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The 4th Industrial Revolution – How Should Organised Labour Respond?

By Martin Kaggwa

The 4th Industrial Revolutions (4IR) has become a buzz word in many forums discussing global economic trends. The revolution is presented as the next inevitable event that will sweep the world. As such, everyone everywhere should embrace it. However, embedded in the 4th Industrial Revolution is extensive mechanisation of production and replacement of workers with robots and equipment. How should organised labour respond to the 4IR, given the fact that workers are going to be the immediate casualty of the revolution? Should organised labour buy into the rhetoric that the revolution is inevitable or that the only option it has is to re-skill its members so that they can remain relevant to this phase of industrialisation? In this article we try unpack the 4th Industrial Revolution, especially what it means to workers in general and the mining sector in particular. We put forward a proposal on how organised labour should respond to this phenomenon. We stress the point that embracing aspects of the 4IR is a choice that favours industrialised countries with skilled workforce and declining populations. The intention of this article is to provide an alternative view and approach to the 4IR phenomenon that organised labour should consider in defence of workers' interests.

1. From the First Industrial Revolution to the Fourth

1.1 The First Industrial Revolution

The First Industrial Revolution started in the 18th to 19th centuries in Britain. It was characterised by agricultural rural societies moving away from farming to organized assembly line industrial production that resulted in production. The increase in production was attributable to the start of use of steam energy and specialized machinery that allowed mass production using assembly lines. Coal was especially used to power steam engines. Hence the first industrial revolution is also associated increase in coal mining to fire the steam engines and improvement in manufacturing technology that enable set of assembly lines in the Britain.

On a social economic front, while the first industrialization revolution brought about increase in volume and variety of manufactured goods, and improved standard of living for some people, it also resulted in often unattractive employment and living conditions for the poor and working classes (Potenza, 2017).

In summary, the first industrial revolution is attributed innovations pertaining to energy source and in manufacturing technique from single unit production to repetitive assembly manufacturing. From workers perspective, it was the start of workers exploitation through unequal distribution between owners of capital and the working class.

1.2 Second Industrial Revolution

The 2nd Industrial Revolution (2IR) started in the late 19th Century. It was characterised by changes in the energy sources used in production – from predominantly coal-powered steam energy to the use of electricity, and improvement in manufacturing technology that made mass production possible. The 2IR is distinguished from the 1IR by a shift from labour intensive to capital-intensive production, and subsequent increase in productivity.

The 2IR was accompanied by an improvement in transport and communication systems – air, rail, and sea, which enabled exports of the massively produced goods to global markets. According to Jensen (1993), during the 2IR there were massive improvements in transportation and communication facilities, including the railroad, telegraph, steamship, and cable systems.

Large International Corporations came into being to manage the expanded global businesses. There was a sudden improvement in the standard of living in working communities but again this was characterised by the unequal distribution of the benefits of increased production.

It is important that African countries that have achieved

some level of industrialisation are operating within the ambit of the 2IR. Many use electricity to drive industrial production and they rely on improved transport systems to supply to domestic and international markets. Even at this level of industrialisation, many such countries are still struggling to access markets for their manufactured products especially within developed countries.

1.3 Third industrial Revolution

The migration from the 2nd Industrial Revolution (2IR) to the 3rd Industrial Revolution (3IR) was catalysed by improvements in Information and Communications Technologies (ICT) and their incorporation into production processes. This led to digital economics, where the production of goods and services, and transacting thereof, was digitally done.

According to Rifkin (2016) the 3IR was characterised by the e-digitisation of economies. New ways of production and transacting emerged; these included e-commerce and new digital channels of distribution of goods and services. Buying of goods and services over the internet, and elimination of many jobs in the retail sector is one of the characteristics of the 3IR.

The visible socio-economic effects of the 3IR include further reduction of jobs across manufacturing value chains and the strict protection of ICT patents that has made it harder for many people to participate in formal economies as the activities therein are tightly controlled by the owners of technology.

It is important to note that a country that is on the industrialisation path could have characteristics that cut across all the three industrial revolutions. For example, although South Africa largely operates at 2IR stage, elements of 3IR are evident in its economy. Big retail brands in the country like Makro and Game have introduce online shopping which is a characteristic of the 3IR.

1.4 Fourth Industrial Revolution

The 4th Industrial Revolution (4IR) is the industrialisation that is currently unfolding at the moment. It is characterised by application of artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nano-technology, bio-technology, materials science, energy storage, and quantum computing (Ludik, 2017)

Implications of the 4IR on employment

The 4IR has far reaching implications on employment, and general organisation of workplaces. Some of these are briefly outlined below:

- The 4IR will reduce the number of people employed in workplaces. In the extreme, it will eliminate the

human element from production processes. This is a fundamental concern to all developing countries, especially those with growing populations such as South Africa. Creating jobs that enable a meaningful and dignified livelihood is a key aspiration of South Africa and the African continent at large. Thus far, it has remained a moving and an unachieved target - partly because the structure of the economic system is not people oriented. Economic growth realised by South Africa has not been high enough to create job opportunities for all the unemployed. This has been exacerbated by the phenomenon of jobless economic growth, as experienced from 1996 to 2000. The 4IR, if embraced unconditionally, will make worse the jobless economic growth in the country.

- Over and above reducing the number of the employed people, the 4IR will only carter for highly skilled people and those who have had the opportunity to be trained and exposed to specific technologies. It will not be about providing employment to educated and skilled people, but rather to people that have been chosen to be part of particular technologies. These technologies will be patented so they will involve trade secrets. Because of the patents, there will be selective exposure to what these technologies entail and how they can be utilised. The developers of the technology will, therefore, have the deciding power of who should be enabled to use the technology, to what extent, and under what circumstances. As a result the 4IR will introduce even stronger control on who should and who should not be part of the productive system, over and above the reward system.
- The revolution will also change how work is done. The conventional work space will fall away. The 4IR will enable flexible and decentralised but interconnected production systems. This means that labour issues that relate to a number of employees working in the same environment will become absolute. People's homes will become work stations and the line between home and work will be blurred. Workplace standards will, to some extent, need to be extended to apply in people's homes. Given the fact that a home is a shared environment between the person who is working and their family, some of the elements of the revolution will affect the family dynamics of workers.
- Given that it will be possible to work on the same project from different location points and with differing levels of pre-determined contribution, the rewarding system of workers will be complex. It will almost be impossible to negotiate better employment terms for workers due to the differentiation of tasks and locations. The concept of trade unions will almost be rendered irrelevant as power will once again be concentrated with the employers and the owners of technology.

