

The socio-economic impacts of mine closure on local communities: evidence from Mpumalanga Province in South Africa

Pakama Q. Siyongwana · Ayanda Shabalala

Published online: 6 March 2018
© Springer Science+Business Media B.V., part of Springer Nature 2018

Abstract This paper investigates the socio-economic impacts and coping strategies adopted by the local community of Pilgrim's Rest in Mpumalanga following the closure of the gold mine. A questionnaire-based survey, administered through face-to-face interaction with the local community and the stakeholders, was the main instrument used to obtain the data. The study recorded both negative and positive impacts of mine closure and the coping strategies. The negative socio-economic impacts of mine closure include: rise in poverty, deterioration of living standards, increase in outward migration, emergence of crime and diseases, decline in the provision of services, reduction in employment opportunities in the mine and second-order employment, loss of foreign exchange, limited money circulation, reduction of buying power and in the payment of rates by the community. The positive impacts of mine closure include: an increase in government initiatives aimed at helping the community, strong social cohesion of the local people and a focus on agriculture in the area. The coping strategies of the host community following the mine closure comprise of dependence on severance packages, support from relatives, finding jobs elsewhere, practising agriculture, and engagement in the informal sector. The study's significance lies in

highlighting the need for proper planning, in order to ease the diverse socio-economic impacts following the closure of the mines.

Keywords Mine closure · Host community · Coping strategy · Post-mine closure management strategies

Introduction

Across the globe, mine closures have attracted a lot of scholarly debates during the twenty first century. These scholars have raised issues that are of great concern to local communities with regard to mining activities and viewed mine closure from different perspectives. The first perspective focuses on the negative environmental consequences of mine closure such as crumbling infrastructure, the obstruction of the river system by the quarry, dust generation of the abandoned land; and the pollution of water resulting from the abandoned scrap iron left by the miners (Andrews-Speed et al. 2005; Murray et al. 2005). The second perspective, focused on the negative economic impacts that are the spinoffs of the mine closure in a form of decrease in local tax revenue, plummet of real estates, acute unemployment, decrease of foreign investment, emergence of illegal mining, decline of other businesses that are indirectly linked to the mine; and the decrease in corporate financial support to the local communities (Botha et al. 2014; Marais 2013;

P. Q. Siyongwana (✉) · A. Shabalala
University of Mpumalanga, Nelspruit, Mpumalanga,
South Africa
e-mail: pakama.siyongwana@Ump.ac.za

McDonald et al. 2012; Rawashdeh et al. 2016; Rixen and Blangy 2016; Block and Owusu 2012). The third angle, from which they viewed mine closure was the negative social impacts, including an increase in crime, substance abuse, decline in the standard of living, exit of people from the mining towns, health and mental problems, stresses on family life, exacerbated food insecurity and social disruptions (Andrews-speed et al. 2005; Ennis et al. 2014; Mengwe 2010; Ntema et al. 2017). The coping strategies of the local communities after mine closure also received attention (Costa 2016).

Notwithstanding the significant debates on the mine closures, it should also be taken into consideration that in many instances, case studies function in isolation. Thus, it is not always possible to generalise the findings; as each case study may have its own distinctive problems resulting from their different backgrounds and settings. For example, the socio-economic impacts of the closure of the mine on the local community; where a mining town is located in a remote area and mining activity is the main source of livelihood can be different from the closure of the mining town, in which there are other activities that are taking place in the vicinity. There is also a limited contribution on how the host communities cope after the mine closure, especially in mines that were predominantly rural in nature; yet, these rural communities became very vulnerable after the mine closure. Against this backdrop, the aim of this study is to examine the socio-economic impacts of mine closure on local communities in Pilgrim's Rest in Mpumalanga, South Africa. Specifically, the study intends to assess the negative socio-economic impacts of the closure of the mine on the traditional rural local community, and to examine the positive socio-economic impacts. It also discusses the coping strategies that have been devised by the local community to cope with the impact of mine closure. The section that follows examines the theoretical framework of the study.

The theoretical framework

The development of mining towns

Mining towns are a dominant feature of the urban landscape across the globe. In terms of their origin,

mining towns were developed mainly as a result of the presence of valuable mineral resources. Regarding their development, many government leases have stipulated that the town had to be developed by the mining companies (Carring and Hogg 2011). The mining towns often flourished during their 'golden' stages; and thus, they became the preferred destinations for migrants—due to their vital role in providing employment opportunities and their contribution to the improvement of the standard of living for the people in the mining towns. Regarding their characteristics, Ntema et al. (2017) rightly pointed that a mining town can possess characteristics such as the availability of infrastructure and services; a steep rise in population; the availability of non-mining economies, which struggle to develop in mining towns, especially when they are situated in remote areas. As much as the mining towns showed rapid growth during their prosperous years, Marais (2013) pointed out that by the mid-1980s, in many parts of the world, the prices of minerals had fallen drastically which led to the mining companies reducing and in some instances completely withdrawing financial support for physical and social infrastructure in the mining towns. He further indicated that the withdrawal of mining companies, as managers of mining towns, caused further anxieties brought about by the effect the withdrawal would have on taxpayers; the possible reduction in employment opportunities and uncertainty about the long-term maintenance of the existing infrastructure. In South Africa, municipal dependence on the rates and taxes paid by mining companies has had long-term negative implications for municipal finance after the process of housing privatisation. Eventually, some of the mining companies completely withdrew their mining activities; while others scaled down their mining activities.

However, during the mine closure, a number of these mine-related services tumbled; and consequently the local communities faced a number of socio-economic challenges (Marais 2013). This happened; despite the fact that different governments have implemented a number of guidelines via policies for mining industrialists to facilitate the abandonment of mining sites; that miners should take responsibility on behalf of the local communities, leave decommissioned infrastructure; and that they should also be able to provide sustainable economic arrangements that do not limit the opportunities to function once the mine

has stopped its operational activities. However, in many instances the major mining industrialists have found ways to escape this liability, perhaps by selling their mining shafts to smaller mining companies before they abandon the mine. In turn, the small companies do not have the necessary capacity to implement the stringent requirements of the mine closure.

