# Economic Policy Reforms and Meso-Scale Rural Market Changes in Zimbabwe

## The Case of Shamva District

Edited by
LOUIS MASUKO

Research funded by the Ford Foundation

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# Chapter 1

# IMPLICATIONS OF ECONOMIC STRUCTURAL ADJUSTMENT PROGRAMME ON POPULATION AND ENVIRONMENT: THE CASE OF SHAMVA DISTRICT

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## SECTION I

### 1.0 INTRODUCTION

### 1.1 BACKGROUND

The Government in 1990 introduced the Economic Structural Adjustment Programme (ESAP) in order to improve the lives of the people through a framework of economic management and sustainable development. In the context of sustainable development, there is an old time problem of the separation between environment and economics in the development of the country. Sustainable development is "development which meets the needs of this generation without compromising the needs of future generations". Where environment and economic development are not syncronised because the environment is not given a value in economic terms, and hence ignored in planning, this exacerbates the problem of environmental degradation. Thus, less developed countries face the challenge of alleviating poverty and increasing welfare while at the same time ensuring that the carrying capacity of the environment is not exceeded.

The objective of this study is to show the relationship that exists between population and the environment, and determine the role played by the developmental policy of Economic Structural Adjustment Programme (ESAP) on the concerned population and consequently on the environment. In the Second Five Year National Development Plan (1991-95) which enshrines the economic reform policy it is stated that:

"...Government's aim is to maintain a correct balance between development and the environment. Thus, the exploitation of natural resources, which is essential for development, will be carried out in a balanced fashion in order to permit regeneration of resources exploited" (G.O.Z., 1991). It is in this contextual framework that ESAP is being analysed to see whether the objectives being implemented result in sustainable development.

ESAP seeks to promote a dynamic environment promotive of growth and amenable to equitable distribution of income and wealth through the encouragement and spread of investment opportunities. The coming of ESAP at the same time when the world is moving towards sustainable development raises a number of questions. Can the implementation of ESAP objectives be realised without damaging the environment?

Negative impacts on the poor by other studies have been cited, which include retrenchment, unemployment, inflation and removal of subsidies. These also impact on the management of resources. The deregulation of prices has meant that a lot of people cannot afford the basic foodstuffs, hence turn to the environment for survival such as cutting down trees for sculpturing and selling firewood. In addition, the removal of subsidies increases dependence on natural resources.

Therefore, this study, as part of the wider research project on 'Economic Policy Reforms and Meso-Scale Rural Market Changes in Zimbabwe', will explore the underlying causes of environmental degradation and determine the extent to which these factors, including demographic processes and ESAP, may be involved. It will also give a detailed analysis of how the local people have responded demographically and otherwise to the problem, and analyse the resource management that has been adopted by the villagers and institutions to cope with the situation.

## 1.2 CONCEPTUAL FRAMEWORK

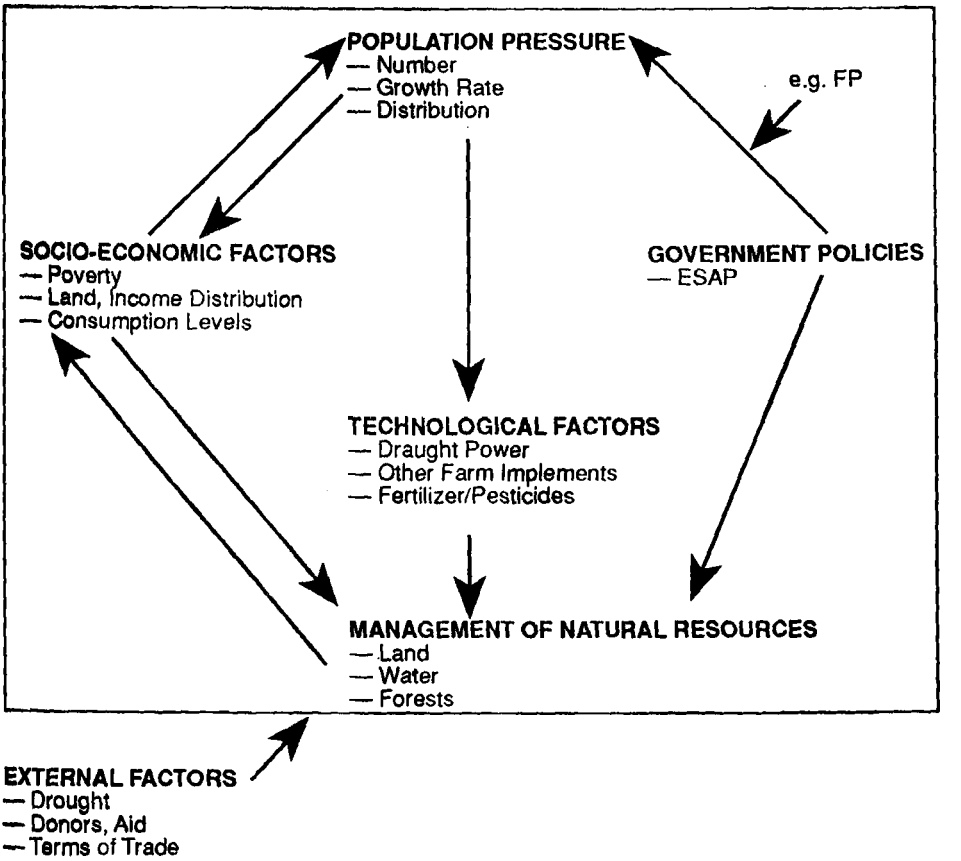
Population growth and density, as well as changes in socio-economic conditions are closely linked to environmental quality. Demographic change, environmental degradation and their interaction are not necessarily causes but can be symptoms of socio-economic problems.

The neo-Malthusian model asserts that population growth has the potential to exceed the growth of agricultural production. Two outcomes may result: agriculture (through food scarcity) may constrain population growth (Grigg, 1985), or the environment may be degraded as population pressure increases (Kates *et al*, 1977). On the other hand, it is proposed that population growth leads to intensification of agricultural production (Boserup, 1965) and enhancement or conservation of environmental resources (Lovelock, 1979).

Population and environmental policies have tended to focus on population growth with the underlying assumption that environmental degradation is a demographic problem (Morvaridi, 1994). Numerous studies suggest that environmental degradation in the communal areas has arisen from the high population growth. For instance, population growth is often assumed to lead to expansion of the cultivated area and to deforestation. Deforestation may be equally attributed to poverty, which reduces household alternatives to subsistence agriculture, and to economic relationships, that create an extraordinary demand for forest products (Downing *et al*, 1990). According to

these authors, this dichotomy is complex — poverty may contribute to population growth, since children are valued for their labour, and effective family planning methods may not be affordable. Therefore, population is not the only factor contributing to the degradation but is rather seen as participating in a nexus of many complex causes (Morvaridi, 1994). The diagram below gives a summary of the interaction of population, socio-political factors and the environment.

***Links Between Population, Environment and Economic Policies***




The chapter therefore adopts an approach that sees the household as the interface between population and environment. Communal farmers have intimate knowledge of their land and its needs and are unlikely to choose to operate unsustainable farming practices (McIvor, 1992). It is therefore important that attempts to understand degradation go beyond the "mouths to feed" dilemma and grasp the other conditions that exist when farmers over exploit.

Demographic change, environmental degradation and their interactions are not necessarily causes but rather symptoms of socio-economic problems (*Ibid*). Therefore, the wider policy framework, e.g. improving the lives of the people and a changing policy framework such as ESAP, are key elements in explaining the nature of interaction between demographic and environmental factors.

## 1.3 THE RESEARCH PROBLEM

Communal Areas (CAs) in Zimbabwe exhibit the most serious environmental degradation in this country in terms of the loss of tree cover and soil erosion (Moyo *et al.*, 1993). Coupled with lack of adequate productive resources, this has actually led to low agricultural production and consequently less income accruing to the communal farmers, thereby leading to poverty. Their situation has been exacerbated by the recurrent droughts and the recent policy reforms, such as the Economic Structural Adjustment Programme (ESAP), introduced by Government in 1990. According to the Government, ESAP was introduced with the intention of helping the rural poor who would benefit from income distribution following improved agricultural commodity pricing. However, in formulating social programmes, such as the removal of subsidies, prices of commodities, seeds and fertilisers have soared, leaving the rural areas wide open to further environmental degradation and poverty. Also, poverty is associated with larger families.

There has also been growing concern over the human destruction of vegetation in the rural areas and the soil erosion hazard caused by the current land use practices aggravated by population pressure. Environmental degradation is critical in the communal areas where 8.4% of its total area is reported to be degraded, as compared to commercial farms with only 1.8% of its land degraded (Whitlow, 1989).

Major environmental problems in Zimbabwe include land degradation and deforestation, which are the most pressing problems in the communal areas. Woodfuel supply, which is a free source of energy, has become a real problem and is especially acute in communal areas where 37.5% of the area is experiencing extreme shortage of woody biomass resources. Yet it is the source of energy that is cheaply acquired. Deforestation is of particular concern in that it causes soil erosion and siltation of rivers and dams. Pollution and depletion of water resources is another problem, which has been aggravated by intermittent droughts. The recurrence of droughts has meant an increase in risk for crop failures and famine, thus marginalising many communal farmers.

These problems of degradation have been closely associated with population pressure in communal areas, poverty, lack of various infrastructures, low levels of investment and receding entitlements in communal areas (Gore *et al*, 1992). With further increases in population and associated increases in livestock numbers, cultivation has been extended to marginal land such as river-banks

(Dauramanzi *et al*, 1995). These activities have resulted in riverbank collapse, siltation of rivers and dams and wetland destruction creating a shortage of water (*Ibid*). This problem is bound to worsen due to the ever-increasing human population and livestock population.

Not only are communal farmers confined to the poorest land (Regions IV and V), but also the size of the land available to an individual is just too small. This puts pressure on soil resources given that most communal farmers are not able to afford the chemical fertilisers (Gore *et al*, 1992). As a result the low agricultural production, and low agro-ecological potential of communal areas, coupled with recurring droughts and the impact of ESAP have economically marginalised communal farmers, forcing many to consider reducing family sizes because of inherent problems with large families. This increased poverty would mean that people would continue to have practices that are not sustainable.

## 1.4 OBJECTIVES OF THE STUDY

The main aim of this study is to investigate ~~the relationship~~ that exists between population, environment and the prevailing economic status in Shamva District. To achieve this aim the following objectives will be explored:

- Describe the use of environment in the district and explore different uses of conservation practices.
- To assess the environmental implications of population growth and density in the district.
- To investigate the impact of ESAP on the rural population in Shamva and on the environment and explore other factors that also impact on the environment.

## 1.5 JUSTIFICATION OF THE STUDY

Research on environmental degradation has either focused on measuring the quantities of soil erosion (Dankwerts, 1987) and the time frame of deforestation, or commented on the quality of specific natural resource management practices in communal areas (Soones, 1988; Campbell *et al*, 1993). Most of the research has tended to neglect the broader livelihood and survival strategies developed by communal households within their environment. Also, studies have not been done to show the relationship between population and environment, and the implications of ESAP on the rural people. Thus, this study will attempt to link all these issues.

## 1.6 STUDY HYPOTHESES

- Population and land are inversely related. Population increases lead to land concentration and landlessness and over-use of the existing resources, after some level of density is reached.

— Population pressure leads to degradation of the vegetation. Overpopulation or dense population coupled with bad resources management can also lead to depletion of the forests, which can also lead to soil erosion and siltation of rivers and dams. Household size is reported to be positively associated with the extent of deforestation.
— Water resource and population. Water is getting scarce due to the low rainfalls and environmental degradation. The increasing population puts pressure on the dwindling water resources.
— Communal farmers are vulnerable to policy reforms such as ESAP, thus leading to increased poverty and environmental degradation.
— It is also suggested that there is a correlation between adverse economic condition and family size. ESAP is expected to induce people to have small families.

It is proposed to test these hypotheses in order to explain household decisions relating to land-use, deforestation and demographic behaviour.

## 1.7 RESEARCH QUESTIONS

Certain questions will thus have to be answered out of this study. These are as follows:

— When faced with the problem of shortage of arable land, are the farmers forced to convert non-farmland into arable land and use new land-use practices?
— Is large family size perceived as an advantage or disadvantage when it comes to land management?
— Do people still prefer large families when land ratios are declining? Why, under conditions that appear to degrade land supply and quality, do people continue to have large families?
— Does this perception differ when degradation is a problem and real incomes are declining?
— What other factors are involved in environmental degradation?