Ultimately, the 4IR revolution will create a dual society where the few privileged people will benefit from the economic activities, while the majority of the population will be spectators. More concerning for labour, it will concentrate the negotiation powers in the workplace in the hands of the employers and owners of technology while at the same time dismantling the workplace power of organised labour.

How Should Organised Labour Respond to the Revolution?

The key aspect that has to occupy the minds of organised labour is how to organise within this era of the 4IR. It should be noted that the economic sectors of South Africa where workers organise are still stuck in the Second Industrial Revolution. It is, therefore, unrealistic to expect that workers and society will just leap into the 4IR without adverse socio-economic effects.

With this realisation this paper recommends the following as some of the steps and ways that labour should organised in the wake of the 4IR phenomenon. We recommend that organised labour should:

- First seek to understand what the 4IR entails in its entirety, specifically for developing countries. All

the different aspects of the phenomenon should be critically examined from the perspective of workers and workers' communities. If need be, organised labour in developing countries like South Africa should seek collaborations with trade unions in countries where the 4IR has taken place, in search of information and learnings. This learnings could then be used to develop a strategy on what aspects of the 4IR organised labour should be willing to compromise on, and which ones not to compromise on.

- Undertake a process of identifying which members of organised labour face the highest risk of losing their jobs with the onset of the 4IR. After the identification process, organised labour should negotiate with all stakeholders on creating a livelihood safety net for those that will be most affected. The stakeholders to be engaged should include government and employers. Workers who can be trained or reskilled to remain active economic actors even in the era of the 4IR should also be identified. For this category of workers, specialised and targeted training and re-skilling should be organised to facilitate their transition into new jobs.
- Ultimately, time will be of essence if the 4IR spreads in South Africa. What is not contestable is that the labour market in South Africa is not ready for the unqualified embrace of the 4IR. As such, organised labour should lobby for more time to review, understand, and re-strategize so as to avoid the adverse effects of the 4IR on workers and workers' communities in South Africa.

Conclusion

Simply put, the 4th Industrial Revolution is a description of a production system that is biased towards the use of sophisticated technologies in production processes and all key aspects of life. The 4IR is being embraced by countries that have made significant advances in artificial intelligence and robotics. It is a rational and logical choice for these high-tech countries, but not for a country like South Africa where job creation is a priority. Given the 4IR's impact on jobs, it is critical that all trade unions come up with a common response to the 4IR; echoing the fact that the 4IR is a choice, and a choice that organised labour is not willing to support at this moment in time due to its ramifications to jobs.

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Exploring the Transformative Likelihood of Mine Community Development Programmes

By Pulane Mafoea- Nkalai

The South African Mining Charter requires that mining houses include community development projects as part of their social labour plans. These community development projects are aimed at uplifting communities in and around the mines. However, very often mine communities do not benefit from mining developments. This article outlines the community development approach and framework as a conceptual and methodological tool for understanding what constitutes community development, especially in the context of mining. It argues that the principles of active participation, empowerment, and life-long learning are central to understanding community practices; these principles should inform any developmental interventions. If mine community development projects are to significantly benefit the local people, community projects should be well defined and distinguished from company-oriented projects (CSR). Local people should participate in the designing and monitoring of the success and impact of community development projects.

Background

Mining in South Africa dates as far back as the 1800s, and for a very long time the mining industry was the driving force behind South Africa's economy and development. In fact, the South African mining industry played a vital role in the neighbouring labour sending countries' economies as well. Although the industry continues to play a significant role in the economy, many of the communities around mine operations remain poor. This is because the activities in the mining industry in South Africa have for a long time remained sculpted on capitalist and neo-liberal paradigms. The industry was driven by apartheid laws which focused on enriching the white elite at the expense of the majority black workers. As a result, even the resolve of the mine companies to eradicate extreme poverty in their host communities usually translates into policy and provision of community development projects based on purely economic concerns. However, in reality community development occurs as part of other social issues.

The United Nations 2030 Sustainable Development Goal to 'eradicate extreme poverty and hunger' largely requires the mining industry to place communities as well as the environments in which they operate as key in their businesses. Indeed, the South Africa mining industry social responsibilities are also aligning themselves with the UN SDGs, as well as striving towards government commitment to transform the industry. The establishment of the Mining Charter in 2004 signified the government's - and to some degree the industry's - commitment to transformation of both the industry as well as host communities. As an example, the Charter is meant to play a transformative role, and one of the ways to achieve this is by 'contributing to the eradication of enclave development through developing programmes dedicated towards host communities and major labour sending areas' (MPRDA). Through the Social Labour Plans, government is able to ensure that mining companies take into consideration the needs of the host communities as well as assist in developing the communities.

Ott (2017) has argued that often the location of valuable mineral resources coincides with sensitive natural areas, placing developmental goals in direct opposition to the conservation of bio-diversity. Also, people are sometimes relocated, or their access to natural resources gets limited; hence the mining industry has social and economic obligations to assist the host communities improve their livelihoods. The aim of the Charter is to ensure that workers and host communities get fair treatment and a fair share from the benefits of mining.

However, to date there has been very little transformation despite several reviews and amendments of the Charter. The 2015 Mining Charter assessment report showed that nationally only 36% of mining right holders have achieved their set target on mine community development (as per the figure below), yet the Chamber of Mines reports showed that the industry had spent about R961 million

in 2010 only for community development (Chamber of Mines SA, 2011). The industry had supposedly spent more than any industry on community development.

