

Unending Racism of Unilever's Mercury Pollution

In 2001, a mercury thermometer factory operated by Unilever subsidiary Hindustan Unilever Ltd was shut down by state environmental regulators after it was found that the company had illegally disposed tonnes of mercury wastes at a local scrapyards. The factory site, which is nestled between two biodiverse and ecologically valuable watershed forests in Kodaikanal, a beautiful hill town in the south Indian state of Tamil Nadu, was found to be heavily contaminated with mercury. Mercury levels in some hotspots are more than 50,000 times higher than naturally occurring soil background values.

Numerous workers exposed to mercury in the workplace, and their children were badly affected and more than 20 died due to exposure-related illnesses. Since 2001, workers, the local community and environmentalists have been fighting to get Unilever to compensate the workers, and clean-up the environment.

In August 2015, a rap video “Kodaikanal Won't” featuring Chennai musician Sofia Ashraf went viral forcing the company to engage with its toxic legacy. In March 2016, Unilever was forced to settle with workers and compensation was paid to 591 injured workers. Now, with the media spotlight turned off, the company has returned to its double-standards. The contaminated factory site is leaking mercury into the Pambar Shola, a sub-montane tropical evergreen forests that is part of the Kodaikanal Wildlife Sanctuary.

Rather than use best available technology to clean up the site to international standards, Unilever is now threatening to deploy a failed process that will mobilise more mercury into the environment than it will recover. Not only that, even after clean-up, the Anglo-dutch multinational will leave behind 20 times more mercury in the soil than the guideline value for residential soils in the United Kingdom, and 67 times more than levels considered safe for soil, plant and animal life in the Netherlands. Even after “clean-up,” the factory will continue to leak poisons into the watershed forests harming fish, wildlife and water users downstream.

Unilever is proposing to do in India what it will never be allowed to do in Europe. This is **Environmental Racism.**

Unilever has “managed” to rope in the support of local environmental regulators. It has argued in court against public participation in and oversight of the clean-up.

Even though the incremental costs associated with a higher standard of clean-up is insignificant for a company of Unilever's size, the company continues to put profits before people and the planet.

Unilever needs to stop its environmental double standards. It should commit to deploying the best available technologies to clean up the contaminated site to internationally acceptable standards.

Failed Remediation Trials

In November 2016, Unilever concluded a three-month long trial remediation run, and declared it a success. Leveraging its cosy relationship with the regulators, the company has managed to get permission to upscale the work to cover the entire site. That will be a disaster, as the process will poison the watershed forests of the Kodaikanal Wildlife Sanctuary.

The Proposed Remediation Process

The remediation consists of four processes.

1. Excavation of contaminated soil
2. Soil washing and sieving (filtering) to separate the coarse fractions from the fine fraction where mercury is expected to be concentrated.
3. Mercury Recovery by processing fine fraction in vacuum retorts.
4. Treating the wastewater generated.

Steps 2 and 3 are presented as the primary treatment methods. However, going by the company's own data, the soil washing and retorting were failures. The data says that soil washing failed to achieve remediation target levels more than 50 percent of the time, and that more than half of the total contaminated soil cannot be treated by this process.

As far as the vacuum retort trials are concerned, the company's data reveals that out of 11 batches of soil processed in the retort, only two were able to achieve the remediation target level.

The data highlights how the shoddy soil washing process has mobilised most of the mercury from the soil into the wastewater, and how the Effluent Treatment Plant is not designed to deal with the volume and concentration of mercury contamination.

Soil Washing Was a Failure

Soil washing and filtering the washed soil using sieves of different sizes was meant to concentrate the mercury in the fine fraction of soils. The coarse soil fraction was expected to contain mercury levels less than the remediation target levels. The mercury-rich fine fraction was then to be filter-pressed to remove the moisture, and converted into a cake. The wastewater or filtrate from the filter-press was expected to contain low levels of mercury. The cake was to be heated in a retort, causing mercury to volatilise, leaving behind soil with "acceptable" mercury levels.

