

**AN ANALYSIS OF THE IMPACT OF THE FAST TRACK LAND REFORM
PROGRAMME ON DISASTER MANAGEMENT IN ZIMBABWE: A CASE OF
VUNGU RURAL DISTRICT (2000-2009)**

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ABSTRACT

In 1998, land hungry farmers in Zimbabwe went around the countryside and illegally allocated themselves portions of white-owned farmland. This development forced the government in 2000 to embark on an accelerated land re-distribution program dubbed the Fast Track Land Reform Program (FTLRP) aimed at addressing this issue of land hunger. Worth to note from the outset is the fact that the program has failed to adequately address, in situ, the issue of disaster management yet, ironically, this issue is increasingly becoming topical in the sustainable development debate. It is therefore the purpose of this paper to analyze the implications of FTLRP on disaster management in Zimbabwe. The paper largely focuses on the complex nexus between the planning of the fast track land reform program, the role of development agencies in FTLRP roll-out, the livelihoods activities undertaken by the newly-resettled farmers and the contribution of these activities to the accumulation of disaster risks in the country. Findings presented in this paper are based on a study carried out in selected areas in the Vungu Rural District (VRD) of central Zimbabwe. The paper looks at those livelihood practices among resettled farmers which are leading to the accumulation or decline in disaster risks. It goes further to highlight policies that can be put in place for people to be able to cope with future or potential crises in newly resettled areas. Various research techniques were employed for this study and these included interviews and focus group discussions with the resettled farmers. Key informants were also interviewed and these included local leaders such as village heads, the chief, and counsellors for the area. Agricultural Technical and Extension (AGRITEX) officers and the Environmental Management Agency workers were consulted as primary sources of what the government is doing on the ground to effectively manage disaster in relation to the environment.

Key Words: land reform, disaster management, environment, Zimbabwe

INTRODUCTION

As a nation, Zimbabwe has legislation specifying environmental awareness and management in the form of the Environmental Management Act, Chapter 20:27 (Government of Zimbabwe, 2002) but there seems to be a lot of non-compliance and lack of respect for the regulations. This non-compliance has also been perpetuated by the failure to by government to enforce regulations. It is, therefore, the aim of this research to provide a vivid picture of the effects of the activities of the newly resettled farmers on the environment and how these activities contribute to both household and the national food security. It is important to highlight that Zimbabwe has been going through a period of transformation over the past 10 years and during that period much attention was focused on correcting the historical and structural land imbalances through a program of land reform and other related measures. For Zimbabwe, the research reveals that ‘disaster management’ has been viewed as an ‘event-driven’ field, focused primarily on preparedness and response to emergencies, rather than a ‘process-oriented’ discipline, and, thus, largely irrelevant to current development priorities. The authors' view is that in order for the land reform program to be considered successful such an anomaly has to be addressed.

The study mainly targeted farmers resettled in the Vungu Rural District (VRD). VRD is one of the more than sixty rural administrative districts in Zimbabwe and its choice as an area of study is deliberate in that, not only is the district strategically located at the centre of the country in the Midlands province, but, more interestingly, the district is also home to a reasonably substantial number of former white-owned commercial farms expropriated for land distribution during the FTLRP. Among the resettled farmers the study focuses on model A1 farmers. Model A1 is a resettlement model earmarked for resource-constrained family farmers from the land starved communal areas inhabited by the black majority population. Model AI should also be understood in contrast with Model A2, among other FTLRP models, with the latter being earmarked for resource-endowed capitalist indigenous farmers.

The information presented in this study covers mainly activities in Wards 9 and 16 of the rural district. In Zimbabwe, districts, whether urban or rural are divided into what are known as wards with each ward ideally consisting roughly of 1000 people in demographic size. Although only two wards were chosen for this study, the physical, economic and environmental profiles of the chosen wards are, not only typical of what obtains in the whole of Vungu rural district, but these profiles are also a fair representation of the situation prevailing in all the rural wards of Zimbabwe where the

FTLRP was implemented.

BACKGROUND TO FAST TRACK LAND REFORM PROGRAM AND DISASTER MANAGEMENT: HISTORICAL AND CONCEPTUAL ISSUES

There is very little literature that links the land reform issues with disaster management from a Zimbabwean perspective. However, it is important to look at the legislative and policy instruments in place as well as scholarly views on this subject. Mlambo (2003) is of the view that the country's agriculture industry has gone into a rapid decline because of the farm invasions. He further argues that, "a once prosperous agriculture country, regarded as the breadbasket of Southern Africa, Zimbabwe has ended the eighth year of the millennium a virtual basket case, after 2 years of a chaotic and disruptive land reform program and dependent on international charity for basic food requirements of its people" (Mlambo, 2003). Tony Hawkins (2003) also supports this view, citing that one of the greatest ironies of land resettlement is that it has undermined the country's role within the Southern Africa Development Community (SADC).

