Harnessing Abandoned Mining Water Bodies for Rural Livelihoods in Mapanzure Community of Zvishavane District, Zimbabwe

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ABSTRACT

Zimbabwe is experiencing water challenges especially in rural areas. The study investigated opportunities for harnessing water bodies left behind by open cast miners in Mapanzure community. The study collected qualitative data through interviews, observation and documentary reviews. The findings were that disused mining pits could be utilised for market gardening, bee keeping, tourism and fisheries to support rural industrialisation. However, local community lacked capital and authority to harness the water. The study recommends a business model that is based on the rural industrialisation aspiration of the 2nd National Development Strategy (NDS-2). Water and land rights should be bankable to enable the community to gear development projects.

Key Terms: Water, rural industrialisation, Mapanzure community

INTRODUCTION

Worldwide, over 1.4 million people faced acute food insecurity in mid-2025 and 2.3 billion people faced moderate food insecurity in 2024. Chief among the causes of food insecurity is conflict and climate-change induced droughts. The WHO (2019) claims that over 2.2 billion people lack access to water. In Africa, 62% of rural populations have no access to adequate water to support agriculture. Yet, access to water is a human right that cannot be abrogated (United Nations General Assembly 2010). The UNSDGs and the Constitution of Zimbabwe provide that water and food security are fundamental human rights.

The study focused on open cast mining water bodies in Mapanzure Community of Zvishavane district, Zimbabwe. Mapanzure is located in the Great Dyke. Known minerals in the dyke are; gold, platinum group metals (PGM), chrome, nickel, and asbestos. In Mapanzure area, chrome opencast mining is unprecedented[1]. It has deflowered the area by degrading arable land, destroying wetlands, and leaving behind massive unprotected open shafts and pits filled with water. In 2016, Chief Mapanzure expressed the situation as, "*Our livestock are being maimed and killed while people have been left with permanent injuries and others have died in those pits. We no longer have arable farmland because of open cast mining. As the owners of land we do not benefit anything* (Chronicle 25 January 2016).

Objectives of the Study

The research aim is to contribute solutions to poor livelihoods and poor delivery of public services[2] by the district council in line with Zimbabwe's Vision 2030[3], the Africa Agenda 2063 and the UN SDGs. The specific objective is to establish the challenges and opportunities for harvesting open cast mining water to support rural livelihoods in Mapanzure community of Zvishavane district.

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[1] *Open cast mining has left numerous deep open, unsecured and un-rehabilitated mining pits most of which are now water pools. Some of these mining pits have been left open for nearly 20 years (Sibanda in https://s3.amazonaws.com/rgi-documents/fedd75289f0c43d1436ee6d556a520f52d860448.pdf)*

[2] *Public service delivery is an expectation that local residents receive services that are effective, predictable, reliable and customer friendly.*

[3] *The Vision is to achieve upper middle- income status, leaving no one behind.*

Conceptual Framework

The study is based on a combination of integrated mine closure (IMC) and the community -centric (CC) frameworks. The former opines that end-use of water from mining pits must be integrated into the initial mine design and closure strategy. Monitoring and evaluation of mining operations would be required to avert the current situation in Mapanzure where abandoned and unsecured pits present social, economic and environmental dangers to the community. CC complements IMC by demanding that involving local communities in mine planning process not only aligns with local needs but offers tangible benefits such as income, social stability, and food security. Thus, Mapanzure would benefit more from the numerous open cast mining pits created in their area.

Research Method

The case study adopted qualitative method because (Flick 2005, Cresswell and Path 2017, Saunders, 2012) it provides rich descriptive explanations of the participants' attitudes, assessments, perceptions, dogmas and feelings over the subject under investigation. Thirty (30) people participated in the study. The sample included 14 females 16 males. Three (3) people living with disabilities participated in the study. Interviews and observation where the main data collection tools. Participants were not coerced to participate in the study. Focus group discussion were conducted with youths and villagers at drought relief food distribution centres.

Presentation of Findings and Discussion

The study collected insights from youths, women, men and people living with disabilities. Key participants included village heads, agricultural and extension officers. Below is a breakdown of the study participants.

Table 1: Distribution of Participants According to Ages

Age Group (years)	**Female**	**Male**	**Total**
Below 20	5	6	11
20-30	3	4	7
30-40	4	3	7
40-50	1	1	2
Over 50	1	2	3
Totals	**14**	**16**	**30**

Most (25 out of 30) participants were below 40 years of age. This observation augurs well with Mandela's claim that more young people have to be at the front line in development activities (Mandela, 1996). Young people are the future of every country's social and economic emancipation (Schusler, Davis-Manigaulte and Cutter-Mackenzie, 2017).

