Diversifying Livelihoods through Utilization of Wetlands:  

The case of Ward 14: Buhera

By
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ABSTRACT

Livelihood diversity is the major hedge against poverty for many rural people. Without livelihood diversity, rural people especially the rural poor are susceptible to erosion and catastrophe. They find themselves limited in terms of the accrued wellbeing derived from their livelihood strategies so they compensate this by spreading their livelihood strategies. However, utilization of wetland had been strongly been discouraged by colonial and post-colonial legislation conservation and people had been unable to use them. This research established that a lot could be derived from utilization of these wetlands. The study employed a multi-faceted approach where qualitative and quantitative research methodologies were employed. The study finds it necessary to encourage use of wetland but should be accompanied by strict enforcement of conservation laws and by-laws.

BACKGROUND

Wetlands play a pivotal role towards agricultural productivity. Traditional societies in Southern Africa Development Community had been cultivating wetlands intensively, even before the colonial era, forming the basis of their livelihoods. Writings and accounts by early European travellers bear the witness to the successful utilization of wetlands for crop production in this region (Frenken and Mharapara, 2002). Colonial administration brought with them western agricultural practices and gave little respect to the traditional farming practices, thereby relegating them as primitive and unorthodox
practices. Under traditional utilization, wetland management was holistic and it considers all factors that were necessary for sustainable utilization of these fragile lands (FAO, 2001). There is greater evidence that wetlands formed an important component in the livelihoods of indigenous communities. Traditional communities successfully grew a variety of crops including vegetables, cereals, and root crops in dambos, which served as a “safety net” during drought and contributed to food security. The inherited colonial policies on the utilization of wetlands had been regarded a “no go area”, constraining agricultural production. Prohibitive policies had discouraged research and development of wetlands. Smallholder farmers in Zimbabwe were shifted into marginal areas and denied indigenous people access to productive land resources, including wetland areas. The Natural Resources Act of 1975 and the Water Act of 1998, even though repealed by the Environmental Management Agency of 2000, have some sections that are still operative and are restricting cultivation of dambos. They are of the opinion that commercial cultivation of these fragile lands was the major causer of their degradation (Mharapara and Sheil, 2000). Even though legislations prohibit dambo cultivation, smallholders’ farmers continue to encroach into these ecosystems as the only source of livelihood. Whitlow (1990) argued that, wetland use is at an increasing rate due to increase in human population, which calls for a high food demand.

The broad definition of wetlands includes such areas as riverine, palustrines, and lacustrine, marine, and estuarine systems (Owen and Verberk, 1997). Large tracks of wetlands do exist in Zimbabwe, averaging 260,000 ha, but only about 30,000 hectares are cultivated for planting a variety of grain crops, maize, rice, and vegetables for example. However, wetlands are supporting about 60% of communal farmers (Chenje et al, 1998).

Food and Agricultural Organisation (FAO) has recognized the vast and immense potential contribution of wetlands and inland valleys in the improvement of food security. In 1987, FAO built up a network of Wetland Development and Management (WDM) through regional workshops organized in different countries. The central thrust of the regional initiative was to undertake actions for the conservation of natural resources and the adoption of improved methods of agricultural production. This stems from the recognition that, wetlands have the potential of bridging the gap in food supplies that had dominated the economic landscape of most developing countries (Frenken and Mharapara, 2002). Wetlands contribution towards betterment of livelihoods is fast gaining recognition globally; for example, the contribution of Gezira irrigation scheme in Sudan, Nile valley in Egypt, Oshanas in Namibia, and Lake Nyasa in Malawi, to mention but a few. Farmers of wetlands, even under disaster situations (like drought) get better harvests (Frenken and Mharapara, 2002).

Despite being ecologically fragile, systems wetlands are very important to the livelihoods of people, hence should be used in a way compatible with the maintenance of natural ecosystems (RAMSAR Convention on Wetlands,
1971). Wetlands provide socio-economic functions that should be fully taken into account when envisaging any intervention in such areas. At the community level, wetlands are a source of employment, livelihood, they reduce poverty, reduce prevalent of malnutrition diseases, improve social integration, and is one of the drivers of economic growth.