In addition to the decline in agricultural production, many natural resources have suffered in the areas that have been newly resettled because of the lack of expertise on land use. According to Chenje et al (2000), "If there is no significant change in farmers' behaviour towards the environment, both greenhouse gases concentration and global temperatures will constantly increase". Joseph H. Kinuthia (2002) acknowledges that there is a change in the state of the environment in Sub-Saharan Africa due to human activities, but he does not specify the activities with any particular reference. He also does not mention the immediate effects of these activities, even though he mentions their ultimate global effects.

According to Holloway (2003), disaster reduction efforts in Africa have followed a, somewhat, different course than those in other continents. In Southern Africa, and perhaps more widely across Africa, the field of disaster reduction has never, explicitly, achieved the same policy stature or secured levels of financial commitment comparable to those seen in Asia or Latin America. She goes on to say that the disaster risk management has been at the bottom of Africa's emerging democracies. In Southern Africa, specifically, issues concerning development and national security have been historically associated with struggles for independence and freedom from political, military, and other forms of oppression. These preoccupations, rather than concerns for threats triggered by nature, have dominated national and regional security agendas.

Considerable research and analysis has been done by the European Union and the United Nations to illuminate the connections among environmental hazards, sustainable development strategies (especially in the poorer countries), and disaster response and management. UNISDR (2004), produced by the UN International Strategy for Disaster Reduction, puts it most succinctly:

The environment and disasters are inherently linked. Environmental degradation affects natural processes, alters humanity's resource base, and increases vulnerability. It exacerbates the impact of natural hazards, lessens overall resilience, and challenges traditional coping strategies. Furthermore, effective and economical solutions to reduce risk can be overlooked.

Although the links between disaster reduction and environmental management are recognized, little research and policy work has been undertaken on the subject. The concept of using environmental tools for disaster reduction has not yet been widely applied by practitioners. On the other hand, Nhamo (2003) discusses the institutional and legal provisions of the Zimbabwe Environmental Management Act Chapter 20:27 (Zimbabwe Government, 2002), but he does not go further to investigate the practicality of the law and how people behave in matters concerning the contents of the law. This study will, therefore, focus on the real activities of farmers in relation to the environment despite what the law says.

According to UNEP (2002), any discussion of environment and disaster would be incomplete without recognizing that environmental degradation is, in itself, not only a hazard, but a man-made hazard. The loss of biodiversity or desertification, for instance, will continue to severely affect local communities and wider economic systems. The risk and vulnerability perspective elaborated by the disaster reduction community also provides a valuable framework for analyzing patterns of vulnerability to environmental change as well as identifying opportunities for reducing that vulnerability. It is evident, however, that disaster management has not been linked to the resettled farmers' accountability and engagement with policy processes. This is one of the things that the study aims to address.

Specifically dwelling on Zimbabwe, it should be noted that at independence, Zimbabwe inherited a skewed land ownership structure, which reserved 70% of the country's commercially viable arable land for the white minority population, which amounted to less than 1% of total population (http://en.wikipedia.org/wiki/Zimbabwe#Land_reform). Although efforts were made to redress this imbalance through government acquisition of land for redistribution by a 'willing buyer, willing

seller' process, little progress was made in the first two decades. In the years 1998 to 1999, the Government of Zimbabwe stepped up efforts to rectify the situation by embarking on an 'Accelerated' land reform program which was later in 2000 dubbed 'Fast Track'. This accelerated program saw the forced removal of white farmers from underutilized land which was to be used for the resettlement of the landless black majority (Wolmer et al, 2003). However, the process was fraught with logistical inadequacies and bottlenecks which, among other things, led to increased levels of environmental degradation as farmers, with no knowledge of environmental management, were resettled in resource rich areas. Wolmer et al (2003) charged that even the planners implementing the FTLRP had no knowledge of integrating such environmentally sound practices, such as sustainable wildlife management, into the program. Although strides have been made in addressing colonial imbalances in land ownership, "land reform in Zimbabwe has done little to improve the environmental sustainability of rural land use practices" (Wolmer et al, 2003).

