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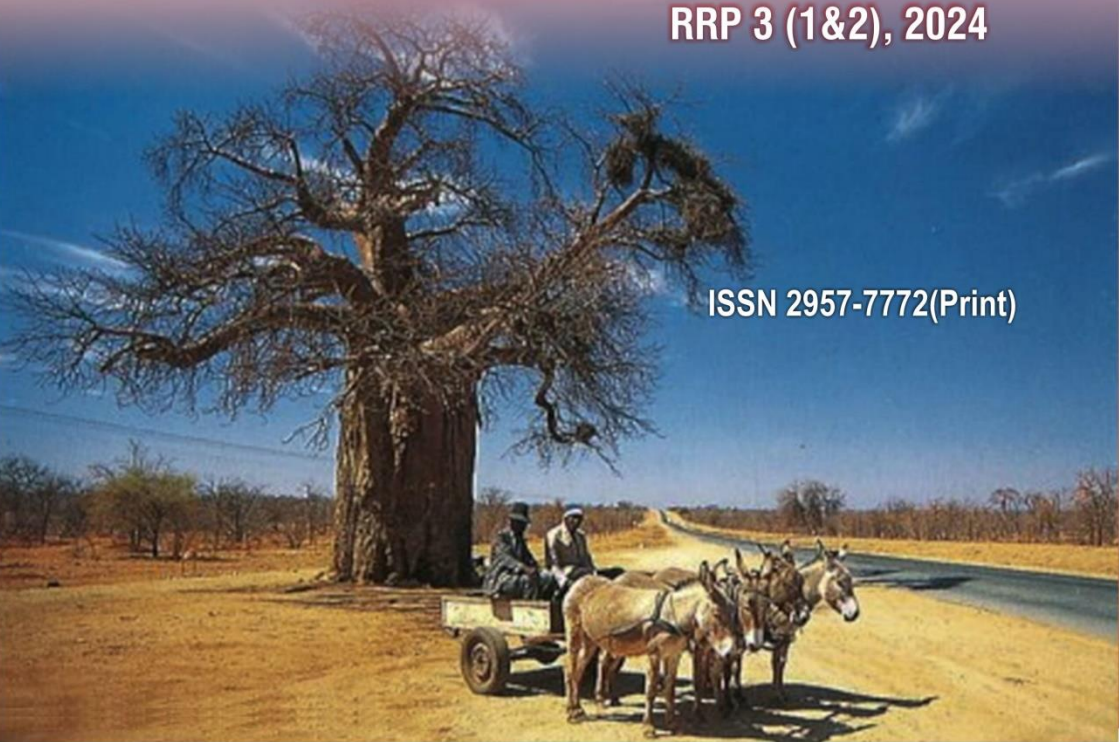
REVIEW OF Rural Resilience Praxis

RRP 3 (1&2), 2024

ISSN 2957-7772(Print)



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Published by the Zimbabwe Ezekiel Guti University Press
Stand No. 1901 Barrassie Rd,
Off Shamva Road
Box 350
Bindura, Zimbabwe

Typeset by Divine Graphics
Printed by Divine Graphics

SUBSCRIPTION AND RATES
Zimbabwe Ezekiel Guti University Press Office
Stand No. 1901 Barrassie Rd,
Off Shamva Road
Box 350
Bindura, Zimbabwe
Telephone: ++263 8 677 006 136 | +263 779 279 912
E-mail: zegupress@zegu.ac.zw
http://www.zegu.ac.zw/press

About the Journal

JOURNAL PURPOSE

The purpose of the *Review of Rural Resilience Praxis is* to provide a forum for disaster risk mitigation, adaptation, and preparedness.

CONTRIBUTION AND READERSHIP

Sociologists, demographers, psychologists, development experts, planners, social workers, social engineers, economists, among others, whose focus is on rural resilience.

JOURNAL SPECIFICATIONS

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SCOPE AND FOCUS

In as much as the urban economic trajectory is increasing by each day, the rural economy, especially in many developing countries, still comprises a great proportion of the extractive and accommodation industries. Retaining some spaces as rural areas remains critical given the integral role rural areas play in providing ecosystem services to both wildlife and humanity. In this light, rural resilience as practice beckons for critical studies especially in the face of the ever-threatening extreme weather events and climate change that then impact on the livelihoods and lifestyles of the rural communities. Review of Rural Resilience Praxis (RRRP) comes in as a platform for critical engagement by scholars, practitioners, and leaders as they seek to debate and proffer solutions to the rural sectors' sustainable growth trajectory, which is resilient to the vagaries of climate change. This journal is also aimed at championing the philosophy of the right to be rural. The issue of conviviality between the different constituencies of the sectors, compiled with the competing challenges of improving rural spaces while also making the conservation, and preservation debates matter is the hallmark of this platform of critical thinking and reflection. The journal is published bi-annually.

Guidelines for Authors for the Review of Rural Resilience Praxis

Articles must be original contributions, not previously published and should not be under consideration for publishing elsewhere.

Manuscript Submission: Articles submitted to the *Review of Rural Resilience Praxis* are reviewed using the double-blind peer review system. The author's name(s) must not be included in the main text or running heads and footers.