According to the Chamber of Mines, although the 2010 Charter assessment does not set general spending targets in respect of mining community development, the spending budgets were set through engagement with the Department of Mineral Resources (DMR), and it was agreed that outcomes should be measured against impact. However, the Chamber of Mines regards a 1% of net profit after tax (NPAT) target as a realistic target for Corporate Social Investment. As a result, the Chamber reported that of the 28 companies surveyed in 2016, 25 spent more than 1% of NPAT. All in all, their spending was R1.14 billion. The entire industry's NPAT for the period amounted to R34 billion, of which 1% is R339 million. So, the 25 companies alone spent triple the total 1% of NPAT standard (Chamber of Mines, 2017).

While the benefits stated above are acknowledged, the activities of the mining industry have negative impacts on the environment and on the lives of local people. As a result, mine community development projects should not only be assessed in monetary terms. It is vital to recognise that host communities endure unreasonably high levels of the cost (socially, economically and environmentally) of the operations of the mining companies while the social investments provided by the corporation through CSR initiatives are inadequate to address the negative impacts, and do not result in improvement in the welfare of community members.

A research conducted by the Centre for Applied Legal Studies titled 'The Social and Labour Plan Series Phase 2: Implementation Operation Analysis Report' (2017), concluded that host communities have, for a long time, been saying that they have not seen any tangible improvements in their lives under the MPRDA. The report further states that there has been growing recognition of these challenges in recent years, not only on the part of DMR and parliament, but also of private sector economists. Ott (2017) also argues that through the SLPs, mines are frequently expected to take the place of local government through the provision of water, health care, infrastructure and other key social services. He states that Marias and Cloete (2015) warn that this increases dependency of host communities on mines.

It is within this context of unclear roles and expectations as well as undefined processes that both government and mining companies treat mine community development initiatives as CSR projects.

Community Development Framework

The concept of community development once had the attention of academics, politicians, policy makers, as well as the private sector. The concept gained popularity, as theorists sought to clarify the notable degree to which

development initiatives and efforts, especially in poor communities, were not reaching intended outcomes. Smith (2013) argues that the interest came due to the growing concern of the British Colonial Office after the Second World War. He argues that the concern was, in part, a response to the growth of nationalism and in part an outcome of a desire to increase the rate of industrial and economic development. It was then that the concept started to appear strongly in United Nations documents during the 1950s.

According to the UN (1995: 2014) community development is 'a process where community members come together to take collective action and generate solutions to common problems'. The key principles to draw from the UN definition is that community development is a process where local people take charge of their own development. According to Midgley et al. (1986:18) in Smith (2013), the definition drew extensively on British literature and experiences in Africa and India, in which three important elements were identified:

- a concern with social and economic development;
- fostering and capacity of local co-operation and self-help;
- the use of expertise and methods drawn from outside the local community.

Community development as a framework is focused on active participation, empowerment and capacity development, hence it is transformative in nature. It renders local people as key in their own development, where people decide their developmental direction and find ways and strategies to attain their future. As a result, community development initiatives are expected to be aligned with the livelihood strategies of local people. Such initiatives have a greater chance of being supported by the people because local people see the projects as their own, and not imposed on them from outside. Satge et al. (2002) in Von Kotze (2010) points out that good livelihoods planning is based on a collaborative enquiry to discover how people live, what resources they have access to, what works, and what has potential to work. They argue that such planning identifies how different people in different households are able to transform their assets and capabilities into livelihood strategies. It explores what people see as desirable livelihood outcomes. Often these opportunities are never explored in mine community development projects.

Despite the obvious benefits of community development approaches, it has been quite clear that it is not an easy process to follow. As an example, Africa has been a recipient of foreign developmental aid for a long time, aimed at uplifting communities; yet little has been achieved. This is the same case with mine community development projects.

At the Mining Indaba 2018 a well-known mining company in South Africa (Lonmin), government, labour and civil society engaged in a panel discussion around the theme 'closing the deficit between government, industry and communities in mining'. The mining company reported on all the initiatives that they are involved in, in an attempt to address social and economic issues in their host communities. Such initiatives include establishment of Community Trusts, in which the community holds shares and are entitled to dividend payments which may be used for up-liftment projects in the respective communities. Civil society organizations that are working in the same host communities complained about the poverty levels, unemployment and lack of access to basic services in the same areas. Government highlighted the challenges of working with communities; they pointed out that the needs of the communities are not static, but rather change with time and circumstances.

During the panel discussions, people asked questions such as: *has the community become dependent on mines to deliver social services? Has the local government relinquished its responsibilities of service delivery to mining communities? As the mining industry, have we taken on too much responsibility for local problems?* These questions signify the confusion regarding how mine community development is to take place so that tangible results are achieved.

One of the challenges with these development initiatives reported by the mining houses is that although they are called 'mine community development', they are not community development initiatives as such, but rather Corporate Social Responsibility projects. Ismail (2009) defines CSR strategies as how corporations or firms conduct their business in a way that is ethical, society friendly and beneficial to communities in terms of development. These projects can play a role in community development but in themselves are not community development, as they are not transformative in nature. For example, CSR projects do involve the community but may not necessarily require the community's participation. In other words, the community may be a beneficiary, but may not partake in conceptualizing and designing the projects.

The Mining Charter presents one key principle with regards to mine community targets, which is that of community consultation. The understanding is that the process of consultation would afford the community an opportunity to partake in decision making around the project. This is also one of the key principles of the community development framework. Yet, the Charter does not clearly define how this process should happen. Often, very little or no consultation and participation happens. A research conducted by Centre for Applied Legal Studies (CALs) concluded that the regulatory system is not

capable of producing SLPs that can effectively contribute towards the transformative objectives, one reason being that the legal framework does not sufficiently regulate how SLPs are drawn up; especially because it does not set clear requirements for the public participation of communities in the development of SLPs.

