

How Plastic Revaluation Saves Costs

What is not measured cannot be controlled. Get control over your plastic waste and build your new revenue stream by the plastic waste revaluation.

A life cycle approach to plastic products considers all potential impacts on the economy, ecosystem, climate, toxicity, etc. caused in each stage of the product's lifespan including raw material extraction, manufacturing, distribution, usage, maintenance, end-of-life, and secondary materials processing. Thanks to the life-cycle approach, a company can identify key hotspots both in production and consumption, subsequently address the balance between economic, environmental, and social impacts, and select the most appropriate solution [1].

Approaching the circular economy, there are significant benefits of its recycling by using fewer materials, natural resources and consuming less energy [3].

With plastic reevaluating, a company can gain additional economic benefits through the implementation of new ideas and innovations.

Let's find out what are the lifecycle costs of plastic and how radical perception change using plastic revaluation techniques could lead to cost savings and other socio-economic benefits for your company as well as the local environment.

Description

The intention of why reevaluating plastic waste is simple. The end-of-life stage of the plastic product is not the final one. It extends for thousands of years beyond throwing it away [2]. Thus, it carries also economic value over a long time that otherwise could be transformed back into the economy.

The negative impact of plastics after its "end-of-life" period brings additional direct and indirect costs for the government and societies which exceed the market cost of plastic. The long-term problem that it causes is paradoxically thanks to its durability, which is beneficial for many other reasons during the previous life stages of plastic products [2]. In the beginning, let's see the costs of plastic across its lifecycle (Fig.1).

THE MINIMUM LIFECYCLE COST OF THE PLASTIC PRODUCED IN 2019

	MARKET COST	SOCIETAL LIFETIME COST			
	MARKET COST	GHG COSTS:	HEALTH COSTS	WASTE MANAGEMENT COSTS from managed waste	MISMANAGED WASTE COSTS from mismanaged waste
Quantifiable Elements	Market price of virgin plastics.	<p>Costs of GHG emissions from production processes.</p> <p>Costs of GHG emissions from waste management processes.</p> <p>Both paid for indirectly by society (based on carbon prices and costs to stick to carbon commitments).</p>		<p>Direct costs to governments and indirectly to corporates or citizens based on the taxes used to fund it or EPR schemes in place for formal waste management.</p> <p>Costs to informal waste management sector to conduct informal waste management activities.</p>	<p>Lost ecosystem service costs of marine plastic pollution paid for indirectly by governments and all other stakeholders, given the environmental and economic consequences.</p> <p>Revenue reductions from fisheries and tourism as a result of marine plastic pollution.</p> <p>Clean-up activity costs.</p>
Currently Unquantified Elements	-	Costs of GHG emissions from uncontrolled plastic waste.	<p>Health costs from production processes.</p> <p>Health costs from waste management processes.</p> <p>Health risks from plastic use.</p> <p>Health costs of uncontrolled plastic waste.</p>	-	<p>Lost ecosystem service costs of plastic pollution on terrestrial ecosystems (any ecosystems which are found on land including rainforests, deserts, and grasslands).</p>

Fig. 1 The minimum lifecycle cost of the plastic produced in 2019 [2]

The minimum estimated cost of plastic produced in 2019 was 3.7 trillion US dollars. Whereas the estimated market costs of the plastics produced in 2019 were ten times lower, approximately 370 billion US dollars which makes it a relatively cheap commodity due to the direct link with the prices of fossil fuels as a main virgin resource for plastic production. The estimated lifetime cost of plastic produced in 2019 is comparable with the GDP of India (2,9 trillion US dollars) and Germany (3,9 trillion US dollars). The highest share of the total cost was the ecosystem service costs on the marine ecosystem (3,14 US dollars). The share of GHG costs was 171 billion US dollars and managed waste costs represented 32 billion US dollars [2].

What is more of an issue is the fact, that there might be additional negative externalities of plastic production that are not quantified yet since the data limitations. These include health costs, lost ecosystem service costs of plastic pollution on terrestrial ecosystems, and costs of GHG emissions from uncontrolled plastic waste [2].

Treating plastic waste properly is not just a matter of lowering the negative consequences of its unreliable disposal, but it's a matter of preserving its economic value through the principles of the circular economy.

Plastic revaluation could save you money by decreasing your costs and on top of that you can contribute to the above mentions global problem and thus be a part of the positive change.

Plastic revaluation is a unique opportunity to get the advantage of the waste that would cost you money and convert the plastic waste into a new source of materials and income. This process is holistic and requires complex re-evaluation of your internal company processes first, and the whole value chain second.

To calculate cost savings when revaluing plastic waste, you can follow these steps:

1. Determine the current cost of managing plastic waste. This includes the cost of collection, transportation, and disposal, as well as any costs associated with complying with regulations. Also, it is important to consider the cost of equipment and facilities, logistics, and the cost of labor, energy, and maintenance of the recycling equipment in the calculation.
2. Determine the potential revenue from revaluing the plastic waste. This can include the cost of recycling or repurposing the plastic, as well as any potential revenue from selling the plastic to be used in other products.
3. Compare the current cost of managing plastic waste to the potential revenue from revaluing it. The difference between these two figures represents the potential cost savings from revaluing plastic waste.
4. Consider other benefits that may arise from revaluing plastic waste, such as reduced environmental impact or improved public health and safety.

