

Battling e-waste in China's industrial hub

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The proliferation of cellphones, computers, television sets and other gizmos has a downside. The growing consumption of digital products is generating mountains of e-waste, whose disposal is posing serious health and environmental risks. But recycling of e-garbage is also providing jobs to hundreds of thousands in many parts of the developing world. China is at the heart of reconciling this contradiction between guaranteeing much needed incomes and preserving clean air, water and soil, necessary for public health.

Guiyu, a coastal township in southeast China, is the world's e-waste capital. Since the turn of the century, the area has seen millions of tonnes of electronic leftovers, generated at home and abroad, being routinely dumped. The e-garbage pile began to inflate after some local businessmen taught residents the process of extracting valuable by-products — gold, silver and copper — from motherboards, wires and picture tubes. Poor workers provided the feedstock for this booming industry. But problems began to arise when people fell sick, and the drop in air, water and soil quality caught global attention. "The whole town was blanketed by foul air that smelled of acid. I always felt like coughing," the *South China Morning Post* quoted Yang Linxuan, a resident, as saying.

Air contamination followed when mountains of plastic wiring were burnt in open fields to retrieve the embedded copper in them. Acid baths, which combined nitric acid and cyanide, sprang up to extract gold from motherboards. Serious water contamination resulted when untreated effluents, including acid to wash out residual toner ink from cartridges, were channelled into a tributary of the Beigang river, which soon began get choked.

Mercury, fluorine, barium, chromium, and cobalt, which either leach from the waste or are used in processing, are blamed for skin rashes and respiratory problems. The foul air and water can also damage kidneys and the nervous system, and weaken the immune system, heightening the risk of cancer. A study conducted by the Shantou University Medical College in 2014 found that heavy metal contamination had turned the air and water toxic and that children in the town had high levels of lead in their blood.

National embarrassment

The unregulated Guiyu e-waste industry soon became a national embarrassment for China. The local government of the Guangdong province, of which Guiyu is a part, decided to launch a comprehensive plan in 2013. It was decided that instead of the several recycling workshops, known for their blacksmith-type furnaces, with long flues meant to take toxic smoke away into the atmosphere, all recycling activity would be carried out in an industrial park on the outskirts of the town.

Consequently, a \$233 million facility became fully operational in December 2015. More than 1,200 workshops were consolidated into 29 big units, which carried out the bulk of the recycling. Guangdong University, specialising in minimising pollution, has been a core partner in this exercise. Simultaneously, the supply chain of bringing e-waste from abroad has been disrupted. In July, Beijing notified the World Trade Organization that it would cease 24 kinds of waste imports by the end of the year.

Despite its efforts, not everyone is convinced. Liu Hua, a campaigner with environmental group Greenpeace's Beijing office, told the *South China Morning Post* that there was no fundamental

break in the extraction process in the industrial park. He pointed out that “the process of extracting precious metals from e-waste is still polluting”.

In 2013, Guangdong decided to launch an industrial park for e-waste recycling on the outskirts of Guiyu that would consolidate more than 1,200 workshops into 29 big units

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