Chenga et al. (2006) warns that over the last decades the relationship between mine corporations, government, and communities has changed in such a manner that corporate organizations, especially transnational corporations, are able to wield more power than most developing countries' governments because of their financial and global clout. They argue that the result of this is that communities, especially those associated with the extraction industry, have found themselves in a more vulnerable position because their closest ally (the government) may not be in a position to support them because of international pressures.

Development initiatives that are not conceptualized, designed and driven by local people tend to disempower the local people. In many cases, local people do not even recognize them. As a result, when the industry reports on the money spent on these initiatives and the challenges of working with local people, one cannot help but wonder whether communities are not being asked to participate in a game that they did not design.

But this challenge is also not surprising. Mining companies are not experienced in community development. They are businesses, they are meant to make profits by maximizing business. Hence the majority of the people responsible for community development are technical people, either experts in business or engineers. In such cases, mine community development projects are defined in terms of production and are not valued as much as the projects that generate profits. The social context in South Africa demands the need for mine community development, as both a commercial and social investment. Thus companies opt for community development as CSR without even being aware of that decision. Mine community development projects should build on local livelihood activities. This means knowing how local hierarchies are tied up in larger socio-political structures, how people's living arrangements change as result of mine operations, how local people define their own problems, and how communal resources are managed for the benefit of the people. Yet, this remains a challenge for mine houses. Could it be that mining houses are being expected to champion community development yet they are not designed for that?

The application of the community development framework highlights issues of genuine stakeholder participation, power relations (particularly power imbalance), and partnerships in decision making as critical in ensuring that local communities take part in deciding what happens to their environment and to their lives.

Conclusion

This paper has argued that there are aspects of community development that affect and influence the success of development initiatives in mine host communities. These aspects of the community development framework can prevent local people from engaging with mine houses. In addition, mine community development as stated in the Charter should ensure genuine participation of local people. Mine community development projects are likely to gain support when power relations between mines, government and local people are shifted in a manner that guarantees that all stakeholders benefit from the mining activities.

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Renewable Energy Independent Power Producer Procurement Programme: Where are the Fulltime Sustainable Jobs for Local Communities?

By Zolisa Mpange

South Africa has experienced increasing problems in meeting the expanding energy demands for its industrial development, and the growing population. The government has attempted to mitigate these energy constraints by introducing environmentally friendly means to meet the demand. One the most innovative mechanisms that government has established has been to introduce renewable energy into the South African markets by developing the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). The REIPPPP is intended to serve two main purposes. Firstly, it is intended to increase energy security in the country through the procurement of additional electricity generating capacity and, secondly, to stimulate economic development through various criteria that have to be met by the power producers. It is the economic development requirement of the REIPPPP that this paper is investigating. In particular, this paper critically examines the model of employment of South Africans from local communities as currently being implemented by the REIPPPP. The paper attempts to gain a sense of whether this approach is creating full time sustainable jobs. It highlights that the renewable energy industry is not labour intensive; after the construction period has been completed approximately only two per cent of the workforce is retained for operational and maintenance requirements. At the same time the manufacturing side of the renewable energy sector mostly employs workers as contractors because they are dependent on gaining contracts from individual IPPs. In addition, the REIPPPP does not provide reference to the nature of work, in terms of longevity of the employment which IPPs should provide. Therefore, the failure to provide full-time sustainable jobs to local communities undermines a crucial part of the REIPPPP. This paper recommends that there be a clause in the REIPPPP that speaks to the nature of work, in terms of longevity of the employment which IPPs should provide.

Introduction

South Africa has experienced increasing problems in meeting the expanding energy demands for its industrial development, and for its growing population. In 2008 the country started rolling blackouts, which has had a crippling effect on the economy (Ting, 2015). At the time, the Electricity Supply Commission of South Africa (Eskom) stated that the scheduled blackouts were required to prevent the national grid from crashing, as its reserve capacity was about half of the 15 per cent that Eskom considers a safe reserve (De la Rue du Can, et al., 2013; Hlongwane, 2012).

The South African government has attempted to mitigate these energy constraints by introducing environmentally friendly means to meet the demand.

One the most innovative mechanisms that government has established in order to meet the energy demand has been to introduce renewable energy into the South African markets by developing the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) (WWF-SA, 2015). This national energy programme was jointly launched by the Department of Energy (DoE), National Treasury, the National Energy Regulator of South

Africa (NERSA) and state electricity utility, Eskom, in 2011. It was launched as a competitive bidding process, and was put in place to bring about significant growth in the economy, with investments from international renewable energy companies (Tait, 2012). Moreover, it was one of the programmes identified by the government as a climate change flagship programme.

The REIPPPP aims to increase the growth of the renewable energy industry in South Africa, and is intended to serve two main purposes. Firstly, it is intended to increase energy security in the country through the procurement of additional electricity generating capacity and, secondly, to stimulate economic development through various criteria that have to be met by the power producers (WWF-SA, 2015).

It is the economic development requirement of the REIPPPP that this paper is investigating. In particular, this paper critically examines the model of employment of South Africans from local communities as currently being implemented by the REIPPPP. The paper attempts to gain a sense of whether this approach is creating full-time sustainable jobs.

REIPPPP Implementation

The implementation of the REIPPPP lies with the DoE, as the DoE is responsible for implementing Renewable Energy (RE) policies and measures.

For that reason, in November 2010, the DoE and National Treasury entered into a memorandum of agreement with the Development Bank of South Africa (DBSA) to facilitate the entry of the private sector into electricity generation, and established the Independent Power Producer (IPP) office to procure renewable energy through REIPPPP (Swanepoel & De Beer, 2011). The IPP office provides the following services:

- Professional advisory services;
- Procurement management services;
- Monitoring, evaluation and contract management services.

As part of the REIPPPP, IPPs are required to bid in various bidding rounds in order to be chosen as the preferred supplier. Between 2011 and 2018, four such bidding rounds had been completed, referred to as Bid Windows (BW). For bid submissions, IPPs are obliged to assess socio-economic needs of communities within a 50km radius of the project site, and state their commitment through local community development initiatives.

