

CAST AWAY AT SEA

Key Elements and Best Practices for Designing Model Legislation Aimed at Reducing Marine Plastic Debris



An Act for the Promotion of Plastic Waste Management and Better Stewardship of Our Oceans

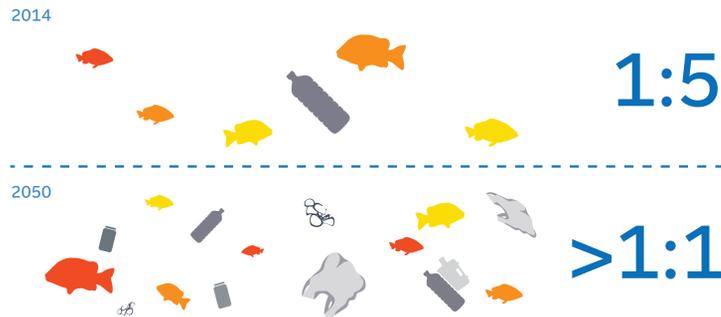
- Whereas:** over 80% of marine plastic debris (MPD) originates from land-based sources;
- And whereas:** each year, over 50% of the world's MPD comes from 5 countries (the "Top Five" including China, Indonesia, the Philippines, Thailand and Vietnam);
- And whereas:** of land-sourced MPD, 75% comes from uncollected waste and 25% comes from waste management systems;
- And whereas:** the types of plastic most likely to enter the ocean are low-value plastics such as films and composites, i.e. plastic bags;
- And whereas:** the value of used plastics is based on the cost involved in recycling it and suitability for reconstitution, the most high value plastics being made of materials such as polyethylene terephthalate (PET) and High Density Polyethylene (HDPE), i.e. single use water bottles;
- The Author** hereby presents the following solutions and best practices for managing land-sourced MPD:

Section 1 – Purpose

This poster focuses on solutions and best practices for managing land-sourced MPD, and makes a range of suggestions from improved waste management practices and reduced plastic dependence, to achieving a circular economy. The vital importance of tackling the problem of MPD can be framed in a number of ways:

- MPD is proliferating at such a fast rate that according to the Ellen MacArthur Foundation, by 2050 there will be more plastic in the ocean than fish.

Ratio of plastics to fish in the ocean (by weight)



- MPD is expensive; one study on 21 economies in the Asia-Pacific region calculated that MPD cost €1 billion per year to marine industries.
- MPD is known to suffocate or strangle marine mammals but it is also now being ingested at high rates by marine species along the entire food chain, including humans.
- For the benefit of future generations, it is the just and right thing to be effective stewards for our oceans, and leave them in a condition that can be enjoyed by communities near and far. To achieve this, we must increase our ambitions and find meaningful solutions to internalize the negative externalities that come with the convenience of plastic. Simply put, we must be better ocean stewards and advocates for change.

Section 2 – Sea Change

*"Sea-change is an English idiomatic expression which denotes a substantial change in perspective, especially one which affects a group or society at large, on a particular issue. It is similar in usage and meaning to a paradigm shift, and may be viewed as a change to a society or community's zeitgeist, with regard to a specific issue."*¹

Legal Instruments for Change

- Enact overarching national legislation and policies:
 - Most countries address MPD in a piecemeal approach, targeting specific sources of MPD, without taking a look at the overall landscape.
 - The Exception: **Japan** has adopted the comprehensive *Law for the Promotion of Marine Litter Disposal* (LPMLD), designed to control and reduce generation of marine litter.
- Include a provision on MPD in broader environmental legislation:
 - The *South Korean Marine Environmental Management Act* includes a mandate to develop a Marine Litter Management Plan. This Act specifically incorporates the polluter pays principle in Chapter I, Article 7.
- Participate in a Regional Instrument:
 - In 2008, the European Union (EU) adopted the EU Marine Strategy Framework Directive (MSFD) to guide EU Member States in protecting the marine environment using criteria and indices.
- Implement a national strategy and set targets:
 - Scotland's "Zero Waste Plan" stipulates that by 2025, 70% of all waste should be recyclable, and that no more than 5% will go to a landfill.
- Actions include:
 - awareness-raising campaigns;
 - improvement of product and service design through collaboration with businesses;
 - the provision of opportunities for recycling; and
 - establishment of a strong enforcement system and providing sufficient resources to regulatory authorities.

How is this effective? Overarching national legislation serves as a coordinating and planning mechanism to help integrate existing laws and programs already in place and design strategies for priority actions.

Section 3 – Tidal Wave

*"An exceptionally large ocean wave, especially one caused by an underwater earthquake or volcanic eruption; a widespread or overwhelming manifestation of an emotion or phenomenon."*²

Shifting responsibility and incentivizing behavior change

- Enact legislation which creates Extended Producer Responsibility (EPR) for plastic commodities:
 - The Organization for Economic Co-operation and Development defines EPR as a "policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle."