A total number of words: 5000-7000 words and set in 12-point font size width with 1.5 line spacing.
Language: British/UK English
Title: must capture the gist and scope of the article
Names of authors: beginning with the first name and ending with the surname
Affiliation of authors: must be footnoted, showing the department and institution or organisation.
Abstract: must be 200 words
Keywords: must be five or six containing words that are not in the title
Body: Where the authors are more than three use *et al.*
Italicise *et al.*, *ibid.*, words that are not English, not names of people or organisations, etc. When you use several authors confirming the same point, state the point and bracket them in one bracket and in ascending order of dates and alphabetically separated by semi-colon e.g. (Falkenmark, 1989, 1990; Reddy, 2002; Dagdeviren and Robertson, 2011; Jacobsen *et al.*, 2012).

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Disruption or Confusion? A Critical Analysis of the Mineral Explosion in Zimbabwe and its Implications on Rural Resilience Activities

FELIX MADYA[1] AND FREDDY CHIMBARI[2]

Abstract

This study critically examines the consequences of mineral explosion in the rural areas in Zimbabwe focusing on how they are affecting or engendering resilience in the basket of various economic activities undertaken in these areas. Rural areas mostly depend on their resilient livelihoods and livelihoods patterns or trajectories for their functionality and sustainability. The social and economic development of rural areas is tethered to the several livelihoods activities undertaken in these areas constitutive of sources of income for the people and constitute a vital element of rural development. Secondary data sources were used to gather data that was analysed and presented in this study in conjunction with mineral explosion and rural resilience in Zimbabwe. The results indicate that every dimension of rural resilience is affected by the explosion of minerals in the rural set-up thus causing rivals, conflicts and violence among the people. Mining on its own is an activity that requires space and happens within the environment thus disrupting the already existing livelihoods and various land uses in the rural areas and negatively affecting the natural environment. Government policies and strategies to govern mining and mining-related activities should not only focus on the benefits arising from mining but also consider the local communities and the ecology that is often ignored due to the greed of money thus the outbreak of misunderstanding and conflict among the people. It can be concluded that in as much as mineral explosion results in economic growth, rural resilience should not be forgotten, as it is an important pillar for the survival of the rural areas. The study recommends the adoption of mitigation measures as a solution for the creation of equilibrium between rural resilience and mineral explosion and mining activities.

Keywords: *ecology, economic, social, mining, sustainability, development, policy*

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INTRODUCTION

It is noted that rural systems are facing the dilemma of deterioration of livelihoods due to induced human disturbances, natural disasters, the adverse effects of climate change and rapid urbanisation. Mojarradi *et al*. (2016) have identified the development of rural areas as the development of the social and economic dimensions of these places. Development in rural areas is aimed at improving the living conditions of the people who reside in these areas (Mahon, Fahy and Roy 2018). Mukuzunga *et al*. (2021) argue that the idea of resilience has become the main discussion and a topic of international purchase recently due to the rise of adverse impacts of natural and human activities on the environment, economy and society. USAID (2005) assert that minerals constitute one of the scarce resources that have caused sustained violence among the communities. Rural resilience can be achieved within the purview of rural development that are human resources management, physical developments, and agricultural development among others (Gibson *et al.,* 2010). There is, thus, need for social, economic, environmental and political resilience in the rural areas and this is disturbed by the explosion of minerals in these areas causing a lot of havoc, confusion and conflict among the people. Therefore, there is need to explore and understand how the explosion of minerals has become a cause for distress in the rural areas of Zimbabwe.

Yazdi & Khaneiki (2007) argue that though mining has managed to provide for the necessary conditions for rural lives, it has also stripped the possibility of an environmentally- sustainable life and a healthy environment from the local people. Though natural disturbances are the effects influencing the stability of rural areas, human disturbances have become more prominent in affecting the resilience of rural areas due to their role in social, economic, cultural factors shaping the resilience of rural areas (Cinnéide, 2012). UNECA (2008) observes that the geographical and local position of majority of mines in the rural areas and the exploitation of mines influences the programme of rural development that is both positive and adverse for the local people and their surroundings.

The explosion of minerals is a reason for various human activities such as the exploitation and extraction of the minerals leading to several shocks on the environment, agriculture and other livelihoods and rural dynamics on which rural communities rely on for sustainability. Cui *et al*. (2023) argue that the development of rural policies, social connection and industrial developments, among other factors, are the cause of transformation of rural areas and the disturbances on the existing balance, thus affecting resilience efforts being made for these areas. The study is based on secondary data sources that

include journals, reports, policies and articles, among other secondary data sources. The information gathered from these sources was analysed and presented in support of the discourse being canvassed by this research. The finding indicates that the explosion of minerals is on its own a cause of many rivals and conflicts between the government, local communities and the mining companies in rural areas over land and land use changes that affect various existing activities and livelihoods. In as much as rural resilience is yet to be realised, mineral explosion has proved to be a complete destruction to its achievement causing a range of negative influence on the society, the economy and the ecology that are the main foundations of the rural areas. Mineral explosion and mining are more prioritized on the expense of rural life and its resilience thus leading to the rise of conflict and disorder in these areas. The study concludes that though there is economic expansion that comes with mining, an equilibrium should be reached in the process as a way of promoting rural resilience and proper management of these areas that are already suffering from various impacts of climate change and prolonged development. It is recommended that both social impact assessment and environmental assessment should be done before the extraction of the minerals to weigh the implications of the activities on the local areas.