IPPs are judged on two broad components: the first is the price of producing the technology, and the second is their contribution towards local development of communities surrounding their operations. The main evaluation criterion for the bid selection process is pricing, with a 70% weighting; however, there is a 30% weighting for economic development (ED) (Tait at al., 2013).

If the IPP is awarded the winning bidder status, they enter into a contract with the DoE according to the terms of an implementation agreement. This contract includes evidence that the IPP has assessed the socio-economic needs of the communities surrounding its operations and developed local community development strategies that can address these needs (Martin, 2014). Once an IPP has been chosen as the preferred supplier, it enters into a twenty-year contract with the DoE to operate in South Africa. As a result, this gives them the opportunity to embark on meaningful, sustainable projects in rural communities, where the renewable energy projects are located (Wlokas at al., 2012)

According to the DoE, as of 4th April 2018, the REIPPPP had approved 119 renewable-energy companies throughout South Africa. The Minister of Energy, Jeff Radebe, signed contracts with 27 of those IPPs on the 4th of April, 2018.

Job Creation

The job creation criterion comprises a substantial 25% of the final ED scorecard. The sub-elements of this criterion are summarised in the table below:

Table 1: Sub-elements of the job creation criterion

Description	Threshold	Target
RSA based employees who are citizens	50%	80%
RSA based employees who are black people	30%	50%
Skilled employees who are black people	18%	30%
RSA based employees who are citizens and from local communities	12%	20%

Source: (Eberhard & Naude, 2017)

As discussed earlier, this paper only focuses on employment of South Africans from local communities. This requirement requires that a certain percentage of the South African employees in the project should come from the local community where the power plant is situated - both the threshold of 12% and target of 20% have remained unchanged from BW 1-4.

However, the job procurement document does not provide objectives and the vision for job creation. Moreover, it does not provide reference to the nature of the work in terms of longevity of green economy employment opportunities. More importantly, it does not provide a comprehensive Monitoring and Evaluation (M&E) framework against which one could measure impact. Trialogue (2014), emphasises the importance of an M&E framework by stating that 'the process of developing an M&E framework in itself helps to ensure that all project partners have the same objectives and are in agreement on how to measure success'. The project partners should also include the beneficiaries throughout the monitoring process.

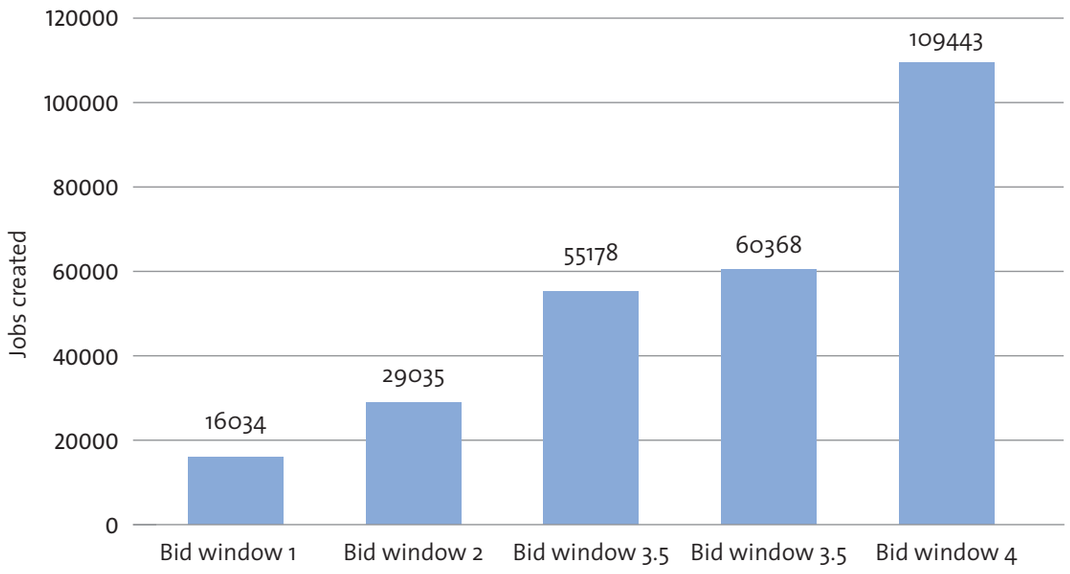
In addition, another complication in government job related data regarding IPPs is that it is provided in job-years. The term job-year refers to one person's employment for one year. For example, 40 job years could mean two people employed for twenty years each, or four people employed for 10 years each. So attempting to count the exact number of jobs created by the IPPs becomes difficult.

Similarly, another difficulty in counting the number of jobs in the renewable energy industry is the distinction between direct, indirect and induced jobs. Direct jobs are those which are directly related to the power plant; for example workers employed during construction, or during the operations of the power plant, namely power plant operators, other technical personnel, as well as cleaners and administrative support. Indirect jobs are associated with activities related to the power plant. Examples include the manufacturing of power plant components, or construction related activities such as cement manufacturing or transport of components to the construction sites. Induced jobs are a category of jobs which arise from economic activity in an area but which are not directly related to the renewable energy industry. For example, an increase in family income due to employment at a renewable energy plant might mean that families eat out more often. An increase in restaurant staff due to an increase in restaurant bookings could be classified as an induced job. But the scope of this paper covers only direct and indirect jobs.

The struggle in attaining accurate numbers of jobs created by IPPs has led to many reports doing estimates. For instance, the national IPP office report (DoE, 2015) provides a total job estimate of 109 443 job years for BW 1-4, but this number does not distinguish between construction and operation jobs (Figure 1). The report only provides one job number and it is not clear how many local community members had gained direct or indirect employment from the IPPs. The discrepancies in the job data available from the IPP office reports as described above simply highlight the difficulty of obtaining accurate job creation data.

However, it is possible to calculate the exact numbers of local community people who are employed by IPPs, when using the empirical data from a study conducted by McDaid (2016). It is also possible to obtain the number of construction jobs (assuming average construction of 2 years) and operational jobs for local community members. The McDaid (2016) study focused mostly on the Western Cape, Eastern Cape and Northern Cape, as they are the three major renewable energy provinces.

