BEYOND PLASTIC MED

BeMed Business Club

ConsultantSeas

ECONOMIC INSIGHTS INTO PLASTIC POLLUTION

Some concepts and feedback

BeMed Business Club
Technical data
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ECONOMIC INSIGHTS INTO PLASTIC POLLUTION

BeMed Business Club Technical Sheet - March 2023

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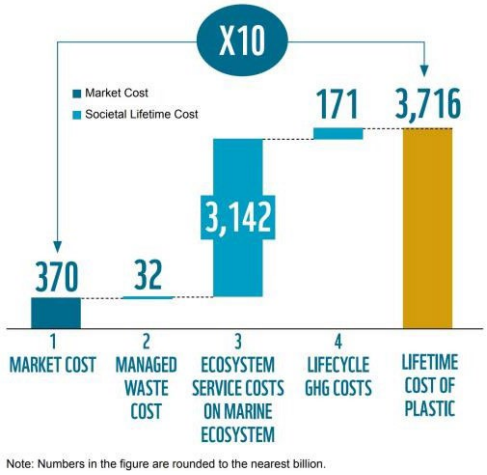
This technical sheet is based on the content of the two thematic sessions looking at plastic pollution from an economic science perspective. The session on 9 June 2022 invited Dimitri de Andolenko (Monte Carlo Société des Bains de Mer) and Pierre Scemama (Ifremer, UMR AMURE) to speak on the issues of corporate social responsibility and ecological accounting. The session on 8 November 2022 invited Giorgio Bagordo (WWF Italy) and Mateo Cordier (University of Versailles Saint-Quentin) to explain the costs of plastic pollution.

The hidden costs of plastic pollution

What would be the real cost of plastic?

Plastic pollution generates a range of direct and indirect costs for society.
These include the impact on public health, the need for investment in waste management, the impact on biodiversity, and the presence of greenhouse gas emissions.... These "hidden costs" mean that the real cost of plastic is **at least 10 times higher than its market price**[1]. The sum of all these costs is referred to as the "social cost" of plastic. Why this difference between cost and price? Because the price of plastic is mainly correlated with the price of oil.

To better reflect its true cost, we need to take into account the economic, social and environmental impacts generated by plastic throughout its life cycle - the negative externalities. One important phase to take into account is the production phase, which accounts for 91% of the greenhouse gas emissions generated by plastic (all the costs along the life cycle are detailed in the diagram on page 4).



Note: Numbers in the figure are rounded to the nearest billion.

By taking into account the sum of the market costs and the social costs of plastic (the costs of managing plastic waste, the costs of losses of ecosystem services in the marine environment and the costs of greenhouse gas emissions), we obtain the "total cost" of plastic, which gives its real impact on society as a whole.

Schematic representation

The hidden costs of plastics

The unquantifiable/quantifiable costs

associated with ⊕ health impacts

☁ GHG emissions

⚠ leaks into the environment

♻ waste management

Today, we do not know how to measure all the negative impacts of plastic pollution. These unquantifiable social costs include, for example, the costs associated with the loss of ecosystem services in terrestrial ecosystems, or the costs associated with the deterioration in human health. The figures presented above in this fact sheet from the WWF report *Plastics: the costs to society, the environment and the economy* only take into account quantifiable costs and could be greatly underestimated.

