Post Independence Land Reform In Zimbabwe

CONTROVERSIES AND IMPACT ON THE ECONOMY

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Introduction

Environment degradation and sustainability of resettlement schemes has been a concern of most among the donor community based on their responses to the proposals presented at the Donor Conference. Government proposals argued that resettlement will lead to intensification of land utilisation as well as bring into production land that has hitherto been idle. Settlers who predominantly are for communal farmers use firewood as source of energy. Given this, it is expected that resettlement would lead to high rates of deforestation. Further settler households bring with them poor animal husbandry practices that have led to land degradation in communal areas. Generally, bringing together farmers from different areas destroys the traditional structures that helped in resource conservation, and the diversity of these farmers precludes emergence of such structures under resettlement.

However, some have argued that because of lack of resources settler families have only achieved a fraction of land utilisation practised by former commercial farmers. Also because most of them are poor there is less animals per unit area compared to an average communal area. Thus arguments that resettlement invariably leads to land degradation are baseless.

This chapter seeks to review the environmental impacts of the fast track land reform on the biophysical environment. Other aspects of the environment i.e. socio-economic have been addressed elsewhere in this volume. This chapter begins with a quick synopsis of the impact of the programme on land cover (vegetation), soils and water. It also looks at issues of the institutional set up for the management of natural resources in the resettlement areas and concludes by recommending some framework for improving the management of natural resources in resettlement areas.

Context and Conceptual Framework

While before independence environmental degradation was mostly confined to communal areas owing to overcrowding emanating from the racially biased land tenure system, economic hardships, job retrenchments and unemployment together with the current Fast Track Land Resettlement Programme, have seen this desolation spread to the former white only commercial farming areas. Zimbabwe does not have an environmental policy and this has made it very difficult to control the problems emanating from the land reform programme. Whilst the Ministry of Environment and Tourism has designed conservation measures for areas under the fast track resettlement schemes, these measures do not seem to have been applied implemented at for various reasons. The major challenge facing the land reform programme is to come up with policies that ensure integrated land use planning where the conservation measures are incorporated in the planning process. The absence of environmental policy in the country has also contributed to some of the environmental problems experienced under the fast track programme

Environmental impacts of the fats track land reform programme are closely linked to the land use systems that are being created under the programme in given geographic areas. It is the land use systems that define and determine the use to which residents and other stakeholders or users put the land parcels they have occupied. The negative environmental impacts of the land reform come up as a result of a number of mostly human-induced processes. The main land use systems and subsystems associated with the land reform programme are detailed in table 1 below.

Table 1: Land use systems and subsystems associated with the land reform program

System	Subsystem
Settlement	▪ Residential ▪ Institutional ▪ Industrial ▪ Commercial
Mining	▪ Extractive gold panning
Farming	▪ Cultivation ▪ Grazing

These various subsystems have different environmental impacts. The areas where settlements have been created include those where people have constructed their houses or areas where institutional services like schools, churches, commercial activities, offices and other institutional services have been provided. The mining subsystem refers to areas where extractive activities, largely gold panning, are taking place. This is an illegal activity and has been on the increase in the fast track resettlement areas. The farming system comprises of the areas where agricultural activities like cultivation, grazing and other agro-related activities take place. The various systems will have different impacts on the environment.

Conceptually, there is a very close relationship between the various resettlement approaches and the utilisation of resources. This is influenced by people's perceptions of their environment and indigenous knowledge. This will influence the degradation

levels or impacts. This means that the selection of settlers and the institutions created for managing the areas is very important for the managing the resultant impacts.

Synopsis of Major Environmental Impacts

The major impacts of the land reform programme have been on vegetation cover, soil erosion, water quality and increased conflict between agricultural activities and some other economic activities that are land based but not necessarily agricultural. The table below gives an indication of the main environmental impacts emanating from the fast track land reform programme.