Theories of mining towns—the staples theory

There are different theories that can be adopted in the study of mining towns, especially on how they relate to the development of the surrounding environment and their contribution to their host communities. The following theories are worth noting, namely: the Staples, the Social Disruption; the Resource Curse and the Dutch Disease. However, the Staples theory has served as a basis for the study. Mackintosh (1923) pioneered the Staples theory; and thereafter, he used it to explain how the natural resources can influence the development of the local region. The essence of the theory was that it regarded economic development and growth as being based on the exporting of the mine's products. From this perspective, economic growth and development were the outcomes of the direct investment in the mining business. He also acknowledged that the features of the staples theory determines the extent of spatial development, resulting from Staples social organisation of production and the linkages of the Staple production. Mackintosh also pointed out that the linkages could be forward (those related with the processing of minerals), backwards (these were linked with the inputs in the mining system), demand (relate to the production of consumer goods to meet regional needs) and monetary (related to the State taxation of the income streams associated with the primary commodity). Within the context of North America, and more particularity in Canada, this theory came under fire. Robinson (1962) argued that the isolated mining communities in Canada did not make any contribution to the economic development of the area; and furthermore, they did not receive flows or linkages from their surrounding environments.

In as much as the literature on Staples theory showed signs of decline in the second half of the nineteenth century, as a result of the popularity of the Resource Curse Theory, the literature's debate on the

Staples theory resurfaced; and it received momentum in the 2000's (Block and Owusu (2012)). In their support on the relevance of the staples theory, they have used it to show the economic development in and around resource towns—by using case studies of gold-mining towns in Ghana. They rightly stated that the mining business activity was not only a dominant 'white enclave' that was controlled elsewhere; it did contribute in the spatial distribution of development in the host environment through its linkages which included: fiscal linkages, consumer linkages, production linkages, processing prior to the export of the resource. They unreservedly pointed out that the rural mining industry should also be understood as an important growth point in a rural area that can contribute in generating revenue, employment opportunities, development and local economies in the host environment. Hirschman (1981) referring to linkage concept stated that they were dynamic, rather than static. He further argued that linkages could either be enriched, or deteriorate, over time depending on the changes in the circumstances adjacent to the mining/resource towns. Hirschman (1981, p. 65) alluded about the industrial inputs linkage impacts as follows; "the linkage effects of a given product line as investment generating forces that are set in motion, through input–output relations, when productive facilities that supply inputs to that line or utilise its outputs are adequate or non-existent. Backward linkages can lead to new investment in input-supplying facilities and forward linkages to investment in output- using facilities".

However, Lawrie et al. (2011) from another perspective argued that in other mining towns, mining linkages have undergone a metamorphosis, resulting in their inability to keep pace with the changing needs of the resource towns. For example, with the expansion of the local economy or vice versa and the changing needs of labour force, which is directly affected by the mines' operations. Still in line with the mine linkages of the mining towns, the other concerns are the inability of the non-mining sector to attract and retain labour and services. This has an impact on mining towns, of limiting opportunities for diversification (Petrova et al. 2009). These issues have serious implications when the mines scale down. Thus, with the downscaling of mining, and finally the closure of the mine—especially since the beginning of the twenty first century—these linkages were often disrupted which had a positive or negative outcome for

the local community. For example, during the ‘hard times’, the mining industry became unprofitable. Thus, the mining entrepreneurs experienced difficulties in meeting their financial obligations, including the payment of their labourers. In order to respond, sometimes mining entrepreneurs had to reduce the working hours. This usually led to discontent and ensuing protests among mine workers; and they had to finally retrench them. The failure to retain labour in mining towns has led to the recruitment of contract workers ‘fly in fly out’ (FIFO) or ‘bus in bus out’ (BIBO) or ‘drive in drive out’ (DIDO) labourers (Perry and Rowe 2015). (Ntema et al. 2017) referred to the FIFO as the transient workers and can become a short-term solution of meeting labour demands in some of the resource towns. With regards to the FIFO or BIBO labourers, some scholars argue that this has resulted in money obtained through the mining industry in mining towns to be spent outside the resource towns. The challenge of that is that the expected financial benefits from mining in mining towns ‘leaked out’; and thus, making many resource towns (for example, mining towns) financially unsustainable and they eventually closed.

Location and background of the study area

The town of Pilgrim’s Rest is located adjacent to the magnificent Panorama Route in the rural area at the Kruger Lowveld Region of the Eastern part of Mpumalanga. This study area was chosen; because the majority of the local community are mainly dependent on the mine for employment. Thus, with the mine closure, its effects can easily be seen in the local community. The origin of Pilgrim’s Rest settlement dates back to the arrival of the mine diggers from Europe in the 1890s. Initially, mining was done on a small scale; but later there was a demand for more manpower, which led to an increase in the influx of people into the area in search of employment. Thereafter, Pilgrim’s Rest settlement grew. The population of Pilgrim’s Rest was 1721 people in 2011, with males and female forming 51.54 and 48.48% of the population, respectively (Statistics South Africa 2011). The discovery of gold in the area resulted in the development of infrastructure, the provision of services, and a rise in mine-supporting businesses. As a result, Pilgrim’s Rest became a booming rural mining

town in the nineteenth century; and most people were employed by the mine. Pilgrim’s Rest also became a magnet in attracting people from the neighbouring rural villages and countries. During the late 1990s, the Pilgrim’s Rest Mine experienced economic downturns, due to the decline of the price of gold and the new demands on mining companies in South Africa. Subsequent thereto, mining activities at Pilgrim’s Rest were scaled down; and eventually closed in 2015 (Fig. 1).