**STATEMENT OF THE PROBLEM**

Colonial methods of natural resource management had strongly discouraged the use of wetland for agricultural activities; this move had deprived most communities whose livelihoods had depended on these resources ever-since time immemorial. Wetlands were intensively utilized in Zimbabwe’s rural communities for survival and people were employing traditional methods to conserve it. Now with the advent of these new conservation methods, agricultural productivity remains low because people are no longer able to utilize these productive pieces of land. This paper is going to find out how people can diversify their livelihoods through the utilization of wetlands.

**Justification of the Study**

Buhera District is in agro-ecological region 4 which is characterized by low rainfall and is one of he areas most susceptible to severe droughts in Manicaland and in the country at large. This research established how people could buffer themselves against the vagrants of harsh environmental conditions through the use of wetland. The study is of great importance to the government, non-governmental organization and the community itself, as it highlighted the contributions of the wetlands to the livelihoods of people.

**Aim of the Study**

The major aim of the study is to assess the role played by wetlands in enhancing people’s livelihoods in Ward 14 Buhera.

**Objectives of the Study**

- To establish the role-played by wetlands widening people’s livelihoods options.
- To analyse people’s perception towards the contribution of wetlands to their livelihoods.
- To investigate the level of livelihood diversification generated from wetland utilization.
- To compare the well-being of those with access to wetland and those without.
THE THEORETICAL FRAMEWORK

General information on Wetlands
Wetlands were defined by RAMSAR Convention 1997 as areas of marsh, fen, and peat land. They are found were land is wet enough for a long time to be unfavourable for most plants that are suited to anaerobic soil conditions (IUCN, 2004). They are also associated with different water regimes, which ranges from permanently water logged areas, which remain saturated to the surface for the entire year, to temporarily water logged areas, which are flooded or saturated for only weeks. The also included permanent or temporary, static water, flowing, fresh, brackish or salty and also include areas of marine water. Their depth at lower tides usually does not exceed six metres (Matiza and Crafer, 1994). Wetlands types ranges from estuaries, marine, riverine, palustrine, and lacustrines.

Wetlands are fast diminishing on the planet but they are very vital for the livelihoods of people throughout the globe (Chira, 2001). In United States of America, the rate of wetland diminishing is very high. By 1950, it had lost one third of its 50,000-100,000 hectares of wetland and by 1985, about half of it had disappeared (Middleton, 2003). He also postulated that, globally the estimated rate of loss of wetlands was 35 acres per hour. Chenje (2000) argued that wetlands are regarded to as the lifeblood of both human activities and the environment. They enhance livelihoods because they are productive ecosystems that cater for different climatic conditions. Ecosystem is maintained by wetlands through their functions, which ensure active hydrological cycle, and its ability to promote vegetation growth helps in reducing global environmental problems, such as global warming caused by ozone layer depletion. Wetlands are, therefore, naturally and socio-economically functional (Frenken and Mharapara, 2002).

In Africa as a continent, wetlands play a significant role towards human survival, as it was noted that traditional societies have for centuries based their economic systems upon the natural rhythms of river regimes, especially in desert and semi-arid areas (Prosser, 1995). A wetland area in Africa encompasses dambos, swamps, machongo, fadama, vlei, base-fonds, dams, lakes, flood plains, and mangroves. Well-known wetlands of Africa include, Nile valley, Lake Victoria, Zambezi Valley, among others. As early as 500BC, most Egyptians were believed to depend on the flood areas of the Nile River through cultivation of fertile lands along the river. Chenje and Johnson (1996) also argued that, Zambezi valley is rich in fauna and flora, attracting more wild animals than anywhere else in Africa. Malawi is well known for fish production in Africa as a nutritional diet and major foreign currency earner. More so, dominant energy used in African countries is from water as hydropower.
SADC region is prone to drought and other natural disasters, but the presence of wetlands which remains moist even when other areas have since dried are an answer to the people’s survival through utilization of flood plains, palustrines, lacustrines, and estuarine systems, present in SADC (Frenken and Mharapara, 2002). Wetland areas formed an important component in livelihood strategies of indigenous people. Communities with access to wetlands are using them for grazing, hunting, gathering, and cultivation, as well as source of water. Reliable water and soil fertility allows peasants to take advantage of them resulting in increased food production and alleviation of poverty. In SADC countries, they had been utilized for energy generation; for example, Kariba for Zimbabwe and Zambia and Cabbora Bassa for Mozambique, to mention but a few. In Uganda, wetlands cover about 10% of the land area and provide an array of bio-physical, social, and economic benefits (IUCN, 2004).