Table 2: Summary of Impacts of the fast track land reform

Subsystem	Impacts	Causes	Remarks
Settlement	▪ Deforestation ▪ Water contamination ▪ Poaching ▪ Solid waste o Food, paper, plastics, fabrics ▪ Effluent o Waste water, sewerage, chemicals o Organic	• Lack proper solid waste disposal facilities • Poles for construction • Fuelwood • Encroachment onto conservancies and game reserves • Domestic liquid effluent into ground water and streams	Sharply on the increase as most of those resettled have been establishing homes and other services been provided
Farming	▪ Deforestation ▪ Water pollution from chemicals ▪ Loss of animal habitats	▪ Land clearing to establish fields ▪ Crop production ▪ Use of synthetic fertilisers ▪ Livestock rearing ▪ Agricultural engineering	Deforestation for the establishment of fields has been on the increase but the other aspects sharply declined after the acquisition of most commercial farms. New units not as intensively used and overcrowded
Mining	▪ Movement of earth ▪ Water pollution ▪ Poaching	• Digging and blasting • Processing of ore using mercury and other poisonous	Has been on the increase due some resettled farmers opting for the quick money from panning. Lack of proper security in

opportunists who have turned to wood harvesting and poaching in these no man's lands.

Most of the areas that have been affected by this Commodification of wood are the resettlement areas close to the large cities. These are the resettlement areas in the Goromonzi, Beatrice, Zvimba, and other areas close to Harare where wood from the areas is sold in Harare. Areas around Bulawayo, Marondera and Kadoma have been affected by this trend.

Implications of changes on wildlife and wood fuel resources

The changes in land cover particularly the loss of forest and woody cover has serious implications for wildlife and wood fuel resources as is discussed in chapters 5 and 6 of this report. The removal of forests and woody areas has affected the larger mammals like kudu and sable. Some of the forests being lost are in game reserves that have been natural sanctuaries for animals. Some parts of Gonarezhou have been settled on and all the areas close to the homesteads have been cleared, pushing animals away from these areas and reducing their optimal habitats. Some of the agricultural activities are threatening to cut off game as clearing takes place dividing the natural habitats of the wildlife. Poaching has also been rife in some of the areas that have been cleared for cultivation. The clearing has exposed the animals due to reduced vegetation cover and they are now accessible to poachers. Some of these problems are related to the policy framework in resettlement areas as is discussed in other chapters.

There are also implications for soil erosion. With reduced cover, erosion rate is bound to increase as the soil will be exposed.

Impacts on Water Resources

The expansion of cultivation activities has in some cases resulted in the opening up of areas that are not suitable for cultivation. There has also been encroachment by agricultural activities onto wetlands particularly, in some areas in Manicaland and the Midlands. This has resulted in the drying up of most of these wetlands. Some areas may have suffered surface water losses as a result of siltation. Poor land management practices in most catchments have seen increases in the silt load of most rivers. Sand islands and other features have emerged along most watercourses thereby reducing the amount of surface water.

Some quarters have argued that pollution resulting from the use of fertilisers has increased as a result of the opening up of large tracts of land to cultivation whereby there is reliance on synthetic fertilisers. The cumulative effect of the 'chemicalisation' and mechanisation of agriculture especially after the economic reforms inaugurated in 1991, as well as the growth of the cash economy on commercial farms, communal areas and resettlement areas was just too huge to be undone in three years of a slump and steady decline in activities following the introduction of the fast track land reform.

Table 3 below however, indicates that the farmers resettled have been using relatively less fertiliser. This is true given the shortages of the commodity and the increase in price of fertiliser over the past three years. This means that even if the resettled farmers wanted to use a lot of fertiliser, they have not been able to do as a result of the costs and the perennial shortages of all types of the commodity

Table 3: Use of Chemical fertilisers

	Tenure System		
Fertiliser	**LSCF**	**CLs**	**Resettlement**
All compounds			
Farmers	2 464	276 114	5 198
Tonnage	182 907	37 327	3 983
All Nitrates			
Farmers	2 380	973	5 455
Tonnage	116 518	80	3 322
Gypsum			
Farmers	363	5 214	40
Tonnage	12 645	304	42
Lime			
Farmers	1 224	1 997	150
Tonnage	110 701	115	62

Source: UNDP Environment Assessment Report (2003)

According to the Department of Research and Specialist Services (DRSS) Soil Chemistry section in the Ministry of Agriculture, the concern on use of fertilisers is the over application in the commercial farming sector as the farmers try to increase yields. They argue that in the resettlement areas and communal land there is actually under application by the farmers who use fertilisers. The reason cited is the prohibitive costs of fertilisers, which is beyond the reach of most of the subsistence farmers. Post harvest research on the levels of chemical contaminates in crops from communal farmers shows little traces of chemicals.