Research methodology

This study adopts a case-study approach that selected the small town of Pilgrim’s Rest, as a unit of observations to analyse the social and economic effects of mine closure and of the local people’s coping strategies after the closure of the mine. Yin (1994) acknowledged the case-study approach, as a process of knowledge inquiry that can provide opportunities to gain rich and deeper insights of the specific phenomenon with a deep focus. The overriding factor for choosing Pilgrim’s Rest is that its population were solely dependent on mining for their livelihood and thus, the impact can become clearly evident with the closing of the mine. Effectively, the analysis used both primary and secondary data, in order to answer the objectives specified earlier. The study followed a triangulation pattern; and it applied quantitative and qualitative data collection, as well as a secondary data analysis. This is in line with Bryman’s (2012) remarks that methodological pluralism enables the researcher



Fig. 1 The photograph of Pilgrim’s Rest Mine

to use various tools to access different aspects of the same social phenomenon.

Face-to-face questionnaires were administered to fifty-four local communities in the area, with the core questions revolving around the socio-economic effects of mine closure and management strategies adopted by the local community to cope with the problems of mine closure by the researchers and a trained fieldworker, who was a local community member. The face-to-face interviews took place in March and June 2017. Telephone interviews were used for the follow-up questions, and for those participants who could not be found in their places of work. In the first section of the questionnaire, the participants were given a list of possible socio-economic impacts of the mine closure; and they were requested to select the ones, which they felt closely reflect the effects of the Pilgrim's Rest mine closure. In the second part of the questionnaire, the participants were given a list of possible measures to cope with the mine closure; and they were requested to select the ones, which they had used most. For the open questions, the participants were requested to give their views and suggestions regarding mine closure. The extent of the socio-economic impact of the mine closure on the local community was measured by using a 4-point Likert scale assessment where: unimportant = 1 point; slightly important = 2 points; important = 3 points; and very important = 4 points. The participants selected were either previously employed by the mine, or had family members who had been retrenched by mine; or they had rich knowledge of the circumstances surrounding the closure of the mine.

Furthermore, a slightly adjusted questionnaire was administered to fourteen government officials. This focused on assessing the impact of mine closure on issues like crime, health, provision of services and education. Another set of semi-structured questionnaire was answered by two representatives of the business sector; and this focused on the impact of the mine closure on business in Pilgrim's Rest. The responses of the participants were tabulated into thematic and quantitative data in MS Excel spreadsheets, analysed, and thereafter interpreted. The responses from the open-ended questions were grouped into themes, interpreted and also used as narratives.

Results and discussion

Profiling the respondents

Forty percent (40%) of the interviewed local community people were females; and sixty percent (60%) were males. In terms of age categories, only one respondent was less than 20 years old; forty-two (42) of the respondents fell within the 20-39 years age-group; and eleven (11) were within the category of 40-49 years of age. From the evidence gathered on age groups, it can be seen that a large percentage of the population in Pilgrim's Rest fall within the working group, or the economic sector of the population. As a result of mine closure, this group is unemployed and is therefore not contributing to the economy of the town. Regarding the employment trend of the participants, evidence gathered reflects that sixty-three percent (63%) of local people respondents were unemployed; twenty-four percent (24%) were employed by either government or the private sector; and eleven percent (11%) were working as casual workers in the informal sector, or were living on social grant.

In terms of qualification, the data collected indicated that sixty-five percent (65%) of respondents had qualifications ranging from national senior certificate, artisan skills and up to a diploma; while thirty-five percent (35%) indicated that they have primary or secondary education. In terms of the number of dependents, fifty-six percent (56%) indicated that they had more than four dependents including relatives who do not have the means to take care of themselves; while, forty-four percent (44%) said they had less than four dependents. In terms of the place of origin of the respondents, it was revealed that except for four respondents, they were all from Mpumalanga Province. A slightly adjusted questionnaire was completed by sixteen key informants. This consisted of government officials and business/private people; and it included: one police service authority, eight school educators, three civil servants, one councillor, two business personnel, and one social development facilitator.

Analysis of the social impacts

Crime involvement

Eighty-three (83) percent of the respondents interviewed indicated that crime had increased following the closure of the Pilgrim's Rest mine. The government official, who was a policeman in the area of Pilgrim's Rest, maintained that the town was no longer 'a safe haven' as it was during the time when the mine was still operational; as crime had increased dramatically: especially car theft and shop breaking, due to the lack of employment opportunities (Fig. 2). Furthermore, the policeman also indicated that the number of crime incidents reported was not a true reflection of the number of crimes taking place in the area. This distortion was because some crimes are not reported—for fear of victimisation by the culprits.

In a similar vein, regarding crime in Pilgrim's Rest, one of the government officials acknowledged that illegal mining reflected a steep rise in Pilgrim's Rest; despite the fact that it was a dangerous undertaking. He went a step further by stating that during the process of illegal mining, some are being robbed; but they cannot report these cases because of the illegality of the activities. One of the respondents in defence of why some people are involved in illegal mining said that it has enabled them to put bread on the tables for their families. An in-depth discussion with one of the civil servants indicated that illegal mining was not only restricted to the locals, but also to those foreigners, who had migrated to Pilgrim's Rest to seek opportunities in the abandoned mine shafts.

Although illegal mining became the source of employment, it has also led to exploitation of those

involved in it; and it further perpetuates the cycle of poverty. Such findings can be paralleled with those of Banchirigah (2008), who described how illegal miners find themselves trapped in a vicious cycle of poverty—because of low productivity, inadequate investment, limited mineral resources, and the use of inadequate or inappropriate technology.

Substance abuse and excessive drinking of alcoholic beverages

Fifty-four (54) percent of the respondents interviewed pointed out drug abuse and excessive drinking of alcoholic beverages as major problems after the mine closure in Pilgrim's Rest. In spite of attempts that were made by Non-Governmental Organisations (NGOs) who operate in Pilgrim's Rest to offer individual and group assistance for those who wanted to stop taking drugs. The local government officials revealed that due to the lack of activities to engage the residents, especially the youth, indulged in excessive drinking, which led to unacceptable behaviour including rape and assault cases. Laurence (2006) stated that failing to involve the community during the mine-closure process can result in numerous adverse outcomes, including social ills, such as crime and alcoholism, which are an increasing problem in developing countries.

