on livelihood coping strategies and resource consumption which can drive environmental degradation (Fox et al. 2007; Clover and Eriksen 2009).

The slow growth in the country's economy began in the early 1990s following the Economic Structural Adjustment Programme (ESAP). The 'combined effect of declining wages, rising unemployment and inflation (associated with ESAP)...led to drops in real incomes' (Marquette 1997:1145) and thus precipitated civil unrest, increased popular demand for land and political pressure particularly from the war veteran movement, a powerful electoral constituent for the ruling party Zanu-PF, characterised the late 1990s. Subsequently the government gazetted 1,471 farms for compulsory acquisition in November 1997. Immediately following this, on 'Black Friday', the Zimbabwe dollar lost more than 50% of its value on the greenback. In addition, that year, an opposition party, the Movement for Democratic Change (MDC), with a strong link to the trade union was formed. Since 'Black Friday' the economy never really recovered and negative growth rate below the one percent threshold commenced in 1998, illustrating the interconnectedness of agrarian and political economic issues.

Politically the 2000 referendum for a new Constitution marks the turning point in Zimbabwe's formerly orderly agrarian and resettlement programme that characterised much of the 1980s and 1990s and the dominance of ZANU-PF in national politics. Subsequent to the rejection of the government sponsored draft Constitution by the majority, the first electoral defeat for ZANU-PF, a large number of large scale commercial farms were occupied, with Kadoma District recording a high rate of occupation by June 2000 (Glover 2001). In the past government often responded by evicting 'illegal land occupiers' commonly referred to as 'squatters', but after February 2000 government did not ban these occupations (Willems 2004). Before the crucial parliamentary elections of June 2000, a Constitutional amendment of April 2000 was enacted in order to allow government to compulsorily acquire land without the obligation to pay compensation (Masiwa 2004). This not only legitimized the launch of the FTLRP on the 15th of July 2000 (Government of Zimbabwe 2004) but provided security from eviction for land occupiers. This prompted commentators, media and scholars to view the FTLRP as a politically driven process to counter the strong challenge posed by the MDC in the June 2000 parliamentary elections and presidential elections of 2002 (Willems 2004; Chigumira 2006).

Since the FTLRP, the country experienced further shrinkages in the GDP. The macroeconomic environment since 2000 has been characterised by hyperinflation, collapse of many banks, shortages of foreign currency and key commodities such as fuel and agricultural inputs (Kanyenze 2005; Fox et al. 2007; Clover and Erikson 2009). Hanke (2008) reported that Zimbabwe's annual inflation had risen to an estimated 89.7 sextillion percent by November 2008. Hyperinflation resulted in reduced disposable incomes of households in both urban and rural localities, fewer remittances from the urban proletariat, and diminished value of crops traded. Moreover shrinkages in employment meant that off farm sources of income were curtailed leading settlers to rely on exploitation of their natural resources as a coping strategy.

Theoretical framework and methods

Political ecology

During the last two decades the field of political ecology has advanced through research, analysis and applied practices across disciplines particularly in Geography. The emergence of political ecology has been ascribed by Paulson and Gezon (2004) and Bryant (2004) to the resurgence of Marxism in social sciences and development studies, from a critique of Malthusian and neo Malthusian perspectives and the proliferation of peasant studies in the third world.

According to Bryant (2004) the field of political ecology emerged in the 1970s and 80s as an alternative means to solve Third world social and environmental problems. Seminal work by Blaikie (1985) in particular '*The Political Economy of Soil erosion in Developing Countries*' and Blaikie and Brookfield's (1987) '*Land Degradation and Society*', identified the political and economic circumstances that forced rural subsistence dwellers into activities that caused environmental degradation (Stott and Sullivan 2000). Blaikie and Brookfield's work illustrated that 'people in the South were not degrading natural resources through irrational and careless behaviour' (Stott and Sullivan 2000:4) but that their behaviour and interaction with the natural environment was influenced by local, regional and global socio-economic and political factors. These works spurred the growth of political ecology as a tool for analysing third world rural agriculture and human-environment issues.

Robbins (2004) has shown that research using the political ecology approach proceeds from central questions that seek understanding of knowledge on the cause and effect of certain activities rather than the symptoms of problems. Robbins (2004), similarly to Awanyo (2001), said that political ecologists have followed a mode of explanation that evaluates the influence of variables acting on a number of scales, and that these are nested within each other, with local decisions influenced by regional policies, which in turn are subjected to international policies. In the study of land and agrarian reform the field of political ecology provides an understanding on how society and the environment are 'everywhere thoroughly interconnected and how these interlinks take place within the context of a specific geographical region' (Chigumira 2006:21). Research using this framework is directed at finding causes rather than symptoms which allows for case study approaches at the global, regional and local levels, in order to reflect the realities of how beneficiaries of land reforms organize production and the 'inextricable links between society, its land use and the environment' (Awanyo 2001:94).

Methods

'Livelihood studies are generally multi disciplinary in nature and are best pursued using multiple and mixed methods' (Chimhowu and Hulme 2006:180). This study relied on a multi method approach which 'offers ways to enrich data for analysis' (Chigumira 2006:85). A mix of qualitative and quantitative data was collated. Qualitative data was collected through interviews with Agriculture, Technology and Extension (AGRITEX) officials in Kadoma and resettled farmers at the three farms. A sample of 10 households from the original survey was interviewed at each farm, giving a total of 30 households. Respondents were asked about livelihood practices, crop and livestock production, uses of natural resources, land cover changes and fire occurrences. Observation from transect walks in the study areas were recorded and GIS/remote sensing technology was used to identify land cover changes. According to Mapedza, Wright and Fawcett (2002:3)

‘whilst remote sensing studies can identify changes in land cover, the changes in land use that lead to vegetation change are very difficult to determine without follow-up fieldwork on the ground. Secondly, vegetation change as perceived by land users may differ from actual vegetation change and be an important determinant of behaviour among those using local natural resources.’