Some examples of solutions

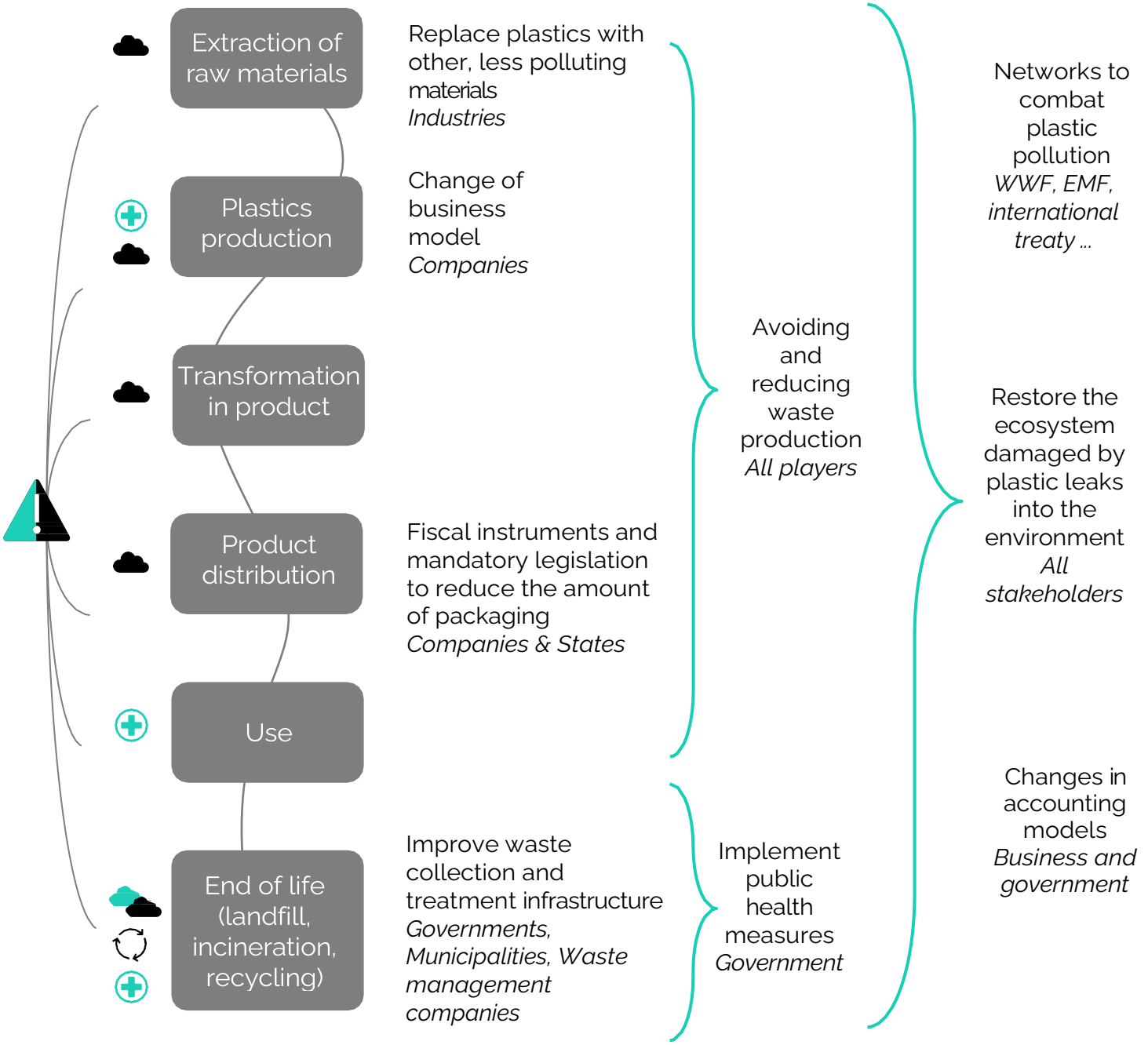


Diagram created by ConsultantSeas using data from Giorgio Bagordo's presentation and Matéo Cordier's presentation with the BeMed Business Club. Some of the solutions proposed in this plan are set out in the testimonials and speeches in the inserts of this issue.

Taking action at macro-economic level

What strategy(ies) should you adopt?

How do you determine the most effective strategy?

To determine the most effective strategy for combating plastic pollution, researchers Mateo Cordier and Takuro Uehara[2] attempted to measure the investment that would be needed on a global scale to curb it. They began by creating a system dynamics model based on the hypothesis that continued population growth has an impact on waste generation. Since waste management is not perfect, some of it leaks into the environment.