Emigration of the local people

Fifty-four (54) percent of the respondents interviewed pointed to the many ex-miners, who had been forced to leave Pilgrim's Rest after the mine's closure. Reduced employment opportunities, loss of foreign exchange,

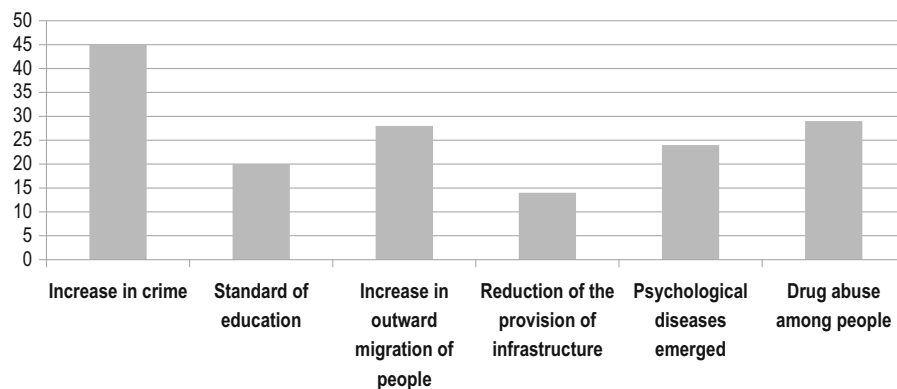


Fig. 2 Negative social impacts on the local community of Pilgrim's Rest as a result of mine closure

limited money circulating in the area, as well as the decline in the standard of living are some of the results of emigration by ex-miners from Pilgrim's Rest, in order to seek better opportunities elsewhere. This is consistent with research done by McDonald (2012), who found that as a consequence of mine closure, families face intense and stressful financial and emotional uncertainty and a probable need to relocate to another mining community, or return to their home towns. Some of the community members said that they were not keen to leave because of their deep sentimental attachment to the area. For these people, a sense of 'home' was more important than seeking better opportunities outside of the town; and many still hold on to the hope that the mine would re-open; and the once lively Pilgrim's Rest that they knew, would be brought to life again.

Respondent A, indicated that, "life is tough everywhere, leaving Pilgrim's Rest would not necessarily make me employed. It is worse being a former mine employee; because in the mine you are trained in a skill that would enable you to work for the mine. For example, if you are a rock driller; you only do that. Now with the many mine closures across South Africa; it would be difficult for me to be employed elsewhere". On the other hand, Respondent B indicated that; all his family members reside in Pilgrim's Rest, and he was not willing to leave them and his home. This suggests that for Respondent B, his attachment to his place of origin was more important than to leave Pilgrim's Rest and to seek employment opportunities in other towns. This perception of attachment to the home and the mines concurs with the findings of Ntema et al. (2017) who stated that mine workers prefer to remain near the mines for fear of social disruption; as they have developed a sense of place and attachment to the mining towns.

Issues affecting education

When asked about how the closure of the mine had affected the state of education in Pilgrim's Rest, educators indicated that a decline in the number of learners in the local schools is one of the legacies of mine closure. Many learners dropped out of school; since their parents could no longer afford to support them through their education; while others left together with their parents, to seek livelihoods in other towns. In a similar vein, regarding the impact on

education, Respondent C outspokenly indicated that, "We have lost quite a number of learners; as they have relocated with their parents to other places following the closure of the mine. Parents of the remaining learners are unemployed; and this has led to an increase in poverty. Unemployed parents are unable to assist their children in schooling. As a result, some learners are demotivated; while others are turning to substance abuse, which worsens the school environment". The consequences of parents not affording to meet the educational needs of their children, has led them to be school dropouts, has long-term repercussions to the distressed parents and the future citizens of Pilgrim's Rest. Given the acknowledgement that better education or qualification can allow one to get better employment opportunities, this situation highlights the vicious cycle of poverty.

Educators also stated that although the mine was still adhering to its social corporative obligation (for example, by providing some of the teaching equipment to the local schools; and in some cases assisting the schools by paying teachers), they feared that the mine would eventually stop this support. This action would lead to some of the educators, who are supported by the mine leaving the area; and this could lead to a decline in the quality of education.

Infrastructure

The concern that mine closure affected the provision of infrastructure, such as houses and roads, was indicated by twenty-eight percent (28%) of the respondents. Evidence gathered during fieldwork observation was that currently, the low-cost government houses were in a deteriorating condition; while the occupants claimed that they could not renovate the houses themselves; because they are renting them from the government. Thus, they do not have property rights over the houses. Respondent D reflecting on the deterioration of the low-cost housing infrastructure in Pilgrim's Rest Township said: "When a toilet pipe burst in my rental house 2 months ago, I did not report the matter to the Department of Public Works; because I had not paid rental for the last 9 months. How could I expect the government to fix the pipe; when I have not been paying my rent for such a long period of time? That is why my family uses a pit toilet, which explains the bad smell around this place. Also, recently, I have

discovered that the undrained water, which had leaked out of one of the water pipes had become the comfort area for the mosquitos”. Furthermore, it was indicated during the interviews that the last public low-cost houses built in the area occurred when the mining industry was vibrant in the late 1980s. As a consequence thereof, the respondents acknowledged a housing shortage in the town for those earning a low income; hence, the emergence of squatter settlements or self-help housing in the Pilgrim’s Rest urban landscape.

Regarding the road infrastructure, it was reflected during our area observation that the roads were poorly maintained with noticeable large potholes, especially on the roads leading to the Pilgrim’s Rest mine shaft and in the township. However, evidence also gathered during the fieldwork indicated that the roads leading to the Panorama Route (consisting of popular roads used by tourists in the area) and the main street of Pilgrim’s Rest was in good condition.

