

# It is not all about acid mine drainage (AMD) on the West Rand – there is dust too



The CSIR research team

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## Introduction

The West Rand is part of Gauteng Province and is surrounded by mining activities. There have been several media and scientific reports about acid mine drainage (AMD) in this area. However, AMD is not the only environmental problem faced by the communities in this area; there is airborne dust which is also a serious environmental health issue that needs to be addressed.

## Mining on the West Rand

The West Rand has several mine dumps which are the remnants from the gold mining in the area. The dumps are mainly made up of crushed rocks; the reason is that the gold processes extraction was not advanced in those early days. This area has high levels of mine dust which can be irritating and can result in health problems, ie both acute and chronic diseases. The sad reality is that several human settlements are in close proximity to the mining operations and abandoned mine dumps. Furthermore, in this area there is very little monitoring of the toxins associated with mine dust, including airborne particles, metals and radionuclide.

To date, no major study that the CSIR team is aware of has been done to address the health of communities living in close proximity to abandoned mines and mine dumps, and nobody has ever studied or looked at the perceptions, attitudes and feelings of mining communities

on mine dust impacts. If such studies have been done, they are difficult to find. A group of researchers from the CSIR Climate Studies, Modelling and Environmental Health Research Group took the initiative and went to the West Rand to talk to the communities about their experiences and perceptions of mine dust.

## What do people think about dust?

Communities, who live in this area, expressed their perceptions and experiences with regard to mine dust. The people of the West Rand are aware that mine dust is affecting their communities and they have noticed dust in the air. They identified mine dumps as the biggest source of dust in the area; however they mentioned other sources of dust such as sandblasting, brick-making, coal storage (terminal storage) industries in the area and motorbikes being ridden on the slopes of mine dumps.

According to these community members, the dust patterns are changing, because it appears to be getting worse every year as compared to the past years and some communities attribute these changes to climate change. However, they believe that dust depends on a season, whereby winter season has more dust relative to summer, because it is drier and windy, while during the summer season the dust levels are lower, because it rains and the dust from the atmosphere gets washed away. In addition to that, some communities specified that in August there is more dust because of strong winds.

These communities stated that they are concerned about this dust because it is detrimental to their health and well-being and the ailments associated with mine dust are

increasing in this area. The most disturbing aspect is that there are no buffers between the mine dumps boundaries and the residential areas, and their children use these mine dumps as play grounds (for example when they play soccer).

## How do they experience it?

They indicated that dust is a nuisance to them and it seems to cause the following health problems, as listed by the community: respiratory illnesses, e.g. asthma, sinus, bronchitis and dry cough, eye irritations, blindness, and skin problems, eg itching. They also expressed that dust is affecting the health of their animals and it damages their household items such as curtains, electrical appliances, cars and clothing. It also creates problems for the people who store water in open containers because the quality of their water deteriorates, and the soil quality is affected because the land becomes dry.

## How do they protect themselves?

The majority of the community members said that they do not protect themselves from dust. However, some people plant grass and trees to reduce dust and others stay indoors during occurrences of high dust. They did say though that these measures are unsuccessful because the dust gets indoors and still affects the people. These communities cannot afford other protective measures such as dust masks because they are costly and many of the community residents are unemployed.

## What do people think can be done to minimise this dust impacts?

They think the best way to overcome this mine

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# Johannesburg's newly revamped library

**T**he Johannesburg City Library has been smartened up and brought into the forefront of the modern world.

The dramatic central city building now has a seamless flow from the old to the new structure, returning the facility back to its rightful place as the "heart of the city".

Situated between President, Market and Sauer streets, this library has been described in Joburg 2040, the City's Growth and Development Strategy, as "a building block in the strategy to ensure that barriers to education and learning are reduced and to unlock the potential of our youth".

It been transformed with technological upgrades to become a learning centre of excellence. It will now be able to accommodate some 566 people in the building, compared to its previous 255 seats. Study spaces, meeting and discussion areas, and a centre to teach computer literacy have all been included in the new modern face of the library. Three new floors have also been added, which rise in the centre of the original building.

## Wi-fi access

It has been brought up-to-speed regarding electronic information, and has 212 public access computers and wi-fi areas. The old theatre has also been restored and is now a public activity space or conference venue.

Apart from all the other amenities, collections such as the Africana in the Harold Strange Collection of African Studies; the Michaelis art collection; the performing arts collection; the newspaper and picture collection; and the children's book collection will also be included.

Additional toilet facilities, modernised lifts, and upgraded electrical and air-conditioning systems will also help make both the old and new sections of the library, a fully functional space more like a socially inclusive living room or home-from-home.


A number of interventions to alleviate high levels of poverty, unemployment and social exclusion have been incorporated into the facility's centre for excellence. This centre will have a focused support area that will work to narrow the skills mismatch between industry

needs and the available labour force, to help combat the unemployment rate.

The funding also provided for:


- The appointment and training of staff to weed out the specialised reference collections of irrelevant, unused, out-of-date and worn materials;
- The linking of the remaining stock of the specialised collections to the data base;
- Subscribing to electronic databases;
- Buying and linking new stock; and
- Buying audio-visual equipment and equipment for the digitisation of the library's news cuttings collection.

During a sneak-peak inside the new library late in 2011, Executive Mayor Parks Tau said that the City strove to be a smart one by providing services that were easy to access and use with efficiency, and in its responsiveness to the needs of its people.

Apart from helping to fund the renovations, the Carnegie Corporation also chose the Johannesburg City Library for its Revitalising of African Libraries Programme. 

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dust problem is to have the mine dumps removed. Alternatively, the communities may be relocated. One other measure suggested by the communities to curb the mine dust impacts was that the government should assist with planting of vegetation on the surface of the mine dumps. They also indicated that the previous owners of the abandoned mines should be held accountable.

The community members also suggested that they would like to have more studies performed concerning the potential impacts of mine dust on their health and environment. They were also interested in knowing more about the constituents of the mine dust particularly the white dust that they usually experience around August. Communities such as Kagiso, Tudor Shaft and Rietvallei, on the West Rand are surrounded, built on or very close to mine dumps including Doornkop dump, Cooke dump, Lindum dump and Dump 20. The mine dumps often contain high levels of toxic materials that may result in serious health impacts if people are exposed. Soils and sediments around the West Rand have been found to have high levels of toxins including radionuclides and metals that may cause various types of health problems including cancer. Mine dumps can be reclaimed or rehabilitated. Mine dump reclamation involves reprocessing the mine dump when new and improved mining technologies become available. Mine dump rehabilitation may involve covering the mine dump with a layer of clay or soil or waste rock and planting vegetation to contour and stabilise the dump, control erosion and dust impacts, and improve the visual appearance of the dump. 



*Communities are particularly interested in knowing about the constituents of the mine dust, especially the white dust that they usually experience around August*