They then categorised 25 types of solutions, ranging from upstream to downstream solutions. These solutions were then assembled to model 4 main types of scenarios with varying levels of ambition.

Solutions include:

- Upstream are preventive measures such as reducing the production of plastic products, reducing waste, recycling, reusing, etc.
- Downstream, are more curative and palliative measures, such as beach clean-up campaigns and the setting up of medical services to treat the damage caused by plastic...

They were then able to test these different scenarios using an IO SD model and evaluate the costs and effectiveness of each of them (IO-SD: Input-Output macroeconomic model coupled with a system dynamics model).

To remember:

Downstream solutions require too much investment to be sustainable in the long term. In terms of cost, this would represent between 0.3% and 0.4% of global GDP in 2017 (€209-301 billion), simply to keep plastic pollution in the oceans at a stable level.

The most realistic scenarios for curbing the increase in plastic pollution of the oceans are based on both preventive and curative solutions. We need to combine solutions at source (education, reduction, banning SUPs, etc.) in the middle (setting up deposit systems, developing recycling) and downstream of the problem (cleaning up the oceans and beaches). They involve efforts by low-, middle- and high-income countries, which makes the proposed solutions more politically acceptable.

The example of WWF's global strategy

Examples of initiatives are being developed on a global scale to combat plastic pollution. They seek to create a dynamic to bring together stakeholders who want to make a commitment, for example by sharing best practice to encourage mutual learning. The strategy of the NGO World Wild Fund for Nature (WWF) is to target several types of stakeholders with dedicated action programs:

In 2019, it launched the "No Plastics in Nature" (NPIN) initiative, which aims to unite all the key stakeholders in the fight against plastic pollution, taking into account all stages of the plastic life cycle.

To achieve its objectives, the NGO also wants to involve towns and cities. The **Plastic Smart Cities network** has been set up to involve cities more specifically as stakeholders in the fight against plastic pollution. Cities are the main areas where waste leaks into the environment.

Towards an international treaty on plastic pollution

The involvement of countries in the fight against plastic pollution is also an important issue. More recently, the first stage of negotiations to create an international treaty on plastic pollution took place, bringing together more than 160 countries in December 2022. The aim of this text is to **propose a legally binding international**[3]**.** This in-depth work continued in May 2023 and the next session will take place in Nairobi in November 2023.

The main difficulty lies in the need to agree on the solutions to be implemented. The debates surrounding the starting point of the life cycle remain lively. One example at the heart of the discussions is whether to start the life cycle at the oil extraction stage or the polymer manufacturing stage. As a reminder, 91% of greenhouse gas emissions caused by plastics occur during the entire production process.

SBM's "Zero Plastic Waste" approach

On the issue of plastic, SBM is aiming for **"zero plastic waste"** and is taking action on all the plastics present: in the *front* and *back offices*, not forgetting the less visible plastics used in the logistics and packaging of the products they receive.

Although this objective is not directly included in the company's CSR policy, it is included indirectly, in particular through waste reduction issues and the responsible purchasing policy. There are still a number of obstacles to be overcome, such as using meaningful indicators to monitor their actions on plastics or finding regional recyclers.

Examples of actions implemented

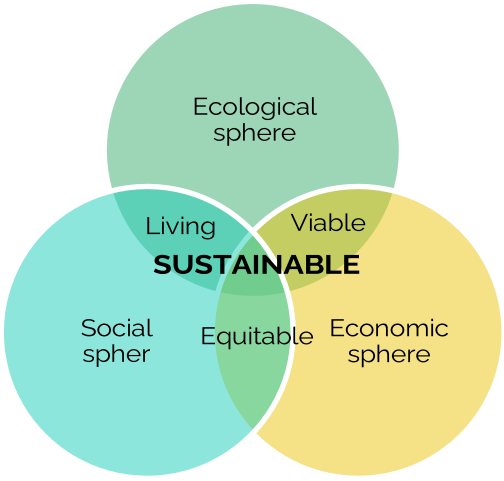
- eliminate plastic water bottles in hotels
- replace polystyrene (PS) containers for fish packaging with returnable bins
- to pass on the zero-plastic criteria to suppliers on a shared basis

Taking action at microeconomic level

The theses of low sustainability and strong sustainability are two different responses to the concern to maintain human well-being over time. These two starting points have different consequences for the way in which capital is taken into account in companies, and hence two different sets of accounts.