According to Moyo (2004), the FTLRP has created an expanded number and array of small, medium, and large scale farms, effectively transferring ownership from the minority white farmers to new indigenous farmers. Significant drops in agricultural production and food availability, in particular, and in economic activity, in general, have accompanied this change. However, it was only in the year 2000, when the political conflicts grew, that radical compulsory land acquisitions began.

Disasters have only been associated with natural catastrophes such as tsunamis, floods, earthquakes, and the like, which are not popular in Zimbabwe and, sometimes, there are other looming hazards over a vulnerable community. A disaster is present when there is a vulnerable community at risk of a hazard that they do not have the capacity to cope with. Therefore:

$$\text{Risk} = \frac{\text{Hazards} \times \text{Vulnerability}}{\text{Capacity}}$$

or

$$\text{Vulnerability} + \text{Hazard} = \text{Disaster}$$

Table 1

<p>Risk: The probability of harmful consequences, or expected loss (of lives, people injured, property, livelihoods, economic activity disrupted, or environment damaged), resulting from interactions between natural or human induced hazards and vulnerable or capable conditions.</p> <p>Hazard: A potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social, and economic disruption or environmental degradation. <i>Hazards can include latent conditions that may represent future threats. They can be natural in origin (geological, hydro-meteorological and biological) and/or induced by human processes (environmental degradation and technological hazards). Hazards can be single, sequential, or combined in their origin and effects. Each hazard is characterized by its location, intensity, and probability.</i></p> <p>Vulnerability: A set of conditions and processes, resulting from physical, social, economic, and environmental factors, which increase the susceptibility of a community to the impact of hazards. <i>Positive factors that increase the ability of people and the society they live in to cope effectively with hazards, that increase their resilience, or that otherwise reduce their susceptibility, are considered as capacities.</i></p> <p>Capacity: The manner in which people and organizations use existing resources to achieve various beneficial ends during unusual, abnormal, and adverse conditions of a disaster event or process. <i>The strengthening of coping capacities usually builds resilience to withstand the effects of natural and other hazards.</i></p> <p>Resilience: The capacity of a system, community, or society to resist to change in order that it may obtain an acceptable level in functioning and structure. This is determined by the degree to which the social system is capable of organizing itself, and the ability to increase its capacity for learning and adaptation, including the capacity to recover from a disaster.</p>

Source: Dolcemasclolo, 2004

According to Holloway (2003), disaster risk management can be defined as the organization and management of resources, and responsibilities for dealing with all aspects of emergencies (including disaster prevention and mitigation), but especially disaster preparedness, response, and rehabilitation/recovery. Conventionally portrayed as the ‘disaster management cycle’, disaster management, as a formalized body of knowledge originated in the late 1980s, was reflected in a global UN Disaster Management Training Program, carried out in many developing countries in the early-mid 1990s. Disaster management’s key components of prevention, mitigation, preparedness, response and recovery/rehabilitation are the ‘action clusters’ for the cycle’s flow of activities, and are defined below accordingly :

Prevention: Activities to provide outright avoidance of the adverse impact of hazards and related environmental, technological, and biological disasters.

Mitigation: Ongoing structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation, and technological hazards.

Preparedness: Activities and measures to ensure an effective response in an emergency and its impacts, including timely and effective early warnings and the temporary removal of people and property from a threatening location.

Relief/response: The provision of assistance and/or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those affected.

Recovery: Decisions and actions taken after a disaster with a view to restoring living conditions of the stricken community, while encouraging and facilitating adjustments to reduce the disaster risk.

Human societies cannot be dissociated from the environments that they shape and which, in turn, influence their development and livelihoods. Together, they form a comprehensive system with intrinsic levels of vulnerability and inherent coping mechanisms. The less degraded the environmental component of this system, the lower its overall vulnerability and the higher its coping capacity. It is also important to note that livelihoods activities and disasters are closely related. It is important to investigate if the livelihoods activities, being undertaken by a community, are sustainable and if these activities provide adequate income for the newly resettled farmers such that they have secure livelihoods.

It has been the assumption that if one is a farmer, then, their livelihood comes from agriculture, directly. This study found that this was not the case. This is especially not the case because most of the A1 newly-resettled farmers been found to reside in urban areas and it is only their workers that take care of the plots while they are away. Also, the occurrence of successive drought has caused the resettled farmers to diversify. Farmers in ward 9 and 16 only depend on agriculture during the rainy season, but in the dry season, or when drought seems inevitable, they depend on the rain as their source of water. They do not have access to borehole water as the borehole equipment that was previously there was vandalized during the invasion of the farms. The farmers, therefore, turned to other livelihoods activities of which some are not environmental friendly.

