Practices on regulated plastics in China

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01 Background

Plastics

Polymer

Polymer types are diversified, it can be classified by different manners, such as thermoplastics and thermosets，fossil-based plastics and bio-based plastics, biodegradable and non-biodegradable

Chemical

- Additives: added to plastics to bring about certain changes to the characteristics of the plastics as desired
- Processing aids: used to improve the processability and handling of high-molecular-weight polymers

Most plastics are a blend of polymers and additives

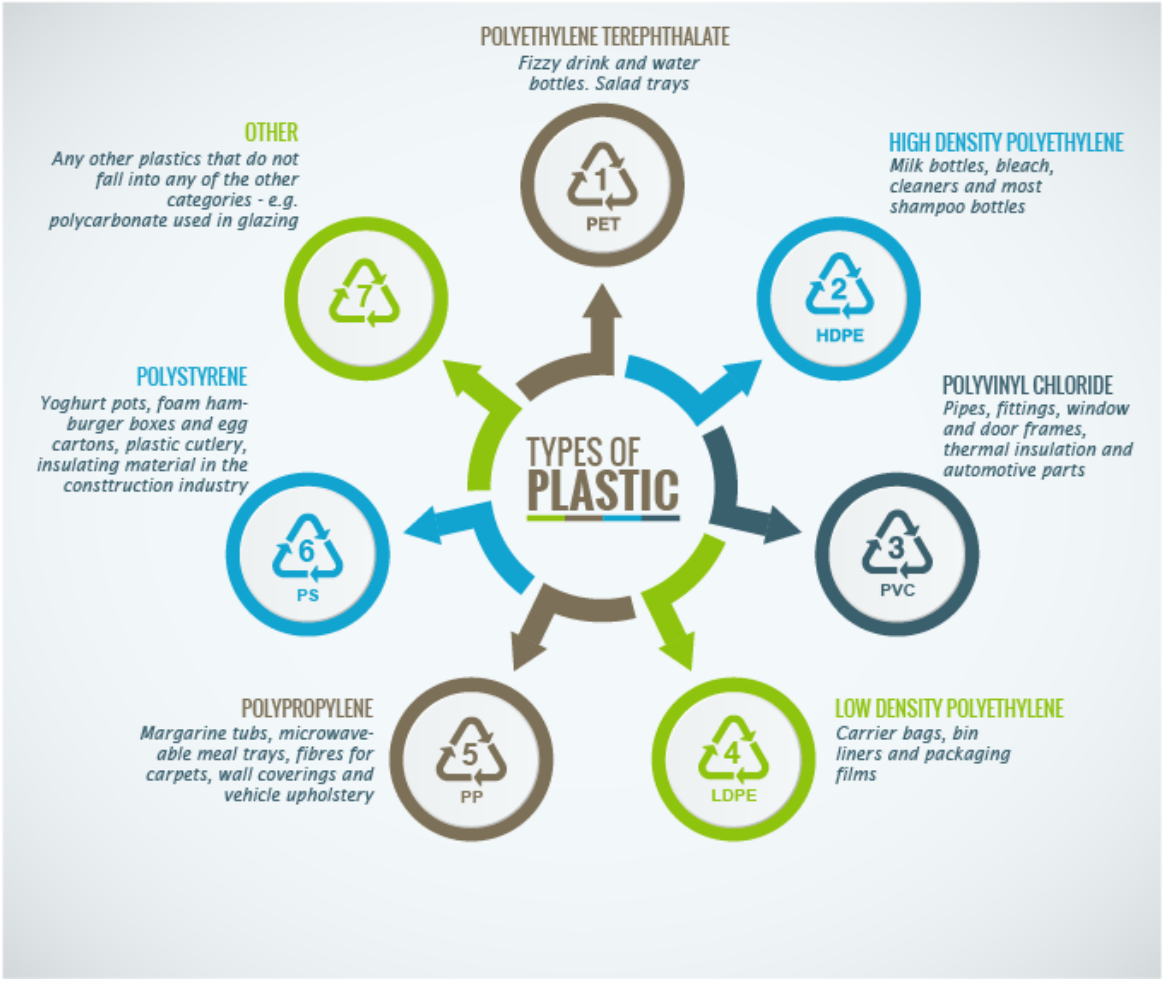
Source: Basel Convention: Technical guidelines on the environmentally sound management of plastic wastes, 2023