Zimbabwe was once regarded as the breadbasket for Southern Africa, due to its vibrant agriculture activities in which much of its production was carried out in wetlands (Chenje, 2000). Climatic changes, which play leading to prevalence of droughts, create a situation whereby people over rely on wetlands for survival (Chenje and Johnson, 1996). In Zimbabwe since pre-colonial periods, communal farmers relied more on wetlands utilization for the survival through grazing their livestock, cultivation, water supply, fishing, and recreation. Wetlands also have an aesthetic value, like pools in Zambezi River, which are used for safari hunting and tourism. Tourism as the foreign currency generator in Zimbabwe is heavily backed by wetlands’ presence; for example, ponds in Hwange National Park also provide water for reserved animals (Chenje et al, 1998).

Dambo cultivation in Manicaland Province’s rural communities helped them to generate income, improve their nutritional levels, and support livestock life. Due to the presence of wetland areas, farmers extend their farming seasons. Mararike (1998) notes that, Ruti Dam in Manicaland allowed for the cultivation of winter crops in fertile dam shores due to alluvial deposits. Ruti dam is also important for fisheries, which contribute to people’s diet, and for income generation from selling of fish. Successful irrigation practices are also regarded as vital for the survival of people; the Birchenough irrigation scheme, for example, allows for the growing of crops all year round with good produce and it also allows harvesting of migrant birds.

Wetlands are multi-functional resources, which can be viewed as utilities, as habitants or as ecosystems (Fitzgibbon, 1998). The importance of wetlands has changed over time. In the distant past they were produced and reserved mainly for fossil fuel, upon which we depend on today. Wetlands along major rivers of the world nurtured great civilizations, e.g. the Tigris, Euphrates, Niger, and Nile rivers. They provided fishing and drinking water, pasture land and transport and, in some cases, they formed an important cultural history of early people and are regarded as major elements of mythology, art, and religion. Wetlands are important for physical, chemical,
and biological processes in the wetland ecosystem and valuable to society in general which is eking livelihoods from it. The multi-functional properties of wetlands generates direct, indirect, and bequest values. The direct value includes consumptive and non-consumptive values, while the indirect value includes its ecological functions, and bequest value refers to the value of passing the resource intact to future generations. It also refers to non-intrinsic values on the basis of culture, aesthetic heritage, and spiritual values. Wetlands are not wastelands, but are kidney of the landscape and biological supermarkets (IUCN, 2004).

**Importance of Wetlands to Plant and Animal Life**

Wetland resources generally support a good variety of other plants and animal products. Rural communities living alongside wetlands depend on wetlands biota. Wetland resources can, to some extent, buffer the effects of poverty. Poor rural communities living close to them can have access to a variety of free wetland resources, such as reeds, thatch grasses, timber, fish, and edible plant fruits. They can also use these resources for income generating projects, thereby giving them a livelihood. Some of the fruits collected from wetlands are healthier and this can lead to a better quality of life. Dry season’s flood plain grazing areas are vital for maintaining large cattle herds, e.g. the vertsols and fluvissols in Kafue River, which is supporting cattle grazing under the traditional system in Zambia where livestock farming is a key activity contributing a larger share of the economy (Frenken and Mharapara, 2002).