Thus land sat images were used to complement and triangulate analysis of resource use and the effects of livelihoods practices of these newly resettled farmers on the natural environment. This allowed for the quantification of the changes on land cover and aided in the discussion of the effects thereof.

The GIS analysis enabled percentage cover values of the various landscape classes shown in Table 1 to be documented. According to Elliot et al (2006:498) ‘percentage cover values enable insight to any gross changes in the extent of landscape features at the village scale’. In order to provide detailed information for changes in land cover at Lanteglos, CC Molina and Pamene the following processes were undertaken; Shape files for the three study areas were created for June 2008 land classification using Landsat 7 ETM images, whilst those for June 2002 were present from the previous research I undertook in 2004/5. This gave two sets of shape files, a Lanteglos set, a CC Molina set and a Pamene set. Each set containing two map images with each image providing land cover data for a particular year (2002 and 2008).

Table: 1 Landscape classes recorded for each study area

Land Cover	Description
Bushland	Areas showing less than 20% canopy, smaller trees and few scattered big trees
Cultivation	Areas showing evidence of present or recent past cultivation
Grassland	Greater than 20% trees or bush
Woodland	Wooded areas with 5-20% tree canopy Where the canopy is composed of single stemmed woody plants greater than 5m.
Waterbody	Identified according to water levels at the time of photography

Source, Elliot et al (2006)

The case studies

The case studies are three former large scale commercial farms located in the former Muzvezve Intensive Conservation Area¹, Kadoma District, Mashonaland West Province. Communities were resettled at Lanteglos (30°06’E, 18°18’S) and CC Molina (29°37’E , 18°10’S) farms under the A1 villagised and self contained models respectively and at Pamene farm (29°48’E, 18°22’S) under the A2 small scale model. CC Molina farm is the westernmost and largest of the three. These three study areas were chosen for comparison because they represented smallholder production albeit under different land resettlement models. Pamene as an A2 smallholder farm was used as a means of comparing subsistence

¹ The Muzvezve Intensive Conservation area was one of four administrative areas within the former commercial farming zones in Kadoma. After the FTLRP these zones are no longer functional.

and smallholder commercial farming under Fast Track. Figure 1 shows the location of the study areas. The average annual rainfall for Kadoma (1990-2004) was 740mm, ranging from 440mm in 1995 to 1,020mm in 2001 (Fox et al 2003) and mean annual temperature between 17.5°C to 30°C. Rainfall is 'spatially localised which means that adjacent farms can receive sharply different amounts' (Fox et al. 2007:217).

