

The Circular Economy

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Summary

Humans follow a linear economy where everything made is used and rapidly disposed of. To change this way of doing, a circular approach has been elaborated. A circular economy ensures that nothing goes to waste by keeping materials at the highest value and utility and by lengthening the products' life by reusing, repairing and remanufacturing. This essay presents one large-scale and one small-scale circular model, Fairphone and The Tare Shop, respectively.

Fairphone, a company developed in the Netherlands, was inspired by the poor work conditions and enormous waste created by continuously discarding cellular phones. When phones become unusable, they can be sent back to Fairphone, where 40% are repaired, and 60% are safely recycled to recover the resources.

In Dartmouth, Nova Scotia, The Tare Shop, a small-scale zero-waste store, was founded in 2018. This store finds ways to reuse products, clothes, jars and plastic containers, significantly reducing waste products. This local effort proves that a circular economy is not limited to big manufacturing chains but can be adopted by individuals and other big and small businesses.

Nova Scotia's economy mostly follows the linear model, but it has multiple businesses following the circular model and organizations trying to implement it. The province could benefit from a better circular food system with multiple local farms and a better glass reuse program. The bottles could be returned to the manufacturer, where they would be washed and sterilized.

The examples given here are truly inspiring as they define similar philosophies at different corporate scales. What transpires here is that from individual engagements to large corporations, change can happen. There is certainly a need for education to enhance public awareness, but also for all levels of government to implement pathways to help corporations develop circular economy strategies by facilitating the process and creating incentive to change.

Essay

In nature, one species' waste is another's food. The sun provides energy for plants; they provide food for many organisms in the food chain, and in the end, they die and provide nutrients to the soil. From there, the cycle restarts (*Explaining the Circular Economy and How Society Can Re-think Progress*, 2011). As humans, we developed another approach; the linear approach. We Take, Make and Dispose. This way of doing limits our resources since we always need to replenish them. Resources are not infinite, so recycling programs have been implemented but aren't enough to deal with the enormous waste generated each year. A new approach is getting more popular which is the circular economy.

The circular economy aims to keep resources in use for as long as possible where all new products built are made to last and be reusable. At the end of the life of each product, the raw materials are retrieved to restart the cycle. A circular economy changes the ideas of ownership. Instead of being owners, we become users. People lease products and use them until they are unusable. The items are returned to be repaired or taken apart to retrieve materials (Lohan, 2018). At this latter stage, materials need to be separated into biological materials and technical materials. At the end of the cycle, biological materials can be transformed into biofuel or compost. Technical materials should be recycled, at the condition that the initial conception and manufacturing of the product allows for easy repairs to extend its life span (*Circular Economy: Definition & examples | Sustainability Environment*, 2020). In an ideal circular economy, waste products would be made to last a long time instead of being immediately recycled, especially if it is downcycled, i.e. of lesser value and quality (Masterson, 2022). In short, a circular economy ensures that nothing goes to waste by keeping materials at the highest value and utility, and by lengthening the products' life by reusing, repairing and remanufacturing.

In 2022, 5.3 billion phones were thrown away, most ending up in landfills (Masterson, 2022). To manufacture these phones, about 80% of the stable elements of the periodic table are needed. These elements have to be mined in often appalling conditions, where miners work with dangerous materials without protection. Throughout the ensuing manufacturing process, work conditions are equally as unethical (*Behind the Screens*, n.d.). The combined poor work conditions and enormous waste created by the continual discarding of cellular phones has inspired the Netherland company Fairphone. Since 2013, the company's philosophy has been growing in

popularity in Europe. According to their marketing spokesperson, Fairphone is making a positive impact across the value chain in mining, design, manufacturing and life cycle, while expanding the market for products that put ethical values first (*Together we're creating demand for fair products.* n.d.). Their modular phones are made to last and are easy to repair, all while being considerate of workers' conditions. When phones become unusable, they can be sent back to Fairphone, where 40% are repaired, and 60% are safely recycled to recover the resources. All plastic parts are 100% recycled. Fairphone is progressing towards a circular economy by encouraging reuse and repair, and researching electronic recycling options to reduce e-waste. Considering the quantity of electronic products produced in the world nowadays, Fairphone shows a promising example of a circular economy that could not only be followed by other manufacturers, but also educate and incentivize purchasers, in the same way that more energy efficient appliances with ENERGY STAR certification helped reduce electricity bill and carbon footprint. Perhaps we should start thinking about a circular economy certification and label, to better inform clients during their electronic purchases.