## 1.8 METHODOLOGY

### 1.8.1 Data Source

#### *1.8.1.1 Rapid Rural Assessment*

The study consisted of a preparatory investigation of Shamva District through a rapid assessment process. The rural appraisal trip was to gather and consider any existing background data on the district, to find out logistics for carrying out the research and also to establish contacts. Visits to the district were made and meetings were held with the District Administrator and the Chief Executive Officer.

#### *1.8.1.2 Household Survey*

This involved collecting data by conducting a household survey in the communal and resettlement areas of Shamva. A questionnaire was designed to gather information on the households.

***Sampling Procedure of the Household Questionnaire***

Shamva district is divided into 24 wards. A total of 13 wards are located in communal areas, three wards in resettlement areas and the remainder is large-scale commercial farms. The selection of the wards was done using cluster sampling. These wards were stratified into groups according to the land tenure system, i.e. communal and resettlement areas. Six out of the 13 wards in communal areas were selected, namely, Chidembo, Chihuri, Gono, Goora, Mupfure and Mutumba, after having considered a wide range of socio-economic and geographical factors. In the resettlement areas, Mupfurudzi I and Sanye were also selected. Thus, a total of seven wards were selected as the sample.

A list of the households was then obtained from councillors representing the selected wards. The councillor in every ward keeps a record of all names of households in his ward. On obtaining the number of households from the councillor's books and the number of households in each ward as obtained from Central Statistical Office (Census, 1992), we discovered that for all the wards, the number of households given by the two sources differed. This, as we discovered, was mainly because of the different definitions of a household. During the 1992 census, a household was defined as 'people eating from the same pot', whilst the councillors defined a household as people staying at the same stand. In some cases, from the households listed by the councillors, one would find that there were some other sub-households, e.g. a father who owns a stand but stays on the same stand with his married sons, whose wives have separate kitchens. Thus, to get a list of all the households and sub-households, the headman in each village was asked to give a list of all the households. For this particular study, the CSO definition was used. This list gave us household numbers that were almost the same as those obtained by the 1992 Census.

Random sampling was then employed to select 10% of the households in each of the selected wards. Every tenth household was selected from the list. Thus, a total of 468 households were sampled. 372 respondents were interviewed from communal areas while 79 households were interviewed from two resettlement areas of Mupfurudzi I and Sanye. The remaining 17 households were not stated from which area they came.

### *1.8.1.3 Focus Group Discussions*

Focus group discussions were also employed. This method is valuable in obtaining a range of views, opinions and attitudes on the particular topic. Focus group discussions were done in all the same wards where the household interviews were conducted. Two groups were randomly selected from each ward, one group comprising women and the other men, except for Gono, Muringamombe and Principe Resettlement Scheme where the groups were combined (See Table 1.1). Thus, a total of 15 focus groups were conducted. Each group had roughly 10 people.

Table 1.1: Focus Groups

| Ward | Focus Group |
|---|---|
| Chihuri | Males and Females |
| Chidembo | Males and Females |
| Gono | Combined |
| Goora | Males and Females |
| Mupfure | Males and Females |
| Mutumba | Males and Females |
| Sanye Resettlement Scheme | Males |
| Mupfurudzi I — Muringamombe | Combined |
| — Chitepo | Males and Females |

*1.8.1.4 Others Sources*

Secondary data were also collected from CSO publications and other libraries such as the University, CASS and IDS libraries. Other sources of information included government officials from Shamva District Rural Council, the District Administrator's Office and Agritex officials working in that district. Workshops were also held with the people and institutions involved in the interviews, explaining to them the results found by the study and also getting feedback from them.

### 1.8.2 Data Analysis

The study utilised both quantitative and qualitative data. Quantitative data was analysed using SPSS, a software package for social scientists. The programme was used to produce frequencies and cross-tabulations. Qualitative data was analysed using DT Search, a programme for analysing qualitative data.

### 1.8.3 Limitations of the Study

The chapter avoids absolute certainty in explaining the causes of environmental problems, because there is lack of availability of statistical data to support that ESAP causes environmental problems or that they are being increased due to the coming of ESAP. Information collected on migration has been very limited, thus analysis on migration was not done.

## SECTION II

## 2.0 LITERATURE REVIEW

Agriculture constitutes the most important economic activity in Zimbabwe. It is the source of livelihood of the majority of the people and as such impacts greatly on the environment. The main aspects of environmental degradation found in

communal areas include: land degradation, soil erosion, deforestation, siltation, veld over-grazing, stream bank degradation, and the general loss of bio-diversity (Gore *et al*, 1992). These forms of degradation have been closely associated with population density, poverty, and the lack of various infrastructures, low levels of investment and receding entitlements in communal areas (*Ibid*).

## 2.1. LAND DEGRADATION

Land constitutes the backbone of the country's economy as it contributes significantly to the foreign exchange earnings and the majority of the people depend on it for survival. However, the agricultural activities cause numerous environmental problems such as soil erosion, deforestation, siltation and general degradation. These problems are aggravated by economic policies which are pursued by government.

About one-third of the country is characterised by high risks of erosion, especially in the north and north eastern part of the country (Dauramanzi *et al*, 1995). These problems are accelerated because of the general topographical nature of the land, i.e. the land configuration, which is barren and sloppy, and with less vegetation due to pressure on trees. However, high-risk areas are not necessarily associated with extensive degradation. Population density and land use systems are more important influences than environmental factors. In the communal areas, which have the largest population and which depend on the resources for their livelihood, there is a direct link with the environment.

Soil erosion is extensive in the communal areas and is the direct consequence of rural deforestation. According to a study done in the mid-80s, 1,8 million hectares of land is degraded, representing 4,7% of the country (Whitlow and Campbell, 1989). Over 80% of this eroded land occurs within the communal areas while commercial farms experience much less extensive and localised erosion (Whitlow, 1988; See Table 1.2). A quarter of the communal land was reported as having severe to very severe erosion, compared with only 1,6% of the commercial farmland. Erosion in the communal areas seemed to occur equally within croplands and grazing lands. According to Whitlow (1989) soil loss is as high as 50 000 tonnes per hectare per year in some communal areas. This state of affair results in poverty as the land cannot produce enough. This, in turn, leads to low investment in the communal areas.

**Table 1.2: Eroded Areas by Tenure Type (1985) in km²**

| Tenure Type | Total Area (km²) | Area of Eroded Land (km²) | Percentage |
|---|---|---|---|
| Commercial Area | 152 779 | 2 711 | 1.8 |
| Communal Area | 181 338 | 15 285 | 8.4 |
| Other | 56 640 | 352 | 0.6 |
| Zimbabwe | 390 757 | 18 348 | 4.7 |

**Source:** Whitlow R., *Land Degradation in Zimbabwe*, 1988.

These erosion problems are complicated, involving the interaction of many political, social, economic and environmental factors (CSO, 1994). Population density and land use system are more important influences on erosion, for instance, in wetlands in the commercial farming land there is very little erosion, while in communal lands, pressure on the wetlands for grazing and cultivation has resulted in serious and very high gulling. Statistical analysis showed that the major variables that correlate with erosion are population density, land tenure and cropland area, the three human factors (Whitlow and Campbell, 1989). It should also be noted that the most extensive erosion occurred in the areas characterised by low rainfall, which is insufficient to promote adequate cover (Dauramanzi *et al*, 1994).

Environmental degradation has meant the degradation and reduced availability of cultivable land resulting in the cultivation of steep slopes and other marginal lands. Grazing lands are increasingly being converted for cultivation. A number of communal households face increasing land shortages associated with absolute declines in available land. A recent study (Moyo, 1995) showed that around 50% of the communal households could be deemed near landless or land hungry. Land is very limited due to the population size, and given the low level of technology applied in the communal areas, production is very low. This is worsened by the large family sizes; sub-division of land is done to give sons their shares. This situation is associated with demographic growth. A survey done by Moyo (1995) has shown that as many as 70% of the households had access to less than 2,5 hectares (6 acres) of arable land, while 33% actually hold less than 1,5 hectares. The depleted soils have actually led to food insecurity and poverty among the subsistence farmers.

Given the small amounts of land available to households, the maintenance of soil fertility is critical to production in a situation where land fallowing is increasingly unattainable (Moyo, 1995). Data from the survey showed that only 35% of the households reported that they regularly manured their fields. According to Gore *et al.* (1992) this is primarily a mismanagement problem related to ploughing, streambank cultivation and insufficient application of organic materials (*Ibid*). Poor farming methods such as cultivation of unprotected areas, overstocking and overgrazing have also contributed to the rapid environmental deterioration. As the soil structure worsens, crop yields decline and farmers find themselves in a situation where they cannot afford artificial fertilisers, hence the environment degradation-poverty cycle at work.

## 2.2. DEFORESTATION

Deforestation, which is a result of uncontrolled cutting down of trees for building, agricultural and cooking purposes, is rampant in this country. Forests are being denuded at the rate of 1,5% per annum (Gore *et al*, 1992). This problem of deforestation is acute in the communal areas where 80% of rural household

energy needs are met through fuelwood. Around 60 000 hectares of woodland are cleared for agriculture annually. Rural dwellers have reported that shortages of wood became apparent from the 1960s, and this was attributed to the dense population and consequent agricultural clearance rather than the cutting of wood for fuel (Mvududu, 1993). Farmers have alleged that it was a consequence of the Land Apportionment Act (1930) and The Land Tenure Act (1969), where the white minority were allocated 35.3 million acres while Africans got 45 million acres only.

This deforestation has meant that fuelwood, which is the main source of energy in the rural areas, has to be gathered further and further away from the villages. Estimates show that in severely deforested areas, women spend up to 20% of their productive time collecting wood. Woodfuel shortages impose additional burdens upon rural women, who do most of the household chores, including fetching firewood and water. The situation is so critical that some households in Masvingo, Midlands and Manicaland Provinces now have to use crop residues and cattle dung as fuelwood, depriving their land of much needed organic matter.

A study in Chivi District (McIvor, 1993) has shown that the area has been stripped of trees. Women now have to walk an average of two hours a day to collect fuelwood for the household. This district is not dissimilar to many communal areas in Zimbabwe, where overcrowding and competition for scarce resources have led to deforestation and soil erosion.

The forest depletion as a result of the collection of fuelwood is not restricted to rural areas only. In urban areas as well, there is a growing incentive to fell trees, since the costs for paraffin and wood have gone up, the basic energy sources for the low income households. Sixty-six percent of households in Zimbabwe are using wood for cooking (CSO, 1994). Also, large tracts of land are being cleared for cultivation in commercial areas.

The most influential theories of the causes of tropical deforestation suggest that the growth of peasant populations plays an important role in the process, but these theories differ in their identification of the forces that lead peasants to destroy forests (United Nations, 1990). Some theories emphasise demographic factors, while others emphasise political and economic variables. The former tend to posit that growing populations of small farmers create a scarcity of agricultural land which, in turn, leads to the expansion of agriculture into forested regions (Myers, 1984; Whitmore, 1984). A possible example of this process could be the migration of Indonesian peasants from the densely populated islands of Java and Madura to the sparsely populated and heavily forested islands of Kalimantan and Sumatra. Explanations that emphasise political and economic factors suggest that disparities of wealth and power in the larger society cause poor people to seek a livelihood on the margins of society, including the rain forests of remote rural regions (Blaikie and Brookfield, 1987;

Collins, 1986). These analysts suggest that the unequal distribution of landholdings causes large numbers of rural poor not to have rights to cultivate land, and thus they gravitate to unclaimed land on the frontier (United Nations, 1990). As the number of landless poor increases so does the flow of migrants into communities on the fringes of the rain forest.

## 2.3. WATER

Water is becoming an increasingly valuable commodity in this country. Water supplies are dwindling, and the increasing population and the siltation of rivers and dams worsens the situation. It is estimated that half of small dams in communal lands are more than 50% silted (Dauramanzi *et al*, 1995). The communal farmers also face erratic rainfall and drought, which suggests a highly risky farming system. With the intensive use of fertiliser, in order to feed the increasing population, a great deal of water is required. The water table in Zimbabwe is steadily falling as a result of irrigation and fertiliser use. This may also contaminate local water supplies. Water pollution results from the excessive use of fertilisers and pesticides which constitute modern agricultural practices.

## 2.4. POPULATION, RESOURCES AND ESAP

In an effort to look at the origins of the environmental crisis, some observers have emphasised the population factor (Ehrlich, 1968; Peterson, 1985). According to Malthus and neo-Malthusians excessive population growth has often been identified as the primary cause of environmental degradation. If this proposition — that environmental degradation is chiefly a consequence of population growth — were true, the issue of environmental degradation could be resolved and the operational solution identified. If rapid population growth intensifies environmental degradation, then it must be mitigated by reducing the rate of population growth. However, population is one of the several factors that can influence environmental quality and the degree of its influence can be assessed by comparing it with the effects of other relevant factors (Commoner, 1991).