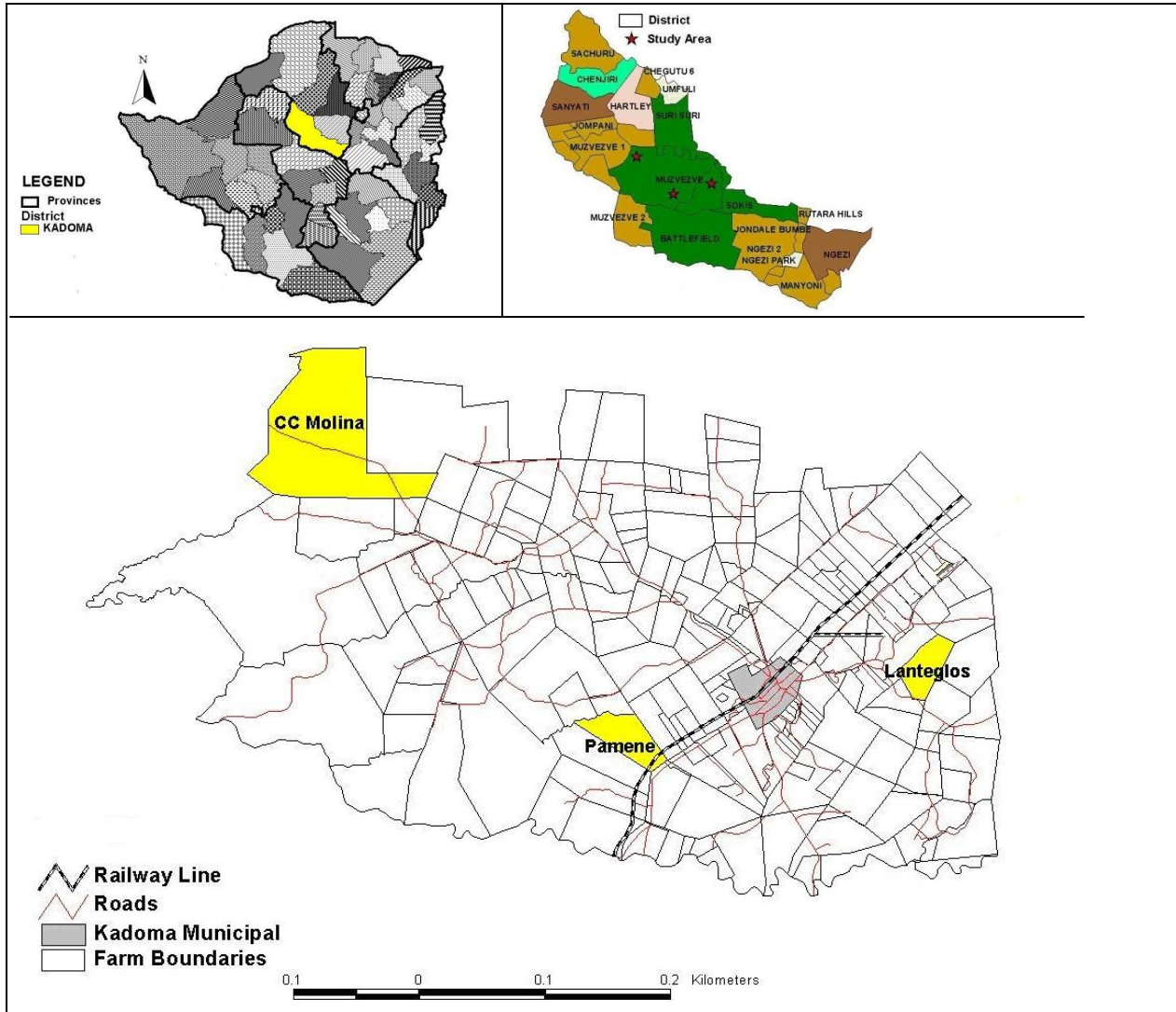


Figure 1: Location of the Study Areas

Lanteglos (A 1 Villagised)

Lanteglos borders Cam and Motor Mine Township and is found 13 kilometers from the city of Kadoma. It straddles the agro-ecological region III (semi-intensive) and covers an area of 915.384 hectares. Thirty four households were officially resettled at Lanteglos farm. With the exception of the ex farm workers who were given pieces of land of 1.5 and three hectares, each beneficiary has an average of six hectares of land for crop production in addition to communal grazing. With the exception of two households the rest reside in a nucleated village on the farm near the former commercial farmers homestead.

The topography of the farm reveals a steep range of hills that covers nearly the entire southern half of the farm and then gives way to a large open vle. It is endowed with Mupfuti and Musasa woodland on the high-lying ground, and Mopani woodland on the low-lying ground as well as a vast area of grassland. A small area of arable land in the south west of the farm consists predominantly of deep to semi-deep red clay soils derived from diorites and greenstones. The rest of the farm has sandy soils, ranging from pure sand to sandy clay loam mostly derived from granite.

Livelihood and productivity

Livelihood practices primarily consisted of food and cash crop production. Crops grown consisted of; maize, cotton, small grains such as sorghum and finger millet, nuts (roundnuts and groundnuts), beans (soya and sugar), sunflowers, pumpkins, sweet potato and sugarcane (ipwa). Rain fed crop production was practised as is the case at Pamene and CC Molina. Harvesting of forest fruit for consumption and sale was another activity undertaken. Alternative sources of income for households particularly those that were resource poor included 'piece-work' jobs (such as weeding, planting and harvesting) for other settlers, sale of firewood, sand and gold mining.

According to the AGRITEX officers in charge of Lanteglos, of which one had a plot at the farm, household maize and cotton production yields fluctuated between the 2005 to 2008 farming seasons and varied according to the socioeconomic status of the settlers. They commented that farmers at Lanteglos were not very productive and therefore resorted to off farm sources of income.

Total household yields generally tended to be between one and two tonnes of maize per household² over the aforementioned farming season. This trend is generally lower than 3.79 and 2.07 tonnes produced by households in the 2003/4 and 2004/5 farming season respectively as noted in my previous research (Chigumira 2006). Interviews with the resettled farmers corroborated observations made by the AGRITEX officers. There were differential patterns of production amongst households, three households, whom were considered by the community as resource rich, produced just over 10 tonnes of maize each in the 2008/9 season, while those whom were resource poor averaged 0.25 tonnes. Those households in between the spectrum averaged between 0.5 tonnes to two tonnes of maize. Unlike previous years, fewer households grew cotton in the 2008/9 season. The survey revealed a decline in cotton production as a cash crop since the last survey. In the 2007/8 farming season only two households grew cotton and had produced an average of 6 bales of cotton.

Households cited the lack of availability of inputs such as seeds, fertilisers and spray as contributing to the decline in cotton production. In addition to this the producer price for cotton was considered too low and therefore they would not break even if they grew the crop. It is important to note that the two households that grew cotton were resource rich and also had higher maize yields. The price of cotton for most Cotton companies was set at USD \$30 per bale (200 kilogrammes).

Households remarked that the unavailability of farming inputs (fertilisers, seeds, pesticide spray) and the poor macroeconomic environment as the major obstacles to farming since resettlement in particular over the 2007 and 2008 period. Most settlers reported that monies accrued from the sale of their crops was 'eroded' by inflation, this was further exacerbated by the Grain Marketing Board (GMB), a

² I use a yield measurement of 'maize per household' and 'cotton per household' due to the fact that I did not have verifiable statistics of total land under cultivation. Observations showed that at all three farms not all the allocated land was under crop production

government run parastatal, failing to pay farmers on delivery of their crops. At most respondents reported that they had to wait for more than five months before receiving payment, which was not adjusted to take the inflationary environment into consideration. In response to this late payment and to offset shocks households sold part of their maize stock to the local community and at Cam and Motor Township. A bucket of maize (weighing 5 kilogrammes) was sold at a price of USD \$3. Despite the “dollarization” of the economy, in 2009, most households complained that the producer price of one tonne of maize set by the GMB was low, considering that the costs of inputs were high and households were no longer subsidised by the government. The dissatisfaction of households by the past and present producer prices for maize and cotton were encapsulated in most referring to this as “sick money” or as “peanuts” (derogatory terms for describing very little money).