Best Practices from Around the World

- Estonia** has passed a law which requires that all packaging be reusable and recyclable, and places some responsibility for the recovery of package waste on manufacturers. The Act covers "[p]ackaging materials of any manufactured product, which is used for the containment, protection, handling, delivery or presentation of the product life-cycle: from raw materials to processed goods from the producer and the consumer." The Act sets targets for recovery of plastic packaging waste at up to 55%; 45% of which is to be recycled.
- Ghana** created a Recycling Task Force in 2004 which hires waste collectors to collect and deliver plastic bags to warehouses for recycling. Plastic manufacturers fund this project.
- Uruguay** has adopted Ordinance No. 260/2007 which requires merchants to take actions to minimize waste and generation of plastic bags, and to develop management plans for their use, reuse and recycling.
- The **EU** has enacted several Directives which address the issue of MPD, and has recently launched the "European Strategy for Plastics in a Circular Economy", which will help transform the way plastic products are designed, used, produced and recycled in the EU. The intention is that by incentivising better design of plastic products, higher recycling rates and better quality recycles, the EU will benefit from added value for a more competitive, resilient plastics industry.
 - While a variety of approaches have been undertaken by member states, all have instituted some form of basic fee modulation, with fees per tonne for plastic and for composite packaging materials typically higher than those for other packaging materials. Some member states (including France and Italy) have moved on to eco-modulation of fees (which includes applying no fee to reusable packaging, higher fees for non-sortable/non-recyclable packaging, or higher fees for packaging with additives that disrupt recycling).

How is this effective? EPR schemes help to promote more efficient separate collection schemes, and generally promote recycling rates. They help to reduce the burden on public budgets, and help reveal the most cost efficient way to manage waste. Finally, EPR promotes growth in secondary raw material markets, which in turn increases resource security. Strategic use of fee-modulation can motivate industry to innovate eco-design. If possible, EPR schemes should be promote innovation that either prevents the need for plastic or encourages the production of plastic which is reusable, with recycling being the third priority.

Section 4 – Groundswell

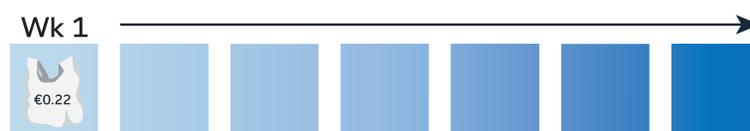
*"A broad and deep undulation of the ocean; an obvious change of public opinion or political sentiment that occurs without leadership or overt expression."*³

Targeting Behavior Change at the Consumer Level – Reduce Consumption of Low-Value Plastic

- Ban or tax single-use plastics, particularly low-value plastics
 - France:** In 2016, France banned the sale of all non-biodegradable disposable plastic cups and plastic tableware, starting in 2020. In 2015, 4.73 billion plastic cups were discarded in France. All disposable tableware must be made from at least 50% biologically sourced materials that can be composted at home by January 2020. This requirement will rise to 60% in 2025.
 - Taiwan:** In 2002, Taiwan's Environmental Protection Administration placed bans on disposable tableware, including polystyrene foam containers and plastic bags. Disposable plastic cups, utensils and tableware, including foam polystyrene food packaging were banned at government-affiliated establishments, hospitals, schools, supermarkets and department stores. Within three months of the implementation of this ban, plastic tableware use dropped by 96%. Since 2000, the Taiwanese government has pursued a comprehensive public education campaign and has actively engaged with the plastics industry to address concerns over job loss.
 - Bangladesh:** The first country to ban plastic bags – it was motivated to do so by flooding caused by clogged drains and because of loss of arable land due to lingering plastic in the soil. Although the *Environmental Conservation Act* permits the manufacture of plastic bags for export, fines and imprisonment up to ten years may be imposed for those who "manufacture, market or import" plastic bags.
 - In June 2016, **Canada** added microbeads to the List of Toxic Substances under the *Canadian Environmental Protection Act*, which gives the government the ability to prohibit the manufacture, import, sale and offer for sale of personal care products containing microbeads to exfoliate or cleanse.
- Taxes, surcharges and levies:
 - Washington D.C.:** All businesses selling food or alcohol are required to charge a 5 cent fee for single-use plastic bags. The retailer retains 1-2 cents for administrative costs, while the remainder goes to a local conservation fund. In the first month of implementation, bag use dropped from 22.5 million bags per month to 3 million bags. The program has raised US \$6 million for the conservation fund, which promotes public education, provides reusable bags to residents and upgrades storm drains.
 - Ireland:** In 2002, Ireland passed a plastic bag tax which put a fee of €0.22 on each bag. This measure was accompanied by an awareness raising campaign. Within weeks of imposing the tax, there was a 94% drop in bag use. Funds raised by the tax are directed to the environment ministry for use in enforcement and clean-up projects. The law stipulated that shopkeepers were not permitted to pay the tax on behalf of customers.