Figure 1: Number of jobs created by IPPS in job-years (BW 1-4)



Source: (DoE, 2015)

Table 2 below shows how the construction and operational jobs for local communities are spread across the three provinces. It is worth noting that the number of operational jobs are very few compared to construction jobs.

Table 2: The REIPPPP provincial distribution of jobs for local communities

Province	No. of IPPs (BW 1-4)	No. of local people employed in construction	No. of local people employed in operations
Eastern Cape	17	2509	348
Northern Cape	48	11888	1616
Western Cape	11	1680	165
Total	**76**	**16077**	**2129**

Source: (McDaid, 2016)

McDaid's findings are echoed by the World Wide Fund for Nature – South Africa (WWF-SA) Report. It says that the renewable energy industry is not labour intensive, and after the construction period has been completed approximately two per cent of the workforce is retained for operational and maintenance requirements (WWF-SA, 2015). The construction jobs last on average 18 months to two years during the time of the construction of the power plant. In an area rich in renewable resources, a construction job could extend beyond two years if the worker is able to secure employment at a subsequent power plant site.

At the same time, Mulcahey (2012) argues that job creation by IPPs is dependent on successful industrialisation as most jobs are created in the manufacturing side of the renewable energy sector. Contrary to Mulcahey (2012), McDaid (2016) states that manufacturing factories employ workers as contractors for a fixed project although they continue to operate full time, with project following project. Therefore, manufacturing factories are dependent on gaining contracts from individual IPPs, and there is work only if the company continues to get the contracts.

According to McDaid's report, at the construction period, people do gain employment. The trend is that a portion of construction jobs are sourced within local communities (50km radius of the renewable energy project), and there are likely to be somewhere between 180 to 300 jobs. Post construction, the study finds that there are very few jobs, between 5-15, and a few additional job opportunities for security or cleaning services; these were generally not for those from the surrounding communities as the project contractors travel from project to project with their team of skilled workers.

One case in the Western Cape illustrates the common trend. During construction there were up to 1 000 jobs, but now that the wind farm is operational only 15 are left. Additional services such as cleaning and road maintenance have been locally procured, as well as security services. This provides an additional 13 permanent jobs, with 11 of those sourced from the local community. The total of 28 jobs (McDaid, 2016).

It is clear that the REIPPPP has been able to provide temporary direct construction employment for local people, but when it comes to full-time sustainable operational jobs, it has provided very few.

McDaid (2016) further highlights how renewable energy industrialisation has created indirect jobs (Table 3). These findings are in line with the design of the REIPPPP, which is meant to use investment in the energy sector to grow industrialisation of the local economy (DoE, 2015).

Table 3: Jobs created by renewable energy manufacturing industry

Company	Service provided	Local jobs created
Local concrete manufacturing company in Cape Town	Manufactures concrete wind towers for wind farms	116 construction jobs
Local supplier of wind towers in Atlantis, Western Cape	Supplies locally manufactured wind towers to wind farms	220 full-time jobs
Local wind tower components manufacturing company in Atlantis, Western Cape	Manufactures wind tower components for wind farms	80 full-time jobs
Local specialist transport company in Eastern Cape	Transports wind towers to wind farms	110 full-time jobs
Local solar manufacturing company in Eastern Cape	Solar PV manufacturer	70 full-time jobs
Local solar manufacturing company in KwaZulu-Natal	Solar PV manufacturer	160 full-time jobs

Source: (McDaid, 2016)

In light of the above, the renewable energy manufacturing industry has the potential to create more indirect full-time jobs for local people, but growth in manufacturing is dependent on contracts from individual IPPs.

Conclusion and Recommendation

In conclusion, renewable energy is an emerging sector that can create new jobs. However, given the diversity in job creation calculation methodology and the discrepancies within the REIPPPP, it is difficult to accurately estimate the total potential for renewable-energy associated jobs. Overall, the REIPPPP has been able to provide employment for local people, although notably the only significant impact made in this regard is temporary employment. The failure to provide full-time sustainable jobs to local community people undermines a crucial part of the government REIPPPP. This paper recommends that there be a clause in the REIPPPP that speaks about the nature of work, in terms of longevity of the employment which IPPs should provide.

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Indebtedness of Mining Workers in South Africa: What Interventions can be implemented for Sustainable Debt Relief?

By Tankiso Pitso

Over indebtedness of the working class is a key challenge in South Africa. The mining sector is also affected by the problem. According to the Chamber of Mines (2017), 6.5% – 14% of employees in the mining industry have emolument attachment orders (EAOs) against their salary. In a general view, more than half of consumers have to use 75 per cent of their salary to make debt repayment (Roets, 2016; Sanlam Survey, 2017). It is not by choice, workers are forced by the economic situation. The World Bank's Global Findex Database report showed 86 per cent of South Africans borrowed money – the highest in the world. In South Africa, high inflation and increased interest rates, which imply that expenditure exceeds production, arise partly from the global economic meltdown but also from government initiatives to appropriate ever more of the state revenue for social assistance to the poor rather than improving infrastructure and production skills (Buys, 2008; BER, 2017). Many mine workers are entangled in this web of debt. However, the question is: are there amicable long term plans to save workers? This paper seeks to look at the factors that contribute to mining workers' indebtedness in South Africa, and how the stakeholders can intervene. The aim is to shed more light on the level of mineworkers' indebtedness and come up with educational programmes on assisting workers to manage their finances and avoid sinking into debt further. Generally, the level of working class indebtedness is worsening and, therefore, action is needed. This article considers ways to assist mineworkers with debt rescue. This paper reviewed secondary data and analysed statistics to ascertain the level of the problem and to find the factors that perpetuate mineworkers' indebtedness. This paper concludes that mineworkers' indebtedness is a bigger problem that needs concrete programmes that can protect the workers. The study acknowledges efforts by the Chamber of Mines in assessing the problem and encouraging mine houses to rescue workers. This paper recommends that financial education of workers on financial matters and debt management must be enhanced, specifically by organised labour, the Chamber of Mines, employers and government. The government needs to set up a clear regulatory framework to monitor illegal micro-lenders.