Commoditisation of land was another alternative source of income observed at the farm. This can be viewed as a response strategy to the land shortage which is still prevalent in the country despite the FTLRP and to offset shocks from vulnerability due to the poor macroeconomic environment faced by farmers. AGRITEX officers and settlers remarked that land demarcated for grazing on the farm had been parcelled and sold for settlement purposes by the Committee of Seven³. Four hectares of land was sold for USD \$200. In principle the money raised was supposed to be invested into the community however households noted that they had not seen any investment and that the money was shared amongst the committee members. Thus the number of households residing at Lanteglos had increased from 34 to about 50. The lands officer remarked that he was not aware of this despite the fact that AGRITEX officers claimed that they had reported the situation to him. Transect walks revealed new fields on the south western part of the farm.

Land resource utilisation and land cover changes

Building on the land cover dataset 1976 to 2002, of the farm, collected in my previous research, Table 2 provides a summary of the percentage changes in land cover between 2002 and 2008 at Lanteglos whilst Figure 2 provides a visual illustration of these changes. The key land cover changes between the period 2002 and 2008 show significant increases in the area under cultivation/grassland, increasing by 50.88% whilst there were significant decreases in the area under woodland and riverine. The major cause for increase in cultivation/grassland was from conversions of bushland, woodland and riverine. Observations from transect walks showed areas that had been fallow, those that were being cleared for cultivation for the next farming season. Despite an increased number of people at Lanteglos, fewer areas had actually been cultivated in the 2008/2009 farming season. This in turn explains reduced productivity at the farm between 2006 and 2009. It also suggests that deforestation appeared to be rife in the wooded areas than the bushland areas. Transect walks revealed reduced wooded area on slopes of the range of hills that traverse the farm on the north western portion.

³ A Committee of Seven is an institutional structure found mostly at farms resettled under the A1 model. It functions as an oversight body for the community. All A1 settlements are required by government to have such a body.

Table 2: Change in land cover at Lanteglos farm between 2002 and 2008

Lanteglos			
2002 to 2008			
Landcover	Area 2002 (hectares)	Area 2008 (hectares)	% change 2002 and 2008
Bushland	422.76	405.26	-4.14
Cultivation/Grassland*	167.68	252.99	50.88
Woodland	264.38	205.98	-22.09
Riverine	41.94	32.53	-22.44

* see footnote⁴

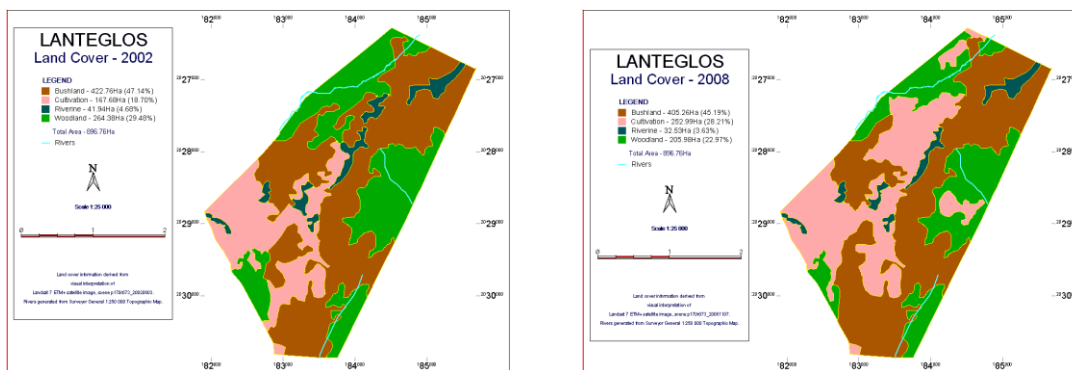


Figure 2: Maps showing land cover at Lanteglos in 2002 and 2008 respectively

In response to the poor macroeconomic environment particularly the hyperinflationary environment of 2007 and 2008, reduced income from crop and livestock production, fewer remittances and employment opportunities, most households turned to exploiting their natural resources. Fruit harvesting and firewood collection were key activities that households were engaged. Some reported that members of the community had been involved in gold and sand abstraction on the farm. Sand and gold abstraction and firewood collection were preferred as there was a higher demand for them and provided for instant cash in a hyperinflationary environment. Transect walks revealed many pits that were haphazardly dug for sand, evidenced in Figures 3 and 4, on the south eastern side of the farm. Construction companies in Kadoma and even as far as Kwekwe City some 80 kilometres from Kadoma were said to hire settlers to dig for sand. Since Lanteglos is situated on a greenbelt it can be construed that some of these pits were not only dug for sand abstraction but also for gold panning. Respondents were reluctant to discuss the issue of gold panning on the farm because it is an illegal activity. Informal conversations with the AGRITEX officer and some settlers indicated that gold panning was an activity practised by farmers.