"Polymer" appears 79 times in Zero draft text of the international legally binding instrument on plastic pollution, including in the marine environment:

- primary plastic polymer
- chemicals and polymers of concern
- chemicals, groups of chemicals and polymers
- chemical or polymer
- chemical, polymer or product
- polymers, plastics, and plastic products

01 Polymer type

Common types



Classification by American Society for Testing and Materials on main types of polymers to facilitate recycling

- Plastic waste almost exclusively[11] consisting of one non-halogenated polymer, including but not limited to the following polymers:
  - Polyethylene (PE)
  - Polypropylene (PP)
  - Polystyrene (PS)
  - Acrylonitrile butadiene styrene (ABS)
  - Polyethylene [illegible] (PET)
  - Polycarbona[illegible]
  - Polyethers

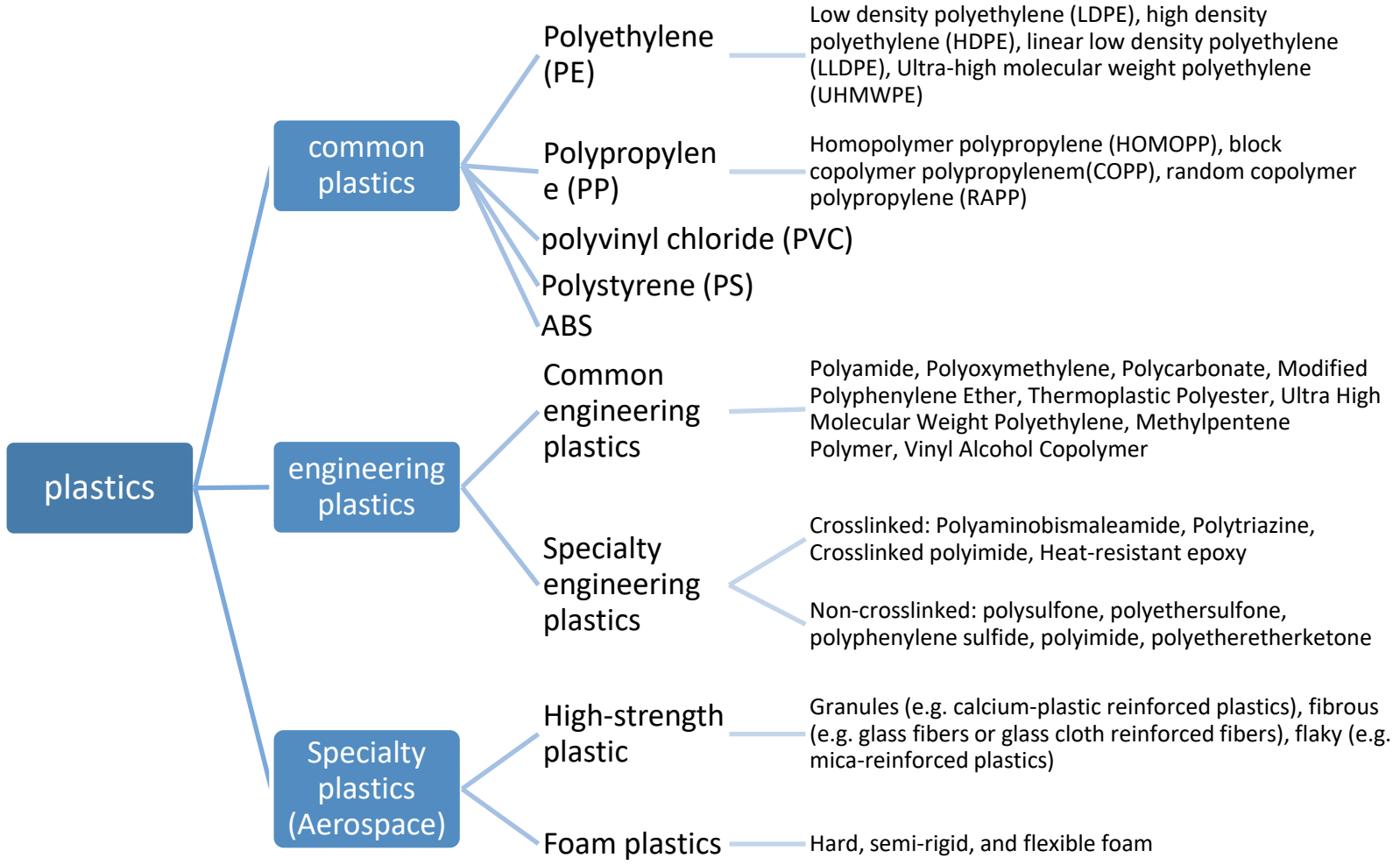
- Plastic waste almost exclusively[11] consisting of one cured resin or condensation product, including but not limited to the following resins:
  - Urea formaldehyde resins
  - Phenol formaldehyde resins
  - Melamine formaldehyde resins
  - Epoxy resins
  - Alkyd resins