Data presented by Unilever reveals that 77 tonnes of soil were subjected to soil washing and sieving trials in 63 batches. Seven batches had to be re-washed. Twelve filter-press (FP) cakes were prepared by consolidating the sub-1 mm fraction of a few batches at a time.

The total mass of mercury (A) in all batches of soil whose undersize fractions were filter-pressed is known. The total quantum of mercury in the oversize fractions (B) of these batches is known, as is the mass of mercury in the filter-press cake resulting from undersize fractions (C) that were pressed together. An efficient soil washing process would have most of the mercury concentrated in the filter-press cake, and only insignificant quantities in the oversize fraction and the wastewater. The quantity lost to wastewater and the environment (D) can be calculated using the formula: $D = A - (B + C)$. The amount of mercury that is lost to the environment, including to the filtrate water after filter-pressing can be determined for each of the seven filter-press (FP) batches.

Unfortunately, due to errors and lack of clarity in Unilever's data and the manner in which it is presented, the results for unaccounted for mercury can be reliably estimated only for three of the 12 FP batches.

The efficiency of the soil washing process was found to be extremely poor. Rather than recover mercury by concentrating it in the FP cake, the process mobilised soil mercury into the air and water media. The three usable FP data sets represent a total input soil mass of 15 tonnes containing 2162.53 grams of mercury. Of this, only 735.47 g (34%) was trapped in the FP cakes. 221.66 g (10.25%) of mercury was retained in the coarse fraction. About 1205.4 grams (56 %) has been mobilised to air and water.

Unilever has discharged mercury into the Wildlife Sanctuary. Unilever was required to measure the levels of mercury in the water and sediment from the stream leaving the factory at the point of its entry into the Sanctuary. However, it has failed to report any such results heightening suspicion that large amounts of mercury have been released into the forest.

Failed Vacuum Retorting

The FP cakes were to be subjected to treatment for mercury recovery by heating in a vacuum retort. Ten trial batches of contaminated soil (small batches taken from various FP cakes) were used for testing the retort. The retort trial was to be considered a success if it succeeded in reducing mercury levels in output soil (retorted soil) to less than 20 mg/kg.

Data presented by HUL reveals that 8 out of 10 trials failed the test.

The Proposed Clean Up Target Level

Unilever has proposed a clean-up target level of 20 mg mercury per kilogram of soil (20 mg/kg). The naturally occurring background value for soil in Kodaikanal is less than 0.001 mg/kg. The UK Environment Agency recommends a residential soil guideline value of 1 mg/kg. Canada prescribes a target level of 6.6 mg/kg for residential soils, and recommends further tightening of the standards if the site is in close proximity to sensitive receptors such as watershed forests.

Unilever has advanced a flawed argument that a tighter clean-up standard (a thorough clean-up) will harm the ecologically fragile forests. See https://www.unilever.com/Images/soil-remediation-note-update-on-7-april-2016_tcm244-479921_en.pdf

This argument is puzzling, particularly because it comes from Unilever – the manufacturer of Dove, Lifebuoy, Wisk, Omo, Persil, Surf Excel and Domex. Unilever spends billions of advertising dollars telling the world that clean is good and that its products will go after every stain. When it comes to Kodaikanal's forests, Unilever is telling us it is ok to leave behind more dirt than it removes.

Here are responses to some of the claims advanced by Unilever.

Unilever claims it did not dump any mercury in Kodaikanal, and whatever mercury remains on site poses no risk of contamination to the ecologically sensitive region surrounding the factory site.

A 2002 study by URS Dames & Moore, HUL's consultant, reports that the factory discharged more than 1.3 tonnes of mercury into the Pambar Shola Reserved Forest which is now part of the Kodaikanal Wildlife Sanctuary. The study notes that HUL illegally sold more than 43 tonnes of mercury wastes containing 440 kg of mercury to scrap merchants, including 5.3 tonnes that were found dumped in 2001 in a scrapyard in a crowded part of Kodaikanal town. It was for this offence that the state environmental regulator shut down Unilever's thermometer factory.