The proliferation of gold panning activities has had serious impacts on water pollution. Gold panning has been seen by many as an easy avenue through which to make money. As has already been indicated above, some of the resettled farmers have combined their agricultural activities with gold panning. This is evident in the areas in Mashonaland West around Kadoma, Chegutu and Chinhoyi areas. Short of any other options, gold panning presents a safety valve at low capital costs hence no barriers to entry. Current estimates put the number of panners at 600 000. The Chamber of Mine Journal (July 2002) estimates that between 3 and 4 million peasants in Zimbabwe survive on gold panning. This is confirmed by Maponga and Ngorima (2003) who highlight that an estimated 300 000 people are directly involved in panning with an additional 150 000 indirectly involved. This takes place along 5000km of major rivers and other areas.

Interesting to note is that gold panning has now moved from being a seasonal activity to an all year round activity. There is a general consensus (Halloway 1985, Milne and Marongwe 1995, Maponga 1991) that earnings from panning and higher than returns from peasant agriculture. For example in 1995 the average yield was about 0.97 grams/week/panner. Every grain earns about $70 000 as at mid2003. When computed the average annual earnings are more than what is derived from

agriculture. There is a complimentary relationship between gold panning and agriculture. This relationship between gold panning and subsistence agriculture is succuntly put by Maponga and Ngorima (2003 : 149) who say "proceeds from gold sales lubricate agricultural activities for communal and resettlement farmers as they are able to procure some inputs."

The use of mercury has increased and this has resulted in an increase in the pollution of both ground and surface water resources to the detriment of both the new farmers and their livestock as they rely on these water sources. Mercury is dangerous to human beings and plants and animals. An estimated 6 tonnes of mercury is used by panners annually of which 50% is lost during the amalgamation process. The extent of use is further spread since the panners dilute the mercury with water to increase quantities. The quantities become much more and the exposure of human beings, plants and animals is multiplied. The problem is that mercury has along life, up to 30 years from immersion. As such it is likely to be active in water bodies for a long time thereby compounding pollution problem.

Part of the problem of resettled farmers turning to gold panning is associated with the lack of security of tenure on the properties they are currently occupying. The government has taken too long to resolve the issue of leases and those who have been resettled do not have any incentives to protect resources on the land they occupy.

Conflicts have also arisen in some cases where gold panners have expanded into new areas where resettlement has taken place, resulting in serious contamination of water resources. This is associated with the security situation on the new farms where resettlement has taken place. Sometimes there is the conceptualisation that land is now free for all after the reform programme. This has resulted in the panners moving even onto the farms where resettlement has taken place. The farmers have not been able to move the panners off their land.

Commercial farmers who owned the land prior to the fast track resettlement exercise used to have very strict rules about trespassing. They also used to be armed and panners respected their territories. The panners now seem to be stronger than the resettled farmers and they have moved onto some of the properties in big numbers and increasing water pollution. Although there are regulations governing mining activities, these have not been effectively forced, resulting in the current chaotic situation that is currently prevailing. The Mining Commissioner has the task of monitoring and enforcing mining regulations that outlaw the activities of gold panners. However, due to inadequate technical and financial resources, this has not been possible, even prior to the introduction of the fast track resettlement. The new programme has worsened the situation with regard to gold panners as they have now moved into areas that were formally protected by their owners.

Wildlife and Conservancies

There has been a general decline in the number of animals on commercial farms that had gone into wildlife. This is largely due to decreased security associated with farm invasions since 2000. Most animal species have been poached, some to alarming levels. The case study in the box shows this decline in the number of animals lost largely due to increased levels of poaching. Losses in the Save Conservancy are indicated in table 4 below.

