transform together

SUSTAINABLE DEVELOPMENT GOALS

Case studies: Sustainable solutions for transforming the smartphones and ICT sector

How to offset your phone

Closing the Loop (CTL) is a Dutch social enterprise operating between Europe and sub-Saharan Africa. It was founded after Joost de Kluijver saw how mobile phones turn into harmful e-waste in developing countries. Second-hand phones are valuable in low-income countries, and can contribute to several Sustainable Development Goals. However, their contents – for example heavy metals and flame retardants – also create a dangerous waste problem. Two-thirds of used phones shipped from Europe and the US are sent to countries lacking safe e-waste recycling infrastructure. After their second or third life, they are dumped or processed in a way that harms health and the environment. At the other end of the equation, mining for new materials causes devastating environmental and social impacts. CTL uses a circular economy approach to reduce the harms of smartphones at the start and end of their lives.

Business model

CTL sets up systems in several African countries to bring scrap phones to the proper recycling facilities. Its clients are organisations that use a lot of phones and want to offset the negative impact of this. Clients pay a fee for each phone they purchase or dispose of. This fee allows CTL to recover a scrap phone from a developing country. CTL has the scrap phones sent to a specialist recycler, where the metals are extracted, plastic is used as fuel for smelting, and inert materials become building aggregate.

How it works

- Client buys new phones or sells old ones, and pays CTL a fee per phone
- CTL arranges collection of scrap phones in Africa
- Local community gains environmental health and financial benefits
- CTL sends the phones to certified recyclers
- Waste is safely converted into resource.

Client benefits

- Client achieves a smaller CO_2 and materials footprint, plus positive social impact
- Tangible results allow better engagement with employees, customers and investors
- Client has a commercial advantage with more sustainable services when bidding for contracts where sustainability is valued.

This 'one-for-one' model creates a memorable story for clients and their stakeholders: for every phone a client buys, they offset its new metals and prevent one scrap phone from causing harm in a developing country. The client also receives information for impact reporting and storytelling. CTL's service can be an add-on to a client's existing phone contract, or as part of a new supply bid. It can also deal with reuse policies, so that each used phone shipped to the developing world is made waste-free by the recycling of one African scrap phone.

To recover scrap phones, CTL works with local entrepreneurs in Africa. These range from individual students to large entities, and can receive support to expand their business. CTL sets up logistics (storage and transport) compliant with local and international law. The growth of this network was enabled by CTL's co-founder, who grew up in Ghana.

Impact and reach

CTL now retrieves scrap smartphones from Ghana, Cameroon, Mali, Nigeria, Uganda, Rwanda and Zambia, collecting more than 2.2 million phones from 2014-2018. About 3,000 people in these countries have earned income by participating. Local communities enjoy better environmental health, now that this e-waste is saved from landfill or burning, and recovery of the materials reduces the need for mining elsewhere. There is also a significant increase of awareness about circularity among CTL's clients and local networks. There is a demonstrable appetite for this sort of impact in procurement, as CTL has so far introduced circular telecoms for 32 organisations. Clients include ING Bank, Schiphol Group, KPMG, the Dutch government and Rabobank. CTL also helped leading IT reseller Centralpoint to win a tender by writing its 'one-for-one' service into a supply bid.

Image credit: Closing the Loop

Insight: e-waste – the future of mining?

The economic payoffs of electronics recycling could be enormous.

For example, gold mining yields six grams of gold per metric tonne of earth – involving huge inputs of energy, water, toxic chemicals and labour. But in a tonne of smartphones, the amount of gold can be 50 times higher[1].

With the right infrastructure, 'mining' old phones could be much more efficient than mining the earth.

Recycled materials can also claim the coveted status of being 'conflict-free' – offering manufacturers a way to leapfrog the legal complications of conflict minerals regulation.

1 Some ICT specialists state there is about 362g gold in a ton of smartphones, while others have indicated 300g per tonne. However, these figures are changing as smartphone designs evolve to use materials more efficiently.

Scale-up, obstacles and replication: what next?

The 'material offsetting' model may also be replicable with other ICT equipment, and CTL is exploring a new scheme to offset network devices such as servers. And in 2018 CTL began working directly with T-Mobile, a major European phone provider. A new 'Recycle Deal' lets customers sell their handset back to T-Mobile at the end of contract so that it is reused or recycled according to CTL's 'one-for-one' model. This partnership represents a great opportunity to upscale.

At present, CTL has to transport scrap phones to recyclers in Europe, which have certificates to prove they operate responsibly. An eventual goal could be to help develop safe recycling facilities in the countries where scrap phones are found. One obstacle is that specialist recyclers tend to believe there are unacceptable risks with operating in sub-Saharan Africa.

Project director Reinhardt Smit reports that three key types of cooperation are needed for scale-up.

Firstly, governments and companies must practice what they preach – many have targets to 'be more circular', but this is not yet built into procurement. Secondly, governments must adjust regulation that currently restrains the circular economy. Second-life phones are permitted to travel to developing countries, but the Basel Convention inhibits them from travelling back as 'waste'. Batteries in particular fall foul of this regulation. It was intended to block export of waste to countries that cannot process it, but instead forces electronics down a one-way street. As a result, one-third of CTL's time is spent trying to get containers of scrap phones moving. In some countries, CTL has found that officials are unwilling to provide permits to export scrap phones, as they are unfamiliar with the process and cannot risk legal sanctions. Smit observes that legislation around 'waste' is a conceptual failure – instead, it should be about 'resources'. It is vital that governments cooperate towards circularity in a global way, and not only in their own countries.

Finally, CTL encourages those following its lead to act now rather than wait for a system to be perfect. For example, it may soon engage with additional recycling companies that do not have all optional certifications. They would help them work towards certification, expanding the capacity for safe e-waste recovery. The crucial thing is to build the momentum and networks that will allow a completely circular system for smartphones to develop over time.

Image credit: Fairphone

Find out more

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Keys to success

- A story to visualise the positive impact of paying for a 'circular' service
- Logistics expertise on safe and legal e-waste transport
- Strengthening the capacities of those at the front line of e-waste collection
- Building the networks for e-waste recovery now, and perfecting the details over time.

Next steps

- Large organisations to reflect sustainability aspirations in their ICT procurement
- Governments to cooperate on adjusting the law so it does not inhibit the transport of e-waste to proper recycling facilities
- Develop better recycling facilities in countries where e-waste is accumulating.

About Transform Together

Transform Together works with civil society, governments and businesses to advance sustainable consumption and production in high and middle income countries. Bioregional is the convenor and secretariat of the partnership.

About Bioregional

Bioregional works with partners to create better, more sustainable places for people to live, work and do business. We call this One Planet Living®.

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