THE IMPACTS OF DISASTERS

The impacts of disasters, whether natural or man-made, not only have human dimensions, but environmental ones as well. Environmental conditions may exacerbate the impact of a disaster, and, vice versa, disasters have an impact on the environment. Deforestation, forest management practices, agriculture systems, etc. can exacerbate the negative environmental impacts of a storm or typhoon, leading to landslides, flooding, silting, and ground/surface water contamination.

To situate the case study in the right context, it is important to highlight that Ward 9 is far from almost every social amenity one can think of. The nearest primary school is 12 km away and the police station is, virtually, non-existent because there is no electricity, hence there is nowhere to report crime. The nearest clinic is in Gweru town, which is almost 20 km away and yet, almost 600 households are in that ward. Ward 9 lies in the rainfall region 3 and 4, which experience low rainfalls and has loamy soil, which requires adequate training in order to carry out productive farming for a food secure household (Vincent and Thomas, 1960) and yet no training was done. FTLRP only focused on agriculture. Because of the varying agro-ecological zones in the country, it was impossible for all families to exercise the same farming activities and have the same food security levels. The program was, therefore, too rigid. It is evident that there was clearly an uncoordinated resettlement of people which, in turn, resulted in the breaking up of social bonds, while movement into areas with no properly constructed infrastructure has led to the reduction in the dynamism of rural livelihoods. The activities that are linked to disaster management in the area of study include:

Nutrition gardens

The study has revealed that at least 92% of the households interviewed were growing vegetables, such as covo, rape, tomatoes, onions, cabbages and carrots, for sale. Because of the water shortages during the dry season, most nutrition gardens have been growing right next to boreholes.

Sale of Firewood Due to the fact that most families were resettled on virgin lands, where there is abundant firewood, 73% of the farmers said that, during the dry season, they go to the Nkayi road to sell firewood. (Nkayi is a centre in the south western province of Matebeleland North in Zimbabwe). A bundle of about ten logs is sold for \$3.

Bee hunting

Although this activity is not very popular, 28% of the farmers said that they sold honey in the provincial city of Gweru at market places.

Gold panning

It was evident that there was a lot of gold panning taking place at the local Nkululeko dam, where both young and older men and a few women were gold panners. During the research, only 7% admitted that they were involved in gold panning. According to this group of people, almost every household had at least one or more members that were gold panners. Those who were interviewed highlighted that gold panning yielded high returns more than farming, although it was illegal. The

researchers personally went to the gold panning site, with the assistance of the few women that are in gold panning.

Commercial Sex Work

Commercial sex work has never been traditionally viewed as a legitimate means of livelihood, as it is connotated as being immoral in both the country's two main cultures of Shona and Ndebele. But the presence of *makorokoza* (a Shona word for illegal gold panners) has attracted a lot of commercial sex workers from within and around Vungu rural district. According to the local people, most commercial sex workers are the women that feign selling meals at Nkululekho dam (the gold panning site). They charge high amounts for their services because the gold panners can spend long periods of time without going back home to their wives.

Maricho (shona word for temporary paid work)

75% of the families said that a large sum of their weekly income came from 'maricho', especially at the A2 farms nearby where labor is in short supply. The kind of work varies from planting and weeding to harvesting. Locals said the average price for this work was (USD)\$2 per kilometre. Children were also said to take part in this work.

Hunting

Before the farm invasions in 2000, the local Game Ranch contained a wide range of animals such as buffaloes, elands, elephants, and zebras, but during the FTLRP, the animals were not properly rehabilitated. This has left room for farmers to hunt them down as a source of meat.

In 1980, the new government of Zimbabwe was aware that land use was an issue but prioritized land redistribution for political reasons. Although it is true that colonial land policies were suppressive to traditional land use systems such as the slash and burn as well as shifting cultivation farming practices, some of these practices were themselves also destructive to the environment, hence their suppression by colonial authorities. This, notwithstanding, most newly resettled farmers and proponents of the FTLRP have used the fact that colonial policies were oppressive to black people as a scapegoat to use the land they have been allocated carelessly in the name of defying colonial so-called 'modern' farming practices. This leads to the accumulation of disaster risks as future generations have the danger of not having fertile land. Farmers, therefore, need to take a participatory role in issues of sustainable development, especially with regard to reduction of disaster risks in ward 9, of Vungu rural district.

Farmers in ward 9 rely on a number of activities, such as bee keeping, gold panning, selling vegetables, and food for work and so on, for their livelihoods. However, one should look at how these different activities lead to the accumulation of disaster risks and not just consider the fact that they contribute to a family's livelihood. Around the globe, land use and land cover changes are eroding the natural buffers that protect communities from hazard risks. These same changes often erode people's capacity to recover from disaster. There are, however, opportunities to reduce disaster risks and enhance community resilience.