- Plastic waste almost exclusively[11] consisting of one of the following fluorinated polymers:[12]
  - Perfluoroethylene/propylene (FEP)
  - Perfluoroalkoxy alkanes:
    - Tetrafluoroethylene/perfluoroalkyl vinyl ether (PFA)
    - Tetrafluoroethylene/perfluoromethyl vinyl ether (MFA)
  - Polyvinylfluoride (PVF)
  - Polyvinylidenefluoride (PVDF)

Polymer type listed by <Basel Convention>

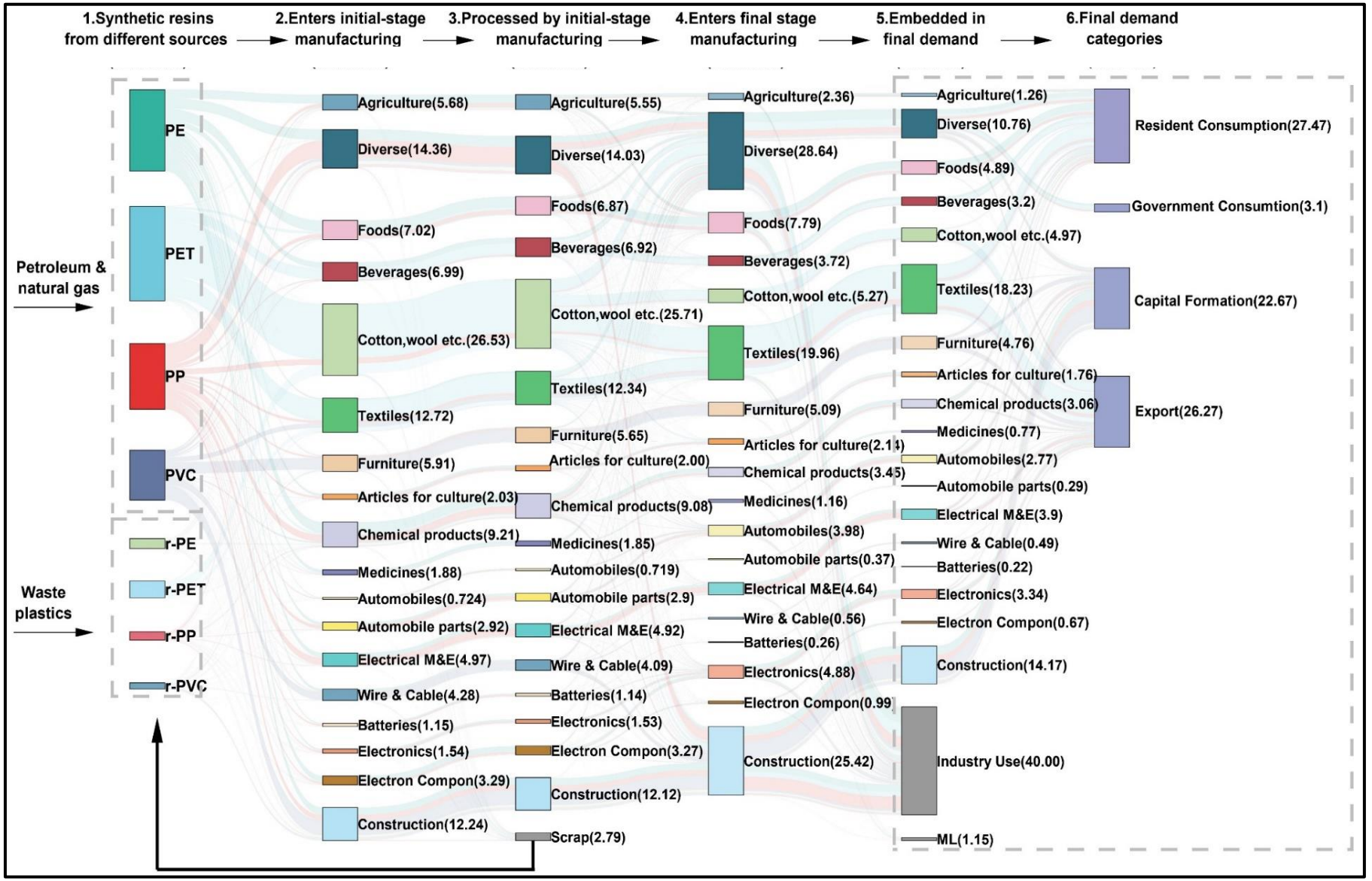
01 Polymer type

- It’s reported more than 30 types of plastic polymers and hundreds types of plastics are industrial produced
- Production statistics vary in different reports and literatures, the scope covered by the various studies differs



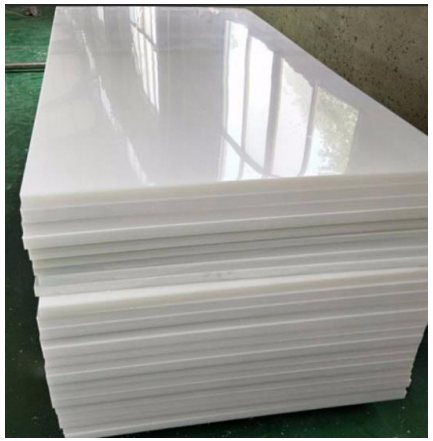
Some types of plastic polymers

01 Polymer use



- Take polymers of top production, PE, PET, PP and PVC, as an example, polymers applications varies obviously along the manufacturing stages
- From specific polymer perspective, it is difficult to tell where it ends up