The environmental dimension to population is also firmly grounded in economics. It is widely recognised that the current world economic system does not promote sustainable development. People are using up the Earth's store of natural resources at demonstrably non-sustainable rates, triggering immense damage to the biosphere in the process. Confining population to the sidelines will likely turn development "solutions" into half-measures (UNFPA, 1991). It is in the contexual framework of ESAP that the environmental quality is linked to population.

In this country the population is relatively high, with an annual growth rate of 3.1% (C.S.O., 1992). This rapid population growth will put further strain on the limited land and forest, as well as water base. The population in communal areas stands at approximately 5,4 million (CSO, 1992), having grown from a

population of around three million in the 1960s (Moyo, 1995). With the increasing population pressure, land in these areas is over-utilised and increasingly becoming uninhabitable, thus highlighting the origins of the environmental problems (Gore *et al*, 1992). By 1980, land use experts (Whitlow, 1980) were arguing that over 66% of the communal areas had excess populations of more than double their assessed carrying capacities (Moyo, 1995).

However, there are other people like Boserup (1965) who see population as a vehicle of technological progress. In Uganda, for example, population growth is not seen as an environmental issue and people see no reason to reduce fertility (Ghimire, 1994).

ESAP has affected predominantly the communal farmers and low income wage earners, due to their policy of cost recovery coupled with the decontrol of prices (RDDC,1995). The negative effects of ESAP on the rural poor are the result of retrenchment, unemployment, inflation and removal of consumer subsidies. Some studies find that small-scale farmers typically benefit less than large-scale farmers, especially when prices are concentrated in exportable crops, due to the relatively low participation of poor farmers in the production of such crops.

A perusal of ESAP in Kenya, Cote D'Ivore, Sudan and Ghana (Cheru, 1992) shows that it has had negative environmental problems. The similarities of these reform programmes with the Zimbabwean ESAP are:

— that there is an emphasis on the export-market in agriculture and manufacturing.
— that the economic reform was actuated by the need to pay debts.
— a reduced budget on non-productive sector.

Cheru (1992), commenting on the issue of export-led markets, asserted that the emphasis in export-led agriculture ignores the resource requirements of millions of subsistence farmers whose needs are not satisfied through the market and often leads to ecological destruction. This arises because ESAP does not provide what the communal people need. Export markets result in the exportation of resources to external markets which resources could be used in the country to better the lives of people.

Policy reforms in agriculture in developing countries are generally intended to create a favourable climate for producers, through a combination of price and trade liberalisation, tax reduction and in some cases, exchange rate devaluation. The resulting increase in agricultural output may exacerbate environmental problems, at least in the short term, due to more intensive use of soil resources and expansion of farming onto marginal lands (Southgate, 1988).

The Ghana Case Study (World Bank, 1994) relates increasing pressure on land resources, encroachment onto forest lands and accelerated soil degradation to the expansion of agriculture, especially export crops. Lower taxes on agricultural exports are considered to have encouraged production, resulting in increased forest conversion. Reduction of the government wage bill is considered to have

stimulated a shift of labour into agriculture, putting further pressure on land resources. Nevertheless, none of these problems are considered to have been caused by adjustment itself. Instead, the blame for environmental degradation of land is placed on the traditional land tenure system, which is regarded as encouraging over-exploitation of land and as an obstacle to sustainable land management.

A study carried out in a rural area in Matabeleland shows that there is a strong relationship between adverse economic conditions and size of the family and this might force many poor people to consider having small families (*The Herald*, August 1995). The residents of Ntabazinduna Communal Lands were found "to begin to appreciate the value of family planning due to a severe food shortage in the area" (*The Herald*, 1995). The villagers interviewed said they could no longer cope with large families and some were withdrawing children from school because of lack of food. One villager actually said, "It is now getting clear that a small family is better than a large family".

On the other hand, the smallness of the arable land and the decline in the quality of land threatens livelihood security for many poor farmers and this suggests that increasing numbers have to rely on wage labour to supplement their income from land (McIvor, 1992). This is likely to be the case for rural households who are unable to invest in their land to improve productivity or maintain soil quality. In many cases reliance on off-farm activities for income means dependency on family members migrating to cities. However, the decline of migrant opportunities for men in recent years almost everywhere in Africa adds pressure to land resources (Morvaridi, 1994). Some villagers have thus opted for gold panning.

Gold panning along river beds has increased over the last few years due to economic hardships posed by ESAP (Mutandi, 1993). In addition, the problem of illegal gold panning has mushroomed since the drought in 1992 to the extent that several tens of thousands of families across the country practise gold panning. Deep pits, some as deep as 15-20 metres, are dug into the riverbed and bank in search of a few grammes of gold. When the rains come, vast quantities of disturbed sediments are washed downstream. Thus, the main environmental consequences of gold mining are pollution of water, environmental degradation and siltation.

## 2.5 CONCLUSION

The majority of the rural people depend on the environment for their survival. As put forward by Murerwa (1992), "sound environmental policies are necessary to ensure that resources are safeguarded since the country's raw materials are obtained mostly from natural resources". More important, however, is that human beings should be placed at the centre, recognising the role they play in the development process.

In order to come up with a conservation policy for rural areas, some studies need to be carried out to come up with problems or conditions that force these people to damage the environment and also come up with strategies that "strike a balance between care for the environment and development of resources needed by people" (Mugabe, quoted by *The Herald*). Thus, this survey will try to shed light on the actual processes taking place at household level that lead to environmental degradation.

## SECTION III

### 3.0 BACKGROUND OF SHAMVA DISTRICT

Shamva District is located in Mashonaland Central Province, which is in the north east of the country. It is found in Natural Region II, where the soils are fertile. Expected rainfall is between 750-1000 mm, thus has great potential for agricultural production.

#### 3.1 POPULATION CHARACTERISTICS

The total population of Shamva was estimated at 93 938 in 1992 (CSO, 1992). The female and male populations are 47 330 and 46 608 respectively. This resulted in a sex ratio of 98,47. According to the 1992 Population Census there are 20 779 households in the district with an average household size of 4,5. 12,7% of the population in the district live in the urban areas, and the rest is found in the rural areas. According to the Central Statistical Office, urban area has been defined as any place which had 2 500 inhabitants, a compact settlement pattern or where the majority (more than 50%) of the employed persons are engaged in non-agricultural occupations. Therefore, the district is predominantly rural.

The population growth rate for the district was estimated at 3,03% in 1992, which is almost the same as the national rate of 3,1%. The population has increased from 63 211 in 1982 to 93 938 in 1992 probably largely due to the high growth rate prevalent in the area. The population in the District is relatively young with a proportion of 46% below 15 years and less than 4% aged 65 years and over. The reason for this young population is a relatively high fertility and declining mortality. This high dependency ratio strains the resources of individual households, as children must be supported until they complete their education and secure employment.

The District has a population density of 35,2 people per square kilometre. The density varies according to land use. There is a disparity in the distribution of the population between communal and commercial lands. The communal areas are the most densely populated, with an average population density of 80 people per square kilometre. This is almost three times the national population density

of 26,65 persons per square kilometre. The commercial farms are sparsely populated. High densities in communal areas have resulted in a drastic reduction in farm size and land per capita as a consequence of land scarcity.

## 3.2 LAND USE SYSTEMS AND THE STATE OF THE ENVIRONMENT

The District consists of large-scale commercial farms (LSCF), resettlement areas, communal land, urban land as well as state land.

### 3.2.1 Communal Land

The District has two communal lands namely Madziwa and Bushu. These fall in Natural Region II, which is an area of high productivity. Bushu is situated in the centre of commercial farms. This cite was a strategy by the colonialists to serve as a reserve of cheap labour to the surrounding farms and mines during the colonial period. The regime reduced economic incentives for agricultural production through regulating reduced markets. Soon after independence the Government introduced policies to redress the economic imbalances. Agricultural policies removed discriminatory marketing and produce pricing (doing so in favour of communal areas — Moyo, 1995).

The communal areas, namely Madziwa and Bushu, reveal serious land degradation, particularly in Madziwa. The main factor contributing to this problem is the large number of people in the communal areas. The increase in population in these areas has created immense pressure on the available natural resources, thereby causing environmental problems. Most of the natural woodlands have been cleared. Trees have been cut for different purposes without any attempts to replace them and as a result little vegetation is only found in some grazing areas and on hills. Thus, communal farmers face problems of fuelwood. A significant number of Mango trees have been planted on homesteads to supply fruits to the rural community. The planting of exotic trees like the gum tree and eucalyptus is being encouraged in order to meet local firewood and building needs. According to the 1995/96 Rural Development Council Plan, the district requires about 100 000 trees annually to replace trees cut down for domestic use and agricultural purposes.

The type of land tenure system seems to play an important role in determining the state of the environment. The large scale commercial areas and state land have a stable environment, while the state of the environment in resettlement areas varies form fairly good to poor and very poor in communal areas.

Communal ownership of the natural resources, especially in the non-arable land, has contributed to environmental degradation in communal areas. There is also a general land shortage due to the population pressure, which has resulted in the cultivation of marginal lands and grazing lands.

Despite having a high agricultural potential, the productivity has been lowered due to land degradation and land pressure, lack of equipment and finance to

purchase agricultural inputs such as chemical fertilisers and pesticides and seeds. This situation has been worsened by ESAP, which has led to increases in prices of chemical fertilisers and seeds.

### 3.2.2 Resettlement Areas

Increasing population densities and landlessness led the Government to introduce resettlement areas after independence in 1980. This was implemented to avert some of the land pressure and environmental degradation in the communal areas. Shamva District actually has a committee responsible for identifying land for resettlement purposes.

Presently, there are three resettlement areas, which include Mupfurudzi I, II and Sanye. Resettlement areas still have tracts of natural land. However, there is rapid tree cutting in order to build settlements and clear arable land. The trees are also used for fencing and as a source of building materials. Wildlife is being depleted due to indiscriminate hunting and killing of wildlife as a source of food (meat). This problem is worsened by the lack of provision for wildlife management in the resettlement programme, except on those schemes established under the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) (Dauramanzi *et. al*, 1995). Trees are being cut indiscriminately by the people from adjacent communal lands.

### 3.2.3 Large Scale Commercial Farms

The state of the environment in commercial areas is good. There are still vast tracts of woodland. A number of reasons have contributed to the stable environmental conditions. Large-scale commercial farms are sparsely populated and therefore there is less human pressure on the available natural resources.

Commercial farmland is characterised by sound environmental management and land-use systems. Private ownership of the resources has meant the proper management and conservation of available resources for future use. These areas also have high rainfall and fertile soils that combine well to encourage rapid re-vegetation where deforestation has taken place. Despite sound conservation methods on large scale commercial farms as well as state land, they are threatened by problems related to gold panning, fish and wildlife poaching and indiscriminate tree cutting by the people from the adjacent communal lands and resettlement areas as well as those from urban and mining centres (Dauramanzi *et al*, 1995). The whole district is rich in mineral deposits and illegal alluvial gold panning is rampant. Due to economic hardships many people are turning to gold panning for survival. This activity is thus leading to a rapidly deteriorating environment. Illegal gold panning is known for its damage to aquatic fauna and flora systems, and it has also contributed to the siltation of rivers and dams.

### 3.2.4 State Land

State land comprises forest land, national parks and other pieces of land that are state owned. The Mupfurudzi Safari Area experiences veld fires, which are reportedly started by schoolchildren. Poaching of wild animals is also reported to be a problem in these areas.

## SECTION IV

## 4.0 RESEARCH FINDINGS

This section presents information on the findings of the study. Firstly, background characteristics of respondents are discussed, as well as the housing characteristics. Later on, the interaction between population, resources and ESAP is analysed.

### 4.1 CHARACTERISTICS OF RESPONDENTS

The household questionnaire was used to collect information on the demographic and socio-economic profile of the respondents. These included information on age, sex, marital status, religion, ethnicity, education levels and occupation.

### 4.1.1 Background Characteristics

The distribution of the respondents by age and sex is shown in Table 1.3. A total of 468 men and women were interviewed, 372 from communal areas, 79 from resettlement areas and the remaining 17 did not state. Eighty per cent of the respondents were females while 20% were males. This shows that most of the rural households are headed by women.

The ages of the respondents ranged from 22 years upwards, most falling within the age group 40 to 59 years. 13% from communal areas were over 69 years while only 4% were from resettlement areas. This suggests that communal areas have older household heads compared to resettlement areas.