⁴ Since ground truthing was not carried out during the mapping exercise and only one set of seasonal landsat data was used, it was difficult to differentiate fallow land and land under grassland conditions. Thus using the Forestry Commission of Zimbabwe's current classification methods, "grassland" that appears in areas that were formally Woodlands or Bushlands, is presumed to be fallow land or land being cleared during land preparation. Therefore for the purposes of this paper I have classified it as Cultivation/Grassland



Figures 3: Extensive depressions created from sand abstraction at different localities on the south-eastern side of the farm.



Figures 4: Depressions created through removal of sand along feeder roads and paths on the south eastern portion of the farm

In order to deal with the problem of natural resource degradation the Committee of Seven that oversees the settlement, has designated an area for sand abstraction. Outsiders and villagers have to seek permission to abstract this resource and pay a fee for doing so. According to the chairman of the Committee of Seven, since this came into effect there has been reduced pit sand abstraction. Individuals and companies involved in sand abstraction have moved to nearby resettlement areas without this form of imposition. In as far as this has allowed for the protection of the resource it has come at a cost to the settlers. The key motivation to setting a fee for sand abstraction was to raise funds for the village more so than to conserve the environment.

Veld fires were said to be common at Lanteglos and this has the effect of destroying the grazing land and putting pressure on small areas of land.

Pamene (A2 small-scale)

Pamene is located about 10 kilometres from Kadoma City along the Harare/Bulawayo highway. It is less than three kilometres from the outer boundaries of Kadoma Municipal area and Ngezi Township. The farm was acquired for resettlement in December 2001 and was subdivided into 56 plots of varying sizes, with a mean size of 21.4 hectares. There was a slow uptake of plots at this farm with just half of

the plots resettled by 2004. The farm falls on the margins of the Natural Farming region IIb (intensive farming). Its topography reveals a small area of arable land, which is 80 hectares in size (Chigumira 2006) consisting of red clay soils. The remainder of the farm is largely Mopani veld and soils. Accordingly these soils require careful management if brought under crop production and copious amounts of fertilisers. The White Water River runs along the northern boundary of the farm its tributaries through the farm.

In August 2009, according to the AGRITEX officer in charge of Pamene, Mr Diya, approximately 10 plots were vacant on the farm. He indicated that this was due to high turnover of settlers at the farm since they found it difficult to farm productively on Mopani, sandy soils which they considered infertile. Most returned to their previous localities or requested transfer to other farms endowed with better soils. During this transition, plots are empty and the subsequent result is exploitation of the natural resources by other settlers or people from nearby communities. Furthermore, unlike Lanteglos and CC Molina, Pamene had many absentee farmers.

4.2.1 Livelihood and productivity

Livelihood practices of households settled at Pamene were similar to those at Lanteglos. Cash crops consisted primarily of maize with a few growing cotton. Small grains (finger millet and sorghum), soyabean, nuts (roundnuts and groundnuts), pumpkin were retained for consumption. Two households which had waterlogged soils grew rice primarily for consumption. Households relied on wage employment, brick making, sale of crops, and exploitation of their natural resources like, firewood, pit and river sand sales to supplement their farm income.

The AGRITEX officer for Pamene remarked that households produced on average two tonnes of maize per household. One tonne was said to be suffice to see them through to the next farming season and the other tonne was intended for sale to the GMB. Similarly to Lanteglos there were exceptions to this, with resource rich households yielding an average of eight tonnes of maize in a good farming season and poorer households averaging 0.5 tonnes. Crop production levels at Pamene remained low although this was a commercial farming model. The officer attributed the poor soils and high settler turnover at the farm as contributing to the low productivity.

With the exception of three households surveyed, most did not grow cotton. The reason cited by respondents was that cotton required large amounts of capital and labour investment and the producer price in the past few years had not been high enough to offset their costs. Like the farmers at Lanteglos they described the past and current producer price for cotton and maize as “sick money”. In essence the pricing structures for these two products were perceived to be low and not conducive for production. None of the respondents interviewed at both Lanteglos and Pamene were growing maize or cotton seed. This has implication for market availability of these inputs.

Unlike at Lanteglos, livestock rearing was observed as another important farming activity for this rural economy. Cattle and goats were mostly reared, two farmers reared pigs extensively with an average of about 35. One household resettled on 20.5 hectares of land was reported to have a herd of 100 beef cattle, and over 40 goats which she reared for commercial purposes. Observations verified the number of goats but not cattle as these were said to be grazing, however the AGRITEX officer confirmed this. Her cattle grazed in fields of other households and this was a source of conflict, in addition she had exceeded the carrying capacity allowed by AGRITEX of an average of eight cattle per household. Respondents reported that this household, headed by a woman, had accumulated cattle as she bartered

her surplus maize for cattle during 2008, a period where the country faced acute maize shortages, with people from the community and surrounding settlements. Households explained that in 2008 they experienced a significant decrease in their livestock as they bartered these for maize which was in short supply.

Households at Pamene also complained that the soils on which they were settled on were poor, requiring copious amounts of fertiliser (which were not readily available on the formal market in 2006 to 2008 and considerably expensive on the informal market). Furthermore seed inputs were also not readily available and this delayed crop production and left farmers at risk of mid season droughts as had been the case in the 2004/5 farming season. They described this as a major obstacle to farming and increasing their yields. Those that were resettled inland and away from the tributaries of the White Water River reported that access to water for their livestock and domestic use was another obstacle that they faced. Most complained that despite the 'dollarisation' in 2009, agricultural inputs were very expensive and therefore money obtained from one tonne of maize was not enough to buy the requisite inputs for the next farming season. Because of Pamene's proximity to Ngezi and Rimuka townships households reported that there was a high rate of stock and crop theft at the settlement.