Health matters

The local people were also asked whether they had experienced any health problems after the mine closure, which they perceive might have been caused by long-term exposure to the mining environment. Many of them (61%) pointed out that they had experienced uncontrollable coughs and frequent headaches, which they thought were signs of lung diseases. The researchers also probed the respondents about the psychological effects of mine closure. A fair percentage (48%) of the respondents indicated that they had experienced emotional, trauma and psychological stress after they or their family members were retrenched by the mine. The extent of the psychological impacts of the mine closure can be captured in the following statements made by two of the respondents. Respondent E said that: “When my husband lost his job, I felt like killing myself”. Respondent F maintained that the mine closure had affected him, as follows: “When I lost my job at the mine, I felt like someone I loved had died... I requested my family to pray every day, so that God would re-open the Pilgrim’s Rest mine”. These responses undoubtedly reflected that with the closure of the mine, people had lost hope; since they regarded the mine as their main source of income. Furthermore, the respondents were

also questioned on the emergence of psychological diseases following the closure of the mine. Forty-nine percent (49%) of the respondents indicated that they had experienced highly emotional and severe psychological stress.

What also came up during the interviews is that the stress of unemployment was further worsened by the loss of social networks that resulted from the evacuation of the population following the mine closure. Equally important, is that the stress among former mine workers was also caused by how the mine closure was communicated to them, claiming that they received an unfair treatment during the mine closure; as they were not given an opportunity to discuss the issue in a bargaining forum. The suffering presented by the respondents gives a significant reflection on the local people’s livelihood and the long-term socio-economic effects of mine closure; and on how this can perpetuate the vicious cycle of poverty in the community.

Negative economic impacts of mine closure

Reduced employment opportunities and decline in economic activities

Most of the respondents (69%) overwhelmingly agreed that the mine closure had led to reduced employment opportunities; since the mine was the primary source of employment in Pilgrim’s Rest (Fig. 3). Thus, with its closure, the youth had to seek employment elsewhere, but with limited success; and many had to come back to Pilgrim’s Rest. A general lack of skills outside mining makes it difficult for the previous mine workers to find jobs elsewhere. This trend was also observed by Lawrie et al. (2011), who rightly pointed out that in many instances, the former mine workers were ‘trapped’ in the mining towns; because the skills they have restrict them from finding employment outside the mining industry. The extent of the impact of the mine closure on employment can be captured in the statement made by Respondent G, who said: “When the mine closed, my family suffered. The car we had was repossessed by the bank; and our children were taken out of a good school; because we could not afford to pay fees. We are currently relying on the meagre income that I earn as a waitress at

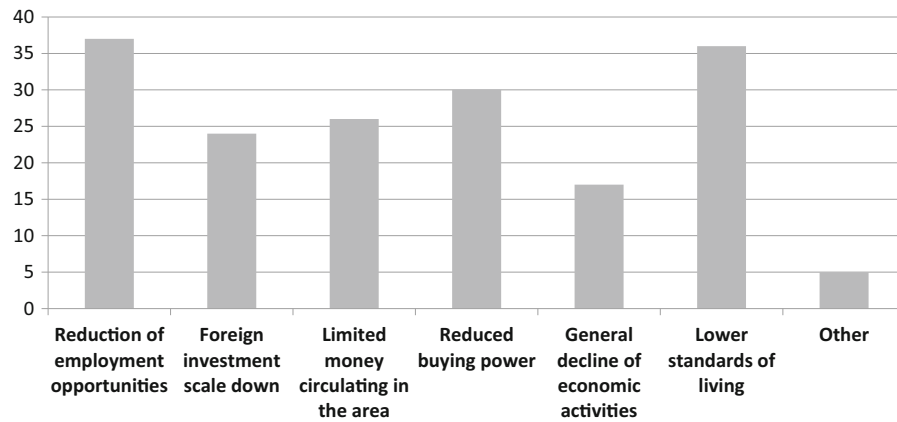


Fig. 3 Negative economic impacts of the closure of Pilgrim's mine to local community

Pilgrim's Rest Hotel". This comment highlights the long-term socio-economic effects of mine closure.

Regarding the decline in economic activities, thirty-three percent (33%) of the respondents indicated that there were limited economic activities; since most of the businesses have relocated to other areas; because of the limited buying power. One of the business respondents interviewed (Respondent H) made the following statement regarding the decline of business activities in Pilgrim's Rest following the closure of the mine: "I have closed my fuel garage; because it is useless to open the business if you are not making money. Now people are suffering; and to get the fuel they need, they have to travel to the neighbouring small urban centre located twenty-five kilometres from Pilgrim's Rest".

Decline in employment opportunities, incomes and foreign investment

Sixty-seven percent (67%) of the respondents indicated that shrinking employment opportunities were the primary cause of the decline in buying power and the drop in standards of living in Pilgrim's Rest. When interviewed on the economic impacts of mine closure, business people in the area reported that the income from their businesses had declined, due to outward migration and unemployment in the area—to such an extent that some retail shops had been forced to shut down in sync with limited employment opportunities. Government grants have become the main source of household income (Respondent L).

Respondent I indicated that: "The residents of Pilgrim's Rest are the most affected by business closures; as they now have to travel long distances to neighbouring towns to buy basic household goods; and we have to pay high transport costs". Regarding the money circulating in the area, forty-seven percent (47%) of the respondents indicated that there was limited money circulating in the area after mine closure. A response from a young lady (Respondent J) referring to the situation said: "While the mine was in operation, my 'sugar daddy' spoiled me, by giving me R300 spending money; but now that the mine has closed, he is no longer doing that; because he is unemployed and is depending on his severance package, which is not even enough for his family". However, regarding the foreign investments, forty-eight percent (48%) of the local people interviewed indicated that foreign investments had scaled down following the closure of mine down; as there were no new buildings being constructed; and the existing ones are poorly maintained. During the interview with one of the prominent business persons, (Respondent K) who is working in the hospitality business, he indicated that: "We use to have a good business, when the mine was operational. We accommodated both local and international business people who came to inject money in the area; but with the mine closure, the clientele has decreased".