Wetlands are generally associated with grey soils as a result of anaerobic conditions. These anaerobic soils form iron oxides when drying out; these results in formation of mottles, which encourages movement of into the soil. The anaerobic conditions and the associated low temperatures also encourage the formation of organic matter, which makes these soils very productive agriculturally. China and Bangladesh are well known for the supports of agriculture, especially rice cultivation. According to a research carried out in Zambezi flood plains in Zambia, flood regimes of the Zambezi and other rivers have created four patterns of agriculture that comprise of seepage gardens, the Sitapa, the Mazulu, and the Lishango Gardens. Sitapa gardens are cropped with early maize and rice, Mazulu is cropped with maize. The Lishango gardens are made of pit derived from decomposed remains of plant growth, with the water berry as the dominant tree species around them (Chenje, 2000).

The cultivation of wetlands in East Africa is popular in Tanzania and research in the 1980’s was directed towards finding the means of increasing productivity; this has been said to be successful (Owen and Verberk, 1997). Wetland utilization is also dominant in Rwanda. The wetlands cover 10% of the cultivated land providing an estimated 20% of the agriculture output. It yields two harvests per year, as compared to the annual harvest in the dry land farming in the hills. In addition, the wetlands have become an integrated part of the production system by providing the hills with cuttings for the vegetative reproduced sweet potatoes at the beginning of wet season.
Zimbabwe’s communal farmers from the pre-colonial epoch depended on wetlands for their survival. Farmers build ridges in wetland, where they planted and grew upland crops successfully. Gardens (Mapindu), in Zimbabwe are concentrated in floodplains and pans where people grow vegetables, sugar cane, and harvest forest products, such as reeds, grasses, and sedges which are harvested and used in building materials and making baskets or fishing traps, among other handcrafts.

**Wetlands as Buffer against Droughts**

Southern Africa is characterized with recurrent droughts, which negatively impacted the ecology of wetland systems by lowering their water table and water holding capacity, hence reduction in wetlands size areas. Such occurrences can have negative impacts on human and animal water supply, as well as other wetland products. Despite these effects, wetlands remained portions of land that can sustain life, especially during droughts. People, wild animals, and also domestic animals converge on wetlands for water supply and food during dry periods. According to Chenje (2000), during a 1969-70 drought that affected Zimbabwe, 84% of the farmers with dambo fields where able to support their families.

Wetlands, such as Okavango and mangroves of Western Africa, have been used for agriculture for centuries. In 1992, Zimbabwe suffered the consequences of one of its worst droughts where the bulk of field crops failed and grazing of livestock were depleted. However, according to research done in Mutoko and Chihota communal areas, some farmers reported having some maize grain stocks from dambo (Gwere and Muchena, 1993). Farmers were also able to produce their own vegetables and some were sold to neighbours through utilization of wetlands. Thus, the farmers managed to buy other food requirements during that period and those who had gardens were cushioned against price increases in food, especially of maize and vegetables. This also reduced severe malnutrition that could have been worsened by drought. Sponges also help in recharging water tables and natural springs will continue to flow over long periods such that they provide water for wild animals and human beings during droughts.

**Wetlands Supporting Industry**

Apart from providing grazing and natural crop irrigation, wetlands are recognized throughout the world as valuable areas harbouring some of the most well documented civilizations. Indirectly, wetlands support industrial activities through energy and oil production, for example Lake Kariba, Power Spring of Nkotakota in Malawi, Langola hot spring in Kafue Zambia also produces thermal power.
The aesthetic value of wetlands enables income generation from tourists, which can be used, for national or regional development, e.g. the Zambezi basin wetland, which attracts many tourists to areas such as Victoria Falls and Zambezi delta. More so, due to the availability of water, wetlands also promote the fishing industry.

Despite their importance economically, wetlands all over the world are being damaged usually due to conflicts on access and ownership between various economic users. Wetlands that are Trans Boundary National Resources (TBNR) lead to conflicts on use and management between nations, for example the Zambezi Valley between Zambia and Zimbabwe.

