



# Reducing Plastic Pollution: Policy Approaches

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2023 URI Global Plastics Forum

May 15, 2023

Effective policy must steer consumer and producer behavior at multiple levels:

1. Upstream emissions:

- Addressed through regulatory standards and climate policy

2. Fabrication/Design

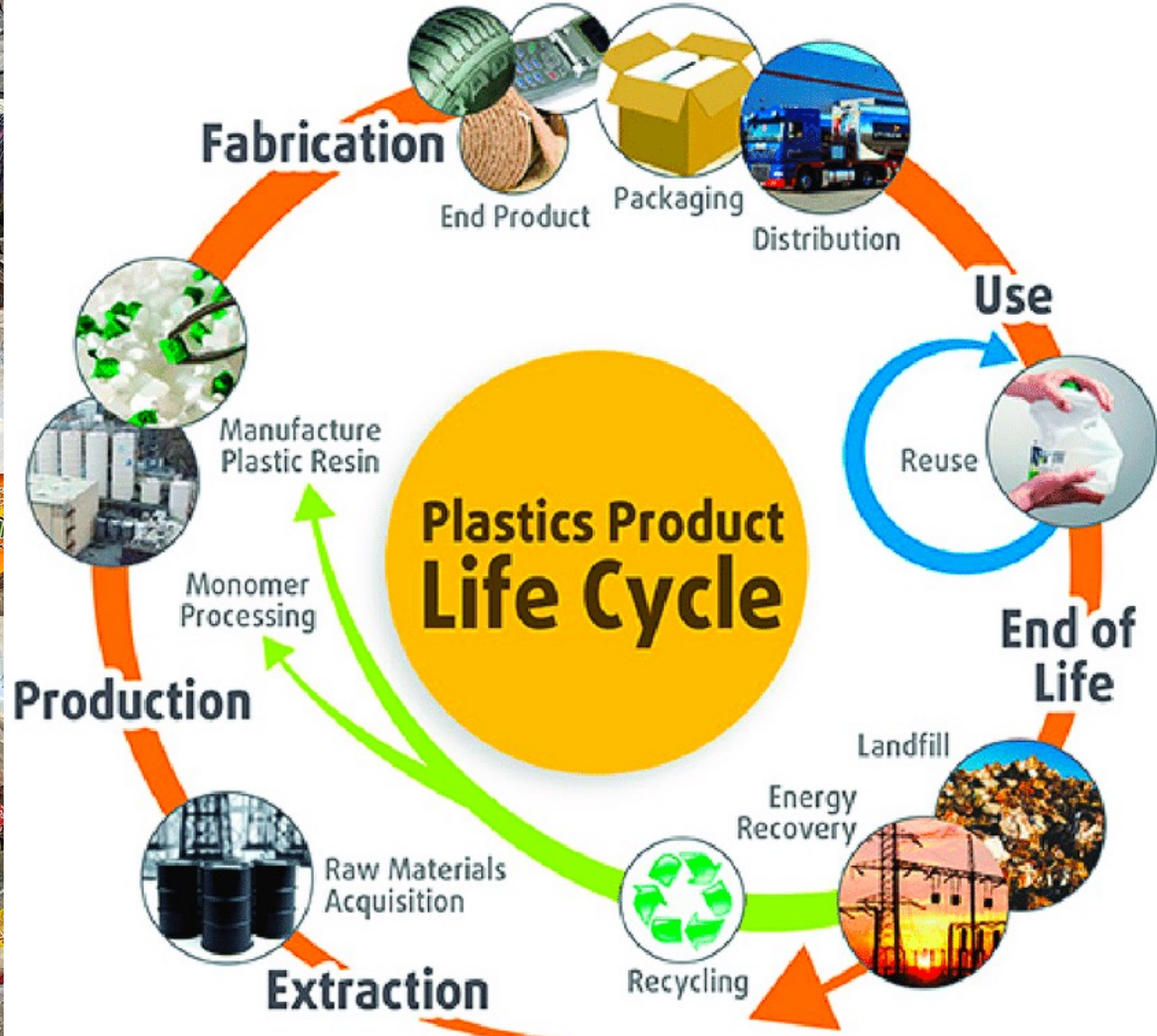
- Source reduction, green design

3. Disposal

- Recycle bin vs. reuse vs. throw away

4. End of Life

- Recycle vs. incineration vs. landfill vs. illegal disposal.