The most important aspect is probably the issue of farming as a means of livelihood. On average, the newly resettled farmers in ward 9 harvest an average of 2 tons of maize. According to Mr. Charamba this is not enough to last for a season considering that part of the harvest would ordinarily need to be sold off to meet other non-food requirements such as school fees. Even though they are farmers, these newly-resettled farm families do not have adequate food for their own household consumption. Hence they are forced to find alternative means to feed their families.

According to Holloway (2003), having adequate food stores is an effective way of managing disasters and, to her, that is the most important way of reducing disaster risks. Usually a hazard is termed a disaster because of the shortage of such resources like a food store. It is sad to note that 100% of the households surveyed in both wards 9 and 16 rely on food aid from humanitarian agencies, such as CARE and Action Aid International, during the dry season. This means that in the absence of these organizations, extreme hunger is inevitable and, at the same time, these are farmers that the government of Zimbabwe expect to contribute to national food security. The fact that the major income of families in wards 9 and 16 comes from agriculture in a normal season means that, because of the consecutive droughts, food security is further threatened. This encourages farmers to engage in activities that lead to the accumulation of disaster risks.

The FTLRP has brought with it an increase in the activities of illegal gold panners throughout the country. Gold panning is seen to be more lucrative than farming because it brings instant income returns. Most of the gold is sold to unlicensed dealers, in contravention of the country's Gold Act. In the gold panning areas, serious conflicts and contradictions result between gold panning and farming activities. Gold panning is also said to be rife in some of the newly resettled farms, particularly in traditional gold panning areas, such as Masvingo, Matebeleland South, Midlands, Mashonaland West, and Mashonaland Central provinces (Moyo, 2004).

According to James Motsamai, an illegal gold panner at Nkululeko Dam, panners use a mixture of chemicals, called cyanide and mercury when panning because it makes the identification of gold easier. However, experts say that both cyanide and mercury are poisonous and can lead to death if it is consumed. Farmers from Cumberland confirmed that two children died after drinking water from Nkululekho dam which is close to where gold panning is carried out. They suspect that the water could have been contaminated by either cyanide or mercury. If more deaths are caused by these harmful chemicals, especially of children, then it will become a disaster. Cyanide is the chemical of choice for mining companies to extract gold from crushed ore. Very low-grade ore, with minimal residues of gold, is crushed and piled on the ground, then sprayed with a cyanide solution.

Mercury, on the other hand, has been used to chemically separate gold from ore, leading to major public-health problems for miners and communities around the mining districts. According to the Third World Traveller, gold mining is not an essential industry, like the harvesting of food, and it certainly is not sustainable, nor is it just. Damage to water and water resources is the worst environmental consequence of gold mining. They further argue that, to make a simple gold wedding band, at least 2.8 tons of earth is excavated. This is a lot of land degradation that cannot be rehabilitated in the future. Most of the unsightly mess left behind is exposed to weathering and will, ultimately, leach acid and heavy metals into the local area at great ecological cost. It is sad that the gold panners who were interviewed had no knowledge on the exact potential of the chemicals they were using.

Table 2, describes the toxicity of mercury

Toxicity	Acute	Chronic
Readily absorbed via respiratory tract (elemental mercury vapour, mercury compound dusts), intact skin and G.I. Tract. Spilled and heated elemental mercury is particularly hazardous.	Soluble salts have violent corrosive effects on skin and mucous membranes such as severe nausea, vomiting, abdominal pain, bloody diarrhea, kidney damage, death usually within 10 days.	Inflammation of mouth and gums, swelling of salivary glands, excessive flow saliva, loosening of teeth, kidney damage, muscle tremors, jerky gait, spasms of extremities, personality changes, discouragement depression, irritability, nervousness, dementia, loss of motor coordination.

Source: <http://www.hbci.com/~wenonah/hydro/hg.htm>, accessed on 31 July 2009

From the above occurrence, it is clear that gold panning becomes a risky activity, not only to the surrounding communities that fetch water from Nkululeko dam, but also the marine life, especially fish, which constitutes an important part of the marine life. The use of these chemicals (cyanide and

mercury) can lead to a disaster if nothing is done. All the residents around that dam are obviously vulnerable because all of the families use the water from the Nkululeko dam for one reason or the other, such as for cattle to drink, fishing, bathing water, and watering of close-by gardens. It is ironic, however, that the farmers fear being poisoned and, yet, they are the ones who expose themselves to danger.