Cultural Values of Wetlands
Different communities worldwide use wetlands as places for worshiping and performing traditional practises, and also religious rituals value wetlands. They form part of the cultural history of the early people, where they were central elements of the mythology, art, and religion. Traditional medicines are also available which integral parts of the African Society are. This is because of diverse plants supported by wetlands. Oshanas of Namibia is well known for provision of a range of medicinal plants and commercial trade in aromatic plant parts for traditional perfumes (Chenje and Johnson, 1996).

The Ecological Importance of Wetlands

*Water flow Regulation and nutrient retention*

Wetlands are regarded as both the kidney of the landscape and the biological supermarket mainly because they perform vital function in hydrological/circles and also because of its extensive food webs and rich biodiversity, (IUCN, 2004). Owen and Verbeek (1997) noted that, catchments areas, wetlands and streams play a very important role in the hydrology and conditioning soil of the land. Independently they are put in a variety of uses but in nature they operate as a unit. Wetlands provide a reliable and consistent source of water even in dry seasons. Moreso, due to the presence of vegetation over wetlands reduce flood peaks on areas down streams. Wetlands attenuate flood peaks and reduce erosion by lowering water velocity because of their broad and gentle surface (IUCN, 2004). The slow velocities allow accumulation of eroded materials during stay of water resulting in improved soil quality and fertility resulting in improved productivity. This makes wetlands particularly suitable for cultivation and farming.

Reduction in magnitude of floods keeps life safe downstream and also prevents siltation of rivers and other water reservoirs. It also prevents crop destruction. Fitzgibbon (1999) also argues that isolated wetlands are one hundred percent efficient in attenuating flood crests. The flow regulation component of wetlands is also important in the...
protection of infrastructure and community activities. Flow regulation property again translates into retention of water during the wet season and releases it into the rivers and streams during the dry season through base flow, providing an opportunity for infiltration of the water into ground water.

*Water Purification*

The water purification function of wetlands is derived from their flat nature, thick vegetation cover, and the presence of fine sediments and clay in the system. Chemical properties of clay and vegetation favour the trapping both floating and dissolved pollutants in water, thereby, removing pollutants in water. The removal pollutant can also be as a result of direct absorption by vegetation.

The quality of water discharged from the wetland reflects the quality of water entering it and the chemical transformations that occur in the wetland. The ability for a wetland to improve water quality depends on the rate of water flow through the wetland and its position in the drainage basin. Wetlands are found to be more effective at removing suspended solids, total phosphorous, and ammonia during high flow periods, but more effective at removing nitrates at low flows (Fitzgibbon, 1999). They are capable of transforming the chemical characteristics of emerging ground water.

Sediment or toxicant retention is another function of wetlands. This can be defined as the process by which suspended sediments and chemical contaminants, such as pesticide and heavy metals, absorbed to them are retained and deposited within the wetland. Deposition of sediments can ultimately lead to the removal of toxins through burial, chemical breakdown, or temporary assimilation in plant tissues depending on vegetation forms that are already present. Plants that are annuals and have high primary productivity will provide the maximum rate of nutrient uptake, though most of the nutrients will subsequently be released as the annual biomass decomposes (Fitzgibbon, 1999). Purified water from wetland reduces the prevalence of water borne disease among rural communities.

*Wetlands and the Harsh Climatic Changes*

Wetlands support large expanses of vegetation and as a result contribute to the alleviation of the adverse effects of climate change. The vegetative part of wetlands enhances water cycle effectiveness, which helps to induce good rainfall pattern. The good vegetative cover associated with wetlands also helps in mitigation of ozone layer depletion because vegetation absorbs gasses, such as carbon dioxide, that depletes the ozone layer. According to Matiza (1992), climate change is expected to increase the magnitude of extreme weather patterns for both droughts and floods, but all of these can be regulated by wetlands through flow regulation and retention of water.
Wetlands play a crucial role in guaranteeing livelihoods of rural communities who are already vulnerable to extreme weather events which have negative impacts to productivity.