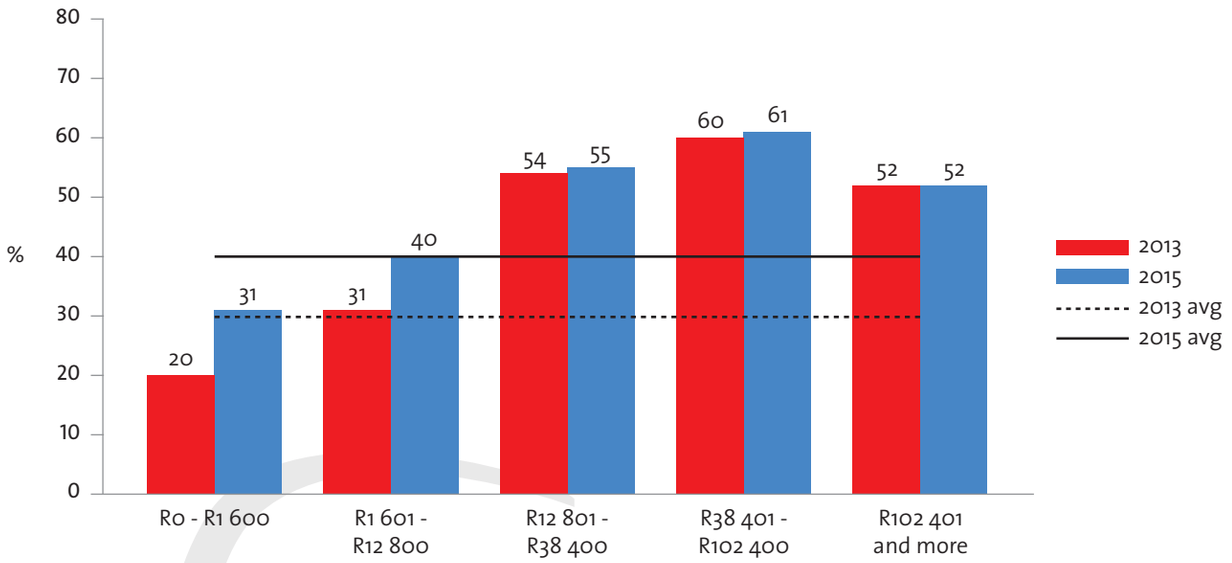
Introduction and Background

This paper intends to look at the indebtedness of mine workers. The primary reasons to look into mining sector are as follows; majority of mineworkers are immigrants who leave their families in their home countries and work in South Africa mines and secondly mineworkers are said to earn higher wages on average.

A Compuscan study (2014) looking at miners in Rustenburg revealed the depth of the problem of indebtedness. Data indicated that the average miner owed a total of R100 000 in accumulated debt and was paying back R5 000 per month. The concern is that the amount in overdue debt increased to an average of approximately R9 000 during the 2012 strike. The study focused on Rustenburg mines. A representative sample involved miners, with an average age of 36 years, who live in Rustenburg and work at the three major mines, namely Implats, Anglo American Platinum and Lonmin (Compuscan, 2014). The majority of mineworkers over time have been drowning in debt due to low wages, the rising standard of living, and insufficient knowledge about managing personal finances (Khumalo, 2017).

As things stand, the indebtedness of mineworkers cannot be taken as an isolated case. Indebtedness of the working class is a huge problem in South Africa. A recent Sanlam Benchmark Survey has found that South African workers are buckling under financial pressure, with

Figure 1: Consumer Debt



Source: Gauteng City-Region Observatory Quality of Life Survey report, 2017.

short-term debts such as credit cards, car repayments and personal loans proving the most difficult to repay (Sanlam Benchmark Survey, 2017). The 2017 Sanlam Benchmark Survey is an annual retirement funding study which surveyed more than 1 300 employees about their financial wellness. About 50 per cent of the respondents admitted to being unable to meet their debt obligations consistently throughout the year.

Growth in credit consumption in South Africa, however, has exceeded growth in incomes - leading to increasing levels of household debt. One of the groups most affected by this is the urban working class. This paper explores some of the features and dynamics for working class over-indebtedness within the changing socio-economic context. Figure one below shows the consumer debt.

The middle class is under tremendous pressure. According to Statistics South Africa, in June 2017, Gauteng had the highest number of debt cases (17 603) followed by KwaZulu-Natal (8 800). However, these are also the provinces with the biggest populations. Nationally 48 169 summons for debt were issued, valued at more than R350 million. The value of civil default and consent judgments for KZN came in at more than R42.3 million for June this year. The figure for Gauteng was more than R100 million, with the Western Cape second at about R66 million. Statistics South Africa collected the information from 203 magistrate courts around the country (StatsSA, 2017).

On the other hand, there are shocking statistics showing the extent of the problem. The Debt Rescue statistics show that South African consumers owe the bulk of their monthly salaries to creditors (Debt Rescue, 2015). The group found that consumers owe as much as three quarters (75%) of their monthly pay to creditors, while almost 60% of the population are struggling to meet their monthly payments for their home loans and credit card payments. Only 23% of South Africans have any money left at the end of the month - with the other 77% left flat broke at the end of the month, with no hope of saving any money. More than 11 million of South Africa's credit active consumers are described as over-indebted. Findings from Debt Rescue in 2015 showed that the average South African owed about R70 000 in debt.

What are the Drivers of Indebtedness among Mineworkers?

Growth in consumption

The cost of the average monthly food basket rose by a staggering 23.8 per cent from 2015-2016; it rose even higher in 2016-2017, thus leaving the workers in a dire situation. Food inflation for the first three-quarters of 2017 averaged 10.75 per cent, showing that there's no sign of food prices falling in the short term. The 1% increase in value-added-tax (VAT) is guaranteed to increase food prices (Davies, 2017; Sanlam Benchmark Survey, 2017).