CONCEPTUCAL FRAMEWORK

This section critically discussed the theoretical frameworks in which this study is premised. The idea of rural resilience was coined by Heijman *et al*. (2007) and is based on the concept that ecological, social and economic systems become increasingly entangled and interactions between these systems increase in intensity and scale. The concept of rural resilience is described as the capacity of rural regions to adapt to changing external circumstances in a way that maintains the standards of living ensuring a balance between the ecology, economy and social systems (Schouten *et al*., 2009). Wang *et al.* (2021) is of the view that rural resilience determines how rural systems respond to external challenges and whether they can maintain a satisfactory level of living. Heijman *et al*. (2007) argue that the resilience of rural areas is their capacity form renewal in a dynamic environment and provides a kind of buffer that protects the system from failure of management or policy action. The management and policy action of rural areas can be disturbed by both external and internal factors in which the explosion of minerals is an internal factor that can constitute to this disturbance. Carpenter *et al*. (2005) argue that the theory of resilience provides from a practical standpoint a conceptual basis for sustainability and sustainable development. Heijman *et al*. (2007) posit that rural resilience is in the ability of rural areas to simultaneously balance ecosystem, economic and cultural functions. This

study critically examines how explosion of minerals in rural areas in Zimbabwe affect the resilience of the social systems, ecological, economic, cultural, agricultural and political systems of the rural communities and their surroundings. It is argued that rural resilience tends to analyse the coping mechanism of the rural ecological, economic cultural, social and political systems to vulnerability. Haddaway *et al*. (2019) argue that the social and environmental implications of mining are underrepresented in the literature hence the focus of this study to explore through this topic and analyse how the arising issues can be addressed in the rural areas of Zimbabwe while promoting resilience.

Heijman *et al*. (2007) are of the view that rural resilience is premised on three pillars that are; are economy, ecology and culture and these are closely related as each one of them contribute to the other. In this case it is argued that the activities of mining in rural areas have an impact on the ecology, the economy and the culture of the people. There is a scholarship gap in literature on how and what is done to synthesise this void on how mining and mineral explosion in rural Zimbabwe has disturbed the peace of the communities, their livelihoods, political, environmental, social and economic wellbeing causing so much havoc and disorder. Therefore, this study intends to examine and proffer solutions on how rural resilience is significant for the development and management of rural areas and how this is threatened by extraction of mineral resources. It ought to explore on the negative implications of mineral explosion in rural areas that is often ignored by literature that focuses on the benefits of mining activities and as well suggest approaches that can be used to maintain the balance between the rural resilience and mining in the outcasts.

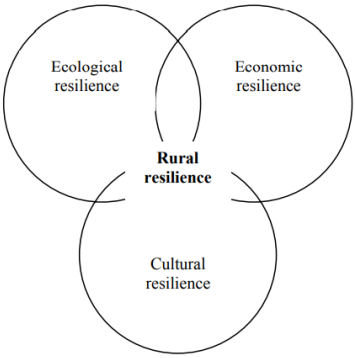

Figure 1: *The Concept of Rural Resilience* (Heijman *et al*., 2007)

LITERATURE REVIEW

This section critically reviews pertinent literature on the effects of mining on rural communities' resilience and adaptation strategies to shocks to livelihoods especially those with a nexus to the adverse effects of climate change. The notion of rural resilience should be embedded in all dimensions of rural areas' sustainable development. Wang *et al*. (2023) revealed that rural resilience has various attributes that include ecological resilience, economic resilience, social resilience, cultural resilience and government governance resilience. Heijman *et al*. (2007) is of the notion that rural resilience determines the degree to which a specific rural area can tolerate alterations before reorganising around a new set of structures and processes. Haung *et al*. (2018) observes that rural resilience tends to vary due to diverse economic development modes, government regulations and the differing degrees of land market development. Colding (2007) asserts that rural resilience is the capacity of rural regions to adapt to changing external circumstances in such a way that satisfy standards of living maintained. In as much as rural resilience seeks to adapt from the changes occurring within due to external and internal forces, mineral explosion and mining activities disturbs the recovering the rural areas.

