

Message in a Bottle: Plastic's Prospects

*A decade ago, paper was at the forefront of environmental campaigning. Now it's plastic. In this article, **Peter Heslam** provides a business and Christian perspective on plastic. He challenges the growing negativity about this substance and showcases three highly innovative companies that refuse to see a conflict between the interests of planet and profit. In doing so, he suggests that plastic has prospects if we move from a linear to a circular economy.*

Plastic is fantastic. It is watertight, lightweight, inexpensive, hygienic, versatile, and easy to manufacture. No wonder that, in a little over a century, it has become fundamental to the quality of human life. While the use of wood, stone, clay, bone, leather, metal and glass has for centuries made life better for people, the contribution of plastic to human flourishing is immeasurable.

That success is reflected in the fact that our bodies are in almost constant contact with this substance. If that is not because of the clothes we wear, it's because of the smartphone, steering wheel, toothbrush, suitcase, or pen that is in our hands. Or it's because of the spectacles on our face, the audio device in our ears, the keyboard beneath our fingers, or the bank note and credit card in our pockets.

As those who have been hospitalised know, scarcely any treatment is administered without the use of plastic. Anyone who has visited a poor community anywhere in the world will understand the development value of a plastic bucket, bag, shoe sole, bottle of water, mosquito net, solar light, and toilet components. Plastic saves and dignifies lives, the world over.

What is damaging life, the world over, is plastic *waste*. This is what is

wreaking havoc to wildlife and threatening food chains, including our own. The problem is staggering. Although plastic generally takes hundreds of years to decompose, around 80 percent of plastic waste accumulates in landfills or the natural environment¹. This is without excuse, as most plastic is easy to recycle. Plastic is not the problem. The problem is with humans – we are wasteful.

The first step towards reducing plastic waste is, of course, to reduce the unnecessary use of plastic. But we need to tread with caution. Take plastic food packaging, for example. Many are calling for this to be reduced, or banished altogether. But in many cases, it protects food from damage, decay, and contamination. This is important, as food waste is at least as harmful to the environment as plastic waste.

It is true that suppliers and supermarkets need to avoid superfluous packaging. They also need to avoid packaging that encourages excessive buying, as the majority of food waste occurs in the home. **Apeel**, an ingenious innovation developed by the young scientist and entrepreneur James Rogers seeks to address these problems. **Apeel** is a tasteless edible plant-based coating that prolongs the shelf-life of fruit

and vegetables without the need of refrigeration or packaging. **Apeel Sciences**, the company Rogers founded in 2012, received start-up funding from the Bill and Melinda Gates Foundation, in part because of **Apeel's** development potential; while sufficient food is produced worldwide to feed the global population several times over, much of it goes to waste because it spoils².

Governments have a role that can augment that of supermarkets and their suppliers. The imposition of a small charge for plastic carrier bags in the UK has dramatically cut their use, proving how many of these bags were being used unnecessarily. It is gradually becoming second nature for UK consumers to bring used plastic bags with them when they go shopping. But again caution is needed. The production of most reusable carrier bags requires so much carbon consumption that they must be used many more times than they can generally withstand before there is any environmental benefit over ordinary plastic bags.

But too much talk about the impact of plastic waste, and fixation on the problems involved in addressing it, can be paralyzing. Christians in particular need to be careful that their stewardship of God's creation does not remain at the level of

discussion and good intentions. As the Bible's first commandment³, it needs to translate into positive action. Christians also need to make sure their concern does not eclipse hope. Trust in God's providential sustaining of the creation is an attractive and distinctive virtue Christians can bring to an environmental debate characterised by both complacency and angst.

Within the commercial sphere, three businesses with Christians at the helm serve as inspirational examples of affirmative action. While none of them is perfect, they each seek to address the problem of plastic waste in a way that is financially (not just ecologically) sustainable.

The first two are companies providing drinking water in cartons, rather than in bottles. **Boxed Water is Better** uses cartons made largely of paper, using only a thin layer of plastic and aluminium to ensure the carton is strong and watertight. These protective layers can be difficult to recycle, of course, and paper production poses its own environmental challenges. But whereas paper shares with plastic the fact that it is recyclable, it is unlike most plastic in being made from a renewable resource – trees. **Boxed Water is Better** sources its

paper from well-managed and sustainable forests, and takes a proactive role in reforestation. The company aims to have replanted a million trees within the next couple of years.