It's important to note that the cost savings from revaluing plastic waste may vary depending on the specific circumstances of the waste management operation, and the specific methods used for revaluation. It's important to consult with experts in the field and conduct a thorough analysis to determine the most cost-effective approach.

How to calculate cost savings using the plastic revaluation process with a simple math formula: Let's assume the current cost of managing 1000 tons of plastic waste is Euro 100,000, which includes costs of collection, transportation, and disposal, as well as any costs associated with complying with regulations.

After conducting research and consulting with experts, it's determined that revaluing the plastic waste would generate Euro 150,000 in revenue from recycling or repurposing the plastic, as well as any potential revenue from selling the plastic to be used in other products.

To calculate the cost savings from revaluing the plastic waste, we can subtract the current cost from the potential revenue:

Euro 150,000 (potential revenue) - Euro 100,000 (current cost) = Euro 50,000 (cost savings) in relative numbers

or

Euro 150,000 (potential revenue) + Euro 100,000 (cost savings because of converting expenses into new income source) = Euro 250,000 (new income stream)

So in this example, revaluing the plastic waste would result in cost savings of Euro 50,000, and Euro 250.000 respectively.

It's important to note that this is a simplified example and the actual cost savings will depend on many variables such as the specific methods used for revaluation, the cost of equipment and facilities, logistics, and the cost of labor, energy and maintenance of the recycling equipment.

Also, it's important to consider other benefits that may arise from revaluing plastic waste, such as reduced environmental impact or improved public health and safety.

Following the circular economy principles by rethinking the purpose of your plastic waste can contribute to decreasing your economic costs but at the same time, you will pollute less, landfill less, reduce oil non-renewable resources, reduce CO2 emissions, increase your loyal customers base, promote sustainable marketing, and be prepared for new regulations and policies [3].

Let's see how to turn your plastic waste into value by the following example.

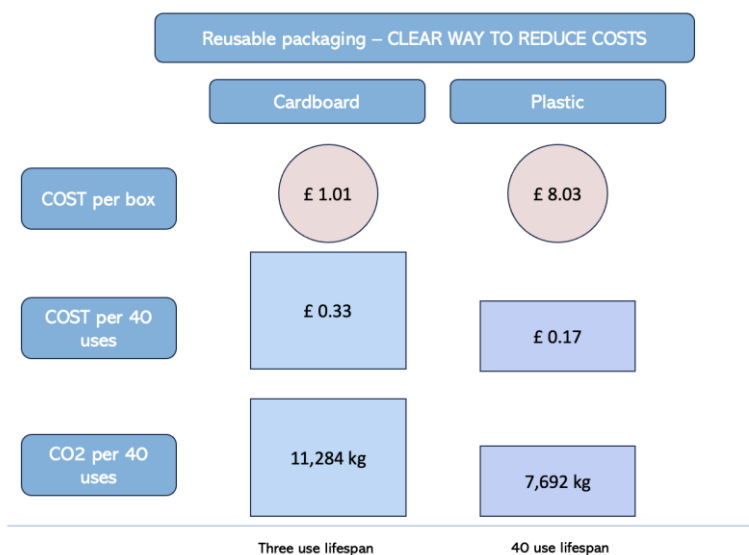
Case studies & Examples

According to the Corplex company, plastic material can be a more sustainable solution than cardboard. In a society where the pursuit of net-zero emission is the priority could reusable plastic packaging be an excellent way to start because in the circular economy, no material is landfilled or lost. Plastic is not a problem and the concept of a closed loop could be vital for single-use plastics elimination.

The business opportunity where to slash emissions immediately is in tertiary packing, meaning the elimination of single-use plastic by deploying lightweight, strong, and reusable plastic boxes – says Lucas van der Schalk, CEO of Corplex. The current goal tough to dispel the negative reputation of plastics and create a powerful solution where none of the material will become lost.

The Corplex technology is based on durable and versatile plastic boxes with a lower carbon footprint than the cardboard alternative. Their lifespan is up to 10 years in circulations with 40 reuses and after that, plastic boxes are reground and recycled into new products.

One tonne of plastic releases 184 kg of carbon dioxide whereas one tonne of cardboard generated 330 kg of carbon dioxide and consumed up to 90% more water than plastic recycling.



It not only means environmental benefits but also business resilience where volatile prices of fossil fuels will no longer affect companies' production (except the first buy of raw material).

The challenge is the adaption of closed-loop models. In this case, it would be the reverse logistics for packaging. As Corplex states, this is not an issue since the products are lightweight and save money.

Based on one customer's experience, the upfront investment in plastic assets was paid off in six months and packaging cost plummeted from 3 million to 1 million pounds. Besides the economic and environmental benefits, such plastic assets build loyalty because of the sharing of the product by customers.

Moreover, plastic containers can have a great advantage for businesses where humidity plays a problem, especially food, transport, automotive and pharmaceutical industries [4].

Resources

Links:

[1] <https://www.lifecycleinitiative.org/activities/life-cycle-assessment-in-high-impact-sectors/life-cycle-approach-to-plastic-pollution/>

[2] <https://mb.cision.com/Public/491/3410236/990cbb97a02e0eee.pdf>

[3] <https://www.mikegingerich.com/blog/15-superb-benefits-of-using-recycled-plastic-in-your-business/>

[4] <https://heyzine.com/flip-book/2c21d4883d.html#page/14>

Videos: <https://youtu.be/tfmr-hObVLA>

Papers (press articles, guides, reports): <https://www.unep.org/resources/report/global-waste-management-outlook> ,