Wang, Xu & Wei (2023) argue that rural development is facing issues of imbalance in most developing regions due to external shocks and internal demands that is affecting the landscape fragmentation. Haddaway *et al*. (2019) assert that in northern Norway, Finland, Sweden and Russia, the Sami people suffer from external forces that comes with the extraction of minerals and land rights due to mineral explosion and mining activities. Wang *et al*. (2023) argue that the process of resilience focuses on tree stages that are resistance, absorption and recovery of rural resilience development. Resilience is understood as a remedy for a disaster or something that has disturbed the way of doing things that are prevailing in a certain structure (Mukuzunga *et al*., 2021) argue that rural resilience shares many characteristics with social resilience and emphasizes the rural community's transformative capacities regarding the economic, demographic and social challenges caused by urbanisation. In as much as rural resilience try to for the already disturbed rural structures and the explosion of mineral disturbs the already happening process of rural restoration. Schouten *et al*. (2009) argue that the disturbance of one system of resilience affect the resilience of other systems, meaning that mining does not only affect the ecological system but also have influence on the economy and the social system thus causing conflict and disaster to the resilience of the rural regions. Stenbacka (2016) asserts that resilience is the community and municipal capacity to deal with economic and social

transformation, the ability to bounce back and change the prevailing circumstances. Therefore, rural resilience also has the capacity to deal with the transformation caused on the rural regions by the explosion of minerals and mining activities occurring. It can also be argued that the capacity of rural areas to deal with these changes is also affected by mining causing serve problems on the economy, society and ecology of the rural areas.

In terms of rural ecological resilience theoretical lens, it is argued that this is perceived through natural background characteristics of the region and the level of environmental management (Wang *et al*. 2023). Mukuzunga *et al*. (2021) opine that climate change and its effect on the globe is one of the major calls for resilience in recent decades. Heijman *et al*. (2007) is of the view that ecological resilience plays a vital role with its capacity to absorb shocks and disturbances while maintaining the same functions, structure and feedbacks. In this study we seek to identify how the explosion of minerals affect the synopsis of the management of rural physical environment and all its features that resilience tends to adapt and recover from. In Ghana, mining activities in the rural areas are associated with the destruction of forest reserves on that over ten thousands of people rely for their food and livelihoods (Abjei 2007).

The economic resilience of rural areas is conceptualised as the production capacity of different agricultural and non-agricultural economic activities, the income of residents and the level of human resources that is the employment rate. Heijman *et al*. (2007) argue that agriculture is by far the most important activity in rural areas consisting of primary agricultural products that include livestock, fibre and food. This are directly compromised by the explosion of mineral and their activities are contradictory to mining activities as they both require land thus affecting the resilience of the rural areas whose economy is mostly based on agriculture. Wang *et al*. (2023) specify that the production capacity of a rural area consist of its production capital inputs, diversification of economic activities and industrial specialisation that can be argued to be promoted by the explosion of minerals in the rural areas but at the same time the vice versa thus causing various imbalances on rural economy as it disturbs agriculture that is the basis of rural economy. Wang *et al*. (2023) are of the view that that economic resilience is grounded on the capacity of the agricultural labour productivity, grain comprehensive production capacity and the ratio of agricultural processing output that all can be affected by the explosion of minerals in rural area that may attract labour leading to shortage of labour for the agricultural industry. It is revealed that resilience frameworks are developed to bring together various components such as livelihoods,

nutrition and risk reduction concerns under resilience lens as a way of sustaining livelihoods in various areas (United Nations Food Agriculture Organisation, 2014). The economy of rural areas is not only sustained by agriculture but also other various livelihoods including tourism, crafting and artisan among others (Heijman *et al*., 2007).

Social resilience is achieved through the success of several livelihoods, their protection and facility service conditions, social investment and connection (Wang *et al.,* 2023). Medical facilities, sanitation, water supply and infrastructure development mark the social amenities of the rural areas that are crucial and that rural resilience intend to facilitate their availability for the rural people. The explosion of minerals in the rural areas raises high risk for the health of the people especially those involved in illegal mining. Abjei (2007) observes that the use of toxic substances causes adverse effects on the environment and healthy issues on the residents in the mining communities due to the contamination of the air and water sources. Apart from that rural resilience is captured in the ability to promote cultural resilience that is reflected by the provision of cultural public facilities, civility and cohesiveness social networks, level of education and government's financial investment in education and culture (Wang *et al*., 2023). USAID (2005) argues that through the history, minerals have frequently been associated with conflict and as well used to finance these conflicts as the greed to control valuable minerals have led to murder, violence and banditry.

USAID (2005) revealed that mineral explosion in Sierra Leone has caused civil war due to conflict arising among the people. Haddaway *et al*. (2019) posit that mining activities that includes prospecting, exploration, construction, operations, maintenance and expansion among others have both positive and adverse impacts on the social and environmental systems that are both direct and indirect. Zimbabwe Economic Policy Analysis and Research Unit (ZEPARU) (2019) argue that rural communities are disturbed by the exploitation of minerals and large-scale investment projects or wildlife conflicts that often results in economic, political and social pressures that the community must deal with. ACBF (2015) argue that the growth in mineral and natural resources exploitation mostly affect the marginalize communities that are the rural areas in which the resources are located. The resilience of governance is worked on in rural areas and is believed to be determined by the level of government governance input and management of these regions with the intention of neutralising the disparities between the urban and rural areas through the establishment of effective systems.

The challenges posed by various activities occurring in rural areas pose challenges to the management and influence the future of these areas. Hence the requirement for rural resilience that is referred to as the capacity of rural regions to adopt changing external circumstances in a way that provides satisfactory living standards for the people (Schounten *et al*., 2009). However, the activities of mining and the discovery and exploration of new minerals and mining sites have adversely affected the ability of rural resilience to maintain the standards of living of its people as the change in land use normally results in their displacement. The change in land use arising from mining and mineral explosion has disturbed resilience practices in the rural areas due to its adverse impacts on the environment including erosion, deforestation, the contamination of local streams and wetlands thus disturbing the ecological system and its resilience (Sonter *et al*., 2014). Navarro *et al*. (2008) support this view as they argue that soil and water contamination are some of the environmental effects of mining in the rural areas that are negative.