Acting within the framework of low sustainability

What is low sustainability?



According to the weak sustainability thesis, we consider that the different capitals (human, natural, economic, institutional, physical....) have a high capacity for substitution. So a reduction in one of these capitals could be compensated for by an increase in another. This theory considers, for example, that a decline in natural capital is permissible if it is offset by gains in other categories of capital.

> *As you can see from the diagram, nature and mankind are placed on the same level as financial capital and valued in the same way.*

CSR and non-financial reporting taken into account

A company's capital is therefore considered to be substitutable. Furthermore, this capital is seen as "productive capital", an asset whose use must be optimised to maximise productivity. Certain intangible flows (social and environmental capital) and material flows are considered to be the starting point for creating economic value by maximising all these flows. In this vision, CSR, *reporting* and non-financial accounting make it possible to report on these two pillars, whereas financial accounting only reports on the economic pillar.

Examples of initiatives to structure CSR approaches and non-financial reporting

From a legal point of view: the European directive on financial *reporting* (2017) and that on the corporate sustainability reporting (2021).

Example of the total acquisition cost approach

If we come back to the hidden costs mentioned above in relation to plastics, there are a number of ways in which companies can take better account of them. One of these is the TCO (*Total Cost of Ownership*) approach. This is part of a wider process of rethinking a company's purchasing policy to make it more respectful of people and the environment.

In practical terms, this technique makes it possible to estimate the direct and indirect costs of a product or service, in order to calculate its true cost over its entire life cycle. This means measuring not only the cost of use, but also the cost of production and end-of-life costs. In this way, environmental impacts can be measured more accurately, taking into account, for example, CO2 emissions, the impact on biodiversity or the cost of cleaning up pollution caused by potentially negative externalities.

The Monte Carlo Société des Bains de Mer is striving to develop its purchasing processes to take into account the TCO of the products and services it procures. This is a long-term project that is part of our CSR approach.

Limitations of the weak sustainability framework

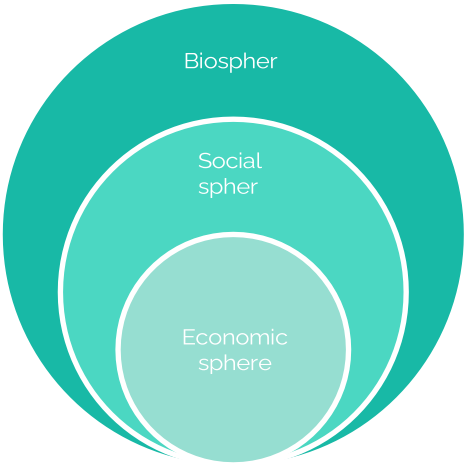
In the event of environmental damage, there is no method for ensuring that the company will have the means to remedy the situation and will do so

Failure to take account of environmental and planetary limits

If these assets are valued in monetary terms, there is a risk that an ecosystem services approach will lead to a sharp deterioration in ecosystems at the local level. beyond their renewal thresholds

Acting within a strong sustainability framework

What is strong sustainability?



In opposition to the first theory, the thesis of strong sustainability supports the idea that natural capital is essential to planetary equilibrium and the proper functioning of our society and cannot be substituted. It is therefore up to the economic system to adapt and restrict its demands in order to respect the limits of the ecosystem.

The economic system (economic sphere) is seen as a sub-system of the social system (human sphere), itself a sub-system of the ecosphere (or biosphere) in which it is embedded.