01 Polymer use



daily necessities

Mechanical components

Wire and cable

pipeline

construction

fishing net

Agricultural film

belts

packaging

high density plate

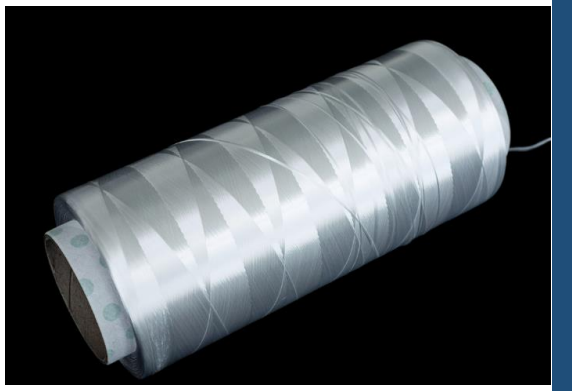
LDPE

LLDPE

UHMWPE

HDPE

Polyethylene(PE) applications

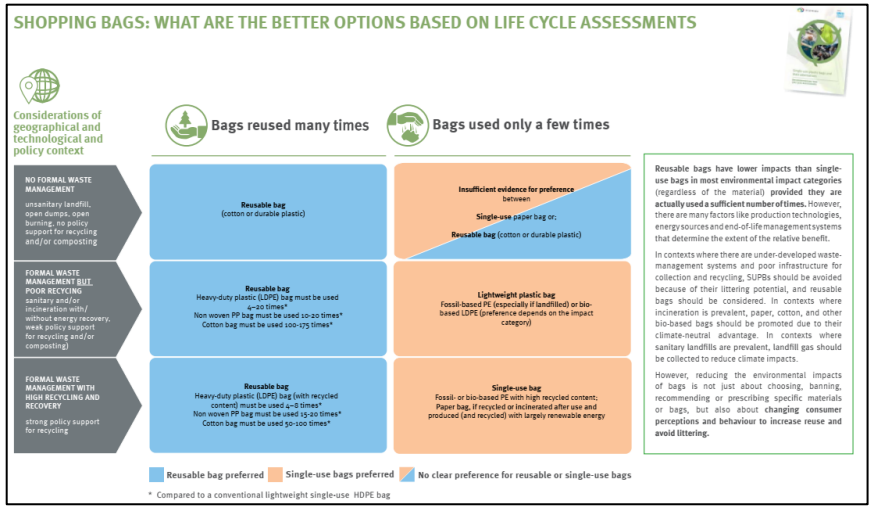


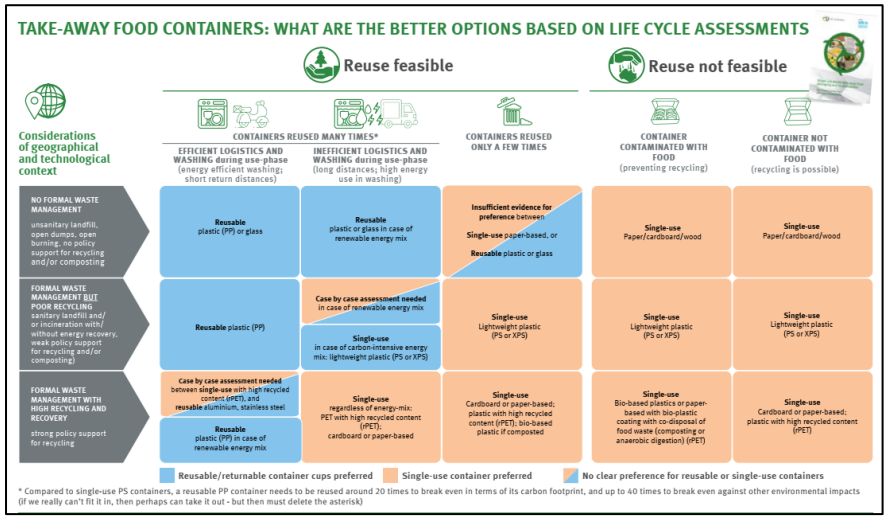
Considerations for regulated plastics in China

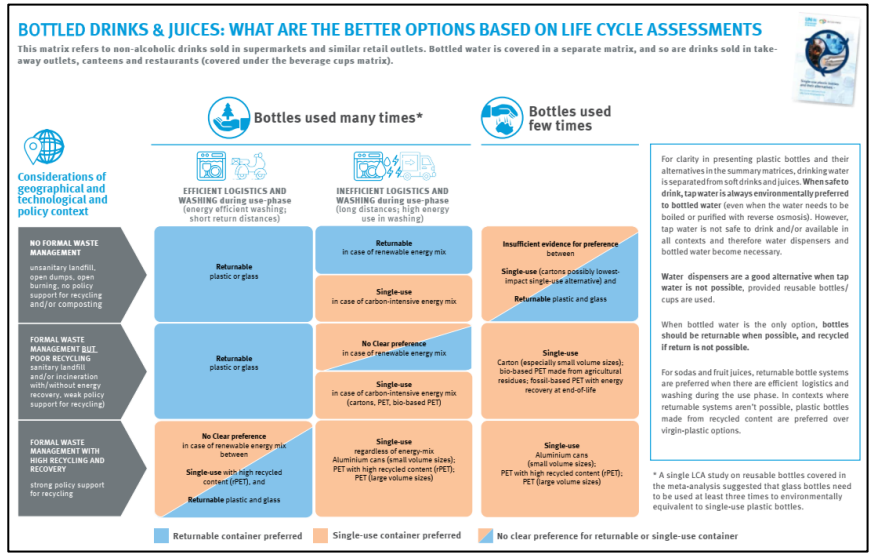