The change in land use is seen not to only affect the environment but also the cause of conflicts between the people (Haddaway *et al*., 2019). Schouten *et al*. (2009) argue that changes in ecosystem conditions is one of the problems faced by rural areas that also lead to socio-economic impacts such as food and financial crisis. Abjei (2007) argue that the introduction of mining prior to the explosion of minerals in the rural areas and the change in land use results in the displacement of the indigenes from their ancestral and communal land where their livelihoods are rooted. Disturbances are noted on crop production and other farming activities that are the major source of income thus leading to the increase of unemployment rate among the rural communities and automatically lowering the standards of living of the people. Rural resilience is adversely impacted as mining does not offer enough jobs for the people as it recruits external people who have more skills in the job thus affecting several people relying on agriculture for their employment (Abjei, 2007). This does not only affect the economic status of rural areas but also the social standards of the local people.

Mineral explosion and mining activities have social implications that are negative to the social well-being of the people in the rural areas such as the effects on the health of the people due to adhesive explosions in the mining surroundings, the effect on the traditional practices of indigenous citizens (Haddaway *et al*., 2019). USAID (2005) argue that the issue of compensation and relocation of people is the root cause of conflict and disputes as in some cases the occupants of the land are given less compensation and are excluded from the decision-making process thus leading to decisions that threaten their

livelihoods. Schouten *et al*. (2009) assert that rural resilience simply describe how rural areas are affected by external shocks and how it influences system dynamics. Mineral explosion can be noted to be one of the shocks that attract external forces to act in rural areas and this affect the general `setup of rural areas and measures for its resilience hence the need to think and act with this new change in mind. It is argued that the explosion of minerals results in conflict over land claims and the access to the resources (USAID, 2005). This can be noted among the communities due to clashes arising from land-uses as land particularly zoned for other uses such as agriculture is acquired from the current users for mining activities to commence. Zimbabwe Economic Policy Analysis and Research Unit. (2019) assert that complex resource conflicts are witnessed in some African countries and negative results are identified following the discovery of mineral resources.

Rural areas in Zimbabwe are faced with compounding and entangled challenges that require resilience. Schouten *et al*. (2009) argue that rural areas are confronted with a spectrum of changes that have multiple characters. Hollings (1973) defines resilience as the ability of a system to resist, absorb, adapt and recover from disturbances that occur slowly or rapidly and it is a dynamic system property. Mukuzunga *et al*. (2021) define resilience as the ability to bounce back after a shock or stress and simply a way of adapting to the events of life. Meerow *et al*. (2015) argue that resilience is the ability to adapt to change and quickly transform systems that limit current and future adaptive capacity. Rural resilience is argued to be the ability of rural areas as a dynamic social-ecological system to adapt to changing external environments to maintain a satisfactory standard of living, emphasizing that rural systems are persistent, adaptive and transformative (Huang *et al*., 2018).

Heijiman *et al*. (2007) describe rural resilience as the capacity of a rural region to adapt to changing external circumstances in such a way that a satisfactory standard of living is maintained. Wang *et al*. (2021) argue that rural resilience determines how rural systems respond to external challenges and becomes a developmental marker of ascertaining whether they can maintain a satisfactory level of living. Wang *et al*. (2023) argues that rural resilience has become a new perspective for studying rural problems that provides an effective way of assessing the current situation and the potential for development. Thus, in as much as rural resilience is being focused on, mineral explosion is identified as a barrier to the achievement of resilient rural areas. Rural livelihoods are based on agriculture and the lives of rural people radiate around agricultural development. Wang et al. (2023) argue that rural resilience focuses on agricultural, ecological and social factors that are closely

related to agricultural development. It is argued that rural disturbances occur in form such as natural disturbances, socioeconomic factors and rural external and internal assistance dynamics (Ge *et al*., 2022; Rathi *et al*., 2022).

At a local scale, Zimbabwe is of the richest countries in terms of natural resources endowment. Zimbabwe Economic Policy Analysis and Research Unit (2019) argue that Zimbabwe is richly endowed with both renewable and non-renewable resources such as land, wildlife, forest, minerals and gas among others. It is noted that mining is identified as one of the pillars to support the vision of the government of making Zimbabwe and upper middle-income economy by 2030 and this has increased mineral exploration and the opening and revitalization of old mines around the country (Government of Zimbabwe, 2018). ZEPARU (2019) argue that mining is one of the main economic sectors in Zimbabwe that is contributing 8.6% to the Gross Domestic Product and 60% of the exports and numerous foreign direct investment opportunities. However, though various benefits are noted mining is causing a lot of tension in the rural areas as the opening of new and old mines is associated by risks that disturb rural resilience. In terms of rural resilience, several measures, strategies, policies and legal frameworks are put forward to govern rural growth and development. ZEPARU (2019) argue that several strategies are used for rural ecological resilience that includes, National Biodiversity Strategy and Action Plan, Community Based Natural Resources Management, Reducing Emissions from Deforestation and Forest Degradation (REDD+) programmes, Ecosystem Conservation programme and Afforestation and Reforestation programmes among others as a way of restoring the ecosystem that is being damaged due to activities such as mining, agriculture, change of land use and establishment of new settlements (FAO 2015; ZEPARU 2019). Among the legislations that aim at promoting rural resilience through the conservation of the natural environment is the National constitution, the Environmental Management Act, Rural Councils Act, the Communal Lands Act and the Forest Act among others (Government of Zimbabwe, 2016).