Harnessing Water in Disused Mining Pits

Various reasons were advanced for not harnessing the water to support local livelihoods. Chief among them were; constraining water rights, lack of capital, and land rights issues. Below is a presentation of how each of the factors above influence use of the abandoned water bodies.

Constraining Water and Land Rights

The study established that the villagers needed water rights before they could use the pits for livelihoods. In an interview with an extension officer (LPW17) revealed thus, "*The Zimbabwe Water Act of 1998 regards water as an economic good requiring permits for abstraction . . . the Zimbabwe National Water Authority (ZNWA) was mandated by Government to levy water users through ZNWA Catchment Councils and a user pays principle."* This requirement keeps the villagers away from the water bodies because of their low financial liquidity.

Five villagers indicated that the land around the pits did not belong to them, it belonged to the State. Participant LPW13 said, *"The land is being sold by village heads for USD2 500 per hectare. I would not risk*

*purchasing the land because it is being sold unla*wfully". The abandoned water bodies could be used for cultivating high value food crops such as rice, wheat and sesame for domestic and business purposes. The villagers could approach Chief Mapanzure for land allocation in terms of the Traditional Leaders Act (Chapter 29:17) read with Part III of the Communal Land Act *[Chapter 20:04]*.

Thus, the improving villagers' land and water rights would provide legal security for them to invest and gear pit water livelihoods options such as rural industrialisation. The study advocates an all-inclusive approach to Mapanzure's development using the water bodies.

Lack of capital

The residents lacked capital to abstract water from the pits. A female participant (LPW28) noted, *"The pits are deep, abstracting the water requires water pumping technology which we do not have."* The buying power of the villagers was low due to unemployment. Most of the young people operating in the mines were underpaid, earning an average of 180USD per month. In March 2025 the Total Consumption Poverty Line for a single person stood at ZWG1,260.52 (315USD) (www.zimstat.co.zw/wp-content/uploads/Macro/Prices/PDL/2025/Poverty%) and the food poverty line of a single person was ZWG864.20 (26.05USD). A breadwinner employed as a casual miner in Mapanzure area would not afford both food and non-food items, let alone buy a water abstraction system.

A disabled male youth (LPW02) asserted that harnessing of the water for livelihoods was suitable for able-bodied people. He says, "*I am blind and poor. I cannot afford a helper . . . and lack the capacity to use the water for livelihoods."* In Zimbabwe, poverty is worse among disabled people with over 70% of them experiencing multidimensional poverty exacerbated by unemployment, and health disparities, creating a vicious cycle where disability drives poverty and vice versa, especially in rural areas.

Lack of Technology

The participants were willing to use the water for livelihoods, especially for the elderly people and those living with disabilities. Harvesting the water would require abstraction technology. The same was beyond the reach of poor villagers. In March the cost of buying and installing a water abstraction system was ZWG 26 800 (670USD) and the average income per person was 180USD. A female villager (LPW11) lamented, *"The water could be used to irrigate horticulture gardens, support fisheries, and orchards. However, the mining dumps have to be levelled using heavy machinery which we cannot afford."*

The problem of un-reclaimed land was also echoed by Chief Mapanzure in 2016. He said, "Most of the prime farmland in Mapanzure has been taken over by the miners who leave unsecured pits once they are done with their mining activities." The study established that it costed 100USD per hour to hire a frontend loader, which was beyond their reach. The villagers had lost many of their livestock to january diseases (JD).

Adding value to fisheries, orchard and cropping require technology. Most participants (19) understood that value addition offers higher returns. An agriculture extension officer in the district indicated that value addition requires technology that the villagers cannot afford. For instance, setting up a fish canning factory would require a capital injection of more than 20 000USD while a fruit and vegetation drying machine would require approximately 4 500USD, excluding electricity.

When asked how lack of technology could be solved, 22 participants suggested that government could provide seed capital for solar-powered water abstraction projects in the area. Some of the villagers suggested enforcement of Environmental Management Act by compelling mining companies to secure/fence the water bodies and rehabilitate the land for the villagers to use it. In China, such activities reduced income poverty from 53 % in 1981 to 8% in 2001 and in Ghana a 24% reduction in rural income poverty was achieved in 15 years.

CONCLUSION AND RECOMMENDATIONS

Disused mining pits could support rural industrialisation initiatives in the villages in terms of the 2nd National Development Strategy. Fisheries, gardening, bee keeping, and tourism are some of the projects which could be

supported by the water bodies. the paper recommends offering the villagers secure bankable land holding rights. With such a facility, it would be easy for them to secure agriculture loans from banks. Seed capital and market guarantee could be secured through contract farming with local supermarkets and hotels. Tertiary education institutions should be compelled to assist the villagers with rural industrialisation skills under the Community Engagement pillar of Heritage Based Education 5.0.

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