The 1.3 tonnes of mercury discharged into the forest cannot be recovered. Much of it will circulate within the sensitive forest ecosystem, harming wildlife and building up in food chains. The Pambar Shola is a sub-montane tropical evergreen forest with vibrant floor-level, aquatic and arboreal ecosystems. The contaminated factory site continues to leak mercury-laden silt into the Pambar Shola watershed. An October 2015 study paid for by Unilever found high levels of mercury in three of five sediment samples taken from the Pambar Shola forests.

The US Environmental Protection Agency prescribes a safe level of 30 microgram/kg of mercury in fish. However, a study conducted in December 2016 found that four out of eight fish caught from Kodaikanal lake contained between 31.1 and 41.9 micrograms/kg. Fish caught from a Pond fed by the Pambar Stream that drains the factory site contained far higher levels — between 94 and 165

micrograms/kg. <http://kodaimercury.org/high-mercury-levels-fish-kodai-lake-periakulam-ponds-iit-hyderabad-study-cautions-fish-consumers-2/>

Unilever claims that applying a more stringent standard will harm the fragile local ecology as many mercury contaminated areas are on wooded, steep, erosion-prone slopes.

The presence of heavy contamination on steep erosion-prone slopes within an ecologically sensitive area is precisely the cause for concern of residents and environmentalists. Silt-laden mercury continues to wash out of the erosion-prone slopes into the Pambar Shola watershed. Rather than inaction, the situation demands urgent action. Rather than laxity, the situation requires a tightening of clean-up measures and quality. Unilever should find technologies and practices that are able to remediate and rehabilitate the site with appropriate management measures to ensure that the environment is not harmed in the process.

Unilever claims that it “has not proposed any standard for remediation, let alone 20-25 mg/kg” and that the standard was proposed by the state environmental regulator Tamil Nadu Pollution Control Board (TNPCB)

Between 2001 and 2005, Unilever said it will clean-up the site to a Dutch residential standard of 10 mg/kg. Environmentalists objected to the choice of a residential standard for a site that is part of a sensitive watershed forest, and called for a more stringent standard based on an assessment of risk to local ecosystems. TNPCB was supposed to independently conduct studies and fix the standard after public consultation. Instead, it shut out public consultation, and allowed Unilever to engage its own consultants for all studies. In 2007, Unilever’s consultant NEERI proposed a diluted clean-up standard of 25 mg/kg on the basis of “techno-commercial aspects”. It argued that “The benefits likely to accrue out of stricter norms are to be compared against the additional cost that may be incurred while undertaking such projects.” For this study, NEERI received \$52,000 as consultancy fees, according to documents unearthed using Right to Information. Hidden from public view, Unilever, its consultants and TNPCB colluded to arrive at a lax residential standard instead of a stringent ecological standard. A Detailed Project Report prepared by Unilever’s consultant ERM does not even mention the public as a stakeholder.

Unilever claims that the clean-up standard of 20-25 mg/kg is internationally acceptable and safe for human health and ecology?

The standard is not derived to prevent harm to ecosystems. Unilever’s consultants derived the standard of 20-25 mg/kg based on a human health risk assessment considering the risk for a future child residential user. Even this number is 20 to 25 times weaker than the recommended soil quality of 1 mg/kg for residential areas in the UK, or the target level of 0.3 mg/kg set by the Netherlands for sustainable soil quality. In any case, residential standards may have been okay for an urban residential area in, say Mumbai or New Delhi. But the factory site shares a fenceline with a biodiverse watershed forest which is part of the Kodaikanal Wildlife Sanctuary. Any target value for clean-up ought to have been based on an ecological risk assessment specific to the forest type and wildlife prevalent in and around the contaminated factory site. The factory site is located in the headwaters of a river that supplies water and fish to people from three districts of Tamil Nadu.

Issued by: Jhatkaa.org, UK Campaign For Justice in Kodaikanal, Chennai Solidarity Group, Tamil Nadu Alliance Against Mercury.

For more information, visit: www.kodaimercury.org