Table 4: Poaching statistics for Save Valley Conservancy

Incidents	**Period**		
	31/10 to 22/11/02	**Since August 2001 up to the end of:**	
		31/10/02	**22/11/02**
Number of Incidents	97	1265	1362
Incidents where animals have been killed	61	572	633
Number of snares recovered	634	18266	18900
Number of poachers dogs shot	35	362	397
Arrests	45	771	816

Source: R. du Toit, 2003

Prior to the year 2000 Zimbabwe had a very well developed livestock export industry, as well as numerous wildlife enterprises on commercial farms. The current land crisis has affected these industries in a number of ways, which are listed below:

- disease surveillance has been reduced as a result of lack of resources
- land that was used productively in commercial wildlife enterprises has been returned to less lucrative, and less environmentally sustainable, forms of agriculture; in some cases this has involved the re-introduction of livestock
- disease control infrastructure and operations have been totally destroyed, or otherwise damaged, as a result of reduced application of the law, or lack of resources
- outbreaks of disease such as Foot-and mouth disease (FMD) have already severely curtailed livestock and livestock product exports to many countries which formed the most lucrative markets
- there has been a greatly increased risk of outbreaks of other major diseases

Du Toit indicates that there are approximately 1000 km of game (buffalo-proof) fence and a further 3000 km of cattle fence, which are under the control of, and maintained by, the DVS. These are cordon fences erected mainly for the control of FMD. The Annual Report of the Department of Veterinary Services (DVS) for 2000 noted that vandalism and theft of fences was a big problem in Mashonaland West and Masvingo provinces. Effective maintenance of cordon fences was to a large extent affected by shortage of vehicles, fuel and casual manpower. Farm invasions by communal farmers onto commercial farms where people move with their animals across cordon fences has resulted in extensive fence damage particularly in

Masvingo province. It has been very difficult in most instances to conduct patrols, effect fence repairs and control animal movements in these areas as some groups were very hostile and unpredictable. It is understood that this situation has now deteriorated further and that half of the game fence is now in a very poor state, allowing FMD-infected buffalo and cattle to come into close contact, while much of the official cattle fence line is ignored as a control of cattle movement.

The DVS has suffered from lack of adequate funding for many years. However this has become more acute in the last three years. The Annual Report of the Department of Veterinary Services for 2001 noted that the staff situation in the Department of Veterinary Services is a cause for concern as the vacancy rate continued to grow from 29.7% in 2000 to 33.6% in 2001. This represented 847 vacant posts. Shortages of financial and material resources, high inflation, devaluation, and freezing of all vacant posts except Veterinary Officer positions, and lack of foreign currency had a negative influence on the Department's performance in 2001.

In 2001 a total of 97800 vaccinations for FMD cattle were done by the DVS. There were also some 291000 rabies vaccinations, as well as 602000 anthrax vaccinations. In 2002, because of FMD outbreaks, the requirement for FMD vaccine had increased nearly five-fold from the traditional 500000 doses used routinely every year in the Southeast of the country. The cost of this vaccine is around USD$ 2.8 million. To date, it is understood that finance for the vaccine has not been obtained.

In 1999 there were six major wildlife Conservancies. By the end of 2002 one of them had virtually ceased to exist (Gwaai Valley) and three were under considerable threat from the land crisis (Save Valley, Chiredzi River and Bubiana). Four of the original Conservancies had received permission to hold FMD-infected buffalo, one of the most important species in terms of economic return. The conditions under which the buffalo could be held were set by the DVS, and included the erection of game-proof, double fences around those areas of the Conservancies in which the buffalo were held, and that were not already bounded by, FMD-infected, wildlife zone. In addition, no cattle were permitted within the fenced area. Generally, these fences have been maintained and monitored by the Conservancy rather than the DVS. The risk of keeping FMD-infected buffalo behind game fences, but adjacent to cattle, was assessed by experts (Sutmoller and Thompson, 1998) and adjudged to be acceptably low. However, this evaluation was totally dependent on the maintenance of the integrity of the fences to keep separated cattle and buffalo, as well as species of antelope that could temporarily carry FMD-virus.

The fence around the Save Valley Conservancy has been of particular concern, and prior to the year 2000 this was generally in a good state of repair, though improvements were being undertaken to increase the fence's capacity to stop the movement of antelope, as well as buffalo. The latest fence report from the Conservator (November 2002) indicated that, of its 350 km length, at least 80 km of the fence no longer existed (along the boundaries of six of the 21 properties that border on the edge of the Conservancy), while along the border of another three properties the fence is very poorly maintained and porous.

