

BACKGROUND AND RATIONALE

of the Policy Recommendation Paper to Prevent Single-Use Plastics and Packaging Waste

BACKGROUND

Thailand has been facing challenges in solid waste management and the negative consequences of waste pollution, especially plastic waste. In 2020, the country created 25.37 million tons of garbage but only 33% (8.36 million tons) of the solid trash was recycled, 36% (9.13 million tons) appropriately managed, and 31% (7.88 million tons) improperly discarded. For plastic waste, only 25% (0.5 million tons) of the country's 2 million tons/year of plastic waste was recycled. About 1.5 million tons of non-recycled plastics including plastic bags, cups, straws, and Styrofoam are usually dumped in landfills and can leak into the environment. In 2020, plastic waste volume rose 15% (6,300 tons per day) from 2019. In addition, between 34.3–51.5 tons of marine debris were estimated based on waste from 23 coastal provinces.

BIG ROCK PROJECTS

To create major changes in Thailand

In 2021, the government endorsed the Bio-Circular-Green Economy Model (BCG Model) as a new national agenda. Application of circular economy (CE) approaches to sustainably manage plastic waste is one of the priority projects (a.k.a. "big rock projects") under the "Comprehensive plastic waste management including segregation, collection and circulation for sustainable use" under the C pillar of the BCG Model. The BCG Model Action Plan (2021–2027) identified key activities under 5 operation guidelines.

INTRODUCTION

The CAP SEA project supports the Thai government handle the plastic challenge by preventing single-use plastics from entering the market (through re-use approaches, recycled content targets, design for recycling standards, and eco-design). The project provides technical support to the Circular Economy Sub-committee under the National Steering Committee of the BCG Economy, for which the NSTDA provides the secretariat. The Thai Environmental Institute (TEI) serves as the project secretariat engaging 12 technical agencies from the Ministry of Natural Resources and Environment, Ministry of Industry, Ministry of Higher Education, Science, and Innovation, and the Federation of Thai Industries.



Project

1

Comprehensive plastic waste management including segregation, collection and circulation for sustainable use.

Project

2

Management and Integrated information for reduction of food loss and food waste at the national level.

Project

3

Development and application of CE Model in construction sector.

OPERATIONAL GUIDELINE

1



Creating business opportunity and marketing by CE Model

2



Promoting technology and innovation to create new products and services from recycled wastes

3



Development of platforms and infrastructure to promote a systematic CE

4



Creation of a management mechanism that facilitates CE

5



Building manpower with knowledge and understanding on CE and raising awareness of sustainable production and consumption that drive CE.

ESTABLISHING A CIRCULAR ECONOMY WASTE HIERARCHY

A waste hierarchy is a universally accepted notion that ranks waste management options according to what is best for the environment. According to this principle, waste prevention and re-use are the most preferred options, followed by recycling, then energy recovery, while waste disposal through landfills should be the very last resort.

The above-mentioned notion of the waste hierarchy can be identified in the high-level policy objectives of Thailand.

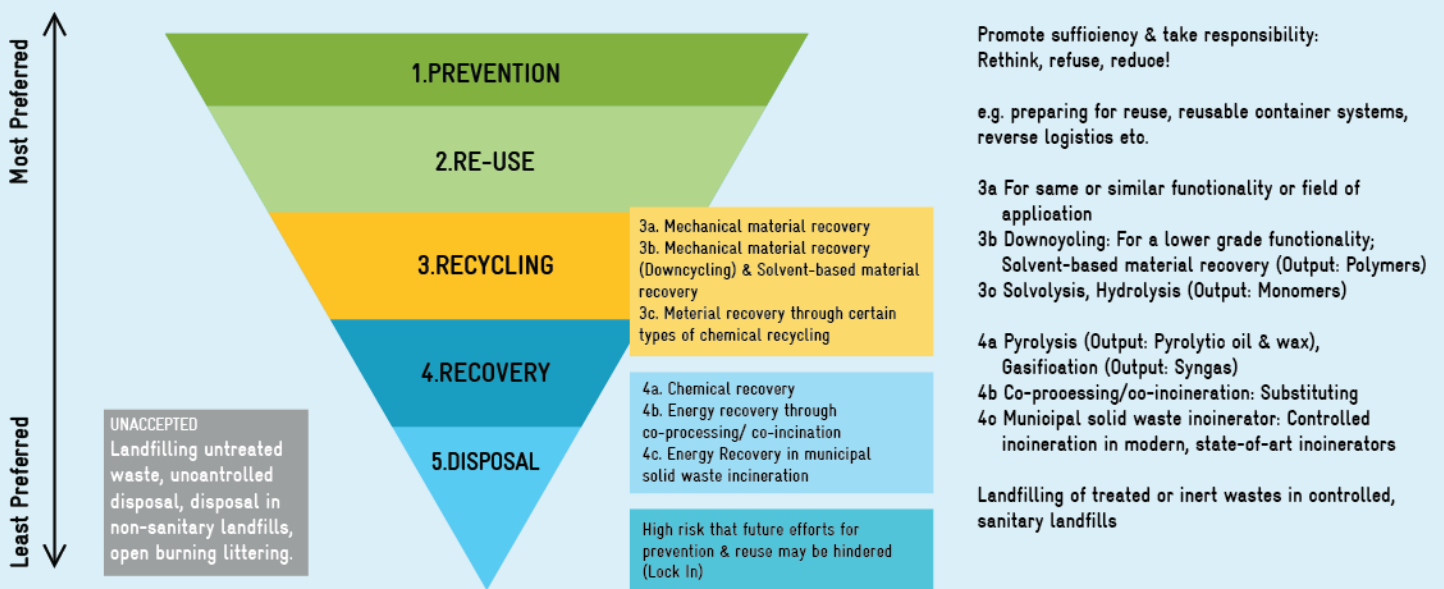
In the BCG model, the "C" pillar, which stands for the Circular Economy, aims at reusing and recycling resources. The BCG Action Plan 2021 has included a target on reducing national resource consumption by 25% until 2027. In the field of plastics, Thailand's Roadmap on Plastic Waste Management mentions the following two targets:

1. Reduce and replace some single-use plastics by using environmentally friendly products
2. 100 % target plastic waste to circular economy (this is described as "100% of target plastic waste will be recycled by applying Circular Economy Principle").

