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## Rising mine water could be 'catastrophic' for Joburg, Parliament told

By: Sapa

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Millions of litres of highly acidic mine water is rising up under Johannesburg and, if left unchecked, could spill out into its streets some 18 months from now, Parliament's water affairs portfolio committee heard on Wednesday.

The acid water is currently about 600 metres below the city's surface, but is rising at a rate of between 0,6 and 0,9 metres a day, water affairs deputy director water quality management **Marius Keet** told MPs.

"[It] can have catastrophic consequences for the Johannesburg central business district if not stopped in time. A new pumping station and upgrades to the high-density sludge treatment works are urgently required to stop disaster," he warned.

Speaking at the briefing, activist **Mariette Liefverink**, from the Federation for a Sustainable Environment, said the rising mine water posed an "enormous threat", which would become worse if remedial actions were further delayed.

"This environmental problem is second [in South Africa] only to global warming in terms of its impact, and poses a serious risk to the Witwatersrand as a whole. At the rate it is rising, the basin [under Johannesburg] will be fully flooded in about 18 months."

She said the rising mine water had the same acidity as vinegar or lemon juice, and was a legacy of 120 years of gold mining in the region.

Acid water is formed underground when old shafts and tunnels fill up. The water oxidises with the sulphide mineral iron pyrite, better known as fool's gold. The water then fills the mine and starts decanting into the environment, in a process known as acid mine drainage.

Keet said the problem was not just confined to Johannesburg, which is located atop one of several major mining "basins" in the Witwatersrand, known as the Central Basin.

In 2002, acid mine drainage had started decanting from the Western Basin, located below the Krugersdorp-Randfontein area. The outflow had grown worse earlier this year after heavy rains, prompting his department to intervene.

However, a lack of treatment capacity in the area "compelled in-stream treatment as a short-term intervention".

This intervention saw the department pouring tons of lime, an alkali, into the Tweelopies Spruit in an effort to neutralise the acid mine water. This had led to problems with the resulting sludge that had formed in the water course.

The region's Eastern Basin, below the town of Nigel, was also threatened. The last working mine still pumping out water in the area was Grootvlei.

Keet said that if the mine stopped pumping, acid water would start decanting into the town "within two to three years".

Water affairs is currently taking legal action against the mine, after it allegedly failed to comply with a departmental directive to treat the pumped water before discharging it.

On stopping the growing threat below Johannesburg, Keet said about R220-million was needed to establish pump stations, pipelines and treatment works.

Responding to a question, he said there were plans to tackle the problem.

"The idea is to build a pump station; the challenge is where the money will come from," he said.

Liefverink said if the acid mine water rose to the surface in Johannesburg's CBD, it posed a threat to the city's inhabitants, its buildings and the surrounding environment.

She told MPs that residents of many of Gauteng's poorer communities were living alongside, and in some cases on top of, land contaminated by mining activities.

They were exposed to high concentrations of cobalt, zinc, arsenic, and cadmium, all known carcinogens, as well as high levels of radioactive uranium.

"In some cases, RDP houses are being erected next to radioactive dumps," she told MPs, who expressed shock and concern at the news.

Liefferink said acid mine drainage was exacerbating the problem, because it dissolved the heavy metals and precipitated them in water sources and wetlands, where people grew crops and abstracted water.

She also warned that some of the heavily-polluted streams drained into the Vaal River system, and posed a threat to the region's water supply.

Liefferink, who backed up her presentation with a series of photographs showing, among other things, shacks erected on top of an old mine tailings dump, received a round of applause from MPs.

Mining started on the Witwatersrand about 120 years ago. More than 43 000 t of gold and 73 000 t of uranium have been extracted from the region's mines.

According to Liefferink, this mining activity has left a legacy of about 400 square kilometres of mine tailings dams and about six-billion tons of pyrite tailings containing low-grade uranium.

"Waste from gold mines constitutes the largest single source of waste and pollution in South Africa... Acid mine drainage may continue for many years after mines are closed and tailings dams decommissioned," she said.

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