Focus on plastic products consumer sectors

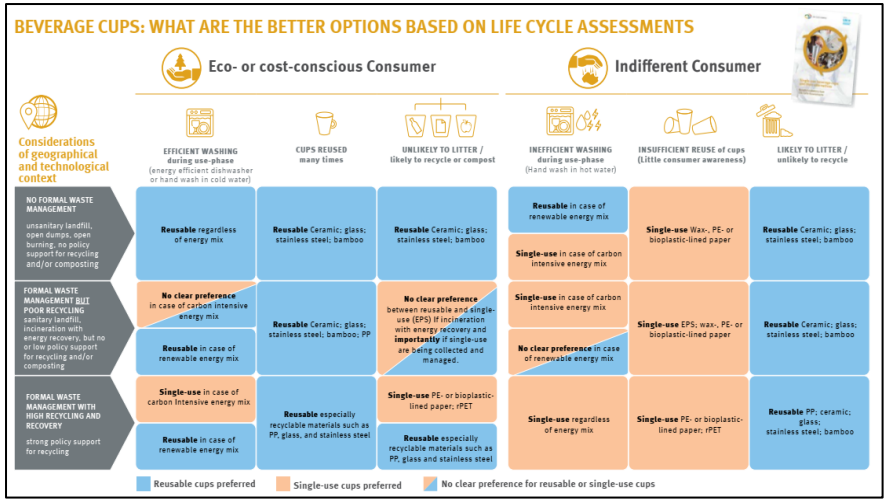
mall and supermarket | food-delivery | express | agriculture | hotel | retail market | restaurant

single-use plastic bags, single-use plastic cutlery, single-use plastic straws, takeaway packaging, express packaging, agricultural film, pesticide packaging waste, hotel single-use products, single-use plastic cotton swabs