METHODOLOGY

Secondary data sources were reviewed to gather data presented and analysed in this study. Already existing files and studies were the major sources of information obtained for the examination of how mineral explosion has disrupted rural resilience and caused havoc, conflict and disorder in these areas. Documents including journal articles, reports, policies, legal frameworks and strategies were reviewed to assess the information necessary for this study. As the study seeks to understand the impacts of mineral

explosion and the following mining activities in rural areas, it seeks to ascertain the views of the people involved hence the reason for reviewing the archives to explore data of the same scenarios from previous studies. The rural areas of Zimbabwe were taken as the major area of expertise and several case studies were obtained as a way of articulating the general observances of the study. Qualitative research design was used for the purpose of this research and a thematic approach to data presentation was done.

FINDINGS

Dropping from school by rural students, lowering the literacy rate of the rural people, among other adverse effects of unsustainable mining activities affecting the agency and resilience of rural communities. Marume (2023) argue that mining has become a haven for the less educated people who cannot compete in formal employment hence mining and mineral explosion is becoming a resilient measure for the unemployed and uneducated rural population. The United Nations Population Fund (2022) observe that 62% of the youths below 25 years are active in artisanal mining sector in Zimbabwe and have joined what is known as '*Chikorokoza'.* Gwasira (2022) support this view as they argue that 67% of the youths are directly involved in the mining sector through artisanal mining. Zenda (2022) revealed that given the devastating impacts of climate change on agriculture in rural areas, the explosion of minerals has come as a coping mechanism through the creation of jobs in the artisanal mining sector. Chigumira (2018) concurs with this view through the argument that artisanal mining provides employment option and a way of diversifying income streams for rural population. Madebwe *et al*. (2011) argue that the displacement of people in Marange to give way for the mining of diamonds has affected school children leading to others dropping out of school. It was revealed that the moving of households has caused crisis on pupils as they must adjust to new learning and teaching environments that also comes with additional cost on the parents as they must buy new uniforms and stationery (Madebwe *et al*., 2011).

The results claim that mineral explosion has an adverse impact on ecological resilience of rural areas. Mining in Zimbabwe have adverse results on the conservation of the forest resources and result in ecological shocks that induce climate change, pollution and the loss of critical biodiversity and critical ecological ecosystems. Food Agriculture Organisation (FAO) (2015) claims that mining is one of the activities that have contributed to the 36.6% loss in forest area in Zimbabwe between 1990 and 2015. This does not only affect the ecological resilience of the rural areas but leads to the disturbance of the sustainability of rural livelihoods that rely on forests for their success thus

causing social, economic and environmental challenges (ZEPARU 2019). It is revealed that the increase in mining activities prior to the recent discoveries of diamonds, gold, coal and chrome has led to severe clearance of biomass for the establishment of new mines and the expansion of old mines (ZEPARU, 2019).

The disturbance of rural ecology due to mining and the explosion of minerals have become more aggressive as millions of people countrywide are engaged in illegal mining alone the rivers, in which there is the clearance of trees, digging of river a bed that's leading to soil erosion, river siltation and landslides (Government of Zimbabwe, 2018). Alrumman vd (2016) outline some of the rivers that are contaminated and stilled through gold panning including Mutare, Mazoe, Odzi and Save rivers. Musemwa (2019) argue that there is poor legislation in Zimbabwe governing mining dumps and waste disposal that results in disposal of mining wastes in water bodies leading to the contamination of water that is usually used by smallholder farmers for irrigation downstream. Apart from that, it is revealed that miners use harmful chemicals such as mercury that destroys both land and water and biodiversity as well (Magidi-Hlungwane, 2023).

The rural areas are dependent on agriculture for their food security. However, Marume (2023) observes that the nation is facing serious food security challenges that are because of reduction in production emanating from the increase of artisanal mining activities. It is observed that the rural economy based on agriculture in Zimbabwe employs 70 % of the total population in the smallholder agriculture sector while mining only employ 7.1 % (World Bank, 2019; Chari and Ngcamu, 2021).

The shrinking in agricultural land due to preference being given to mining has led to 7.7 million people to be food insecure around the country. This indicate how mining affect the rural resilience as it demands lots of land that is meant for agriculture and on the other side living a bigger percent of the total rural population unemployed. Madebwe *et al.* (2011) revealed that in Chiadzwa, the explosion of diamond had a shock on the food security of the displaced people as they were evicted before the harvesting period abandoning their produce in the fields. Clapvd (2022) argue that the taking control of land from rural farmers has left the farmers with no control over stable food supplies, production and access. Marume (2023) observe that there is an unprecedented growth in artisanal and small-scale mining in rural areas resulting in a shift from and agro-based rural economy to mineral exploitation. Mkodzongi-

Spiegel (2019) notes anecdotal evidence that suggest that the rapid increase of small-scale miners has increased food insecurity in Zimbabwe.

