

Rietvlei report: don't drink the water - National

One of Pretoria's main water sources is heavily polluted with toxic chemicals that cause sexual mutations and long-term cancers, scientists have warned.

A hard-hitting report by a team of scientists documents sexual abnormalities in fish and mammals at the Rietvlei Nature Reserve, which supplies a significant portion of the Tshwane metro council's water. The report highlights the potential human health risks of chemicals known as endocrine disruptors, which interfere with hormone production.

The report is based on a two-year study by researchers from the Water Research Commission (WRC), the universities of Pretoria and Potchefstroom, and the Centre for Scientific and Industrial Research.

It says that hormones found in the Rietvlei Dam are "at levels up to 10 000 times higher than those known to cause initiate activity in breast cancer cells ... One can expect that untreated water used for domestic, agricultural or recreational activities would result in unacceptably high human health risks. These risks include carcinogenic risks, toxic effects and endocrine disruption."

Sexual abnormalities caused by endocrine disruptors have been in the headlines since the Mail & Guardian reported in March on disorders documented by a Limpopo medical doctor, which he believed were linked to the unregulated spraying of pesticides on farms around Groblersdal. These included a five-year-old girl and teenage boys growing breasts, miscarriages, partial facial paralysis, cancers and ear malfunctions.

The report on endocrine disruptors in Tshwane's water emerged during recent tribunal hearings on objections to a new residential development next to Rietvlei Nature Reserve. One concern was that the development would add to water pollution.

The M&G has an executive summary of the report, which appears to have become a hot potato between the WRC and the department of water affairs. WRC communication officer Yuven Gounden refused to release the full report, while admitting "it is almost ready to go to print".

"Research projects such as this one are a collaborative effort and various role players need to network, compare findings and verify results in order to publish and disseminate findings and recommendations that are factually correct. Publishing a half-baked product will be irresponsible," Gounden said.

Questions sent to the department, to which the WRC reports, went unanswered.

The report is unequivocal about the risks of the contamination at Rietvlei: "The damaging impact of endocrine-disrupting chemicals is internationally no longer an issue of dispute," it says. "The risk is not limited to reproductive health but also general health, including immunity, thyroid function, neurodevelopment and others."

The researchers picked up an "extremely high" rate of intersex males and gonadal malformations among catfish. There was also a skewed sex ratio among frogs, a low sperm count among mice and the "novel finding of penile agenesis in snails, which has not been reported in South African waters before".

Terrestrial animals also seemed affected. The report documents calcification in elands' testes, and says this "may be the first evidence that non-aquatic wildlife are also being impacted by environmental pollution of endocrine-disrupting chemicals in South Africa.

"The findings in eland are similar to the testicular dysgenesis syndrome in humans attributed to developmental exposures to chemicals."

Rietvlei, on Tshwane's southern edge, is one of the world's largest urban nature reserves. Its two dams, Rietvlei and Marais, are connected with a wetland and channel. The stream feeding this system receives effluent from sewage plants, industries and informal settlements in the catchment areas.

According to a 2005 report on the City of Tshwane's website, the major contaminants in the region include manure, sewage, fertilisers and pesticides. Recent international research has linked organophosphates and pesticides to sexual mutations and long-term cancers.

The site says that Rietvlei's water is blended with water from Rand Water and from boreholes and springs for

bulk distribution to the city.

In the scientific report on Riet-vlei, the researchers say the water is being treated to remove “oestrogen-mimicking compounds. It appears the treated water is safe to use, provided that the process remains functional and there is no massive dumping of chemicals.”

But they speculate that “unacceptable health risks” can be expected if untreated water is used for domestic purposes. “The greatest health concern would be if this water is used for irrigation of vegetables, with a hypothetical risk of developing cancer calculated to be two in 1 000 for Riet-vlei Dam and one in 1 000 for Marais Dam! Any risk over one in 100 000 is considered by the World Health Organisation to be unacceptable.”

The researchers also discovered evidence of the endocrine-disrupting metals cadmium, lead, mercury and arsenic. Adding their possible effect, they say “hazard quotients were 27 to more than 450 times higher than that assumed to be safe. The cancer risk was calculated to be close to one in 100.”