Deterioration of standard of living

Sixty-seven percent (67%) of the people interviewed indicated a decline in the standard of living in

Pilgrim's Rest, which came about as a consequence of a reduction in employment opportunities. Lack of employment opportunities, poor housing conditions and poor service delivery in the township were regarded as the main variables that have contributed to the low standard of living in Pilgrim's Rest; and these were partly affected by the mine closure. Respondent L alluding about the low standard of living in Pilgrim's Rest said: "Poverty here is very acute; as people are not working; and they are idling up and down the street doing nothing. Gone are those days when the mine was in operation and people could afford their everyday needs". The decline in the standard of living is also reflected by the lack of maintenance of houses as highlighted in the previous section. The scenario in Pilgrim's Rest regarding houses is that not only maintenance is a concern; but also the inability of a largely unemployed community to pay for municipal rates. This trend pinpoints the local financial position of the community.

Ranking of socio-economic negative impacts of mine closure at Pilgrim's Rest

The respondents were asked to rank selected variables in their order of impact. Overwhelmingly, seventy-five percent (75%) of the local people interviewed indicated that retrenchment from the mine and psychosocial problems, such as stress and depression that followed thereafter, had the greatest impact on their lives and thus retrenchment from the mine that was ranked in first place (also refer to Fig. 4). Sixty-four percent (64%) of the respondents said the dependence of retrenched miners on family members through social grants and old-age pensions for survival had a great impact and this was ranked in second place. Sixty percent (60%) of the respondents reported that limited employment opportunities affected them the most and this was ranked in third position. The loss of foreign exchange and the decline of the money circulating in the area were regarded as very critical issues by fifty-six percent (56%) of the respondents; and the two variables were ranked in fourth place. The closure of mine-related businesses, the loss of second-order employment (for example, suppliers of food to miners), changes in livelihood patterns and in the standard of living came in fifth position, after being rated as being very important by fifty-three percent

(53%) of the respondents. Migration of labour, civil unrest, decline of buying power, degeneration of people's lifestyle, decline in social bonding and the social networks were scored as being very important by less than 50% of the respondents and were ranked in sixth position.

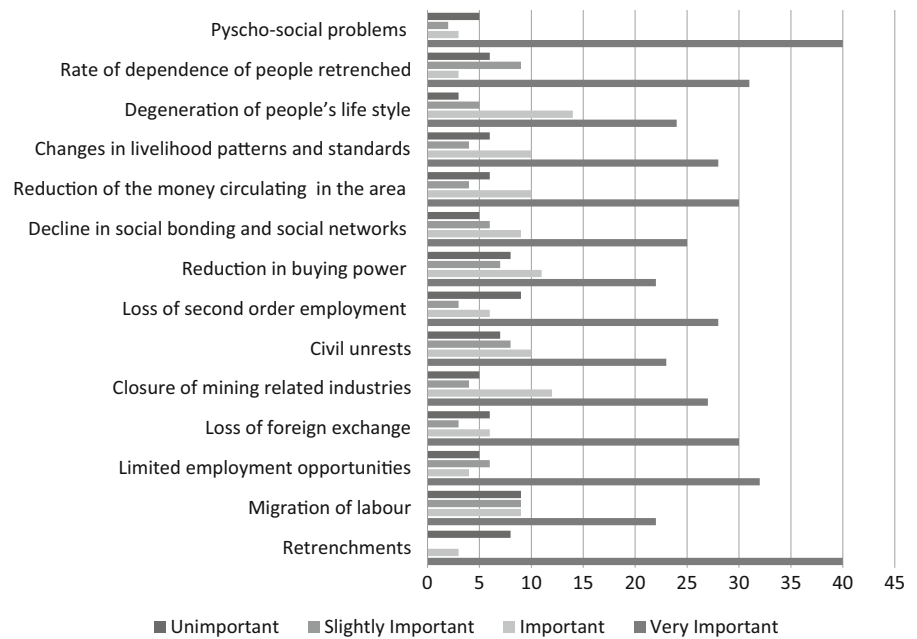
With regard to the importance of the selected variables after the mine closure, most important to the respondents was the degeneration of lifestyle (26%), decline in buying power (20%), closure of related mining-industries/businesses (22%), changes in livelihood patterns (18%), and of money circulating in the area (10%). Of slight importance was the migration of labour and the rate of dependence of retrenched miners on others, as revealed by 17% of the respondents. Migration of labour, the loss of second-order employment and the decline of buying power, were identified as not being important to the community.

Positive socio-economic impact of mine closure

The respondents were also probed to view mine closure from the other side of the coin, by stating the positive impact of the closure of the mine at Pilgrim's Rest. Twenty-six percent (26%) of the respondents indicated that there had been an increase in government initiatives in Pilgrim's Rest. The local government took ownership of some of the businesses and properties (i.e. Pilgrim's Rest hotel) and also assisted in boosting tourism based businesses in the town. This move on the one hand, became a valuable strategy to save the town, which was on a verge of collapsing and becoming a 'Ghost Town' following the mine closure; while on the other hand, it made people rely too much on the government. Twenty-six (26%) percent of the respondents said that the closure of the mine had resulted in the emergence of strong social cohesion in the local community.

A sense of togetherness became a dominant feature among the community members of Pilgrim's Rest; as they worked together in solving their challenges, following the closure of the mine. This sense of togetherness of the local community could be reflected in the solidarity they displayed during the meetings; where first, they stated that they would prefer the historical identity of Pilgrim's Rest as a mining town to remain and that no drastic alterations should be made in the old buildings of Pilgrim's Rest. Second,

Fig. 4 The perception of respondents to mine closure



they refused the building of Reconstruction and Development Programme (RDP) houses; as that would change the history of the town. Third, the sense of unity of Pilgrim's Rest community is reflected by refusing the entrance of foreign retailers to open businesses in the area. Thus, only locals or South Africans are allowed to own businesses in Pilgrim's Rest.