The African Centre for Economic Transformation, Ford Foundation (2017) revealed that the competition for capital, land, labour and water between mining and agriculture in rural areas found agriculture losing to mining thus leading to the effects on food security and agricultural livelihoods in the rural places. In as much mineral explosion is identified to disturb the food basket in Zimbabwe, it is also noted that it adds to food security for various households. Marume (2023) observe that food production are compromised due to the conversion of traditionally fertile arable land into mining space. Mkodzongi-Spiegel (2020) argues that in Mhondoro-Ngezi, artisanal miners have managed to contribute to the raising of capital for the support of households' farming projects and other businesses that brings food on their tables. Marume (2023) argue that mineral explosion and the increase in artisanal mining is beneficial to rural resilience as it brings about diversification and leads to food security regardless of the reduced agricultural activities that are also suffocating from the effects of climate change hence mining has become a relief for rural livelihoods. In other words, it is noted that mineral explosion is adding to food security by injecting capital into the farming sector and this increase the chances of high production. Though mining and mineral explosion is the major cause of the disturbances of agricultural livelihoods for the rural population, the seasonal food shortages occurring in rural areas is being relieved by the rewards of mining. Madebwe *et al.* (2011) argue that the explosion of diamonds in Marange has resulted in the unemployment of several people in the agricultural sector due to the occupation of their land while in the upcoming mining activities they could not fit in as skilled labour was required due to lack of required training and skills to make them hired.

Mineral explosion and mining are identified as the main causes of conflict on the available legislations that governs development in Zimbabwe. TPF (2018) note that there are conflicts in the national legislation that the forest plantations are gapping with. High priority is being given to mining that is one of the most vital pillars for economic growth on the exposure of the environment thus conflicting interests of rural resilience and national goals and expectations. Mudebwe *et al.* (2011) argue that rural communities bear a disproportionate burden of the cost of mining development projects. This is support by Marume (2023) who assert that the situation among rural areas have worsened due to the land tenure system that give the president sole custodian of and with authority over communal land. Musemwa (2019) argue that the inadequacy of the outdated land tenure system is the weapon that is

being used to politically backup miners and disempower communal and indigenous people thus living them with no power to defend their rights to the rural land. ZEPARU (2019) argue that the Mines and Minerals Act is against the Forest Act where the former confers the rights to the miners over the forester thus leading to deforestation and the loss of biodiversity and the regression of the ecology in the rural vulnerable areas. Marume (2023) revealed that the displacement in Insiza and Shurugwi are a result of weak institutions, legislation and lack of enforcement of mining and environmental regulations and laws. ZEPARU (2019) also argue that the Ministry of Mines is offering Special Grants in Gazetted Forests as evidenced by gold panning activities are being conducted in gazetted forests such as Tarka and Maswera Forests.

Apart from that, conflict of land use is noted also in protected areas like Hwange and Mana Pools National Parks where mineral exploration conflicts with the conservancies in which coal and coal-bed methane are being exploited (ZEPARU 2019). Mkodzongi-Spiegel (2021) asserts that the involvement of local and foreign economically and politically powerful players results in challenges in the enforcement of laws and regulations. Chakauya *et al*. (2023) revealed that the explosion of gold is a threat to biodiversity within protected areas of Chewore Safari Area that is being affected by illegal activities of artisanal miners. Gandiwa and Gandiwa (2012) argue that the activities of artisanal miners in Chiwore Safari Area are associated with adverse effects that compromise the sustainable conservation of wildlife and the natural resources in the area through the clearance of vegetation and pollution of the ground, water and air. Chakauya *et al*. (2023) revealed that there is the destruction of soil profile and vegetation in Chewore Safari Area due to illegal gold mining. Besides that, it is noted that unclaimed pits formed by miners in this area have caused much danger to wildlife and humans and the bare soils are vulnerable to erosion and siltation that affect the general water-holding capacities of rivers and streams in the area (Chakauya *et al*., 2023).

Luckeneder (2021) argue that mining is associated with land usage, and it precludes several human uses of land that lead to conflicting interests among different stakeholders. Marume (2023) argue that the influx of small-scale miners and artisanal miners in many rural locales have caused land use conflict between miners and smallholder farmers that has turned into violence. Marume (2023) argue that violence are perpetrated by machete-wielding gangs leading to the invasion of farmland in Mashonaland Central Province and Midlands Province, thus disturbing the peace and farming activities in

these areas. Oxfarm (2013) buttress this view as they argue that severe negative influence on agricultural production are noted to be a result of detrimental externalities arising from artisanal mining. In Chiadzwa, conflict arouse and noted through the compensation of the people where the minority argue that village heads were involved in corruption with the mine officials resulting in them getting bigger houses containing 5bedrooms while others were given 3bedroomed houses (Madebwe *et al.*, 2011). It is revealed that the lack of political and financial power results in rural households' suppression as they fail to lob mine officials (Madebwe, 2011). Chari (2021) revealed that smallholder famers without political or financial stamina are being forced to dislodge due to the violent nature of miners. Madebwe *et al*. (2011) argue that the Chiadzwa people lacked civil societies, and this made it difficult for them to mobilise a critical mass of people to challenge their displacement for the establishment of the Chiadzwa Diamond Mine in Manicaland province.