An aerial survey conducted in the second half of 2002 proved that there were some 3000 head of cattle in the Conservancy which could, illegally, be moved in and out at will.

There is no doubt that the land crisis in Zimbabwe has already had a severe impact on animal diseases at the wildlife/livestock interface. It also seems likely that negative effects will continue and that new threats will become reality for as long as well-proven disease control measures cannot be fully implemented. The economic and environmental damage that has resulted to the present time, and will occur in the future, is impossible to quantify accurately, but is considerable. Also, some wildlife diseases, once established are almost impossible to eradicate, either because the technology is not available, or because it is beyond the resources of even countries with sound economies to do so.

The disease of the greatest impact to date has undoubtedly been Foot-and-mouth disease. In years to come the eminently preventable re-introduction of tsetse fly and bovine tuberculosis could perhaps prove even more costly.

Poaching and the lack of proper attention to wildlife activities has resulted in this current scenario. Poaching is associated with the very low levels of security in the areas under resettlement. The resettlement programme has also not paid attention to some non-farming activities like game rearing and tourism in the various areas. Whilst the Integrated Conservation Plan for Fast Track Land Resettlement (ICPFTLR) mentions some of these activities, it has not seen the light of day in terms of implementation.

Institutional Issues for Environmental Management and Effectiveness

The decimation of large-scale commercial farming and its replacement with models A1 and A2 resettlement schemes is set to leave a permanent mark on the farming landscape and the resultant negative environmental impacts of the programme from activities associated with its three main systems will take a long time to reverse unless they are decisively dealt with now. The Government of Zimbabwe, through its various arms (particularly the Ministry of Lands, Agriculture and Rural Resettlement) monitors the implementation of the land policies while the other agencies such as the Ministry of Environment and Tourism address the environmental aspects.

The rapid implementation of the Fast Track Resettlement Program has resulted in 'overlooking' the role of other government agencies such as the Ministry of Environment and Tourism that has responsibility over the environmental issues. Well after the Fast Track Program had been put in place the Ministry of Environment and Tourism conducted physical inspections of the resettled areas and noted that 'in some of the designated farms there are indications of depletion of natural resources in those areas that have already been allocated to new settlers'.

In terms of controlling the negative environmental impacts, the institutional and legal responses in overall terms seem to be doing an ineffective job in monitoring, controlling and checking the environmental problems highlighted above. The critical issues that have contributed to this ineffectiveness include:

- Institutional gap

- The absence of an effective deterrent system
- Lack incentives for environmental management
- Ineffective monitoring
- Poor enforcement

The table below summaries some of the critical issues in the current set up in the management of environmental problems in areas under the fast track resettlement programme.

Table 5: The effectiveness of dealing with the land pollution problems

System	Methods (instruments institutions)	Effectiveness
Settlements	▪ Powers and responsibilities bestowed on local authorities by the Regional Town and Country Planning Act; Land use planning (Master and Local Plans; zoning) o Development control (use of land, building) o Waste management ▪ Powers and responsibilities bestowed government agencies by Public Health Act o Environmental health o Inspections, closures and prosecutions ▪ Powers and responsibilities bestowed on government EMA ▪ Inspections and prosecutions	▪ Lack of enforcement, institutional co-ordination and unrealistic sentences that are not a deterrent. ▪ Political meddling
Mining	▪ Powers bestowed by Mines and Minerals Act to Mining Commissioner ▪ Powers and responsibilities bestowed government agencies by Public Health Act o Environmental health ▪ Powers bestowed on government agency by Occupational Health and Safety Act o Inspections and penalties	▪ Lack of technical and financial resources has rendered commissioner effective ▪ Elusiveness of panners makes it difficult to monitor activities

Farming/Agricultural areas	▪ Powers and responsibilities bestowed on local authorities by the Regional Town and Country Planning Act; Rural District Councils Act; Forestry Act; National Parks and Wild Life Management Act) o Land use planning (Master and Local Plans; zoning) o Development control (use of land, building) o Waste management ▪ Powers and responsibilities bestowed government agencies by Public Health Act o Environmental health o Inspections, closures and prosecutions ▪ Powers and responsibilities bestowed on government by EMA o Inspections and prosecutions	▪ Lack of enforcement, institutional co-ordination and unrealistic sentences that are not a deterrent. ▪ Political meddling ▪ Institutional vacuum

Institutional gap

The areas that have been taken up for the fast track resettlement initially were commercial farming areas. These were under the Rural District Councils. (RDCs) The new resettlement areas do not seem to fall under the RDCs and in terms of the administration appear to be answerable to the Provincial Land Allocation Committees. This means that all the other normal institutions that are responsible for managing local areas have been sidelined under the program, resulting in an institutional gap.