Land resource utilisation and land cover changes

Table 3 provides a summary of the percentage changes in land cover at Pamene between 2002 and 2008. The key land cover changes between these two periods are significant increases in cultivation/grassland and decreases in woodland. These images reinforce impressions gained in the field in 2008. Based on transect walks and interviews with the AGRITEX officer and respondents, I contend that land under cultivation is likely to have decreased whilst that under grassland increased over 2002 and 2008. Transect walks indicated large portions of land lying fallow, land that had been cleared for supposed land preparation or sale of firewood and small patches of land under cultivation. According to the AGRITEX Officer, resettled households who found it difficult to work the sandy soils at Pamene often left their allocated plots and returned to their previous localities. This may account for the fallow land. Interviews with households showed that some settlers were not interested in farming but having a place of residence and grew less than an acre of maize, yet they had large fields of cleared land.

Table 3: Land cover changes at Pamene farm

Pamene			
2002 to 2008			
Landcover	Area 2002 (hectares)	Area 2008 (hectares)	% change 2002 and 2008
Bushland	599.32	417.07	-43.69
Cultivation/Grassland*	179.82	437.31	58.88
Woodland	123.21	120.6	-2.16
Riverine	255.48	182.85	-39.72

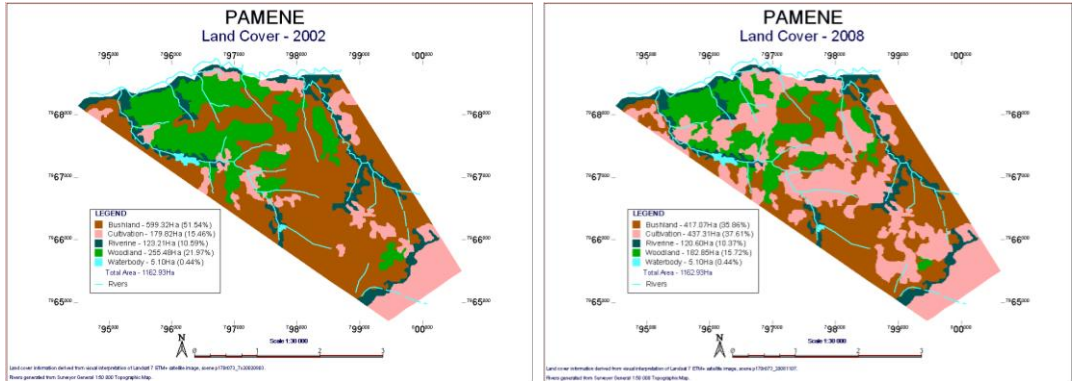


Figure 5: Maps showing land cover at Pamene in 2002 and 2008 respectively

Losses in woodland and bushland are attributed to high rates of wood cutting at Pamene. Three plots at the farm (Plots 41, 9 and 23) were said to be highly deforested and had many depressions created from sand mining. From the survey households reported that they cleared wooded areas in order to expand their areas under cultivation. Informal discussions with the chairman of the committee of seven at Pamene, some respondents and the AGRITEX officer revealed that wood cutting had increased from the last field survey, in response to the poor macroeconomic environment. The incessant powercuts experienced in Kadoma city and increased electricity tariffs since the “dollarization” of the economy has served to create a wood fuel market for individuals and companies in Kadoma and its surrounding townships (Ngezi, Rimuka and Waverley). One large company in Kadoma was reported to have contracted some households to sell ‘wood which they had cleared for cultivation to them’. In 2009, a household could make US\$60 dollars per tonne in wood sale to companies such as Steelmaker. Figure 6 shows wood piles in areas ‘cleared for cultivation’ whilst figure 7 illustrates a resident of Ngezi township carting wood collected from Pamene to the township. Figure 7 reveals another dynamic to resource use at Pamene where outsiders are competing with (or poaching from) settlers for this resource.



Figure 6: Wood piled at a plot for collection



Figure 7: Fuel wood collected (legally/illegally) for sale

The AGRITEX officer indicated that plots 20, 12, 13, 35 and 36 were not settled and as a result pit sand abstraction was rife as there was no-one to enforce exclusion from the property. Plots such as plot one and two which had tributaries of the White Water River running through were also prone to river sand abstraction and alluvial gold panning from settlers and outsiders, who were primarily from Ngezi township. This sand was sold to building contractors in Kadoma, brick makers and individuals building houses in Kadoma. Figure 8 reveals depressions created from pit sand abstraction whilst Figure 9 shows mounds of river sand in a tributary awaiting collection. Furthermore signs of riverbed alluvial gold panning were observed in various tributaries on the farm.



Figure 8: Abstracted mounds of pit sand



Figure 9: Abstracted mounds of river sand

An informal interview was held with two sets of individuals who were transporting sand they had abstracted on the farm. These individuals, who were not settlers of the farm, did not have permits to abstract sand, however they cited that permission had been granted by the Rural District Council (RDC), which issued sand abstraction permits. According to an RDC official, permits for sand abstraction were only issued for farms that belonged to the Council. Pamene, borders two of these council farms, whose designated areas for sand abstraction are not as easily accessible by road, hence abstractors encroached and collected sand at Pamene instead. The AGRITEX officer noted that the Figure 10 shows the spatially different modes of transport used to collect both pit and river sand.