The majority of the respondents were married, with 84% reporting to be married. Communal areas have more of the widowed (13.4%) and divorced (3.5%) people compared to resettlement areas with 5.1% and 1.3% widowed and divorced respectively.

Shamva District is an area mostly inhabited by the Zezurus (55.2%) and the Karangas (29.1%). Very few belong to the other groups found elsewhere in the country. There is also quite a significant proportion of non-Zimbabweans. Nine per cent are non-Zimbabweans, mostly who have originated from Mozambique and Malawi who have been working on mines and commercial farms.

**Table 1.3: Background Characteristics of Respondents**

| Background Characteristics | Communal Area | Resettlement Area | Total |
|---|---|---|---|
| **Sex:** | | | |
| Males | 22.2 | 9.0 | 19.8 |
| Females | 77.8 | 91.0 | 80.2 |
| Total | 100.0 | 100.0 | 100.0 |
| **Age of Respondent:** | | | |
| 20-29 years | 8.5 | 22.7 | 10.9 |
| 30-39 years | 19.7 | 14.6 | 19.0 |
| 40-49 years | 21.0 | 26.7 | 22.0 |
| 50-59 years | 18.9 | 21.3 | 19.4 |
| 60-69 years | 18.6 | 10.7 | 17.1 |
| 70 years and above | 13.3 | 4.0 | 11.6 |
| Total | 100.0 | 100.0 | 100.0 |
| **Marital Status:** | | | |
| Never married | 1.1 | 0.0 | 0.9 |
| Married | 82.0 | 93.7 | 81.6 |
| Widowed | 13.4 | 5.1 | 11.5 |
| Divorced | 3.5 | 1.3 | 3.0 |
| Total | 100.0 | 100.0 | 100.0 |
| **Ethnicity:** | | | |
| Karanga | 1.9 | 6.4 | 2.6 |
| Korekore | 29.3 | 28.2 | 29.1 |
| Ndau | 1.9 | 0.0 | 1.5 |
| Ndebele | 1.1 | 1.3 | 1.1 |
| Zezuru | 55.6 | 52.6 | 55.2 |
| Non-Zimbabwean | 8.9 | 10.3 | 9.1 |
| Other | 1.4 | 1.3 | 1.3 |
| Total | 100.0 | 100.0 | 100.0 |

**Table 1.4: Religion**

| Religion | Communal Area | Resettlement Area | Total |
|---|---|---|---|
| None | 43.3 | 41.8 | 43.4 |
| Protestants | 15.6 | 7.6 | 14.2 |
| Pentecostal | 35.5 | 44.3 | 37.2 |
| Roman Catholic | 5.1 | 6.3 | 5.3 |
| Other | 0.5 | 0.0 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 |

Respondents were asked to state which religion they belonged to. Table 1.4 shows that 43% did not belong to any religion while 37% belonged to pentecostal churches. Pentecostal religion includes Apostolic churches who have religious beliefs that are regressive to economic development, such as not sending children to school, not seeking treatment from clinics and hospitals etc. They are also associated with polygamous marriages and large families since they do not believe in family planning.

### 4.1.2 Household Size

Table 1.5 shows the number of members in the rural households. The number of people living in a household ranged from one person to 15 people. Most households had members totalling between four and nine, the average household number being four. Resettlement areas had a higher proportion of households with 10 or more members. Most of the Apostolic Faith members have been resettled and thus explains such large household members.

**Table 1.5: Household Members**

| Number of Household Members | Communal Areas | Resettlement Areas | Total |
|---|---|---|---|
| 1-3 | 12.6 | 12.7 | 12.8 |
| 4-5 | 25.8 | 17.7 | 24.4 |
| 6-7 | 32.0 | 24.1 | 30.4 |
| 8-9 | 20.5 | 20.3 | 20.5 |
| 10 and above | 9.1 | 25.2 | 11.9 |
| Total | 100.0 | 100.0 | 100.0 |

### 4.1.3 Level of Education

Table 1.6 shows that the majority of the people in the rural areas have little or no education, most having not gone beyond primary level. Half of the respondents (50%) had primary education while another 28% had no education at all. Very few have attended secondary education. Looking at communal and resettlement areas, communal areas have more people who have never been to school (31%) compared to resettlement areas where 16% have not been to school. There are more people in resettlement areas who have reached Form 4 (21%) as compared to rural areas (7.4%). This could be explained by the fact that most people being resettled are the younger ones and these have had a better opportunity of attending school than the older generation, which is mostly found in the communal areas.

**Table 1.6: Level of Education**

| Level of Education | Communal Area | Resettlement Area | Total |
|---|---|---|---|
| None | 30.5 | 15.6 | 28.0 |
| Primary | 49.6 | 51.9 | 50.1 |
| Up to Form 2 | 9.5 | 9.1 | 9.4 |
| Up to Form 4 | 7.4 | 20.8 | 9.6 |
| Up to Form 6 | 0.8 | 0.0 | 0.7 |
| Tertiary | 1.6 | 2.6 | 1.8 |
| University | 0.5 | 0.0 | 0.4 |
| Total | 100.0 | 100.0 | 100.0 |

### 4.1.4 Occupation

Table 1.7 shows the types of occupations found among the respondents. As expected, the majority of the respondents (87%) were farmers. A few were working as civil servants or teachers (6.4%). The remainder were working as miners, shopkeepers and domestic servants. Resettlement areas had more of its farmers interviewed (94%) compared to their counterparts in communal areas. In general, this shows that the main type of occupation in the rural areas is farming and thus they depend solely on the land for their survival.

Table 1.7: **Occupation of Respondents**

| Occupation | Communal Area | Resettlement Area | Total |
|---|---|---|---|
| None | 0.8 | 0.0 | 0.7 |
| Farmer | 85.8 | 93.7 | 87.2 |
| Miner | 0.3 | 1.3 | 0.4 |
| Civil servant/Teacher | 7.0 | 3.8 | 6.4 |
| Domestic worker | 0.5 | 1.3 | 0.7 |
| Shopkeeper | 0.3 | 0.0 | 0.2 |
| Other | 5.4 | 0.0 | 4.4 |
| Total | 100.0 | 100.0 | 100.0 |

## 4.2 HOUSING CHARACTERISTICS

### 4.2.1 Roof and Wall Materials

The type of material used in roofing and walling of houses is important in identifying the status of the family and how much the families rely on the local resources. The results show that 18.6% of the households use pole, dagga and grass as materials for their roofs and walls, while 9.8% use thatch and sun dried bricks (See Table 1.8). 34.4% of the houses are built of asbestos/corrugated iron and burnt bricks, and another 17.6% use thatch and burnt bricks. The majority (52%) is therefore using burnt bricks to build their houses. In order to burn

these bricks, lots of fuelwood is consumed. This has implications on the environment, leading to rapid deforestation since many people are depending on the forests for building materials.

**Table 1.8: Type of House**

| Type of House | Communal Area | Resettlement Area | Total |
|---|---|---|---|
| Pole, Dagga and Thatch | 18.9 | 15.4 | 18.6 |
| Thatch and Sun-dried Bricks | 11.7 | 1.3 | 9.8 |
| Asbestos/Corrugated Iron and Dried Bricks | 14.9 | 37.2 | 18.7 |
| Asbestos/Corrugated Iron and Burnt Bricks | 33.6 | 39.7 | 34.4 |
| Thatch and Burnt Bricks | 20.1 | 5.1 | 17.6 |
| Other | 0.8 | 1.3 | 0.9 |
| Total | 100.0 | 100.0 | 100.0 |

There is a greater percentage of people from communal areas using burnt bricks (53.7%) compared to 44.8% in resettlement areas. There are also more people in resettlement areas using dried bricks. The communal areas tend to favour burnt bricks for building their houses, yet the vegetation is already degraded.

### 4.2.2 Electricity

Another problem that can lead to environmental degradation is when the majority of the people rely on wood for cooking. This means that there will be pressure on forests for wood. Respondents were asked if they had electricity in their homes. The majority of the households in the rural areas of Shamva do not have access to electricity. 96.5% reported that they do not have any form of electricity in their homes. 2.4% stated that they use solar and only less than 1% (0.7%) use the grid electricity, as shown in Table 1.9. This shows that the majority is actually relying on the forests. This has its own repercussions in that the only alternative for these people is to resort to trees as a source of fuel.

**Table 1.9: Use of Electricity**

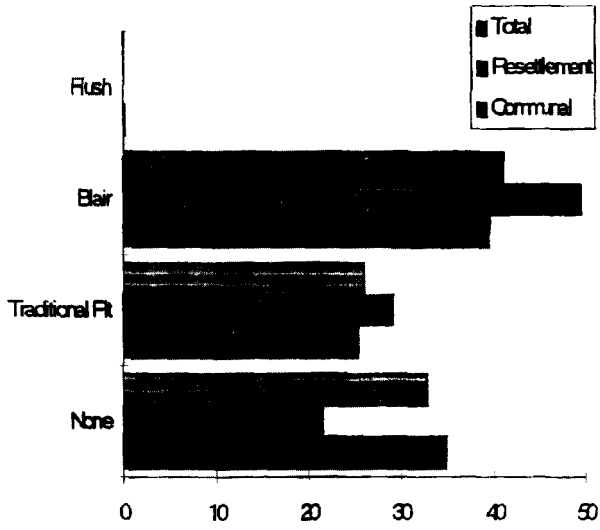
| *Type of Electricity* | *Communal Areas* | *Resettlement Areas* | *Total* |
|---|---|---|---|
| None | 97.0 | 93.7 | 96.5 |
| Solar | 2.4 | 2.5 | 2.5 |
| Grid | 0.5 | 1.3 | 0.7 |
| Other | — | 2.5 | 0.4 |
| Total | 100 | 100 | 100 |

There is a higher percentage of people in communal areas without access to any form of electricity when compared to those in resettlement areas. Those using solar energy are more or less the same in the two areas. Thus, in general, the situation in terms of energy use in communal and resettlement areas is not different.

### 4.2.3 Toilet Facility

Access to toilet facilities is a problem in the district. The study revealed that 41% of the respondents are using blair toilets. Just about a quarter (26%) are using traditional pit latrines, while only one person reported using a flush toilet (See Figure 1). Most disturbing is the fact that almost a third (32.8%) do not have any toilet facilities. This means that they are forced to use the bush to relieve themselves, and this is a health hazard, since active bacteria could seep through to the sub-terrain water veins and pollute water supplies.

***Fig. 1: Toilet Facility***




The availability of blair toilets is significant in resettlement areas, where almost 50% of the respondents reported having them. In communal areas only 40% reported having blair toilets. A greater percentage (34.9%) of people in communal areas has no toilets at all when compared to 21.5% in resettlement areas. Most of the people reported that they really wanted to have toilets, but had no money to buy the cement. The Government and other donor agencies

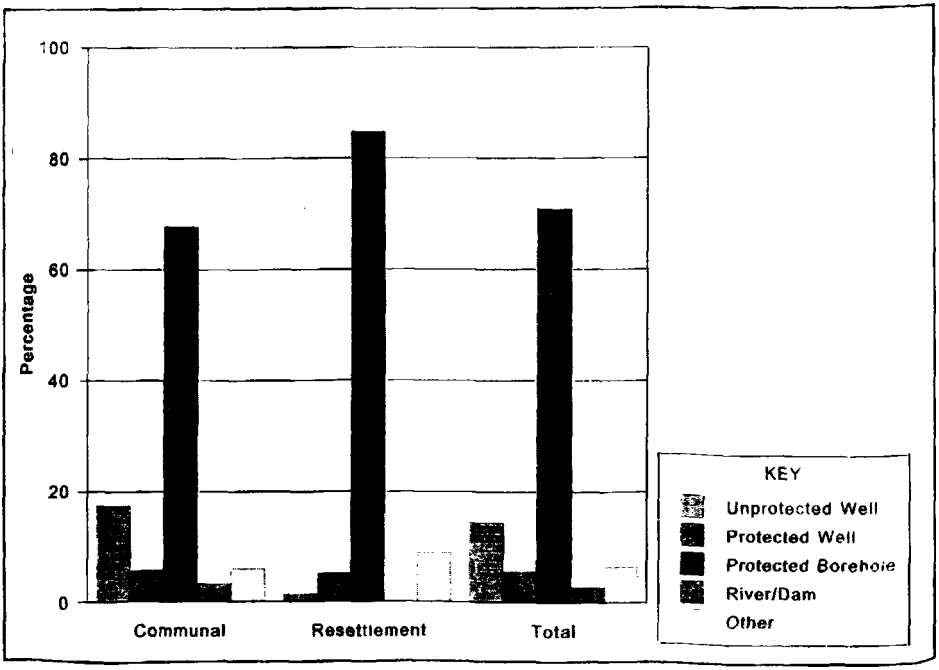
used to supply the cement, but presently this has not reached every home. The rural district council also sells cement to those who want to build toilets, but the farmers complained that the prices were high and thus they could not afford to buy the cement.