Twenty-two percent (22%) of the respondents, who participated in the survey, also indicated that local residents re-directed their mind-set to other assets in their environment that they could use to sustain their livelihood; hence, they turned to farming, as an alternative to sustain their livelihood. Nine percent (9%) of the respondents were adamant that there were no positive outcomes resulting from the mine closure; hence, they refused to give their inputs on the positive impact of the mine closure to the local community.

Coping strategies adopted by the community after mine closure

As a coping strategy following the mine closure, 57% of the respondents said they relied on severance or retrenchment packages for their survival. They used the money to buy basic goods; while others used it to open small businesses, such as taverns, car wash or

informal convenience shops. Fifty-six percent (56%) of the respondents said that the ex-miners had to be supported by their working relatives. Some of the respondents (21%) stated that community members had to relocate to other towns to find jobs. Fourteen percent (14%) of the respondents maintained that other members of the community turned to subsistence agriculture to cope after the mine closure. This concurred with the findings of Botha et al. (2014), who stated that after the closure of the Misima mine in Brazil, the miners returned to traditional subsistence farming and trade. Agriculture is one of the primary industries that can employ many rural dwellers, sustain livelihoods, and reduce poverty in rural areas (Moser 2006; Ford 2004). This coping strategy looked ideal for the people of Pilgrim's Rest; as subsistence farming dominated the area—before the people turned to cash economy. However, as much as this coping strategy can be regarded as perfect for the local residents, it should be noted that their agricultural skills had eroded over time, due to their preference for work in the mine when mining became profitable in the town. Thus, to make this a workable solution for local community of Pilgrim's Rest, there is a great need to empower them on how to sustain their livelihoods through agriculture.

Fifteen percent (15%) of the respondents said ex-miners engaged themselves in the informal sector by

selling goods to tourists and to neighbouring communities. This coping strategy has a potential for success if people are properly trained for tourism; as there are many overseas tourists who visit the place. A high percentage of the respondents (54%) indicated that they were finding it difficult to cope after the mine closure; as they were not employed. This suggests that local communities were inadequately prepared for the closure of the mine. This observation concurs with the findings of Krause and Synman (2014) that towards the end of the operating life of a mine, some larger mines sell their mining operation to smaller mining companies, thereby dissociating themselves from rehabilitation and closure obligations. Usually, these small companies do not have the capacity to facilitate mine closure properly. Even more important is that, in order to cope with the loss of cash economy after the mine closure, which grossly affected their livelihoods, ex-miners had embarked on illegal mining. Illegal miners are known as ‘Zama-Zamas’ in South Africa. They often take huge risks and put their lives in danger, in order to extract the small amount of available minerals from underground. Respondent L, reflecting on why people are engaged in illegal mining said: “Most of us have never been engaged in farming activities, like rearing animal stock and cultivating crops in the field. To us, mining is our produce; and that is why people continue to be engaged in illegal mining; despite the fact that it is a risky undertaking”.

The respondents also indicated that they had survived through food parcels, which are provided mainly by the government. However, a concern was raised on corruption, whereby the food parcels frequently fail to reach the intended beneficiaries; and another concern is that the distribution of food parcels is not regular and reliable. In addition, to cope with life without income, prayer was also indicated as a dominant coping strategy. Although the community members employ these various coping strategies, they are regarded as very rudimentary; and their sustainability is questionable.

Concluding remarks

The paper has shown that there are mixed views associated with mine closure at Pilgrim’s Rest. It has been emphasised that during the golden days of mining operation, the mining community enjoyed the

creation of employment opportunities and infrastructural development. Thus, the residents enjoyed a comfortable lifestyle; while the mine was in operation. However, the closure of the mine gave rise to many socio-economic challenges. These are not limited to unemployment, crime, depression, stress, substance abuse, emigration, lower standards of living and increased poverty. Confronted with these challenges, community members often lack the necessary skills and knowledge to sustain their livelihoods. Reliance on retrenchment packages and working relatives was identified by the respondents as the main survival strategy following the closure of the mine. These unsustainable coping strategies further deepened the vulnerability of Pilgrim’s Rest community to poverty, inadequate incomes, food insecurity, socio-economic stresses and poor service delivery. However, on a more positive note, mine closure resulted in increased social cohesion, a focus on agriculture, increased government assistance, and improved health; as the miners were no longer exposed to the toxic mining environment.

Suggestions regarding the closure of the Pilgrim’s Rest Mine were that there is a need for greater engagement between government, the local community and other relevant stakeholders with the private sector or investors, in order to resuscitate mining in Pilgrim’s Rest; as there is a strong belief that gold deposits are still available. However, if the chances of the mine reopening are futile; another avenue that could be explored is to find other economically viable functions. This could be in the form of tourism, which can be crafted around the available assets in the area, such as nature tourism. Within the context of geo-tourism, the historical identity of the place can be preserved, notably the history of mining. Tourists could get information on the history of the mine, old gold-extraction methods, modern gold extraction methods and indigenous gold-extraction methods.

Furthermore, to overcome the problem of unemployment and poverty in Pilgrim’s Rest, there is a need for greater commitment from the government, specifically the Department of Agriculture and Rural Development, as well as rural development agencies. These partnerships with the local community could create jobs through activities, such as commercial agriculture, especially plantation agriculture. In view of the fact that there are piles of dumped gravel that were extracted while mining was vibrant, we suggest

that the gravel could be made usable by making bricks; and this could be an alternative source of income for the community.

A number of key lessons can be drawn from this study. Firstly, the need to diversify the economy in rural mining towns is a necessary requirement as that would serve as a back-up for economic activities and employment in the event that the mine closes, and consequently this would reduce the negative impacts. Secondly, there should be more engagement between government, the local community and other relevant stakeholders with the private sector or investors, with regard to processes that should be followed during mine closure, in order to minimise the adverse impact on the host community. Thirdly; while there are national policies that provide guidelines for mine closure, there is still a need to ensure that the guidelines are effectively implemented; so that former mines can become engines of development beyond their operational life spans.

Acknowledgements This paper is funded by the University of Mpumalanga (UMP), South Africa. The authors are grateful for the support given by UMP.

