Preface

What kind of world do we want for tomorrow? What kind of world do we wish to leave to future generations?

This work provides some answers to these essential questions. Supported by the extensive research of scientists and specialists in plastic pollution and its impacts, it represents a tremendous effort to raise awareness, which is essential for strong engagement of both citizens and policymakers.

As part of our report, "Plastic Pollution: A Ticking Time Bomb?"[1], submitted to OPECST (Parliamentary Office for the Evaluation of Scientific and Technological Choices) in 2020, we interviewed many scientists working on this subject. They drew up an alarming assessment!

Since then, their research, experiments, and observations have continued, providing us with additional knowledge and an increasingly refined understanding of pollution and its effects. Sharing this knowledge is vital to ensuring that everyone understands this insidious and widespread pollution. It is a necessary prerequisite for initiating both individual and collective action. In this light, we commend the authors' generous and responsible initiative to share their scientific expertise.

The "revelations" contained in this book are likely to raise awareness, shake things up, and provoke reactions and actions that challenge our certainties and habits. Just as our report for OPECST was a landmark publication, this volume aims to be equally pivotal. It provides irrefutable evidence of the urgency with which we must address this subject. Our collective responsibility is to ensure that the state of the planet is no worse than it was before we came along.

Our various projects for OPECST—the aforementioned 2020 report, the 2023 public hearing summary on the scientific stakes of the international treaty to end plastic pollution[2], the 2023 note on plastic recycling[3], and the 2024 public hearing summary on the impacts of plastics on human health[4]—have allowed us to measure, sometimes with dread, the considerable long-term effects of this pollution. It is already so unacceptably extensive, disseminated and scattered across every part of the Earth, and within the organisms that inhabit it. It exists in all forms and at all scales, sometimes in fragments so small—micro- and nanoplastics—that they become invisible.

1. "Pollution plastique, une bombe à retardement ?", https://www2.assemblee-nationale.fr/content/download/320346/3119124/version/2/file/2020_0063_rapport_pollution_plastique-compress%C3%A9.pdf
2. https://www.senat.fr/rap/r22-641/r22-6411.pdf
3. https://www.philippe-bolo.fr/wp-content/uploads/2024/01/opecst_note_recyclage_plastiques_vf2.pdf
4. https://www.senat.fr/rap/r24-141/r24-141-syn.pdf

We have a responsibility to stem this massive and uninterrupted flow and to halt an accumulation that has, unfortunately, been going on for far too long.

Despite the warnings, plastic production continues to grow exponentially. Contrary to what one might imagine given the shocking pictures of seals entangled in discarded plastic fishing nets or turtles injured by straws lodged in their nostrils, plastic consumption has not decreased. "Ghost nets"—which are anything but ethereal—cause the death of marine animals. This is not a marginal phenomenon but a cruel and appalling reality, extremely detrimental and a primary driver of biodiversity decline.

As parliamentarians, we utilized the "Circular Economy and Anti-Waste" law (*loi AGEC*) to incorporate several measures aimed at curbing the negative impacts of the irrational use of plastics. Among the robust measures of this law, we should specifically mention the implementation of Extended Producer Responsibility (EPR) for fishing gear, the obligation to limit the leakage of virgin plastic pellets at production, transport and storage facilities, and the ban on plastic packaging for fruit and vegetables.

All these virtuous legislative intentions were met with circumvention by active lobbying, which is unscrupulous and indifferent to the urgency of preserving the planet, its biodiversity, and our collective health. These actions have delayed the law's implementation.

In many respects, certain plastics are no longer "fantastic", but horrific. Misplaced in nature, they do not decompose; they fragment. They become laden with the organic pollutants they encounter. They are colonised by numerous microorganisms that are potentially invasive and pathogenic. Finally, throughout their extensive life cycle, they leach the additives, plasticisers and other chemicals they contain. Some of these molecules are endocrine disruptors that continuously accumulate in every environmental compartment, in water, soil and in our bodies. Even low doses put our health and our ecosystems at risk.

This book documents, with scientific evidence, each of these phenomena and their consequences. It helps show that pollution from surface macrolitter on the oceans is merely the tip of the plastic pollution iceberg. It is beneath the visible surface, down to the seabed, that the problem is far more significant. Knowing that our beautiful Mediterranean Sea—the *Mare Nostrum* so dear to our hearts—is one of the most polluted marine areas on earth must serve as a stark wake-up call, demanding a forceful and immediate response.

Our hyper-consumerist society has made plastic omnipresent in our daily lives, creating habits and conveniences associated with "disposable" and pre-packaged culture. The problem of plastic pollution is far more complex than the simple abandonment of packaging in the environment. It touches upon our lifestyle habits, the very organization of our society, and our consumption model. The pace is still accelerating, as shown by the recent and emblematic phenomenon of ultra-fast fashion: the frenetic and massive consumption of synthetic fibre clothing purchased online at very low prices.

It should be shouted loud and clear: polyester and fleece fabrics are plastic! It is said that the quantity of clothing already manufactured and available in the world could clothe 12 billion human beings for four generations! With the rampant production

of synthetic textiles, the health risks and deleterious effects on ecosystems lie in the dissemination of plastic microfibres into the air and water during machine washing and daily wear.

We expect a great deal from the forthcoming United Nations treaty on plastic pollution currently under negotiation. We attended the second session of the Intergovernmental Negotiating Committee in Paris in May 2023. This legally binding instrument represents a formidable opportunity to push for solutions that must be taken on a global scale.

Within these negotiations, we have seen the influence of lobbies and the overly large number of countries hostile to a reduction in production, whether for economic and strategic interests or through a lack of understanding of the impacts of plastic pollution.

In the debates surrounding this international treaty, the issue of additives is emerging, which is a welcome development. However, while further scientific research is indeed necessary on these, for some—make no mistake—it serves as a pretext to further delay the binding decisions that would apply to them.

There is still a long way to go, and we need to see more initiatives of all kinds to reverse this trend. This is everyone's responsibility.

The strength provided to us by the scientific community lies in the power of knowledge and understanding, which allow us to act as informed citizens. Our sincere thanks go to all those who have dedicated their time and shared their expertise to make this vast subject accessible.

Expectations are high, and it is optimism that must sustain us.

We hope you enjoy the book!

Angèle Préville[5] *and Philippe Bolo*[6]

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