### 4.2.4 Access to Safe Drinking Water

More than 76.5% of the respondents are receiving drinking water that is coming from either a protected bore hole or protected well. The other 14.4% indicated that they use water from an unprotected well for drinking. 2.7% are getting their water direct from the river or dam, while 6.4% reported other sources (See Figure 2). This has implications on the health status of those people using water which is not protected, for drinking purposes. People on resettlement areas have access to safe drinking water, where 84.8% reported using water from protected wells or boreholes. The percentage in communal areas is lower, with 67.7% using water that is protected.

In addition, the majority of the respondents have water close to their houses. 87% indicated that the source of drinking water was less than 1 km from their homes.

*Fig. 2: Source of Drinking Water*



to ESAP, but the change has been greatly noticed in urban areas where economic hardships are mostly experienced.

### 4.3.3 Reasons for Change in Family Size

There are various reasons that could have led to the changing attitudes towards family sizes. These are economic, environmental as well as social factors. The possible reasons are explained below.

**Shortage of resources,** such as land, has led to many people changing their values on children. The problem of land availability with relation to children was also mentioned. One respondent said:

> I think we must always remember that as we have children, the land is not increasing, but the population is increasing. The question is where will we get land to put our children. So when we have children we must have a small number than a bigger one.

Therefore, the land is limited and as a result it is not able to sustain many children. In addition, forests have been diminished. One man from Goora had this to say:

> We do not have enough land, water and forests in our ward. This shortage is worsened by our children who also want to use the same resources.

**The socio-economic situation** has also changed people's views on the number of children that a couple should have. The cost of living has gone up to the extent that many parents are finding it difficult to support their children. In order for their children to have a better future they have to educate them. But many parents are failing to raise the school fees for their children. In addition school fees continue to go up. The number of children sent to school depends on whether the parents are able to afford sending their children to school or not. They admit that the basic resources, such as food and clothing are scarce nowadays, and thus small families are now preferred.

They also believe that life has been made more difficult by the dying off of the extended family system. People now fend for the immediate family and much help is not expected from other relatives.

High rates of unemployment have played a role in this situation and thus people prefer smaller families since they do not earn enough income. However, it was not everyone who had the same feeling about family size. Some of the men interviewed from Chidembo Village thought otherwise. They felt that children are valuable no matter under what circumstances.

> There is no time when a child is less valuable, no matter how difficult things become in life. Children are still needed even under difficult times.

### 4.3.4 Family Size Limitation

Women in Shamva District generally use contraceptives to prevent pregnancies. The method commonly used is the pill. The male group interviewed in Gono said the following:

## 4.3 HOUSEHOLD AND FAMILY SIZE

### 4.3.1 Family Size

There is a general observation that most of the families in the district are large. The average number of children in each family ranged from 6 to 10 children. The number of children is large when compared to the national Total Fertility Rate, which stands at 4.3 and the province, 4.5. Thus, large families are still common in the rural areas of Shamva. Possible reasons for such big families are the worry of tribal continuity, result of sex preferences and the fact that children are still seen as a source of labour, income and old age security. The number of children is considered to be very important in the rural community in that the number of children determines the family's economic and social status. Children are also expected to assist their parents, as reported by one man from Gono:

> If you have children these are your 'servants', your labour force which you can use in the fields, than for you to hire people when you do not have money. So if you teach your children well, you have your servants which you will not pay. So children are important.

Another man from Goora had this to say in relation to the importance attached to children:

> We just feel happy to see our children walking around and identify them as our children. More so to be a king or chief you are recognised by the number of people you rule and a father is identified by the number of children one has.

The number of children also increases due to the traditional son preference. If a man gets daughters only he would keep on trying his luck until he gets at least a son. More so, male children are assumed to look after the parents and that they keep the kinship, unlike daughters who, when they get married leave the household.

### 4.3.2 Ideal Number of Children

When asked about their opinion on the ideal number of children, taking into account the current socio-economic situation, an average of 4-6 children was stated by all the groups as the ideal number of children a couple should have. Some felt that if there were no problems one would actually bear children until menopause. Others were saying that a total of 10 children would be an ideal number if there were no problems. The number of children is higher among the older couples and less among the younger couples. The younger generation prefers an average size of four children. However, the number of children one has is less than the ideal size due to the fact that the cost of living has gone up and children have also become expensive to look after. They have to be clothed, fed and educated. In addition, the desired number of children has dropped due

> The majority of those using contraceptives are the young families because they understand the economic and social hardships. They realise they cannot nurture large families, so they use the contraceptives.

Use of contraceptives has actually increased due to the fact that with the current hardships being caused, partially by ESAP, many couples are opting for smaller families that they can afford to support, and thus increasing the demand for contraceptives. In case of who uses the contraceptive, it is the women who are using the family planning methods, instead of the males. The condom is rarely used because men see it as a show of mistrust since it is used to protect against diseases such as STDs and HIV/AIDS and is associated with prostitution.

When men were asked whether they allowed their wives to use contraceptives they all said that they agreed. However, when the women were asked, some of them said that their husbands did not allow them to use contraceptives and thus they used them secretly. The non-use of contraceptives is found mainly among the Apostolic church members, commonly found in the district. The contraceptives are in most cases given for free. Thus, they have taken advantage of this to limit the family size.

## 4.4 POPULATION AND RESOURCES

### 4.4.1 Land Resources

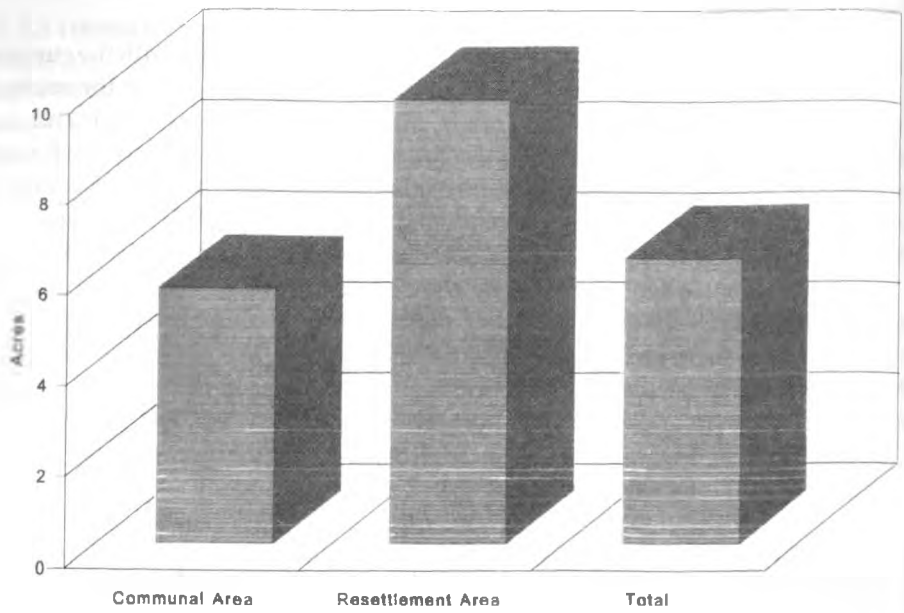
Bushu and Madziwa Communal areas fall under a region where there is marked environmental degradation. The areas are also overpopulated due to the policies of previous regimes which restricted villagers to certain areas and also due to a natural increase.

#### *4.4.1.1 Land Availability*

Land for crop production was found to be a major problem in the communal areas, and also contributing to the prevailing poverty. People in both communal and resettlement areas have on average 6.3 acres of cultivated land accessible to them. This figure tallies well with the results of the study by Moyo (1995), where the average arable land was found to be six acres. However, communal farmers are worse off in that they have on average 5.6 acres of arable land, when compared to resettlement areas with a mean of 9.8 acres. (see Figure 3).

Grazing areas are also a problem, especially in communal areas. Respondents were asked if they ever experienced problems with grazing land. 73% of the respondents in communal areas reported that they had problems with grazing area, yet only 32.9% in resettlement areas mentioned the problem. Thus problems related to grazing areas differed between the two land tenure systems. In communal areas, shortage of grazing area was cited as the major problem, while resettlement areas cited the problem of lack of grass in the dry season.

*Fig. 3: Mean Arable Land per Household*




*4.4.1.2 Land Fragmentation*

The problem of land is aggravated by the traditional practice of land fragmentation, where fathers sub-divide their pieces of land into smaller portions among their sons. As a result, the land holdings are small in size. This has led the soils to deteriorate and thus affecting agricultural production. One man said about land fragmentation:

> A field which belonged to my grandfather who had seven children was allocated to these children including my father, and now we have been allocated land from my father's field. So the land has been fragmented into smaller, less productive fields.

As a result of land fragmentation the average size of the fields ranged from zero to 357 acres. This highest figure is mainly for people on resettlement areas. The average land area accessible to an individual is 6.3 acres. What is more disturbing is that the resettlement farmers reported less acres than they were originally allocated. This could be enough proof to show that they are sub-dividing the land to their children, and thus the problem already experienced in communal areas will also be experienced in the resettlement areas.

### *4.4.1.3 Soil Erosion*

Soil erosion has been observed in the district. This has led to problems of gulleys, especially in the fields and siltation of rivers. In order to assess any environmental damage on the land, a question was asked if the fields had any dongas or gullies. 39% of the respondents indicated that there were dongas or gullies across their fields. The rest said they did not have such damage in their fields. However, communal areas are worst affected by these dongas, where 39.1% of communal households reported that they were in their fields, compared to 35.4% in resettlement areas. Picture 1 shows some of the gulleys in Ward 7.

***Pic. 1: Gulleys***

Picture 2 shows siltation of Mupfure River in Ward 2 and the fields which are very close to the river. The eroded soils are washed away by rains and deposited into the river causing siltation of the river. It has been observed that some of the villagers were cultivating on riverbanks, and thus are also to blame for this problem. According to the villagers, most of the damage has been caused by lack of conservation and the area being too sloppy (See Table 2.0). Other minor reasons mentioned included poor soils, too many trees, land being near stream etc.

***Pic. 2: River Siltation and Streambank Cultivation***

**Table 2.0: Causes of Land Degradation**

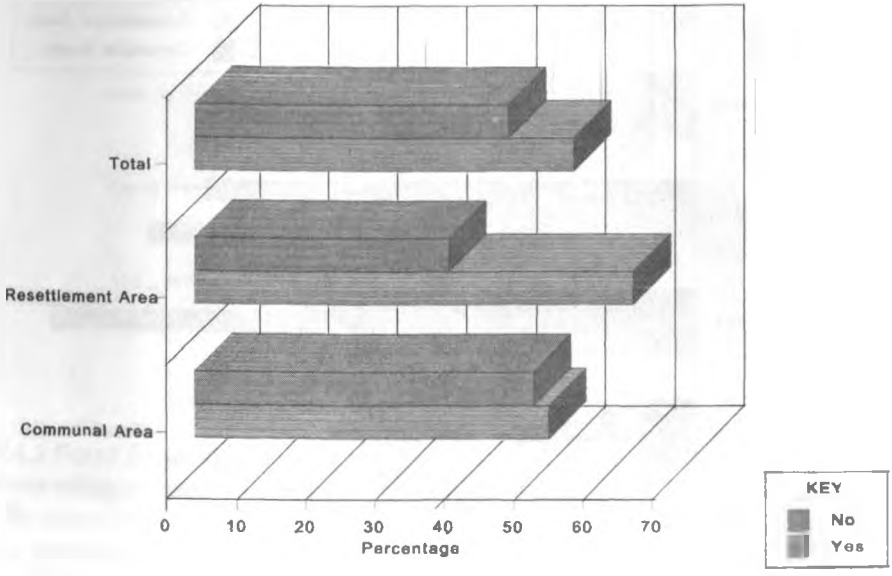
| Cause of Degradation | % Response |
|---|---|
| Lack of conservation | 33.0 |
| Area too sloppy | 26.8 |
| Poor soils | 11.7 |
| Land near stream | 6.1 |
| Too many people | 2.2 |
| Cutting of trees and grass | 2.2 |
| Too many cattle | 1.1 |
| Road construction | 0.6 |
| Other | 16.2 |
| TOTAL | 100.0 |

*4.4.1.4 Adequacy of Land*

Respondents were asked whether the land was adequate for them or not. Of the 466 people who responded to the question, 54.7% indicated that the land was adequate for them, while 45.3% said that the land was not adequate (See Figure 4).