Just Water was co-founded by the actor Will Smith and is directed by his son Jayden, who at the age of eight starred with his father in the famous film *The Pursuit of Happiness* (2006)⁴. The cartons **Just Water** uses are made largely of paper and plant-based plastic. The side of each carton reads 'This bottle is made mainly from plants, which pull CO₂ from the air (instead of adding more)'. Cynics might respond 'living plants do exactly that but not the ones that have been killed to make this carton!' But another message on the carton provides some reassurance that the company does not wish to overstate its green credentials: 'One bottle might not save the world, but it's a start'.

A more revolutionary approach is taken by the third company, **Recycling Technologies** (RT). It has developed a machine that recycles mixed plastic waste back into an oil called Plaxx™, which can be used as a wax (for candles, shoe polish, lubricants, cosmetics, etc), or to make new plastic products. Imagine

the impact should such machines be used to process all the plastic waste gathered by local authorities! The Scottish government has taken the lead – it plans for RT to build its first full-scale plant in Scotland next year.

RT's CEO Adrian Griffiths, who appears in this year's Maserati 100 list of the UK's most innovative entrepreneurs, has a passion for fulfilling our calling to be custodians of God's creation and for the need to tread lightly on the earth. In doing so, he is providing a positive, and indeed 'prophetic', solution. Rather than our discarded household packaging being shipped half-way round the world to end up in vast toxic waste-mountains in developing countries, it could end up oiling our machines. As the number of machine operators worldwide runs into billions, there will be no shortage of potential 'prospects' for Griffiths' product. He is proving that plastic has prospects, in both senses of the word.

These three businesses are living examples of a new economic model. Conventional economies follow a 'linear' approach to the use of materials: TAKE – MAKE – USE – DISPOSE. The new model, in contrast, follows a 'circular' (or 'closed-loop') approach: TAKE –





Adrian Griffiths, CEO of Recycling Technologies

Photo: BBC News

MAKE – USE – RECYCLE – TAKE – MAKE – USE – RECYCLE, and so forth. While examples of the circular economy can be found in almost any age, they need to proliferate and go to scale if we are to meet the increasing challenges posed by contemporary climate change.

Meanwhile, the same scientific ingenuity that has gone into the invention, development and application of plastic now needs to be utilised to come up with alternatives to plastic, and ways to break down plastic, that are environmentally friendly. That is no small task. While the use of bioplastics is becoming increasingly common, their overall contribution to carbon levels can be greater than with conventional plastic. Likewise, the implications of the recent discovery of a micro-organism called *Ideonella sakaiensis*, which uses enzymes to feed on plastic, are still unclear. For those bacteria, in the meantime, plastic is certainly fantastic!

Confidence that the necessary



Photo: pinterest

Ideonella sakaiensis

innovations will be forthcoming lies in part in the fact that consumers are increasingly making greener choices. While in other spheres of life, values may be in decline, in the environmental sphere values appear in general to be strengthening. This can translate into behaviours that appear to be moving backward. One way to avoid the use of plastic bottles, for instance, is to revert to a situation in which they are generally only in use when a convenient supply of clean tap water is unavailable. After all, the tap water supplied through the national grids of most advanced economies is safe, healthy and virtually tasteless. What is more, multiple trials have demonstrated that consumers generally cannot tell whether they are drinking bottled water or tap water when presented with a sample of each. Growing

awareness of all this is reflected in the rising sales of reusable water bottles, and in increasing calls for public drinking fountains to be re-introduced.

In another famous film, *The Graduate*

(1967), a smug middle-aged businessman takes the 21-year old disaffected hero (played by a youthful Dustin Hoffman) aside to impart some advice. At the time that advice stood for all that was thought to be superficial, crass, phony and greedy about the capitalist world represented by the parents of graduates. ‘I want to say one word to you. Just one word’, the businessman tells the graduate, ‘Plastics (...) There’s a great future in plastics’. Half a century later, the satire is lost, as it turns out he was right.

Plastic has been such a blessing to humankind that it deserves to be considered one of the greatest material gifts God has given to human beings. That gift has come through the exercise of the ingenuity with which God has endowed us as we have explored the potential of the good earth he has created and placed in our hands. The challenge now is for us to take plastic ‘into custody’; we are to produce, steward and recycle it more responsibly. It is also to find viable alternatives to plastic that are greener. That is how God’s Spirit, working through human minds, will bring about a sequel to the Plastics Age. 

1 ‘Production, use, and fate of all plastics ever made’, Roland Geyer, Jenna R. Jambeck & Kara Lavender Law, in *Science Advances*, 3.7 (2017). This article analyses the results of the first global study of all mass-produced plastics.

2 ‘Time-lapse studies’ of the effect of Apeel on sample fruit and vegetables can be found at apeelsciences.com/time/

3 Genesis 1.26-28.

4 This film is based on the true story of the entrepreneur and motivational speaker Chris Gardner (born 1954).



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