The other areas have clear structures like wards and villages that are responsible for managing the affairs of the local areas. Whilst this local government structure has had its problems with traditional system in the communal areas resulting in conflicts and duplication in terms of mandate, traditional structures do not exist in the areas under the fast track resettlement. They have brought together people of diverse backgrounds where there is an institutional gap for managing the affairs of these areas. The result has been a free for all situation whereby the resettled farmers have tried to maximise as much as possible resulting in serious destruction of the environment. As has already been mentioned, the traditional ministries dealing with environmental issues have been sidelined and are only trying to get involved now, albeit in a very lukewarm manner.

The resettlement exercise has been politicised to the extent that even the existing institutions like the RDC have had problems controlling and managing what goes on in the resettlement areas.

So until clear reporting structures are put in place or the resettlement areas follow the normal reporting structures that exist under the RD Cs Act, it will be very difficult to control their activities.

Absence of Deterrent System and Implications for Monitoring and Enforcement

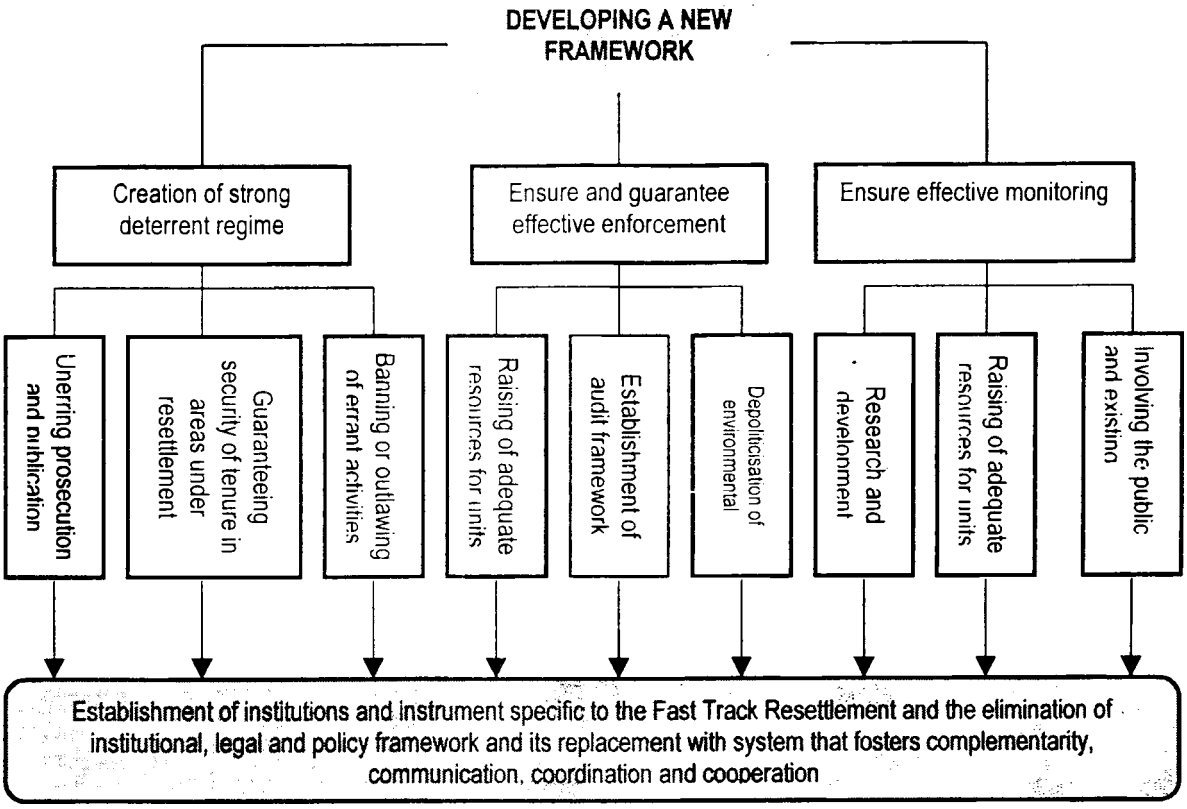
This issue is related to the above. The gap institutional set up means that it has been difficult to implement the provisions of the relevant legislation dealing with the various environmental elements. . The entry point relate to the structural-institutional issues raised above which then give rise to the absence of an effective deterrent, ineffective monitoring and poor enforcement. Added to this is the just discussed issue about the lack of a specific institutional, legal and policy framework specifically designed for the management and control of environmental degradation in the country. Whilst the ICPFTLR have been designed, they have remained only a paper work exercise. The plan has good intentions but there is no institution to drive it. The Ministry of Environment and Tourism that has been behind it has failed to bring the other players together e.g. Forestry Commission.