A higher percentage of farmers from communal areas (48.9%) reported that the land was not adequate when compared to resettlement areas (36.7%). This shows that the problem of land is worse in communal areas, where population pressure is high.

***Fig. 4: Adequacy of Arable Land***

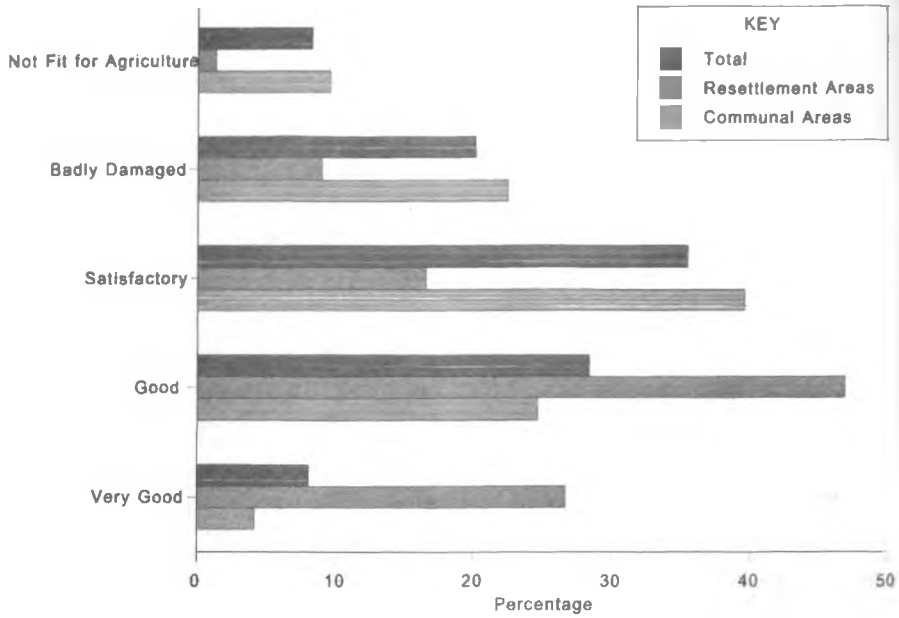



Reasons given for the inadequacy of the land were that the land was too small (82.6%), family too big (11.8%) and land unproductive (4.9%). The shortage of farmland is partly attributed to the large families that exist. Their families were growing in size but the land was not. According to them, this is not their problem because their parents who first settled on the area were apportioned land adequate to them. All those children born later were then apportioned pieces of land from their fathers'. As a result these children do not have land and are using their parents' land to cultivate. As a result, people are ploughing anywhere where a piece of land is available. With the shortage of land parents are finding children a liability. Added to that, children who are going to school can not help parents unlike in the past when few children went to school.

*4.4.1.5 Land Quality*

Respondents were also asked how they would rank their land used for crop production, in terms of quality. 35.4% of the respondents ranked their land as satisfactory, 28.3% good, 20.1% badly damaged and 8.2% not fit for agriculture, as shown in Figure 5.

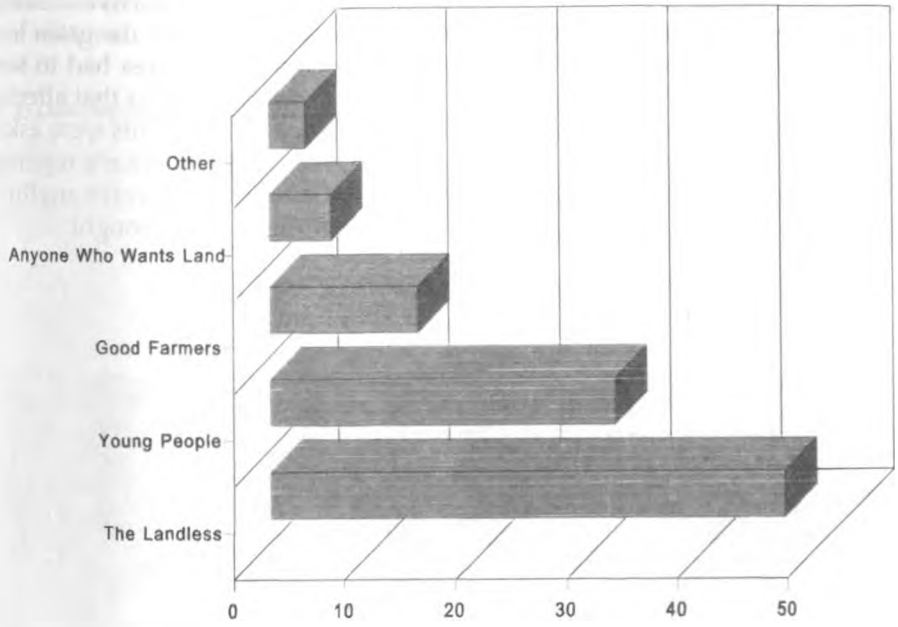
***Fig. 5: Ranking of Arable Land***




Most of the respondents from the resettlement areas ranked their arable land and grazing land as either good or very good. This is expected of these areas since there is minimum degradation that has taken place here. However, this is different in communal areas where the majority of the respondents reported the land to be either satisfactory or badly damaged. A significant percentage also reported the land to be good. Therefore, results reveal that land in communal areas is generally bad while that in the resettlement areas is still in a good condition.

In order to relieve pressure in communal areas, resettlement schemes were introduced by the Government soon after attaining independence. Respondents were thus asked whom they thought was most suitable for these resettlement programmes. Most expressed the feeling that the landless and young people should be the beneficiaries, as shown in Figure 6. The young people felt that they should be the ones to benefit from resettlement schemes since they do not own any land.

***Fig. 6: Beneficiaries of Resettlement Schemes***




### 4.4.2 Food Production

Most villagers reported that crop production has been declining over the years. The low crop production has been due to population pressure, poor soils and the preceding droughts. There were some sentiments among the villagers that it is the population increase that is affecting their food production. The bulk of the crop is retained for consumption and little is sold. One woman from Chihuri said:

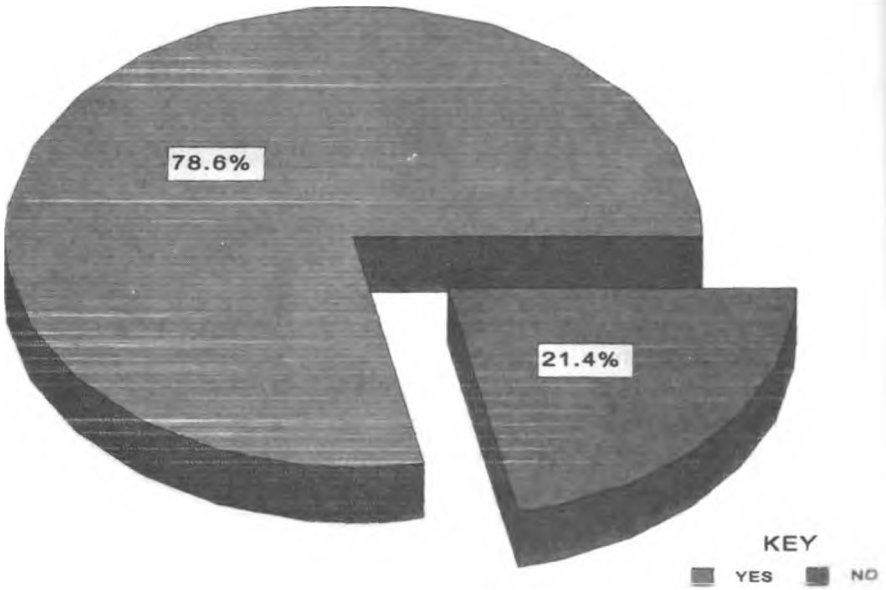
> Population increase is affecting food production because if I have 10 children I would produce mainly to consume and sell the little remaining.

They are not producing enough because of limited land for cultivation and also due to limited use of fertilisers since it has become very expensive to buy the fertilisers.

The erratic rains or drought have also been mentioned as having contributed to the problem. Most do not have draught power, which perished during the 1991/92 and 1993/94 drought years. Most of the villagers are also not able to secure loans from institutions such as Agricultural Finance Corporation (AFC) and Cotton Marketing Board (CMB) because some people have failed to pay up their debts.

**The effect of droughts** has been echoed by the then District Administrator of Shamva, Ms Jones, who said that the district had been very productive for many years and many people had not received any assistance under the grain loan scheme. However, in 1995 the majority of the people in the area had to seek assistance from the grain loan scheme due to the severe droughts that affected the district. This is also confirmed by the study. When respondents were asked whether they received any grain from the grain loan scheme, 78.6% reported that they received the grain. 21.4% indicated that they did not receive anything (See Figure 7). This actually shows the extent of the impact of drought.

***Fig. 7: Ever Received Grain Loan***




This borrowed grain was mainly used for home consumption (99.4%) and only 0.6% reported using it as inputs for the coming season.

### 4.4.3 Population and Forests

The majority of the people in the rural areas use fuelwood as a source of energy. Respondents were asked whether they had bought any fuel in the previous year. 97% of the respondents reported not buying any fuel in the previous year. Only 0.4% and 1.1% of the respondents bought paraffin and charcoal respectively, suggesting that most of the people use trees, which is a free commodity. This

explains why the forests have been depleted since the majority of the people depend on trees as a source of energy. Picture 3 shows Madziwa Communal Area with virtually no tree cover.

***Pic 3: Deforestation in Madziwa Communal Area***

Firewood has become a problem since the forests have been depleted. The shortage of firewood is critical in communal areas, where 71.4% reported that they faced fuelwood shortages. When communal and resettlement areas are combined, 40.1% said they faced the problem all the time. Surprisingly, 33.7% reported that they did not have problems in collecting firewood, and this number is mainly from resettlement areas. 4.9% reported that they rarely have problems and 21.3% indicated that the problem of firewood was rare.

The study also reveals that the resettlement farmers are not yet faced with this dilemma. 79.5% of the households in resettlement areas reported that they never have problems with firewood. This is because they have been resettled on commercial farms, where land degradation has not been experienced. However, there is cause for concern since some of the resettled people, although a very small percentage, are already complaining of wood shortage. The reasons given by those resettlement farmers experiencing firewood problems were mainly transport and distance, whereas the communal farmers were worried about availability. The situation in resettlement areas has to be monitored to make sure that they do not get into the situation in which communal farmers are.

On focus group discussions, men from Goora reported that they had to walk long distances of about 5 to 6 kms in order to get firewood. In some instances they are forced to cut down trees, which is illegal, and thus risk being arrested by personnel from the Forestry Commission. Fifty-eight percent of the respondents who had problems in collecting firewood cited availability of firewood as the major problem. Distance was also cited as contributing to the problem. They have to travel long distances to get the firewood. Twenty-six percent of the respondents reported distance travelled to collect firewood as a problem. Other reasons mentioned included transport problems (11%) and labour shortage (3%). In terms of the problem of deforestation it is the women who are hard hit because they are the ones who collect firewood.

Decline in vegetation and forests has also been a result of people clearing forests in order to have land to grow their crops and to get roofing material for their houses. Trees were also cut for firewood without any replacement taking place. One man from Gono, who had this to say, has highlighted the extent of the problem:

> Our forests have quickly disappeared. In 1972 we used to pasture our animals 2 to 3 kms away from this place, but due to population increase, land has been cleared to provide space for building homes; fields and forests are being cleared, there is hardly a place to pasture our animals.

**The recurring drought** seems to have taken a portion of the blame. Most people (54.9%) reported that the trees had been affected by the recurrent drought since 1991. As a result, trees had dried up thus reducing the tree cover. In Chidembo they have problems of squatters who were actually staying in the forest area. However, the district council has recently removed them.

Gold panning also plays a part in destroying the environment. In the process of obtaining gold, trees are cut down to clear an area and then shafts are dug, some of them as deep as 45 metres. On finishing gold mining the holes are left uncovered. As a result the land has a lot of bare ground with soil that is loose and prone to erosion and lots of holes (See Picture 4).

### 4.4.4 Water

The scarcity of water is also a problem in the communal and resettlement areas. The villagers do not have problems with drinking water as boreholes have been sunk by Government and donor agencies. For example, in Chidembo very few families have wells on their stands. Although they have boreholes for household use, dams are scarce and thus do not have water for their gardens. The nearby rivers quickly dry up and the recurring droughts have worsened the situation. As a result, women encounter problems in collecting water. They have to travel long distances in the dry season in order to get water for the household.