UNEP. Single-use Plastic Products (SUPP) and their alternatives: Recommendations from Life Cycle Assessments

Practices in China

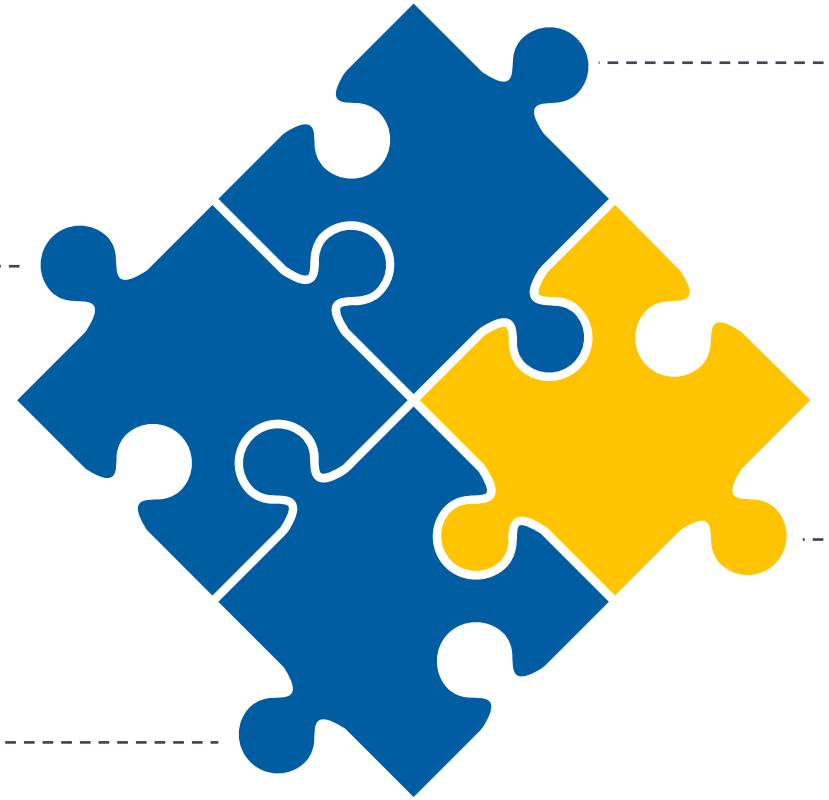
Plastic products prohibited to produce and sale

- Ultra-thin plastic shopping bags with a thickness of less than 0.025 mm
- Polyethylene agricultural mulch film with a thickness of less than 0.01 mm
- Daily life products containing plastic microbeads
- single-use foamed plastic tableware
- single-use plastic swabs

Control measure in key sectors

- Governance of excessive packaging of products
- E-commerce and food-delivery platform enterprises and express enterprises formulate platform rules for the reduction of single-use plastic products
- prohibits the use of non-degradable single-use plastic straws in restaurant
- prohibits non-degradable single-use cutlery gradually
- .....

02 Practices in China



Cleanup litters in Rivers, lakes, bays and seas

Strengthen the collection of plastic waste in the fields of passenger transportation ways such as roads, railways, water transport

In-depth cleaning of plastic waste in rural areas and tourist sites

Collect waste agricultural film and pesticide packaging waste widely

03 summary

- The definition and scope should be clear, e.g. polymers, plastic polymers, plastics, plastic products, single-use plastic products
- A plastic polymer often has variety of applications, its hard to know which application will be influenced by restriction of polymer

- The application of plastic should be taken into consideration, focusing on which are easy to leak, difficult to collect, and able to be substituted
- Even for single-use plastic products, there is no one-size-fits-all approach, and the optimal solution should be selected according to the geographical, technological and policy contexts

THANK YOU

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