The results indicate that Zimbabwe is endowed with about 60 known minerals that can be sustainably utilised for the growth of the economy of the contour leading to the transformation of the lives of the people. It is argued that regardless of the explosion of minerals in the rural areas, most of the rural residents are not fully benefiting from them and there is need for the empowerment of these marginalised communities to allow them to benefit from the minerals (Economic Empowerment Act (Chapter 14:33) of 2007.

Garret (2007) argues that poor smallholder farmers have limited chances to fight the miners legally due to the involvement of political and economic heavyweights. The results stipulate a lack of stakeholder engagement and the underrepresentation of the view of the people residing in the rural areas. However, it is noted that though efforts are made to allow rural residents to benefit from the minerals through the introduction of legal framework through the introduction of the Economic Empowerment Act (2007), to guide the exploitation of minerals, less on the enforcement side are done. There is lack of transparency and accountability thus leading to the destruction of rural resilience and social support of the people whose living conditions continues to deteriorate due to the loss of the farming land to mining. ZEPARU (2019) revealed several community share ownership Trusts in Zimbabwe such as the Tongogara Community Share Ownership Trust, the Gwanda Community Share Ownership Trust, Mimosa-Zvishavane Community Share Ownership Trust, Mhondoro/Ngezi/Zvimba Community Share Ownership Trust,

Masvingo and Marange Community Share Ownership Trusts in which the participation of the local communities in the management and distribution of economic benefits arising from the exploitation of minerals are aimed to be achieved.

However, the Community Share Ownership Scheme meant to empower local indigenous communities that are meant to benefit 10% shareholding of mining operations in the local areas lacks proper enforcement and tend to remain on paper than being incorporated into practice (ZEPARU, 2019). Madebwe *et al*. (2011) revealed that the Mbada Diamond Mining Company did not build schools and health facilities for the resettlement areas leading to the people walking more than 8 km to get social amenities and services in Marange area.

Involuntary migration is the other cause of mineral explosion in rural areas that forces people to displace their homes to other areas. Mudebwe *et al*. (2011) argue that displacement is an unintended negative externality of mining development. In Chiadzwa, the explosion of diamonds has resulted in the occupation of 66 640 hectares of communal land by the Mbada diamond mining company (Mtisi *et al*., 2011). Due to the explosion diamonds in Chiadzwa, 600 households were displaced giving way to the mining activities in Marange rural area in Manicaland Province (Katsaura, 2010).

DISCUSSION

Though Zimbabwe has sound legislation and policy frameworks to govern various activities occurring in its urban and rural areas, there is lack of enforcement of these legislative and policy frameworks resulting in mismanagement and adverse results that influence resilience and sustainability. ZEPARU (2019) argues that though Zimbabwe has excellent legal framework lack enforcement and various conflicts arising. Though mineral explosion is argued to have contributed to the abandonment of agriculture, that is the economic mainstay of rural livelihoods, it is argued that smallholder farmers are participating in mining during non-agricultural seasons thus leading to the broadening of their income streams and the reduction of poverty in their households (Marume, 2023). In other words, there is less destruction being caused by mining s it is an alternative for income generation in off-farming seasons thus leading to the development of rural economies, improvement of standards of living and employment generation. The conflicting of interest is the reason for the disruption of rural resilience by mining that is meant to develop rural economies and at the same time promote social development and ecological sustainability. Though the local communities are meant to benefit from mineral explosion and their

exploitation through the development of infrastructure such as roads, hospitals, schools, commercial centres and sanitation facilities among others, underdevelopment continues to increase, and destruction of rural ecology and social amenities is threatened by mineral explosion.

CONCLUSION AND RECOMMENDATIONS

The study concludes that though there is economic expansion that comes with mining, an equilibrium anchored in sustainable development should be reached in the process as a way of promoting rural resilience and proper management of these areas that are already suffering from various impacts of climate change and prolonged developmental shocks. In as much as mineral explosion results in economic growth, rural resilience should not be forgotten as it is an important pillar for the survival of the rural areas. It is recommended that both social impact assessment and environmental assessment should be done before the extraction of the minerals to weigh the implications of the activities on the local areas. The study recommends the adoption of mitigation measures as a solution for the creation of equilibrium and sustainability between rural resilience and mineral explosion and mining activities. The introduction of mitigation measure is one way of promoting a balance between mining activities and rural resilience in Zimbabwe. The study recommends the revision of the legal framework that governs minerals in Zimbabwe, taking into consideration the rights of the people and the idea of rural resilience. The study proposes the devolution of power from the central government to enable the management of minerals and mining at a local scale to allow the community to benefit from these resources and promote local regional development.

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