***Pic. 4: Destruction Left Behind by Gold Panning***

## 4.5 ENVIRONMENTAL MANAGEMENT

### 4.5.1 Soil Improvement and Conservation

People in rural areas have experienced problems as a result of land degradation. This has prompted them to manage the environment in order to alleviate the situation. On management, the majority of the rural people were applying some form of soil conservation in their fields. 82.8% of those who responded to the question (447) reported that they were taking measures to conserve the soil, while 17.2% indicated that they were not applying any soil conservation methods in their fields. The measures included contour ridges, which is the most common measure, to avoid soil erosion, manure/compost application to preserve fertility and alley farming.

Since most of the soils are depleted the villagers need lots of fertiliser to improve their quality. Most people complained of fertiliser prices, which had gone up and thus were not able to afford to buy the fertiliser. This, in a way, hampers the efforts to manage or improve the soil quality. Agricultural production cannot be guaranteed unless modern agricultural practices are adopted, which practices impact greatly on the environment.

Besides applying fertiliser, the villagers could also apply manure in their fields, a traditional method that has been going on for some time. However, according

to them, very few applied the manure because the majority did not have cattle. Most of the cattle had perished during the recurring droughts.

Crop rotation is also practised, by alternating maize and cotton. Fields are not left fallow because the land is limited and villagers cannot afford such a practice.

***Pic. 5: Gulley Reclamation***

Picture 5 shows gulley reclamation taking place in Jiti Village, Bushu. Fourteen loads of tractors full of stones were ferried to the site. Most villagers are now involved in gulley reclamation, in order to save the limited land.

### 4.5.2 Deforestation

Deforestation results from the uncontrolled downing of trees for building, ploughing and fuel purposes. The latter is the main cause of deforestation since biomass energy is the main source of energy in the rural areas.

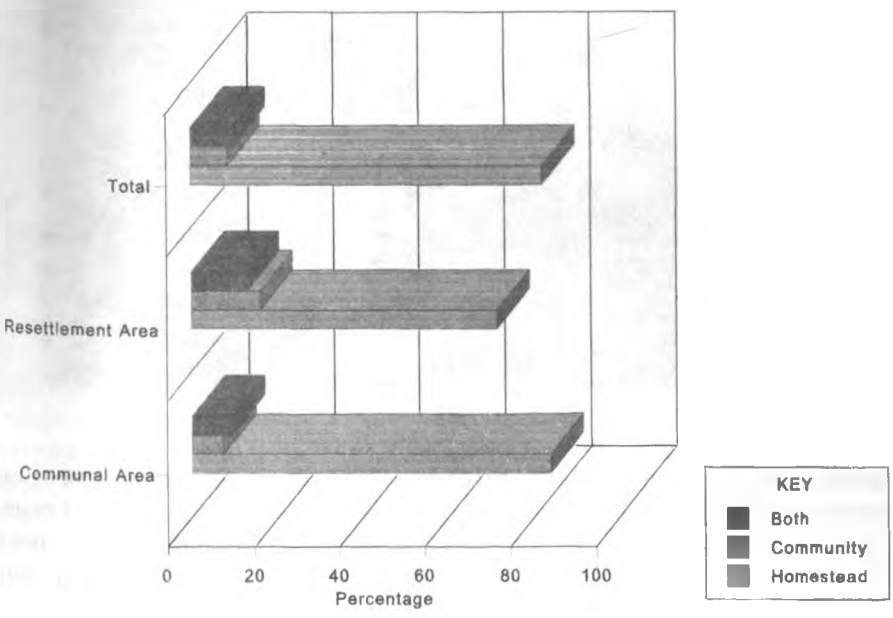
Deforestation in the respective areas was reported by most of the people interviewed. Tree planting is encouraged, at both individual and community levels, by both Government departments and Rural Council, in order to replace the trees that have been cut down. Most of the tree planting that is going on is mainly by individuals at their homesteads. 86.1% of the respondents reported having ever planted a tree, while 13.9% said that they have never planted a tree (See Table 2.1). More communal farmers have planted trees when compared to resettlement areas.

**Table 2.1: Ever Planted a Tree**

| Ever Planted a Tree | Communal Area (%) | Resettlement Area (%) | Total (%) |
|---|---|---|---|
| Yes | 87 6 | 79.7 | 86.1 |
| No | 12.4 | 20 3 | 13.9 |
| TOTAL | 100.0 | 100.0 | 100.0 |

Of the 389 people who said that they had ever planted a tree, 81.9% reported planting trees at homesteads. The trees planted were mainly fruit trees such as mango trees. Tree planting at community level is very minimal. Only 8.4% reported planting trees at community level, while 9.7% reported planting at both homestead and community level (See Figure 8).

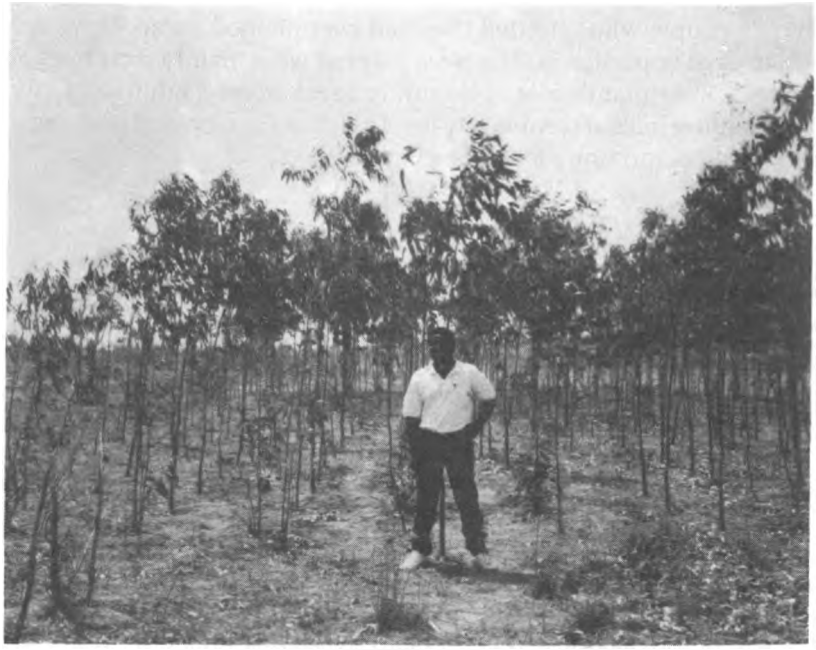
***Fig. 8: Level at Which Tree Planted***




Besides managing the environment as individuals, the community is also involved at VIDCO level. The VIDCO is involved in teaching conservation methods, discouraging people from using sleighs and from cutting down trees. The villagers are also encouraged to plant trees or have woodlots at community level. They also reported that they observed the National Tree Planting Day on

1 December every year, by planting trees in the woodlots. Men from Chidembo village actually reported that they had planted more than 9 000 trees in the plantation field on National Tree Planting Day. The plantation is also fenced to prevent animals from trampling the plants.

***Pic. 6: Woodlots in Madziwa Communal Area***



However, they had problems in trying to conserve the environment as a community. They expressed concern over the erratic rains, which had caused trees to dry up. Some of the villagers do not understand the importance of growing trees and were stealing the fence from the plantation, and thus allowing cattle to trample on the trees. In addition to these problems, some people were cutting down trees for firewood because they had nowhere to get the firewood.

Some of the villagers reported that they were willing to have woodlots but complained that they did not have the land to plant the trees. According to villagers in Mutero (Mutumba), there is no land to set aside for such woodlots. Those who try to plant on individual stands have faced problems since the area is infested with anthills, which is a big problem.

### 4.5.3 Traditional Methods and Restrictions

Research results reveal that very few people seem to be aware of the traditional practices to conserve the land. Only 38% reported that they knew of the traditional methods of conserving the soil. The methods cited were cultivation restrictions on certain days such as Fridays, contour ridges, shifting cultivation and not farming near rivers. Crop rotation practices were also cited as another traditional method to conserve the soil.

Very few people seemed to be aware of any traditional restrictions concerning the conservation of water. Of those who responded to this question, the majority indicated that soap was not allowed in the river. Others indicated that gardens were not allowed near a river.

On traditional methods to conserve trees, only 59 people responded. The majority of those who responded stated that there were certain species which were not allowed to be cut down.

### 4.5.4 Institutions Involved in Environmental Management

Agricultural Extension Services (Agritex) is involved in the training and advising of farmers in communal and resettlement areas. Agritex enforces laws on soil conservation. Local authorities and chiefs are also responsible for law enforcement on land.

There are also laws to prevent people from cutting down trees. Forestry Commission is responsible for conservation of natural resources. The Commission discourages villagers from cutting down trees and can impose a fine of up to $100 on the offenders. Besides the Forestry Commission, VIDCOs and Councillors are also responsible for the enforcement of tree conservation.

Respondents were asked on the significance of VIDCO in land conservation and rehabilitation. Of those who responded (436), 73% indicated that the VIDCOs played a significant role in land conservation and rehabilitation. Only 26.8% said that the VIDCOs did not play a significant role. They do this by teaching conservation methods to the villagers, discouraging people from cutting down trees, discouraging the use of sleighs and encouraging tree planting.

However, there are problems faced by the Rural District Council when trying to enforce some of the laws. The Chief Executive Officer expressed concern at the process of approving by-laws enacted by RDCs, which was bureaucratic within the Ministry, taking up to seven to eight months. Meanwhile the land would be undergoing further degradation. The Shamva Rural District Council had undertaken squatter eviction to enable the land to be conserved.

The Natural Resources Committee of the RDC received funding from the Natural Resources Board but the disbursement of those funds had not been smooth. $7 000 had been reserved for gulley reclamation.

In terms of water conservation the respondents felt that there was nothing much they could do since the shortage was mainly due to the recurrent droughts that had been experienced in the country and they also did not have any dams.

## 4.6 LEGISLATION AND ENVIRONMENTAL PROBLEMS

Since the environment is the source of survival for the rural people, this mea that legislative enforcement faces hurdles in that people see legislation as a thre to their survival rather than a way of ensuring sustainable utilisation of resourc Exploitation of resources through avoidance of detection becomes the order the day in the rural areas. This problem even becomes worse in the context ESAP where resources such as trees are being commercialised to get income f survival. Those who are retrenched go to the rural areas and carry out agricultur activities (*Sunday Gazette*, 31/10/93:4). With inflation and the removal subsidies, it means that there is greater liquidity among the rural poor wh increase their dependence on the natural resources. Legislation cannot preve that because of inadequate policing and limiting resources. Under forestry, th Natural Resources Board (NRB) and the Forestry Commission, as governme bodies, suffer from reduced funding and as such cannot monitor tree cuttin (Mutandi, 1993).

The Natural Resources Act (NRA) provides for supervision, contro enforcement and policing as a resource management strategy. Natural resourc are defined to include the soil, water and minerals, animals, birds and fish, tree grass and other vegetation. Resource management is at stake in the rural area under ESAP, since the land is used as a source of living in the communal area during these economic hardships.

Another problem is of siltation caused by gold panning, increased over th years due to ESAP, and drought. As more people become unemployed the have to fend for themselves by getting involved in gold panning. The NR cannot prevent gold panning as this is the domain of the Mines and Mineral Act. Thus, the NRA cannot prevent the high incidence of siltation an environmental degradation.

Section 101 of The Water Act deals with water pollution. This section mereh provides for the control of water pollution and not prevention. This implie that the amount of wastes dumped in the water ought to be controlled to ensur clean water. The excessive use of fertiliser or pesticides is not regulated in spit of its implications on the environment. However, this is not a big problem in th rural areas where use of fertiliser is not very extensive.

The above analysis shows that legislation is used to curb environmenta problems. Although prevention is the only effective way of solvin environmental problems, most Acts prefer the principle of control (Mutand 1993). The reason being that prevention goes to the root of economic activit itself and has the effect of hindering development and such legislation undesirable, given that ESAP seeks to provide a conducive environment fo investment.

## 4.7 EFFECTS OF ESAP

The inception of ESAP coincided with the onset of drought in 1991. Therefore, it would be very difficult to separate the effects caused by these two factors. However, what is stated in this section is the farmers' perception.