At the other end of the spectrum, The Tare Shop is a small zero-waste store in Dartmouth, Nova Scotia. It started in Halifax and now serves the entire HRM while shipping to Canada. The Tare Shop sells over 200 bulk food products, with a wide variety of package-free lifestyle products. Their wide range of products makes the store a simple and convenient way to shop zero-waste. Customers are encouraged to bring reused clean jars and plastic containers to fill with food, thereby reducing much of the waste produced by grocery stores (*The Tare Shop | Package-free living for Nova Scotia and beyond*, n.d.). In 2022, the Tare shop served over 5600 customers while limiting 6,847 cups and bottles, 209,508 plastic bags and containers, 509 plastic toothbrushes, 2,080 plastic laundry jugs, 3,038 food containers and 20,175 plastics razors from entering the landfill. In total, this is 240,000 less waste dumped in the environment per year (The Tare Shop, 2022). For a small business, this is an excellent step towards limiting waste by getting bulk food in reused jars. The Tare Shop also contributes to the circular economy by doing clothing swaps a few times a year. At the end of the swap, the leftover clothes are given to charity organisms. The clothing swap gives a second life to clothes and prevents them from entering the waste stream. The Tare Shop finds ways to reuse products, clothes, jars and plastic containers, which would all contribute significantly to greenhouse gas emissions if they had to be made infinitely. This local effort by a small business is inspiring and proves that a circular economy is not limited to just big manufacturing chains, and can be adopted by individuals.

Twenty years ago, Nova Scotia was a global composting and recycling leader. Since then, the solid waste management resources have mostly stayed the same. Waste disposal has been growing fast, which makes Nova Scotia lack appropriate incentives to transition to a circular economy (Hickman, 2021). Despite this, Nova Scotia does have businesses following the circular model. For example, the Value Village stores reuse and resell all sorts of clothes, objects and appliances to give them a second chance. Some collectors like the Enviro Depot take in different materials (pots of paints, batteries, refundable containers, electronics) to recycling facilities. In the food sector, stores like the Tare Shop or The Grainery provide zero-waste options. Riverside International Inc. processes lobster shells so that they can be used as a substitute source of calcium in the feed of laying hens (*Funding Innovation: Diverting Lobster Shell Waste into an Innovative Feed Ingredient for Hens*, 2020). These businesses, like many more, contribute to the circular economy by avoiding materials going to landfill.

Around the world, the food system is broken. For example, if 25% of the food lost and wasted globally could be saved, it could feed 870 million people going hungry, which is about the number of people in Europe (Our Circular Future, 2022). According to OurFoodFuture, «The global food sector accounts for a third of the world's greenhouse gas emissions. It is also the biggest cause of biodiversity loss and the biggest user of water on the planet.» Because of this, I believe it is crucial for Nova Scotia to further develop a circular food system. The new composting facility in Goodwood, is an excellent example of a circular economy but more could be done. More food could be grown locally (ex: urban farming) using regenerative farming techniques. There could be many food hubs, where a communal space is made available to share a variety of food products. Businesses could use the circular model with support from the province to accelerate the process. These various initiatives could be used to inform the community while increasing community cooperation. This has been done in Guelph-Wellington, Ontario and has had a great outcome (Our Circular Future, 2022).

Nova Scotia could also follow the example of Québec, where brown glass bottles are refundable. The bottles are taken back to the manufacturer where they are washed and sterilized. The same bottle can be reused 15 times before being melted down and made into a new bottle (*Le parcours de votre contenant consigné*, n.d.). Even though glass is infinitely recyclable, it is better to reuse it since recycling consumes more energy (Siegle, 2007). It would be great if the province did

this with more than just beer bottles, for example with all food coming in jars (jelly, nut butters, salsa, etc). This would have a huge impact on the waste created.

In terms of policies for a circular economy, Nova Scotia could implement incentive programs to better inform and educate the public with regards to waste products and how technology can help the building of circular economies. Investment could be made in resources recovery technology, the introduction of a minimum requirement for secondary materials in new materials, and encouraging product design to facilitate disassembly, repair and recycling (Hickman, 2021).

To conclude, Nova Scotia still has some way to go before achieving a circular economy. However, by being inspired by other initiatives worldwide and locally, Nova Scotia could become a leading model in the green economy. Many projects have proven that with all waste, there is often a way to keep the cycle going.

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