Figure 10: The differing modes of transportation used to ferry pit (in the smaller car) and river sand in the tractor trailer

In a poor performing economy natural resource utilisation becomes a key source of income generation for settlers and urban dwellers. One household is quoted as saying *'Zim dollar haritengi chinhu saka ndakaona kuti ndigatengesa zvinhu zviru pamunda wangu ne ma USA zviru better than kuenda kubasa kwaunoshandira sick money'* (You cannot buy anything with the Zimbabwe dollar so I decided to sell resources from my plot in US dollar and this is better than going to work where you earn very little money). Another respondent encapsulates his use of resources in the following statement *'but vatete mukaita maths dzenyu munoona kuti mari yandonopuwa nehurumende ne mari yandinowana ndikatengesa jecha ne huni yakasiyana. Handingashandiri 260 USA ndichikwanisa kutengesa zvinondipamari izvezve. Vana vanoda kuenda kuchikoro'* (But young lady if you do your calculations, you will find out that the amount of money that I get from government and that which I can get from selling sand and firewood is different. I cannot work for US \$260, whilst I can easily sell river sand on my land now. I need to send my children to school). The cost of one truck/lorry load of pit sand was USD \$30 dollars and \$40 for river sand. Some households specified that one could earn as much as USD \$100 for a lorry load of river sand if they provided the labour to dig and load the sand.

CC Molina (self contained)

CC Molina is situated approximately 25 kilometres from Kadoma City and is found along the Sanyati road. It lies in close proximity to Muzvezve I 'old' resettlement area and about eight kilometres from Patchway and Golden Valley Mine Townships. Like Lanteglos it falls in agro-ecological region III. It covers an area of 6965 hectares and therefore is more extensive than Lanteglos or Pamene farms. The farm is largely comprised of semi-deep red clay soils and endowed with Mopani woodland. It has several fault lines that run through it, indicating the presence of ground water supplies. The farm was subdivided into 125 self contained plots averaging 54.2 hectares in size. The plots were much larger than those at Pamene and Lanteglos.

Livelihood and productivity

The pattern of crop production was similar to that of the other two cases. Maize and cotton constituted the primary cash crop grown by households at CC Molina. Because households had larger plots most had sizeable stocks of livestock and thus practiced mixed farming. Cattle and goats were primarily kept. Cattle were used as draught power and kept to offset households against drought. Although poultry was kept by all respondents, one household was farming broiler chickens for sale and layers (those that produce eggs) on a large scale.

Statistics provided by the AGRITEX officer for CC Molina indicated that maize and cotton production was generally higher than at Lanteglos and Pamene, at an average of five tonnes and six bales respectively per household. My survey in 2004/5 revealed the same trend. Resource rich households yielded an average of 10 tonnes of maize and 15 bales of cotton.

Obstacles to farming faced by households included the low producer prices for maize and cotton. This obstacle is encapsulated in the following calculations made by one household

‘They (Government) need to increase the price of maize to \$US 400 per tonne. By doing this I will be able to meet my costs, buy inputs for the next season and save. Right now the US\$265 given by GMB is not enough to meet my costs for inputs particularly fertilisers for the next farming season. One tonne of fertiliser requires that I send two tonnes of maize to the GMB, where is my profit if I have only harvested two tonnes this season’.

Households at Pamene and Lanteglos had also cited the need for the producer price for maize to be increased to \$US 400. Despite CC Molina’s distance from the urban centres, crop and livestock theft were also reported as obstacles to farming. Households cited that they supplemented their incomes by undertaking off farm sources of income which included sale of forest products, working for other settlers in the community.

Land resource utilisation and land cover changes

The period between 2002 and 2008 indicated significant losses in bushland and woodland, whilst there were increases in the area classified as cultivation/grassland. Increase in cultivation/grassland is likely to have occurred from conversion of bushland and woodland. Transect walks and interviews with respondents and the AGRITEX officer in charge of CC Molina, revealed on average six out of the 54 hectares of land allocated to the settlers was utilised cultivation. Therefore one can deduce that a large portion of the land under the cultivation/grassland classification is therefore grassland.

Table 4: Land cover changes at CC Molina

CC Molina			
2002 to 2008			
Landcover	Area 2002 (hectares)	Area 2008 (hectares)	% change 2002 and 2008
Bushland	2796.33	1904.86	-46.79
Cultivation/Grassland*	1009.67	2585.58	60.95
Woodland	2841.17	2183.29	-30.13
Riverine	462.14	439.75	-5.09