The average size of a family is declining with the younger generations, who admit that the current economic situation had forced them to appreciate smaller families. On the whole, the younger couples in the rural areas have realised the advantages of having fewer children than their parents. In olden days children were expected to look after their parents, but today in most cases children are failing to support their parents. It is not that they are not willing to support their parents but that they are now faced with socio-economic problems. One can have ten children and can fail to educate those children, and thus those children would endure the suffering together with their parents. These children would not be able to help. In some cases it is the parents who are now supporting their children and grandchildren. As explained by one man in Gono Communal Area:

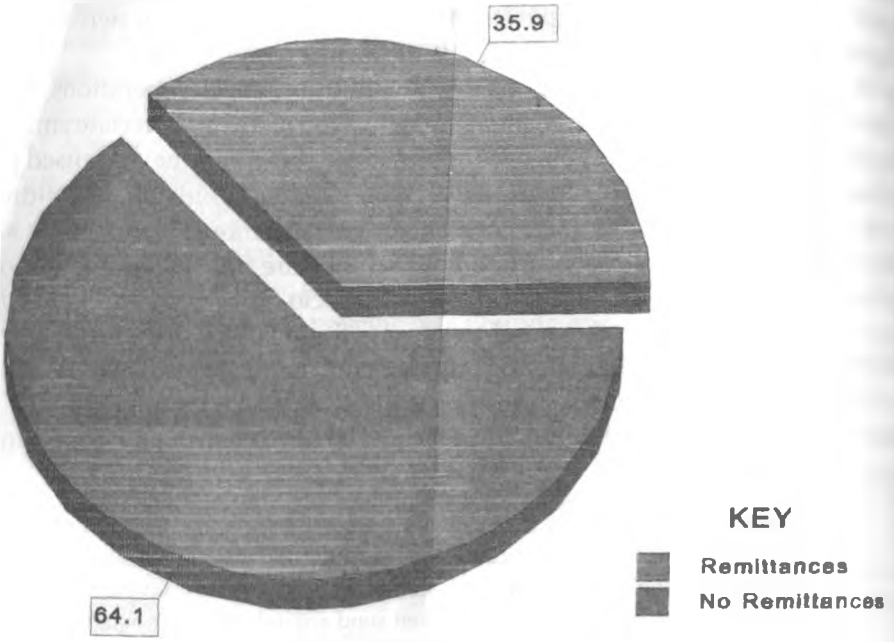
> In the past it was thought that to have a large family was a symbol of wealth. But now it differs because the number of children one has is determined by one's income. Nowadays, children do not help their parents. When they leave home they do not even send soap. If they get married, they do not think of their parents. They tend to think of their own nuclear family, that is, supporting their own families.

However, with all these happenings, children are still seen as important in a couple's life to the extent that if a woman is not able to produce children she is either sent back to her parents or another wife is brought into the family. The man faces pressure from his family to look for another wife who would be able to bear him children.

According to the villagers, ESAP was only benefiting those who already had enough resources, mainly commercial farmers and not communal farmers. Those who have the means to do so are benefiting from this programme. The respondents said that they were willing to conserve and manage the resources, such as soil improvement, but prices of inputs like fertiliser had gone up and thus most could not afford to buy the fertiliser. Thus, the soils were never refurbished, in the end leading to low production. Neither do they have the animals to draw manure from, because most perished during the drought period.

Respondents were asked whether they received any remittances from family members. Of those who responded (451) only 35.9% said that they received remittances, which were mainly in the form of groceries and cash. The majority (64.1%) reported not receiving any remittances at all, as shown in Figure 9.

*Fig. 9: Remittances Received*




The percentage of farmers receiving remittances was higher in communal areas (38.5%) when compared to the percentage of households in resettlement areas (25.3%). This difference shows that farmers from communal areas were not getting enough from crop production and thus a greater number had to rely on other members of the family. The farmers were also sending remittances to other family members not resident in the household. This is mainly in the form of crops, especially maize.

According to the survey, remittances had also declined in the past few years. Most parents were no longer receiving any remittances from other family members working in towns and elsewhere.

Most children were finding it difficult to support themselves and their families and parents were not even asking or expecting any assistance from them. This reduction in remittances from children working in urban areas has been partly blamed on ESAP.

> With ESAP our children are finding it difficult to support us. Before ESAP some children could afford assisting their parents even financially, today it is very rare for children working in towns to support their parents financially in the rural areas.

Another person from Chihuri had this to say:

> ESAP has reduced the amount of remittances from children. Our children need money for accommodation, transport, clothing, food and school fees for their own children. Children have become a burden to us regardless of whether they are working or not. Those working are even worse-off because instead of looking after us, we continue to support them by sending mealie-meal to them and even staying with and supporting their children. We appreciate that they are experiencing economic difficulties, that is why we sometimes send them food from the rural areas.
>
> Children are failing to support us not because they do not want to but because of ESAP, so we do not blame them. Instead, Government should do away with ESAP because it is making life difficult for us and our children.

For some families the breadwinners who were working in towns have been retrenched as a result of ESAP. These people used to send money home, but now there is no one to send money. In the villages many retrenched workers are coming back to the rural areas.

In some cases the rural people were sending remittances to other family members working either in towns or elsewhere. 21.8% of respondents in communal areas indicated that they send remittances to other family members not staying in the same household. The figure is higher among resettlement farmers, where 25.3% of the respondents reported that they did send money to non-residents. These remittances are mainly in the form of food items such as maize, groundnuts, peanut butter, watermelons etc.

## 4.8 GOLD PANNING AS A COPING STRATEGY

Gold panning seems to be a very common off-farm activity in Shamva. This is because of so many gold mines and gold deposits in the area. Many of the communal people have turned into gold panning as a means of survival, which is mostly illegal. The activity has negative consequences on the environment as forests are cleared and holes dug, which on completion are left to collapse on their own. The gold panners also use a lot of water on the riverbanks, causing water to quickly dry up in some of the rivers. This income generating activity is common in Gono communal area. The gold panners extract the mineral and then sell it to buyers who have certificates. The gold is sold roughly at $9.50 per milligram.

The villagers are aware that gold panning is an illegal activity but they risk being arrested because they have no alternative. They were appealing to Government to give them rights to extract the mineral without certification and also designate places for them to operate their activity.

## 4.9 PRACTICAL SOLUTIONS TO COMBAT ENVIRONMENTAL PROBLEMS

### 4.9.1 Long Term Conservation Strategies

Reforestation is the first and foremost strategy that should be encouraged among the farmers. Those who can afford to plant trees and have the land should be encouraged to do so. This helps to replace the trees being cut down for various reasons.

Deforestation is already a problem being faced in the resettlement areas. As a result, one of the councillors felt that the government should electrify resettlement areas before the problem worsened, since the rate of tree planting cannot match the rate of depletion. Electrification could reduce tree depletion. Rural electrification can be in the form of the grid electricity, solar etc. However, people were concerned that very few villagers could afford installing the grid electricity. On solar energy, the cheaper panels costing around $3 000 do not have enough power to operate stoves. Thus, the problem of cutting down trees would continue to exist since people would still resort to firewood for cooking.

A councillor felt that rural areas are differentiated into three groups, namely the rich, the average and the poor. These different groups should not be treated as one. He actually suggested one solution to this problem. The rich could afford the electricity, the average could afford either the solar or coal, and the poor could be allowed to use the firewood. The poor could continue to use firewood, on condition that they develop commitments to reforestation.

Some people had complained that the land they owned was very small and trees could not be planted. A representative from Natural Resources Board argued that even on small land, trees could be planted. The luekena tree that the NRB had been promoting grows fast; its branches could be used for firewood while its leaves contain protein for livestock. It also enriches the soil with nitrogen like leguminous plants. Farmers felt that it was difficult to resort to this suggestion since the tree could not be planted on a small piece of land, say one acre of land because it would put shade over the small arable land. One councillor mentioned that he once had this tree on his homestead and its roots were spreading underneath buildings. Therefore, if it is planted on a small piece of land the farmer would end up losing the land. Villagers were also being encouraged to grow exotic trees such as the gum tree.

Coal could also be used for cooking purposes as it is on some mining compounds. Training on proper use of coal by villagers would be needed since the fumes could be dangerous and fatal. However, coal entails monetary purchases. Resistance is bound to exist among villagers to buying coal because they are used to getting firewood for free.

Biogas was also mentioned as another alternative source of energy. The gas emitted from blair toilets could be used for lighting or cooking purposes. Although people may not necessarily like the idea of using it for cooking, it

would be a cheaper form of energy. However, some women felt that it was inhuman to use this energy alternative. The Ministry of Transport and Energy promotes the diffusion of biogas technology. The problem is that they do not have a decentralised infrastructure, that is, from head office to district level.

There are also stoves that could be used for cooking. An example of the "chingwa stove" was given. This stove uses little firewood and has a chimney. There were demonstrations on its usage in the Madziwa sub-district.

### 4.9.2 Toilets

As already mentioned in the findings, a great number of people in Shamva do not have proper toilet facilities. People were willing to construct toilets in the area. However, they expressed the problem that the soil was very porous, and since they did not have money to buy cement the toilets always collapsed. They felt that toilets were crucial to the health of the people and thus Government should provide them with cement so that they could construct blair toilets. Some had already dug the pits waiting for cement to be supplied by Government, but up to now they had not received anything. This shows how the people have become so dependent on donor funding.

### 4.9.3 Water

In some areas water is fetched from the dams. The villagers were willing to build protected wells and were appealing for cement from Government. The rural council had sent a project proposal on wells and toilets in 1994 and up to the time of the survey no progress had been made. At a time when there is donor fatigue, the rural people should be encouraged to do their own projects without donor assistance.

## SECTION V

## 5.0 SUMMARY AND CONCLUSIONS

The study has revealed the kind of degradation that exists in Shamva District and several factors have been cited as responsible for the state of the environment in the rural areas. These include population pressure in communal areas, poverty which has forced people to cut down trees, increasing population which has led to land fragmentation and the recurrent droughts. With the introduction of ESAP problems have worsened, with prices of inputs going up, and subsidies removed, thus making it difficult for villagers to make improvements on the resources.

The number of children per couple has been found to be on the decline. Younger generations are appreciating smaller families than the older generation. Several reasons for this decline in family size have been cited. The younger generation desire to have fewer children than the older generation. The value of having

many children is fading due to modernisation. Life has become very difficult as a result of the economic hardships experienced. The current economic situation has forced many people to appreciate smaller families, when compared to their parents.

Shortage of land and vegetation has become scarce and has also deteriorated. Land scarcity has become a great problem in the communal areas since the number of people has been increasing while the amount of land has remained fixed. This has been worsened by the traditional practice of land fragmentation where fathers sub-divide their pieces of land among their sons. This has led the soils to deteriorate and also affected agricultural production. This, coupled with recurring droughts, has led to low agricultural production driving more people into poverty.

Some people have settled either legally or illegally on land allocated for grazing. Thus squatters are a problem in the district and the mine workers who have now retired and have nowhere to go since they are foreigners, have worsened this situation.

Deforestation has taken place in the district as the area is suffering from population pressure. Many people in communal areas reported that firewood was a problem. This has actually forced women to travel long distances in search of fuelwood. These same people are poverty stricken, so they do not have other alternatives of fuel, which are also affordable. As a result they will continue cutting down trees. However, in resettlement areas, this problem is not yet being experienced since they have vast tracts of forests. The majority of the population is not yet conscious of the need for re-planting trees.

In order to lessen the pressure on the land, the interviewed families felt that they need to be resettled in the designated farms, where the land is still fertile, and where the problems they are currently experiencing are non-existent. Redistribution is not the lasting solution nor is the granting of title deeds an answer to environmental degradation. The answer cannot be found in population redistribution but lies in rural planning, technology transfer to the rural areas, education about resources, and empowerment of the local people in resource management.

The environment has been badly damaged and people now appreciate the importance of land management. Environmental management is found mostly at individual level, and to some extent at community level. Tree planting, as well as the application of fertiliser and manure on soils, is common in every household. There are two conflicting needs in the use of fertilisers and pesticides. On the one hand, there is need to preserve the environment since it is the basis on which agricultural production rests. On the other hand, agricultural production cannot be guaranteed unless modern agricultural production practices are adopted, which practices impact positively on the environment. However, the prices of fertiliser have gone up thus making it difficult to manage

the soils. Villagers do not have enough cattle to get manure from. The participation at community level was reported in some villages where they are planting gum trees.

Alternatives to firewood were suggested. These included use of electricity, solar and coal by those who can afford, while those who continue to use the firewood should commit themselves to serious reforestation. Other alternatives were suggested which included biogas and stoves that do not consume much firewood.

To conclude, people in rural areas, especially communal areas, will continue to have the problems they are currently facing unless something is done. People have been denied the opportunity to be managers of their own resources. They can only preserve the environment when their basic needs are met, not when they have no choice but to survive on the environment. This includes relieving them of the land pressure, improvement and management of resources, poverty alleviation and using alternative energy sources. Once given land, crop production is likely to increase and villagers would be able to afford to buy the inputs needed to improve and conserve the resources. The returns from farming are low. Villagers also contended that if their products fetched good prices and they obtained good harvests, then they would purchase cement to cast bricks, to build toilets and be able to afford some of the alternative energy forms.

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