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Better plastics for healthier oceans

WORLD VIEW
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LONDON—Plastics are among the most popular materials in use today. Given the material's versatility, it is little wonder that some 320 million tons of it are used around the world each year. Indeed, the recent holidays left many with a mountain of plastic products and packaging. But plastics also pose a serious environmental threat.

If not disposed of properly, plastics can lie or float around for decades. In addition to being harmful to terrestrial and aquatic life, free-floating plastics in oceans can absorb toxins and break up into microplastics, which then enter the food chain.

It is this seeming immortality that has led governments to tax certain environmentally damaging plastic products or ban them altogether. Many governments are also encouraging better waste management, and the reuse, redesign, and recycling of plastic products.

This is prudent policymaking. But while taxes, bans, and waste-management policies will reduce the problem of plastic pollution, they will not solve it. And, because plastics are made from a by-product of oil refining, a ban would have little or no impact on hydrocarbon extraction, either. What taxes and bans will do is deprive the poorest people of a useful and inexpensive material.

The fact is that, despite the best efforts of well-intentioned lawmakers and nongovernment organizations, thousands of tons of plastic waste are still entering the environment, particularly the oceans, every day. Clearly, a better approach is needed.

Some governments and companies have been persuaded that "bioplastics"—which are derived partly from biomass like cornstarch—are the solution. But this argument is flawed: bioplastics are very expensive and energy-intensive to produce, and still contain large amounts of material derived from oil.

Moreover, recycling bioplastics requires that they be separated from ordinary plastic. Such polymers are tested to biodegrade, but only in the particular conditions found in industrial composting. In other words, while this technology might sound appealing, it will not solve the problem of plastic litter seeping into the environment.

The focus of the plastics industry has long been on a product's functionality during its lifespan. This approach is no longer tenable. The world needs a new type of plastic —one that will perform well, but will also biodegrade much faster than the plastics we use today.

Enter oxo-biodegradable plastic. Unlike other plastics, including bioplastics, OBP biodegrades anywhere in the environment, and can be recycled if collected during its useful life. Ordinary plastic products can be upgraded to OBP with existing machinery at the time of manufacture and at little to no extra cost, using technology that the Oxo-biodegradable Plastics Association is working to explain.

OBP is produced when a special additive is mixed with a normal polymer. The additive (produced by a company where I am a director) dismantles the molecular structure of the polymer at the end of its useful life and enables natural decomposition in an open environment.

And, when it comes to OBP, decomposition doesn't mean breakdown into plastic fragments. As Ignacy Jakubowicz, a professor at the Research Institutes of Sweden and one of the world's leading experts on polymers, explains, when OBPs break down, the material changes entirely, with hydrocarbon molecules becoming oxygen-containing molecules that can be assim-

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ilated back into the environment. According to international standards (such as ASTM D6954), the use of OBP would demand proof of degradation and biodegradation, and confirmation that there are no heavy metals or ecotoxicity.

As plastics change, the ways countries integrate them into their economies must change, too. The good news is that, though the United States and Europe have been slow to embrace innovative solutions, others have been more open to them. For example, Saudi Arabia and the United Arab Emirates have banned the import or manufacture of conventional plastics for a wide range of products, and both now require that plastic products be upgraded with OBP technology. They have not opted for "bio-based" plastics.

The world does not need new bans or taxes. Rather, it needs people who work with plastic, and their governments, to become as adaptable as the material itself, taking advantage of technological advances to ensure that we can make the most of a cheap and versatile material, without subjecting the environment to its damaging impact. **Project Syndicate**

Michael Stephen, a former member of the UK Parliament, is chair of the Oxo-biodegradable Plastics Association, and a director of Symphony Environmental Technologies Plc.