Wetland Geology and Ecology

Wetlands are ecosystems, which vary in their morphologic, hydrologic, and pedologic characteristic so that each can be considered unique. According to IUCN (2004), the texture of the wetlands soils vary from sands to clay, while profiles range from underdeveloped to strongly developed factors (like mophogenesis, location, hydrologic regimes, lithologic origins, and climatic conditions) which over time accounts for the wide solid variation within and between wetlands. The soil textures and chemical characteristics are, however, similar to the soils of the surrounding upland and the parent material from which they are derived through wash, erosion, and deposition.

Wetlands are also subjected to wetness in varying proportions for different lengths of time during the year. Surface runoff and seepage of groundwater from catchments areas together with incidence precipitation contribute to the water budget of wetlands. The relative importance of the mentioned hydrological components varies between wetlands due to factors, such as rainfall, drainage, catchments characteristics, size, as well as the physical features of the wetland.

Wetlands are characterized and generally associated with high fertility. This is mainly due to organic matter decomposed at slower rates under anaerobic conditions forming black, mucky, and highly humic topsoil. According to Owen and Verbeek (1997), wetland soils tend to have very low pH, resulting in an important factor that needs to be considered in the cultivation of wetland.

Management of Wetlands

Various efforts have been implemented to protect wetlands from being degraded and damaged by human activities and to try to conserve and, in some cases, rehabilitate them; such exercises are sometimes very costly to accomplish. Regionally, SADC protocol on shared watercourses, which was first signed in 1998 and later revised in 2000, was aimed at promoting equitable and sustainable management and development of trans-boundary river basins. Some countries had formed commission or river authorities (e.g. Zambezi, Orange, Pungwe, Cunene, and Okavango) whose primary responsibility was to manage shared river basins. Efforts are being carried out at international, national, regional, as well as local levels to try to preserve these wetlands.

At the international level, various countries signed the RAMSAR Convention, committing them to take initiatives to conserve wetlands; some wetlands were designated as wetlands of international importance. The protocol encouraged local, regional, and national actions for sustainable utilization of wetlands. These initiatives are also
complemented by other conventions, such as Convention of Migratory Species, which encouraged conservation of Migratory bird species. The designation obliges the country to develop a wetland management plan, which ensures the conservation of these pieces of land. According to Frenken and Mharapara (2002), Botswana, Malawi, Tanzania, Zimbabwe, and Zambia have ratified the convention, but only Zambia has designated specific sites as RAMSAR sites.

Various countries have also established policies and institutions to promote wise use of wetlands. In Zimbabwe, for example, the Environmental Management Agency (EMA) (2000) Chapter 20:27 Subsection 113, provides for the protection of wetland as ecologically sensitive areas. It also puts restrictions on reclamation and draining of wetlands as declared by the Minister (Government of Zimbabwe, 2000). Such institutions help in the sustainable utilization of wetlands.

**Research Methodology**

A largely participatory approach was used in this study and it allowed an in-depth study into issues, as there was cross fertilization of ideas and chances for ground truthing. Both qualitative and quantitative research methodologies were employed and they included in-depth interviews with leaders of the community and government officials. These were supplemented by group discussions, which were used as ground truthing instruments. Questionnaires were used as the main quantitative data collecting tool and it was administered to the communities. It collected data on ways in which wetlands are utilized by the community. Data was analyzed using a computer package called Excel, with which graphs, tables, and pie charts were produced.

**RESEARCH FINDINGS**

**Socio-Demographic Profile of Respondents**

The sample consisted of 60 respondents with both sexes represented. Males constituted 68% while females constituted 32%. Their ages ranged from 20 to slightly above 51 years of age, representing a group which was economically active. The majority of the respondents (45%) were in the 31-40 age group, with the majority of them being males who constituted 30%. The age groups (20-30 and 51 and above) were the minority, constituting only a combined 10%, where each age group contributed an equal percentage. Table 1 (below) shows the age-sex profile of the respondents.