Note Alphabetical letters have been used for the respondents to ensure their anonymity, as follows:

Respondent A
Respondent B
Respondent C
Respondent D
Respondent E
Respondent F
Respondent G
Respondent H
Respondent I
Respondent K
Respondent L

References

- Andrews-Speed, P., Ma, G., Shao, B., & Liao, C. (2005). Economic responses to the closure of small-scale coal mines in Chongqing, China. *Resources Policy*, 30(1), 39–54.
- Banchirigah, S. M. (2008). Challenges with eradicating illegal mining in Ghana: A perspective from the grassroots. *Resources Policy*, 33(1), 29–38.
- Block, A., & Owusu, G. (2012). Linkages in gold mining industry: Challenging the enclave thesis. *Resources Policy*, 37(4), 407–442.
- Botha, N. A., McFaul, S., & Xavier, A. (2014). Economic diversification of the mine closure: An analysis of Misima Mine case. In *Proceedings of closure solutions*, 26–30 April 2014, Ouro Petro Minas, Brazil.
- Bryceson, D., & MacKinnon, D. (2013). Eureka and beyond: Mining's impact on African urbanisation. *The Journal of Contemporary African Studies*, 30(4), 513–537.
- Bryman, A. (2012). *Social research methods*. New York: Oxford University Press.
- Carrington, K., & Hogg, R. (2011). The resource boom's underbelly: Criminological impact of mining development: Australia and New Zealand. *Journal of Criminology*, 44(3), 445–453.
- Chaudhry, K., & Karl, T. (2001). Booms and busts: Theorising institutional formation and change in oil states. *Review of International Political Economy*, 8(1), 163–180.
- Costa, S. S. D. S. (2016). Mining tourism and geotourism: An alternative solution to mine closure and completion. <https://www.researchgate.net/publication/314142184>.
- Ennis, G., Tofa, M., & Finlayson, M. (2014). Open for business but at what cost? Housing issues in boom town, Darwin. *Australian Geographer*, 45(4), 447–464.
- Ford Foundation. (2004). *Building assets to reduce poverty and injustice*. New York: Ford Foundation.
- Hirschman, A. O. (1981). *A general linkage approach to development with reference to staples. Essays in trespassing: Economics to politics and beyond*. London: Cambridge University Press.
- Krause, R. D., & Synman, L. G. (2014). Rehabilitation and mine closure liability: An assessment of accountability of the systems to communities. *Paper presented in the 9th International Conference of Mine Closure*, 1–3 October, 2014, Sandston, Johannesburg.
- Laurence, D. (2006). Optimisation of the mine closure process. *Journal of Cleaner Production*, 14(3–4), 285–298.
- Lawrie, M., Tonts, M., & Plummer, P. (2011). Boomtown, resource dependence and socio-economic wellbeing. *Australian Geographer*, 42(2), 139–164.
- Mackintosh, W. A. (1923). Economic Factors in Canadian History. *Canadian Historical Review*, 4(1), 12–25.
- Marais, L. (2013). The Impact of mine downscaling on the Free State Goldfields. *Urban Forum*, 24(4), 503–521.
- Marais, L., Nel, E., Van Rooyen, D., & Lenka, M. (2015). Mine closure, the resource curse and Marikana flu: Responses to mine downscaling in Matlosana and Matjhabeng. Economics of regions learning networks (ERLN). In *Conference-economies of regions: Economic development at the sub-national level*, 14–16 October 2015, Pretoria.
- McDonald, P., Mayes, R., & Pini, B. (2012). Mining work, family and community: A spatially-oriented approach to the impact of the Ravensthorpe Nickel Mine closure in remote Australia. *Journal of Industrial Relations*, 54(1), 22–40.
- Mengwe, M. S. (2010). Towards social impact assessment of copper-nickel mining in Botswana. *Ph.D. Thesis*, Nelson Mandela University, Port Elizabeth.
- Moser, C. N. O. (2006). Asset-based approaches to poverty reduction in a globalized context: An introduction to asset accumulation policy and summary of workshop findings. *Brookings global economy and development*, Working paper 01.

- Murray, R., Baldwin, J., Ridgway, K., & Winder, B. (2005). Socio-economic decline and adaptation: South Yorkshire's former coalfields. *Local Economy*, 20(4), 344–359.
- Ntema, J., Marais, L., Cloete, J., & Lenka, M. (2017). Social disruption, mine closure and housing policy: evidence from the Free State Goldfields, South Africa. *Natural Resources Forum*, 41(1), 30–41.
- O'Faircheallaigh, C. (2013). Extractive industries and indigenous people: A changing dynamics? *Rural Studies*, 30, 20–30.
- Perry, M., & Rowe, T. E. (2015). Fly in fly out, drive in drive out: The Australian mining boom and its impact on local economy. *Local Economy*, 30(11), 139–148.
- Petrova, V., Lockie, S., Rolfie, J., & Ivanova, G. (2009). Mining development and social impacts on communities: Between two case studies. *Rural Society*, 19(3), 211–228.
- Rawashdeh, R. A., Campbell, G., & Titi, A. (2016). The socio-economic impacts of mining on local communities: The case of Jordan. *The Extractive Industries and Society*, 3(2), 494–507.
- Rixen, A., & Blangy, S. (2016). Life after Meadowbank: Exploring gold mine closure scenarios with the residents of Qamini'tuaq (Baker Lake), Nunavut. *The Extractive Industries and Society*, 3(2), 297–312.
- Robinson, I. (1962). *New industrial towns on Canada's resource frontier*. Chicago: University of Chicago.
- Statistics South Africa. (2011). *Statistics South Africa, 2011*. Pretoria.
- Watkins, M. (1963). A staples theory of economic growth. *Canadian Journal of Economics and Political Science*, 29(2), 141–158.
- Yin, R. K. (1994). *Case study research: Design and methods* (2nd ed.). Thousand Oaks, CA: Sage.

Reproduced with permission of copyright owner. Further reproduction prohibited without permission.