The Need for New Frameworks

There is need for establishing a new framework to ensure and guarantee effective enforcement of the deterrent and penal regimes in the areas under resettlement in environmental damage is to be forestalled. Again this needs a three-part methodology. First there is a need to make sure that the units tasked with enforcing the provision are adequately manned and equipped. As follow-up methods needs to be put in place by the introduction of effective audit frameworks that make sure that things are done as prescribed. This will have to be accompanied by the removal of all the impediments to implementation of the resettlement exercise. One foolproof way in this direction is to depoliticise environmental management and rid the sector of the 'foreign hands' that paralyse the proper operation of existing institutions in the resettlement areas.

The table below details some of the critical issues that will be required under the new framework.

Figure 2: Increasing the effectiveness of environmental management and control



Policy Implications

In response to some of the issues raised above, the Ministry of Environment and Tourism drew up an 'Integrated Conservation Plan for Fast Track Land Resettlement 2001-2002' that outlines appropriate strategies to be adopted in an effort to combat potential desertification in all resettled areas. These strategies include:

Natural Resources' Strategies for areas that are arable

It was proposed that Natural Resources Officers move into resettled areas to facilitate the formation of conservation committees (comprising of representatives of government agencies, local authorities and NGOs). The committees are expected to assist the communities in conservation matters and in formulating value-added projects expected to bring greater results.

The said officers are to conduct environmental education programs for all resettled farmers so as to stimulate and promote community participation and accountability in the conservation of natural resources in all resettled areas.

Baseline information is to be gathered for the preparation of inventory maps of the natural resources' in the area. It was hoped that where resettlement has not yet taken place, the people would be encouraged that integrated land use planning be carried out based on the best land use option of the given area.

Where resettlement has not yet taken place and the land is not good for agriculture, the Ministry recommends optimal use of natural resources that brings more economic benefit to communities in a sustainable manner. Some of these strategies are:

Forestry Strategies for non-arable areas

There are propositions for six forestry strategies for non-arable areas. This strategy includes the Out-growers' Schemes: whereby resettled farmers grow plantation trees on degraded soils that are marginal to agriculture. The farmer enters into an agreement with an established forestry industry concern to become a contract producer. It also includes the Micro-catchment Management Schemes as part of managed woodlands in catchment areas. This could either be done by way of controlled utilisation of forest resources in catchment areas or by promoting richer forest ecosystems. There could be buffer zones between these areas and agricultural land. Bee keeping could be incorporated. Grazing and Woodland Management Schemes are to be practised in areas specially set aside by the community for joint managing as grazing areas and native woodland management proper. Bee keeping could be integrated here. Consolidated Garden Schemes could comprise of vegetable gardens and integrated fruit trees (indigenous and exotic) to be established near sources of reliable water. Besides providing the much needed nutrition, they could increase cash flow in the community. The Agro-forestry entails intercropping crops with forest trees especially legume varieties. This method has known benefits to the farmer and to the soils as well. The Small Scale Wood Industry Schemes could be promoted to directly benefit the farmer and / or the community at large. The woodlots may provide forest products such as the Mopani worm *(Amancimbi)*, fruits (*such as the Tamarinda, Uapaca nitida (Mazhanje) and Ziziphus mauritiana (Masawu).*