Commercial sex work has also been mentioned as a livelihood activity. It goes without saying that it poses a danger of exposure to HIV transmission to more people, especially when safe sex is not practiced. According to one woman, who is also a gold panner, the prostitutes can sleep with 5 customers per day without any protection. According to her, majority of these gold panners are married men, which means that they are exposing their wives (and children) to the HIV virus. In most cases, these men will not have protected sex with their wives. This can be a disaster as the whole community can actually be wiped out by AIDS, thus, leading to accumulation of disaster risks.

Alisa Holloway (2003) is of the opinion that the effects of HIV and AIDS worsen the impact of droughts in Southern Africa and, thus, exposing the population and making them more vulnerable. Both activists and development workers agree that HIV and AIDS is a cross-cutting issue which affects a population's productivity, thus leading to the accumulation of disaster risks in a given community and, inevitably, a country. There will be no end to it because people will be too weak to plant and too weak to harvest. She goes on to say that the problems don't go away with better weather. 83% of the respondents said that someone very close to them was HIV positive. This means that they have less labor on their plots, thus also undermining the household income, as the household will also spend more money on medication and funeral costs in the event of death.

All the households interviewed said they were getting their firewood from nearby bushes or neighboring commercial farms. The amount of firewood used varied due to the size of the households. So, basically the larger the household, the more firewood they used. In an interview carried out with Mr. Berekwa, from Environmental Management Agency, he noted that they encourage communities to set aside woodlots (specific areas that are reserved for cutting trees for firewood). He also said that in rural areas in Zimbabwe, people don't have another energy alternative, hence deforestation becomes inevitable. Mr. Lusaba, from AGRITEX, also noted that, even though most of the land was owned by white farmers before the FTLRP, most of it was still virgin land. However, now it has deteriorated because people are cutting down trees without taking into account the negative consequences.

Deforestation increases the chances of more erosion, especially after a drought season. The land that had erosion occur on it cannot be rehabilitated. The loamy soil that is found in ward 9 and 16 make erosion inevitable. Mr. Berekwa, however, went on to say that EMA is working with farmers to let them know of the dangers of deforestation and also that it is a crime. He said that they have designed a number of projects that encourage farmers to use alternative energy sources and to set aside woodlots where the community is responsible for growing their own trees for firewood. The Environmental Management Act also classifies cutting down of trees as a crime, especially without permission and, even more so, when that firewood is sold illegally. Punishments range from confiscation of the firewood to varying amounts of fines.

According to Hari Srinivas, the number of people affected by disasters and the economic loss resulting from disasters has increased correspondingly. UNEP (2002) asserts that while a strong case on the linkages between global climate change and natural disasters is yet to be built, there is clearer consensus on the effects of disasters on the environment, ecology, and human settlements, and vice versa. These effects also last far beyond the scope and timeframe of immediate humanitarian relief response activities.

Deforestation, forest management practices, or agriculture systems can intensify the negative environmental impacts of a typhoon, leading to landslides, flooding silting and ground/surface water contamination. It becomes therefore important to see the cyclical linkages of environment degradation and their exacerbation of a disaster's impacts and of a disaster's impacts on the environment.

Continuous soil degradation has negative impact on food production. According Chenje, Sola, and Paleczny (2001), effects of the droughts are worse in areas where there are poor land management practices. For example, grass cover in Zimbabwe's communal areas in the south of the country is only 9% below commercial rangelands, but during drought years, the grass cover is 80% lower. Droughts, therefore, expose the land to many agents of erosion and act as major catalysts in land degradation. Agriculture is obviously the activity worst hit by drought. The impact of a drought is most severe in dry farming areas, although soil loss slows down during the drought periods. When the rain comes, erosion rates go up to three times higher during dry years because of lack of plant cover.

Zimbabwe has experienced consecutive droughts during the past 5 seasons. Meteorologists say it is because of the El Niño phenomenon in the Pacific. The country has not experienced a normal rainfall pattern and this exposes the farmers not just to hunger, but to other problems that make them vulnerable to disaster.

The main effects of droughts on communities are that there is a decline of income because some of the sources depend on water availability. For example, in ward 9 and 16 most households are involved in vegetable sales, beer brewing, brick making, and so on. Reduction of income sources is also accompanied by an intensification of some income generation activities, leading to increased gold panning and trees being cut down for firewood provision and sale. This, therefore, shows that drought, in itself, is not a disaster, but rather it is the activities that are done to avert the impact of drought that determine whether drought becomes a disaster or not. If people engage in activities that lead to environmental degradation, then the risk of it being a disaster increases. Preparedness, such as keeping large food stockpiles for another season or two ahead, is, therefore, a necessary measure.