**Table 1: Age - Sex Distribution for the Respondents in Buhera District’s Ward 14**
### Table 1: Age Group Distribution of Respondents

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>MALES</th>
<th>FEMALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>28</td>
<td>5</td>
</tr>
<tr>
<td>31-40</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>41-50</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>51 and above</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>68</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

Source: Survey 2008

### Respondent’s Sources of Livelihoods

A variety of sources of livelihoods were identified, ranging from farming to non-farm enterprises. Rain-fed farming and wetland farming were the major sources of livelihoods of the people of ward 14 Buhera. Nearly every farmer practiced rain-fed farming, but others (75%) were supplementing this with wetland cultivation. Other sources of livelihoods included fishing, livestock rearing, woodcarving, and employment. Fishing and carving are least popular activities because they are a source of livelihood to only a total of 16% households. Lack of fishing equipments, such as boats and fishing nets, was the major constrain that is preventing people to venture into commercial fishing. Those who are practicing it were using dug-wood canoes, which are very risky, and most people are not willing to put their lives at such risks. The situation had been compounded by lack of affordability to hire or buy motorized boats, which are more convenient and safe. Other livelihood strategies identified include fishing, livestock rearing, woodcarving, and employment in the small recreational industry, which is attracting local tourist from Murambinda and Dorowa Mine. Nearly all livelihood strategies, accept for woodcarving and dry land farming, are based on wetlands. Table 2 (below) shows the sources of livelihoods of respondents in ward 14 Buhera.

### Table 2: Sources of Livelihoods of Respondents

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Land Farming</td>
<td>100</td>
</tr>
<tr>
<td>Wet land Farming</td>
<td>75</td>
</tr>
<tr>
<td>Fishing</td>
<td>8</td>
</tr>
<tr>
<td>Livestock</td>
<td>50</td>
</tr>
<tr>
<td>Carving</td>
<td>8</td>
</tr>
<tr>
<td>Employment</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Survey 2008

Total reliance on rain-fed farming, mainly by non-wetland users, had severely subjected farmers to the vagrants of harsh environmental conditions, such as droughts, and had resulted in severe food shortages. It made them susceptible to economic and social erosion. This forced them to over-rely on food handouts from non-governmental organization and other welfare organizations.
The production of those with access to wetlands is greatly enhanced by utilization of wetlands. They were managing to produce more food for their consumption, sale, and they were also growing more crop varieties than those relying on dry land farming only. The crops that they were growing included maize, which is a staple food, vegetables, beans, sugar cane, groundnuts, rice, and sorghum. Crops such as rice, potatoes, and sugar cane were grown exclusively; those with access grew crops such as sugar cane, rice, and potatoes on wetlands. They were also growing some crops, such as vegetables, through out the year and some were grown twice a year (maize, groundnuts, and beans) and all these crops were their major cash cows. Table 3 (below) shows the crops and their frequency throughout the year by farmers with access to wetlands.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Once a year</th>
<th>Twice a year</th>
<th>All year round</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Beans</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Groundnuts</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Survey 2008

Those with access to wetlands were managing to diversify their farming to grow not only more crops, but those crops that were fetching higher prices on the market (such as rice, sugar cane, potatoes, and beans). This enabled them to acquire more valued assets, such as drought power. Farming implements had further broadened their survival and income portfolios. They were now hiring out their drought power to those who do not have it, thereby, giving them other livelihood options. They were also the better producer of nearly all crops, accept for pumpkins. In maize for instance, higher producers were mainly those with access to wetlands and some produced as high as 12 tonnes in the 2007 agricultural season. Non-wetland users were struggling to achieve 4 tonnes production target. Of the 40% who produced 4 tonnes and below, 33% were producing less than 4 tonnes and of this, 20% produced between 1 and 2 tonnes. In a sharp contrast, those with access to wetlands, only 22% produced 4 tonnes and below and of this only 12% produced between 1 and 2 tonnes. They were managing to sell their crops to local grain marketing boards and surrounding institutions, such as schools and hospitals. Some farmers were managing to send their children to school with better schooling facilities and getting better results, enabling them to secure better jobs. This resulted in further diversification of household livelihoods. This diversification at household level is more secure than that of individual level, which is more tenable to those farmers who rely solely at dry-land farming. Table 4 (below) shows a comparison of 2007 maize production of those in the wetlands and those in dry farming.