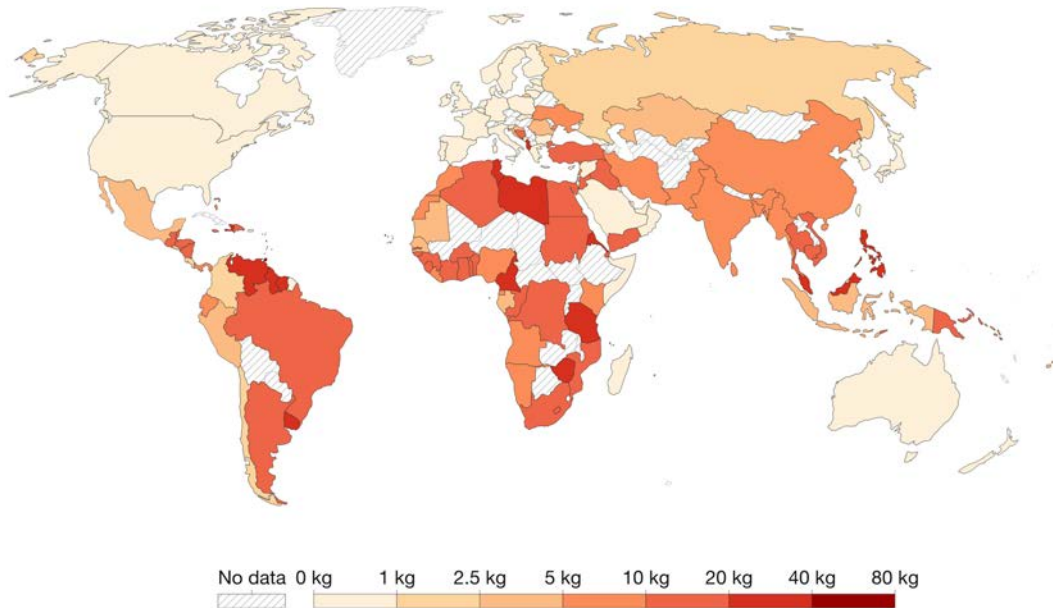


# The “two worlds” of plastic policy

## Mismanaged plastic waste per capita, 2019

Mismanaged plastic waste is plastic that is either littered or inadequately disposed<sup>1</sup>. A country's total does not include waste that is exported overseas, where it may be mismanaged.

Our World  
in Data



Source: Meijer et al. (2021). More than 1000 rivers account for 80% of global riverine plastic emissions into the ocean. Science Advances. OurWorldInData.org/plastic-pollution • CC BY

**1. Inadequately disposed plastic waste:** Inadequately disposed plastic waste is not formally managed and includes disposal in dumps or open, uncontrolled landfills, where it is not fully contained. This makes it at a much higher risk of leaking into the natural environment, rivers, or the ocean.

## Global North:

- Very high per capita plastic waste
- Formalized waste collection tied to recycling markets with moderate/high recycling rates
- Low mismanagement rates of plastic
- Policy need:
  - Foster reduction of low-recyclability plastics in packaging & consumer goods
  - Incentivize lower impact, more recyclable substitutes

## Global South:

- Relatively low per capita plastic waste
- Informal waste collection (i.e. “waste pickers”) tied to often strong recycling markets
- High mismanagement rates
- Policy need:
  - Investments in formal waste collection systems
  - Increased incentives for economical recovery of plastic waste by consumers and the informal sector

# The policy menu

Policy instrument	Description	Examples
Bans	Prohibit production or sale of certain items.	Plastic bags and straws
Standards	Stipulate minimum/maximum thresholds for product content.	Recycled content standards
Taxes, fees	Charge a producer or disposer of a product for its production or disposal, where the charge varies in the quantity of externality (e.g., plastic) produced/disposed.	Taxes on virgin materials, volumetric garbage taxes, product taxes/fees (e.g., fees on plastic bags), advance disposal/recycling fees
Subsidies	Provide payment or tax concessions to consumers or producers for pollution reduction.	Subsidies for recycling plastic waste or recycled content
Combined tax & subsidy	Pair taxes on producers or consumers with subsidies for proper disposal.	Deposit-refund systems (i.e. “bottle bills”)
Extended producer responsibility (EPR)	Shifts product life-cycle costs to producers through take-back mandates. Intended to foster materials recycling and cradle-to-cradle design.	German green dot program; voluntary and mandated take back programs for electronic waste
Behavioral interventions	Promote the voluntary adoption of pro-environment behavior in societies through non-price and non-regulatory means	Information campaigns, ‘nudges’

Source: Abbott & Sumaila (2019)