Throughout the research, one thing remained clear. That was that there is a link between gender and disaster risk reduction. Women are acting as heads of households, in the absence of their husbands have migrated to find work elsewhere or have abandoned them. Of the households interviewed, 57% were female-headed. While the ages of the household heads varied, but it was interesting to note that the female plots were invariably better managed than those headed by men. Women's gender role in society assumed that they are experienced in looking after others. Often this means that they take on informal disaster risk reduction roles within their communities. This could include managing food and water supplies during a drought or looking after people who have are ill in the home.

According to the counselor for ward 9, Mr. Charamba, women also possess considerable technical knowledge and skills that can be important for disaster mitigation. They are often experts in traditional such soil conservation farming practices such as inter-cropping which can reduce the damage caused by drought or sudden rainfall. John Twigg (2004) also says that many women in Africa know a great deal about traditional drought-resistant seed varieties and how to use them. They also know about roots, fruits, and other food growing in the wild that families can turn to when crops fail. They know how to preserve food for use during the hungry season or more prolonged periods of scarcity. In Sudan, for instance, women are known to have invented 90 different dried and fermented foods based on crops such as sorghum and millet, wild plants, and meat from wild and domestic animals. Women are often experts in home health care and are knowledgeable about

traditional medicines. They are likely to be responsible for keeping the drinking water clean and, in some societies; they are responsible for building and maintaining houses. Women, therefore, play an important role in the reduction of disaster risks. This role by women should not be undermined, but rather be reinforced, as it is a positive contribution to sustainable development.

The study also sought to find out the extent to which the newly resettled farmers were a part of policy formulation. 78% of farmers interviewed said that they were actively involved in projects being carried out by the Environmental Management Agency (EMA) and all of them said they did not know about the Environmental Management Act. When asked which environmentally destructive activities are forbidden by the law, 80% cited veld fires, 22% mentioned the sale of firewood (rather than the actual cutting down of trees) and 17% did not know of any. Such ignorance regarding the provisions of the Environmental Management Act therefore poses a threat to the environment in which these farmers live.

THE FUTURE OF LAND REFORM AND DISASTER RISK REDUCTION IN ZIMBABWE

Many scholars agree that the FTLRP failed, not because it was a bad program, but because there was inadequate preparation and planning before its inception, as well as implementation and that in itself is a major weakness. The people that were resettled had no technical knowhow of efficient land use. This has been a major contribution to accumulation of disaster risks.

In addition, there was also not much money invested in the land reform program. In light of the large number of people being resettled, the government failed to fully utilize the capabilities of such technical para-governmental agencies like EMA, and independent development bodies such as ISDR, UNDP and others. It has been proven beyond reasonable doubt that there is a clear and direct link between disasters and development. Developmental partners on their part have also been reluctant to engage directly components of disaster risks and yet humanitarian agencies have traditionally dealt with issues of disaster in one way or the other. Agriculture is a very important sector in the Zimbabwean economy and as such the FTLRP should have been a turning point in the consolidation of Zimbabwe's economic and political position in SADC.

The vision for the FTLRP was to assist the landless and poor to become productive full scale farmers and be self-sufficient because this, no doubt, leads to sustainable development. Development scholars agree that for development to be sustainable, it begins with the uplifting of the grassroots people. The FTLRP should have, therefore, been an opportunity for all development partners to assist

the government in making sustainable development an achievable feat.

Due to the current economic and political climate in Zimbabwe, resources are still being sought; hence resources become a challenge as far as reduction of disaster risks is concerned. The existing resource gap in the country is, however, an opportunity for the existing countless non-governmental organizations to chip in and assist the Zimbabwean people. The communities in question should also take this as an opportunity to come up with initiatives for their own sustainable development. They need to understand the issue of disaster risks and learn how to avert disasters now and in the future rather than the same communities working actively to increase the incidences and likelihood of these disasters as is the case currently.

According to Fordham (2007), disasters are not discrete unfortunate events detached from everyday societal processes. They are constructed over time and are closely linked with the development of society. To substantially reduce disaster losses, it is important to increase focus on reducing the risk of future disasters. In an effort to explain, understand and reduce disaster risks, there have been, in the past, a tendency to want to reduce the problem of disaster into parts that fit into academic disciplines, professional sectors, organizational mandates and so on. The kind of fragmented problem solving approach is, instead, likely to be a major weakness as it clouds the bigger picture of risks. In other words, disaster risks are a complex issue characterised by many interdependent factors. It is, therefore, important for development agencies working in Vungu rural district to integrate their efforts in addressing this looming problem of disaster risks.