The latest factsheet by the Chamber of Mines on the indebtedness of mineworkers reveals the extent of the indebtedness burden on mineworkers. It has emerged that some workers borrow money to buy basics like food. There are other factors such as drought that are causing food prices to rise. An increasing number of mineworkers even resort to borrowing money from Mashonisas simply to get by. These Mashonisas charge high illegal interest rates.

Ease access to credit

Mineworkers have easy access to loans, but they are charged illegal interest rates. Some credit providers are not even registered with the National Credit Regulators. Anglo-American intervened and successfully saved its employees from more than R3-million in wrongful or illegal debt repayment arrangements. By so doing, the company ensured that the mineworkers can enjoy an increase in take-home pay by of up to R1 000 a month (Herald, 2015).

The banks and many other financial service providers offer credit. The micro-lenders are mushrooming and loan shacks are also in the game - offering credit without proper affordability checks. Some financial services allow insecure lending which later leaves the working class entangled in a web of debt. As a result, unsecured credit ballooned by almost 30% in 2017, and banks are said to account for the lion's share of unsecured loans in the market (Daily Group Intelligence, 2017).

Low wages

Low wages remain an issue for workers regardless of unions trying hard to negotiate for better pay. According to the Treasury (2016), 'there is an inextricable link between low levels of wages, high unemployment rates, the great number of people living in poverty, and the massive inequality in South Africa'. We know that out of a population of 55 900 000 people, 29 733 210 are living below the poverty line. The majority of mineworkers earn meagre wages. Wages

According to the Chamber of Mines fact book, mineworkers earn more than R5000 on average. The wages differ according to minerals mined. Iron ore miners get paid the highest as compared to other minerals. It is a contested issue that the wages may not be the contributing factor to mine workers indebtedness as majority of them do not get low wages. Logically, the low wages affect a worker, as such a worker cannot afford to meet their regular expenses.

Financial Discipline

It doesn't matter how much a person earns, as long as the person doesn't have financial planning and self-control, the debt problem is inevitable. All that has been regarded as key contributor to mine workers debt problem is lack of financial discipline. Those who are found to be in serious debt are said to spent money without proper budgeting. Some mine workers would admit in one on one debt assessments that they sometimes spend and end up borrowing even when that could have been avoided. Broadly, this may be caused by lack of financial education.

Multiple Households

Since majority of mineworkers are immigrants some have more than two families to support financially. This include family at home and other family at the mining community. To share a salary to multiple households may be increasing the expenses and forcing miners to borrow extra money to supplement their income.

The repercussions of indebtedness: Why this issue needs attention

There are huge repercussions that come with the issue of indebtedness. Indebtedness has a significant impact on employees' capability to prosper and fund their future. This has a harmful impact on mineworkers' wellbeing at work and at home. The high levels of debt have also been identified as an underlying cause of industrial actions and fractious labour relations, as workers seek very high increases to enable them to better service their debts (Chamber of Mines, 2017). When the funds run out and workers find no rescue, they suffer from depression and are likely to lose morale and even experience diminishing health due to stress. All this affects their productivity.

The debt problem has serious impacts:

- The confidence level of individual workers suffer.
- Debt has both emotional and psychological impact. It induces stress, depression and all other negative effects on the individual. Households with low income are more vulnerable. The high standard of living poses a serious temptation for poor families to borrow beyond what they can afford.
- The workers' productivity may be impacted by this scourge. As highlighted by the Sanlam survey, the inability to service the debts is not only impacting on the quality of life of those indebted, but it is also having an impact on productivity in the workplace, with many employees too stressed to be effective at work (Sanlam Benchmark Survey, 2017).

What should organised labour, COM and other stakeholders continue to do?

There is no doubt that the Chamber of Mines (COM) has already noted this scourge affecting mineworkers, and there are already interventions been implemented. Anglo-American and Sibanye Gold both have hands on deck to ensure their employees are assisted in dealing with the debt problem. The COM stated that mining companies are working hard to address employee indebtedness. The elephant in the room is also the Mashonisas. The majority of the Mashonisas are unregistered, and charge ridiculous interest on the loans. This is regarded as 'invisible debt', with workers battling with it on their own. Financial education should be extended to communities and mineworkers' households. Other mining houses must emulate Anglo-American's financial wellness programmes to curb the problem of growing indebtedness.

Organised Labour

It is very crucial for organised labour to conduct their own random member survey to establish the extent of the problem and be able to implement evidence-based interventions. It is critical to measure the impact of solutions being put into place by the mining houses and work in collaboration with them to optimize the success of the interventions. The unions must engage in quarterly campaigns on money matters and bring awareness to mineworkers about proper personal finance management, and ways to avoid the debt trap. The unions in collaboration with mining houses must hold financial literacy workshops for workers in a consistent manner to ensure that mineworkers understand their rights and are not tricked by fly-by-night credit providers.

Conclusion and Recommendations

The findings of this paper clearly indicate that there in a need to help mineworkers to move out of the debt trap and manage their finances well. There is lack of financial literacy among mineworkers as well. Financial literacy education as a tool for poverty alleviation is largely not employed, even though the connection between financial education and poverty alleviation has been scientifically confirmed.

It is, therefore, imperative that the financial vulnerability of mineworkers is addressed by all stakeholders including employers, unions and financial services providers and debt counsellors. It is clear that Individuals face psycho-social problems due to their financial vulnerability and the debt problem.

This fact should be viewed against the finding of this paper, so that mineworkers are accordingly helped with the indebtedness problem. One of the main reasons for the scourge of mineworkers indebtedness is that there is easy access; both from legally registered providers and unregistered micro-lenders - popularly known as Mashonisas in mining communities.

Lack of financial education among mineworkers has also been noted as contributing to the problem. Although the Chamber of Mines is trying to address the indebtedness of employees in the mining sector, there is little evidence from the literature about the interventions being undertaken by organised labour to address the problem. Organised labour should help stop the culture of debt from taking root.

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