<table>
<thead>
<tr>
<th>Production (tonnes)</th>
<th>Users wetland (%)</th>
<th>Non-wetland users (%)</th>
</tr>
</thead>
</table>

Table 4: Maize Production of Users and Non-User of Wetland
The financial status of those with access to wetlands confirms what has already been mentioned, that they are financially better off than those in the dry land farming. Their gross yearly incomes showed a sound financial background as compared to those in the dry farming. Some were managing to gross as much as Z$26,000,000.00 - an achievement that was not tenable to anyone in the dry land farming area. None of the farms in the wetlands grossed less than Z$15,000,000.00. However, the majority of non-wetland users managed to earn Z$15,000,000.00 and below with others managing as little as only $5,000,000.00 a year. Some of the farmers, especially those with better incomes, were investing on non-farm enterprises, such as selling some groceries (like sugar, salt, and cooking oil) which they were getting from cross border trading. All of these activities form a broadened livelihood portfolio, which is helping in reducing the problems of labour and consumptive smoothing.

**People’s Perceptions towards the Contribution of Wetlands to Their Livelihoods**

The general view, from both the users and non-users of wetlands, was that they are very important to people’s livelihoods and enhancement of food security and general wellbeing of human beings. More than 76% acknowledge the vital role that can be played by wetlands in the enhancement of general welfare through the growing of a variety of crops, some of which are better paying. Very few (only 7%) were of the view that they were of no significance, citing poor results (especially in seasons with excessive rains), and some were complaining that it was labour intensive, showing that they were contenting with the problem of labour smoothing. A minority (3%) were not sure whether they were of any significant importance to the lives of its users. Some people were saying these wetlands were the lifeline of their livestock during the dry season, as it is along these areas where they find green pastures in the dry season.

**Table 6: Impact of Wetland Use on People’s Livelihoods**

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very important</td>
<td>53</td>
</tr>
<tr>
<td>Important</td>
<td>23</td>
</tr>
<tr>
<td>Not important at all</td>
<td>7</td>
</tr>
<tr>
<td>Not sure</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: survey 2008
Some farmers recognize the vital role played by these wet lands in so far as they enabled them to acquire basic farming equipments, such as ploughs, livestock, and incomes for their upkeep. Some had managed to send their children to school with proceeds from these wetlands; an achievement which they say was not possible were they not utilizing these pieces of land. So wetlands had played a pivotal role in up-lifting the lives of those who had access to them.

CONCLUSION

Wetland utilization had managed to not only change the livelihoods of people who had access to them, but they emerged to be the cornerstone of their livelihoods, as this had been the major source of their food and income. They were the major sources of their products and some of the farmers are relying on them for more than 80% of their produce. People who had access to wetlands are by far better than those in dry-land farming, not only on their well-being but also even on the materials and assets they possess. They had managed to generate more livelihood options both of farm and non-farm enterprises. They were managing to grow more crop varieties and most of these crops were fetching very lucrative prices on the market. Crops such as rice, beans, and potatoes were the major money-spinners of which they were investing in their children’s education. These children have better educational qualification and are able to be employed in better paying jobs, this helped in diversifying household survival portfolios. The sales from crops (the majority being from wetlands) were also enabling them to buy farming implement (such as fertilizers, hybrid seeds, and pesticides) and these had enabled them to increase their production and get higher incomes through the sale of these crops. There is, however, need to employ stringent conservation measures to try and save these wetlands from extinction. The farmers need to observe stipulated conservation zones so as to make minimum disturbances in the ecosystem that serve these wetlands and avoid siltation of rivers, which will destroy these wetlands. Farmers need to maintain a 30 meter buffer strip between the area and the river system as stipulated by the Environmental Management Agency. This way the farmers are likely to live longer with their livelihoods and even pass on these livelihoods to generations to come.
REFERENCES