The Impacts of Ireland's Plastic Bag Tax

2002



94%
Reduction

Section 5 – Turning of the Tide

*"When you turn the tide, you change things — usually dramatically, and for the better. ... When you reverse someone's opinion, you also turn the tide. This common phrase reflects the change that occurs when a rising ocean tide starts to recede, or go out."*⁴

Creating the Optimal Regulatory Environment

- Promote recycling and the reuse of high value plastics:
 - Single-use plastic beverage bottles constitute approximately 16% of the market (by weight), and are ranked as the fifth most common item of MPD based on a number of studies on beach-cleanups in Canada; while plastic bottle caps were the third most common item. Deposit refund schemes are an effective program to ensure that these high-value plastic items stay within our consumption cycle.
- In **British Columbia, Canada**, the *Recycling Regulation* prescribes deposit-refund requirements for sellers of any food or beverage plastic container (except for milk products).
 - All ready-to-drink beverages sold in the province are required to be offered for sale in recyclable or refillable containers.
 - No statutory fees or charges are remitted to the government under this system; industry funded stewardship organizations are responsible for managing the program.
 - Retailers collect deposits at the point of sale and return the deposit when the containers are returned.
 - The deposit per item charged must be shown separately on receipts in order to remind consumers of the cost of recycling and to prompt them to return their item to get a refund.
 - Deposits that are not claimed by consumers may be kept by the retailer to fund administration of the program.
 - This program results in the return of 79% of such containers.
- California** also has a deposit-refund scheme for plastics, but manages the deposit system differently.
 - Distributors that sell eligible beverage containers to retailers make redemption payments to CalRecycle. The cost of these payments are then passed on to consumers at the point of sale.
 - Consumers are paid California Refund Value when they return the empty beverage containers to certified recycling centers. A processing fee is assessed on beverage manufacturers whose beverage containers cost more to recycle than they are worth as scrap value when recycled. This incentivizes manufacturers to only use high value plastics which produces less waste overall.
 - The *Beverage Container Recycling and Litter Reduction Act* requires CalRecycle to identify convenience zones, which are areas within a one half-mile radius around supermarkets that are listed in the Progressive Grocers Guide and have total sales of at least \$2 million annually. Every convenience zone that is not specifically exempted by CalRecycle must have a certified recycling center in the zone or each dealer within its boundaries that sell beverages must either redeem containers within the store or make a daily payment to the State.
- Italy** has a number of chains which sell products like laundry detergent in bulk, which customers buy by refilling their own containers. A 2011 study by the Italian National Consumer Observatory found that a family of 4 could save €205 per year by buying cleaning products in this way. The shops benefit by securing a loyal customer base, who are committed to the scheme after investing in the containers.
- A **Czech Republic** company has developed a line of rigid plastic reusable cups which act like travel mugs for the individual consumer. Outside of individual sales, they target music festivals and sporting events by providing cups to participants in exchange for a deposit. Each time the consumer comes back for another drink, they swap in their cup for a fresh one. At the end of the night their deposit is returned to them when they give back their cup. The company rents the cups, washes them and stores them for the next event. Cups can be personalized to the event and can be taken home as a memento (which forfeits the deposit).

Section 6 – Current

*"A body of water or air moving in a definite direction, especially through a surrounding body of water or air in which there is less movement; belonging to the present time; happening or being used or done now."*⁵

Better is Always Possible

- Improve waste management practices to ensure that collected plastic does not become released into the environment again:
 - According to *Stemming the Tide* (a 2015 study from the Ocean Conservancy), the Top Five source countries of plastic waste globally (China, Indonesia, the Philippines, Thailand and Vietnam) still rely heavily on informal or "open" dump sites with very little infrastructure to prevent plastic waste leakage. Waste leaked from these types of sites in the Top Five contribute between 1.1 and 1.3 million metric tons of plastic to the ocean per year.
 - Countries with poor waste management systems need to build and maintain more secure dumping sites, and invest in better compliance and enforcement. Waste management initiatives would also benefit from public-private partnerships supported by appropriate enabling national and local policies. Priorities for investment should be on waste management systems along waterways and coasts. For example, in **New Zealand**, landfills cannot be built near the coast without a coastal permit.
 - In 1976, the **United States** adopted the *Resource Conservation and Recovery Act* to establish guidelines for proper solid waste disposal. Regulations under the Act specify where landfill facilities may be sited, and prohibit them from being built in flood plains and wetland areas, where floods could transport garbage into rivers.
 - The **Philippines** has approached the problem of illegal dumping and littering by offering monetary awards in 2012 for the cleanest and healthiest barangay (smallest administrative division in the Philippines.)
- Update major waste facilities to become sources of energy with international help:
 - Dagupan City, Philippines** was the first to build a modern solid waste facility in Asia. The facility takes household garbage, as well as refuse from industrial sources, for conversion into diesel fuel for vehicles and boats as well as biogas for use in cooking and lighting homes. This US \$8.2 million project was facilitated by Proctor and Gamble, the US State Department, the International Ocean Conservancy, the Asian Development Bank, the UN and the Department of Environment and Natural Resources.
- Regulate Storm Water Outfalls:
 - 80% of MPD originates on land, and the majority of that comes from urban runoff, including storm drain systems.
 - The City of **Los Angeles** requires that all storm sewers have mesh screens and catchment inserts to capture plastic debris.

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¹Source: Wikipedia

²Source: Oxford Dictionary

³Source: vocabulary.com