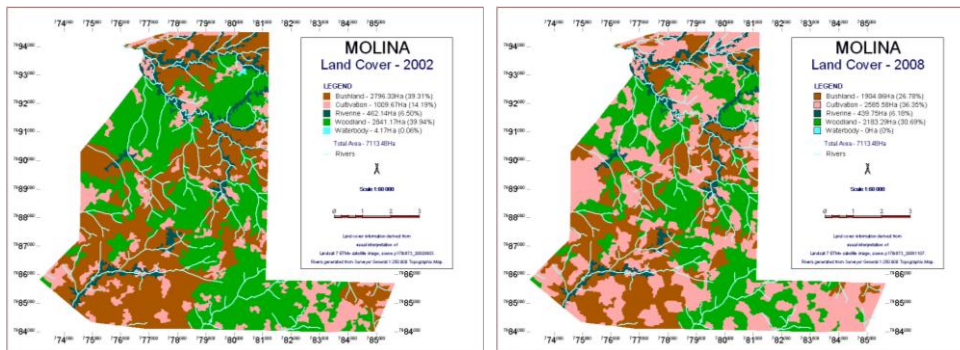


Figure 11: Maps showing land covers at CC Molina in 2002 and 2008 respectively

From the aforementioned statistics and land cover images it appears as though deforestation is not as rife as at Pamene and Lanteglos. Perhaps distance in location of CC Molina to Patchway and Golden Valley township, deters the movement of fuel wood, in addition the fact that there are other farms in closer proximity to these townships. Despite the lack of deforestation most households noted that there was little wildlife in the area. Under the previous commercial farmer a large portion of the farm was dedicated to wildlife. When asked if they considered this a problem, households stated that it was not because they viewed wildlife as a “nuisance” to their crop production. Furthermore, since it was considered illegal to slaughter animals in the antelope family, a species that was common under the tenure of the previous white commercial farmer, households had no desire to see wildlife in their localities. None could state where the wildlife had disappeared to.

In my previous survey I had a research assistant who is an experienced miner; some respondents consulted him for advice and hence I was able to see areas where gold panning was taking place on settler plots. Households were less open to showing me these areas in this recent survey, which I conducted on my own. It is my contention that households continue to practice gold panning, since CC Molina is located on the greenstone belt. The hyperinflationary environment prior to 2009 and high cost of living currently associated with dollarisation, gold panning may be considered as a stop gap measure to fill the void created by the erosion of their incomes and to offset shocks.

Discussion

The findings of the research show that the FTLRP has been associated with considerable alterations in landscape patterning since 2000. At all three farms there have been substantial increases in cultivation/grassland and losses in bushland and woodland. These alterations are primarily driven by livelihood and land use practices of the settlers rather than by climatic variations. Livelihoods are secured from rain fed crop production comprised primarily of maize production. Output at all three study areas is relatively low albeit farmers at CC Molina produced greater yields. Given the shrinkages in the economy, hyperinflation and reduced incomes from crop production, most households particularly those which are resource poor, resorted to off farm sources of income particularly through intensive utilisation of their natural environment. These included intensive sale of firewood which have consequently contributed to decreases in woodland and bushland and conversions to cultivation/grassland at all three farms. Pit and river sand abstraction and gold panning continue to be

activities that threaten the natural environment and which are likely to lead to land degradation in these three localities.

Using Clover and Erikson's (2009) broad definition of degradation to refer to

'the impoverishment of land, taking the form of soil degradation, soil erosion, reduced or altered vegetation cover, loss of biodiversity and increased vulnerability to drought...[and inability to sustain livelihoods through farming]'

I contend that the present activities if unabated will lead to long term degradation and further undermine livelihoods. The depressions created by sand abstraction seen at Pamene and Lanteglos are likely through time to deepen and enlarge thereby leading to a process of intensive gullying. At Lanteglos these depressions have reduced the area available for grazing which in the long term will affect settlers when they attempt to increase livestock herds. A problem further compounded by the commoditisation of land in which grazing land has been sold for settlement and crop production. Commoditisation of land is not unique to Lanteglos as Chimhowu and Woodhouse (2008) point to this in their study of A1 resettlement areas. Clover and Eriksen (2009:64) stipulate that this activity '...undermines than protects the livelihoods of the rural poor.'

The unstable political environment that characterised much of this decade and lack of rule of law has contributed to unregulated and poor management systems in the resettlement areas. Despite legislation through the Environment Management Act (2000) that protects the environment, from indiscriminate gold and sand mining without permits, mining continues unabated and enforcement of legislation is weak. It is notable that communities such as Lanteglos attempted to institute regulations and manage their own resources, although the initial motivation was not spurred by conservation ethics.

As long as livelihoods continue to be threatened by an unstable political environment, poorly functioning macro-economy and 'low producer prices' households will continue to use their resources unsustainably when faced with no viable alternative. I suggest that government invests in conducting a Strategic Environment Assessment of the resettlement areas, by a non partisan group of consultants in order to mitigate against present land related problems and unsustainable resource utilisation. Strategic Environment Assessments help inform policy, programmes and projects and have become a useful tool for providing for holistic policies and sustainable development.

Conclusion

In this paper, I attribute vegetation cover change as being primarily driven by livelihood and land use practices of the settlers rather than being mainly driven by climatic variations. I contend that the hyperinflationary environment that characterised much of 2006 to 2008 contributed significantly to the way households interacted with their environment. Faced with hyperinflation, unstable political environment, absence of rule of law, input and food shortages, vulnerable households in both resettlement areas and the urban areas resorted to intensive utilisation of their natural resources for survival.

The case studies show the broader livelihood strategies developed by resettled farmers within their environment. Livelihoods are secured from rain fed crop production comprised primarily of maize production. Output at all three study areas is relatively low albeit farmers at CC Molina produce greater

yields. In response to the hyperinflationary macroeconomic environment, since the last survey, there is intensive utilisation of natural resources indicating that livelihoods are not 'static but change in response to internal and external stimuli' (Chimhowu and Hulme 2006:729). Continued exploitation if unabated is likely to lead in the long term to land degradation. It is recommended that government undertakes a strategic environment assessment of resettlement areas in order to mitigate factors that are likely to lead to land degradation and enhance factors that promote sustainable livelihoods and development, key to this being a stable economic and political environment.

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