Strategies for Wild life in Agro-ecological Zones IV and V

The Ministry urges the land reform to take cognisance of the fact that some parts are prone to drought and have fragile soils that cannot sustain crop production without massive investment in irrigation. Wildlife–based land reforms can be sustainably implemented in Agro-ecological Zones IV and V. These can take the following three proposed forms:

There is *Medium to Large Scale Game Ranching* that could be practised by individuals or groups of farmers. The *CAMPFIRE Approach* is a method whereby the community approaches wildlife management and reconciles it with poverty alleviation, wildlife conservation and communal management of resources. there are proposals for *Intensive Management of Wildlife Species* that can be practised on any piece of land.

It is still too early to say whether or not the ministry 's efforts will have a discernible impact on the activities of the settlers. The work of officers from the relevant ministry has been curtailed by persistent fuel shortages. This has seen the environmental strategy for the fast track land reform remain largely a document on paper with very little action on the ground. If financial constraints persist, the officers might never do any work with the community and the plans may remain unimplemented. However, it is clear that the reform programme has had the following impacts:

- The cutting down of trees, by new farmers, for construction purposes and clearing for fields together with wood harvesting (for both domestic fuel and sale) is creating a deforestation problem of great magnitude. This situation is gradually degrading suitable habitats for most wild life.
- There is a strong possibility of a great threat to the biological diversity on the resettled farms as the habitat is being destroyed.
- Trees are being cleared to give way to agriculture that most new farmers consider the most dominant land use pattern.
- No attention is being paid to replenishing supplies of wood fuel for the future say in 10 years time.
- There is increased water pollution from gold panning activities

In addition there appears to be insufficient financial and technical resources to support conservation strategies and for the rehabilitation of degraded areas of the land resettlement program since environmental aspects were left out at the planning and implementation of the Fast Track Resettlement Program. In the absence of all other resources what is needed is the political will to mobilise the community to do whatever they can on their own.

Key Challenges and Policy Recommendations

Several challenges to the environment have surfaced as a result of the Land Policies Zimbabwe has put in place. The government, indeed the country as a whole, has to ensure that the Land Reform and Resettlement Program fully addresses the problem of over-crowding, in Communal Lands, that has environmental repercussions. In addition, the Ministry of Lands, Agriculture and Rural Resettlement has the ominous task of introducing new settlers to land uses that are optimal to the different agro-ecological regions as opposed to leaving all of them attempting to produce staple crops, such as maize, under rain-fed conditions. Furthermore, the government needs to raise sufficient resources (especially financial) to enable it to incorporate environmental planning into the Land Reform and Resettlement Program.

In attempting to realise the objectives of the Land Reform and Resettlement Program, there is need to maintain the habitat of different species for the continued sustenance of the biological diversity on former commercial farms. While realising that most resettled farmers want land for agriculture, being able to set aside a proportion of land, for wildlife, outside protected areas under wildlife production might prove to be an immense task.

There is need to improve security of tenure and pay attention to other issues of security in general in the areas under the resettlement exercise. The lack of security of tenure has resulted in most of the beneficiaries, particularly those under the A2 model, being uncertain about their future on the land. This has resulted in them not paying too much attention to issues of environmental management. The lack of security in general has also seen battles amongst beneficiaries fighting for the same plots. The result has been the intensified exploitation of natural resources on the allocated farms.

In addition, there is need to encourage the strengthening of environmental policy leverage capacity of all stakeholders so as to ensure that they make meaningful contributions to future environmental policies. Besides, it is essential to provide sufficient financial resources for the Ministry of Environment and Tourism's *'Integrated Conservation Plan for Fast Track Land Resettlement 2001-2002'* as this is an attempt to incorporate environmental planning into the on-going Land Reform. This should be done in order to facilitate the framework outlined in fig 2 above. This will eliminate the issue of institutional gaps and overlaps. Lastly, in terms of the Regional, Town and Country Planning Act, the resettlement program should take cognisance of land use proposals contained in Master Plans prepared for the various districts.

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