Consequences for the company

In the case of strong sustainability, capital is not substitutable. Degrading an ecosystem (to generate an economic flow) means restoring it: this capital is now considered a debt, a responsibility. We therefore need to develop new accounting models and new *business models* to ensure that all types of human, natural and financial capital are renewed.

This type of paradigm challenges the traditional relationship between the company and its environment. From this perspective, the company is integrated into its environment and depends on the good health of the environmental and social ecosystems in which it is embedded. It can only succeed if it can ensure its sustainability.

The example of the CARE integrated accounting model

The CARE model, which stands for *Comprehensive Accounting in Respect of Ecology, is an* accounting model that emerged in 2012 and has been structured since 2015[4]. Various organisations are experimenting with it: Fermes d'avenir, Carrefour, Ville de Grenoble, Fleury Michon, LVMH, DeclaMer, etc.

The principle of this integrated accounting system is to guarantee the principle of renewed preservation of the different types of capital ("capital entities" - natural, human and environmental) through the rules of accounting entry. This system evaluates the use of capital in relation to its sustainability threshold, which, if exceeded, requires the implementation of conservation measures. The costs of these measures to preserve and restore ecosystems are then entered in the accounts. A company can only calculate its profit once it has taken into account all its debts, including its ecological debt to this natural and human capital, and not just its financial and economic debts.

This method makes it possible to highlight truly sustainable *business models*, to draw up a true and fair view of the company in its environment, and to bring science into the company. In this way, the relationship between the company and its environment, and between individuals within the company, is modified by the creation of new accounting standards.

Practical implementation: the different stages

1. Capital identification	2. Evaluation of thresholds preservation	3. Evaluation of preservation measures	4. Implementation measures preservation
• Identifying the different types of natural and human capital used by the company • *Material and social balance sheets*	• Assessment of the use of this capital in relation to its sustainability threshold • *Checks that inputs/outputs comply with the thresholds assigned to the company.* • *These thresholds are defined by scientific or institutional standards.*	• If the use of capital exceeds the sustainability threshold • *Identification of preservation solutions or how to return to the thresholds*	• Evaluation of the cost of preservation measures for inclusion in the accounts • *And implementing these measures, the implementation stage is key, otherwise we'll be 'cheating' with the model and reverting to balance sheet accounting*

The prospects opened up by the Business Climate Agreement

Movements are also developing at the level of companies and their *business models.* Launched in France in 2020, the Convention Entreprises Climat (CEC)[5] brings together more than 150 managers of all types and sizes of company around a collectively drafted roadmap designed to steer members progressively towards the regenerative company. Regenerative means going beyond reducing or neutralising negative impacts to generating net positive impacts for ecosystems and society.

The classic business model, in which the objective is to optimise choices under the constraint of financial profitability, is a situation that can put the brakes on more environmentally virtuous approaches. Company directors are often faced with what is known as the "prisoner's dilemma", i.e. the idea that individual rationality is blocking the transformation, even though it would be optimal for everyone if everyone were to commit to it. In other words, why spend money on the transition of my company if I know that my competitors will not act, and that I alone will suffer as a result of this expenditure, since my competitors will be able to recover my market share. The solution to this situation is cooperation. This is where the CEC comes in, firstly by establishing a framework of trust that will enable the foundations of cooperation to be laid, and then by collectively supporting companies in this shared desire to change paradigm.

At the same time, regional CECs inspired by the national initiative are being set up to strengthen the network of more virtuous companies throughout the country[6].

Appendices

Contact

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Sources and resources

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5. Convention des Entreprises pour le Climat, "Rapport final de la première Convention des Entreprises pour le Climat, Une grande bascule vers l'entreprise régénérative", 2022, link
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This document is based on presentations by Dimitri de Andolenko (Société des Bains de Mer de Monaco), Pierre Scemama (Ifremer, UMR AMURE), Giorgio Bagordo (WWF Italy) and Mateo Cordier (University of Versailles Saint-Quentin) to the BeMed Business Club. This document was summarised by ©ConsultantSeas.