The Environmental Management Agency came into being through the Environmental Management Act, Chapter 20:27 (Government of Zimbabwe, 2002). The agency is mandated by the Act to exercise general supervision over the natural resources in use to ensure their sustainable utilization, as well as to monitor the state of the environment in the country. It is clear from its objectives that EMA is the most well-placed institution to lead in the reduction of disaster risks, especially in resettled areas. According to Mr. Berekwa of EMA, the organization is already doing a lot of work around DRR in newly resettled areas, including Vungu Rural District. The government, therefore, needs to provide this department with the necessary resources to carry out this mandate. Mr. Berekwa added that sometimes the agency does not have vehicles to visit the communities to follow up on what officials from EMA would have taught these communities. EMA carries out projects on environmental management and identifies issues that are peculiar to an area. EMA also designs programs that address problems such as the preservation of wetlands and management of woodlots

where there is a lot of deforestation.

EMA, however, needs to also promote community participation in order to effectively curb accumulation of disaster risks, especially in resettlement areas where practices that cause environmental degradation continue to be practiced. This means that EMA needs to encourage the use of indigenous knowledge systems in disaster management. The application of indigenous knowledge in the face of hazards and other threats is referred to as a ‘coping mechanism’ or ‘coping strategy’ (also sometimes known as an ‘adjustment’ mechanism or strategy and is, in some circumstances, called a ‘survival’ strategy). The choice of skills and resources to be applied varies according to the nature of the hazard threat, the capacities available to deal with it, and, to a variety of community and individual priorities that can change during the course of a disaster (Twigg, 2004).

Indigenous knowledge is wide-ranging. It includes technical expertise in seed selection and house-building, knowing where to find certain wild foods, economic knowledge of where to buy or sell essential items or find paid work, and knowledge of whom to call upon for assistance. People’s resources also include labor, land, tools, seeds, food stocks, animals, cash, jewelry and other items of value. These can be used up, bought, sold, or requested by calling upon obligations from family, kin, friends or neighbors, according to circumstances.

The enthusiasm for sophisticated technological methods of overcoming disasters has led specialists to overlook and undervalue the effectiveness of local coping strategies and technologies. Conventional wisdom in disaster management pays little attention to local knowledge as a basis for prevention and mitigation. Now, although there is a better appreciation in some quarters of the merits of local knowledge, it is still being underutilized by development agencies, in both government and NGO circles.

Coping strategies, as discussed above, have been studied most in the case of food security, drought, and famine, where disaster specialists have come to appreciate the value of these strategies in mitigating and averting disaster risks. This appreciation has come about in part from the recognition that agencies’ orthodox approaches in fighting famine have been less than fully effective in Africa in the past. Strategies for coping with other natural hazards have not received much attention, but there is a growing body of evidence to demonstrate the value of these strategies and the circumstances that affect their adoption.

CONCLUSION

The way in which the FTLRP was carried out was in a disorderly manner, with inadequate preparation and planning because it was a political move, rather than a development-oriented program for the people. The perception of disaster also seems not to be attached to the everyday activities that people are engaged in so much that farmers in ward 9 have distanced themselves from disaster risk. From the study, disaster risk is, no doubt, a complex and intertwined problem which cannot be addressed by solving one problem, such as giving food aid, educating the people, or passing legislation. It is clear that there is need for an integrated effort from all concerned agencies. The study has also proved that disasters and poverty are very much related hence the need to reduce disaster risks. If the Millennium Development Goals are to be achieved in Zimbabwe, the government as well as the people of Zimbabwe need to take a proactive role in reducing disaster risks because when disaster risks accumulate development moves in a negative direction at a time when all agencies are fighting for sustainable development. Government, development agencies, and other stakeholders need to encourage community participation in all projects that are implemented as well as utilization of the knowledge that the people have. There seems to be a lot of paperwork, but in reality, the people know nothing. Farmers also need to take responsibility for their own actions as they are the hub on which the economy relies on. They need to engage in policy formulation processes and become an integral part of development processes. Effective disaster management leads to sustainable development while while ineffective disaster management, on the other hand, results in the accumulation of disaster risks which can, in turn, lead to unnecessary suffering. Disaster risks should therefore be avoided at all costs and by all means. It is not just an old-fashioned adage to say that “Prevention is better than the cure”

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