## The best of both worlds?: deposit-refund

A **tax/deposit/fee** on the production or consumption of plastics

- Based on amount/damage of waste embodied in product
- Could be levied directly on consumers or on producers
- Reduces plastic consumption and creates incentives for reuse
- Sends source reduction and (maybe) green design incentives to companies

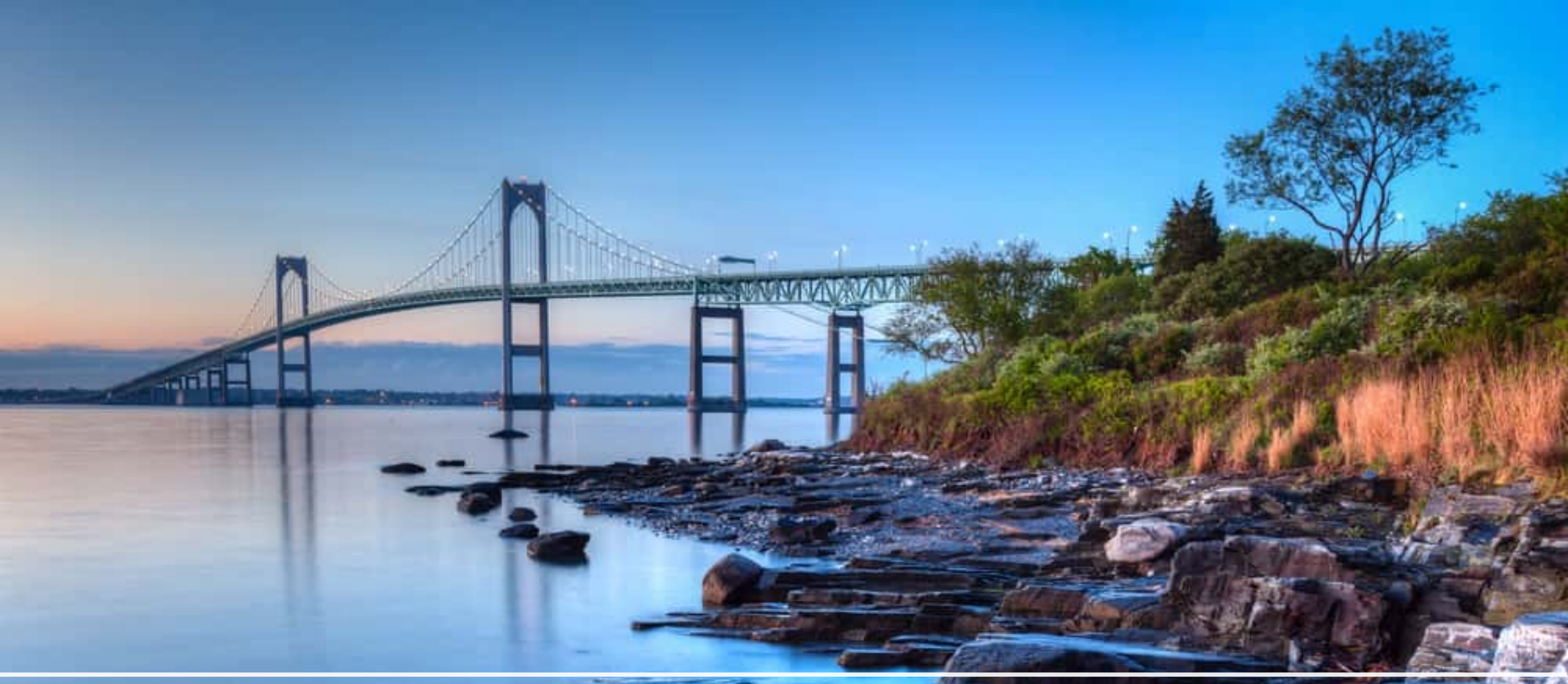
A **subsidy/refund** for the “safe return” of the product to an approved collection point

- Encourages responsibility at end-of-life.
- Consumers that “do the right thing” break even.
- Creates a market for waste recovery



# Beyond economic incentives

- Various 'nudges' may be employed to encourage plastic reduction & recycling
  - Changes in default (California straw 'ban')
  - Moral nudges
  - Social nudges
  - Token/donation programs
    - Can reduce bag use by ~30% (Penn, Bastola & Hu 2022)
- Advantages:
  - Inexpensive
  - Can be implemented by the private sector
- Disadvantages:
  - Can backfire
  - Limited evidence of long-run effectiveness
- Can be complementary with education campaigns and economic incentives



Thank you!