In the BCG model and the Roadmap on Plastic Waste Management, it is deemed important that measures and activities should contribute towards an absolute reduction of material and energy. Such an approach will also be in line with the concept of a circular economy where "the value of products and materials is maintained for as long as possible, waste resources are minimized, and when a product reaches the end of its life, it is used again to create further value" (European Commission). Hence, a circular economy is more than mere waste management. It seeks to slow down and close resource loops in our current linear production systems by preventing, reducing, reusing and recycling materials instead of primarily extracting finite resources to produce new materials.

The CAP-SEA project recommends setting a clear definition of a Circular Economy in the high-level policy objectives of Thailand. Measures, activities, investments, and other support mechanisms must be designed in accordance with the principles of the Circular Economy Waste Hierarchy which prioritizes the prevention (Promote sufficiency & take responsibility: Rethink, refuse, reduce) and re-use of plastic products (reusable container systems, reverse logistics, etc.) before recovering resources for recycling. Disposal should be the final option, resulting in minimal waste.

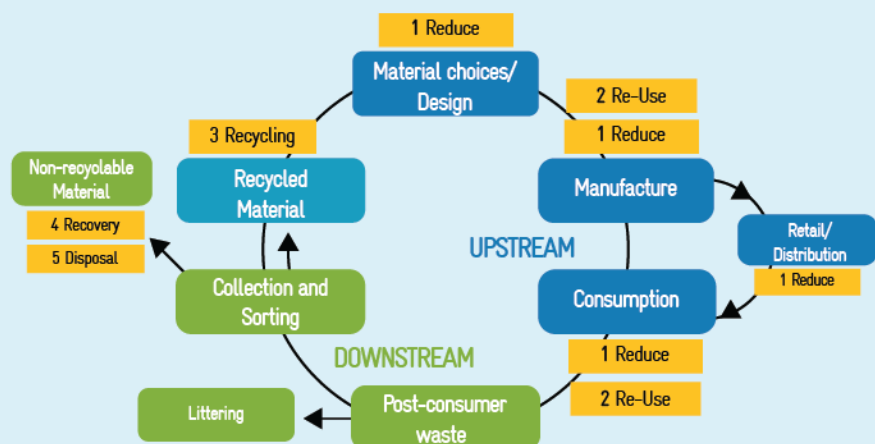
CIRCULAR ECONOMY WASTE HIERARCHY FOR PACKAGING IN THAILAND



The following products are in the scope of this policy recommendation to prevent Single-Use Plastics and Packaging Waste



The focus of the recommendations is on the upstream part of the value chain, as shown in the figure below (scope highlighted in blue colour). The downstream part of the value chain is not in the focus and is only covered briefly



EXPERIENCES FROM OTHER COUNTRIES



UK PLASTIC PACKAGING TAX

introduces a tax on all plastic packaging that does not contain at least 30 % secondary plastic (applicable for plastic producers/importers with at least 10 tons of plastics placed in the UK). For multi-materials packaging, the law applies to those with 50% plastic content and over.



GERMAN PACKAGING ACT, AMENDMENT 2021

extends deposit and return obligations (mandatory deposit) to all single-use beverage bottles and drink cans (effective 1 January 2022), with an exception for dairy products (effective 1 January 2024). It also requires sellers to offer affordable alternative reusable packaging for consumers and refill services for those who bring their containers (effective 1 January 2023).

GERMANY'S DEPOSIT-RETURN SYSTEM (DRS)

extends to cover single-use containers in addition to reusable/refillable containers (e.g. cans, disposable glass, and plastic beverage bottles) with a capacity between 0.1 liters and 3 liters. The refund fee for SUP is set up to 3 times higher than the reusable/refillable containers to discourage continued use of SUP containers.



FRANCE'S APPROACH OF REDUCING PLASTIC PACKAGING

goes beyond the EU Directive and sets ambitious targets from 2022 to 2030 through the reduction, reuse, and recycling approaches, including a ban on the sale of fresh unprocessed fruit and vegetables with packaging made up entirely or in part of plastic, increase a minimum share of reuse packaging from 3 % to 10 % by 2027, 20 % reduction target of which 50 % is achieved through the reuse of packaging and elimination of SUP packaging, and 50 % reduction of plastic bottles placed in the market by 2030, among others.



SPAIN'S TAX ON SINGLE-USE PACKAGING

charges €0.45/kg on plastic packaging for all non-reusable types of packaging made entirely or partly of plastic, except pharmaceuticals, health products, food for special medical purposes, baby food for hospital use, and silage film for agriculture and livestock. Portions made from recycled plastic are exempt from the tax.



ITALY'S TAX ON SINGLE-USE PACKAGING

will be applied to all single-use plastics amounting to €0.45/kg, except biodegradable products (according to EN 13432: 2002), medical products, and pharmaceutical packaging. Plastic content in multi-materials items will also be taxed, except when recycled plastic content can be proven.



EU SINGLE-USE PLASTICS DIRECTIVE

Targets ten single-use plastic items most commonly found on European beaches (e.g., cotton buds, plates, straws, plastic bags, cups, etc.) and promotes sustainable alternatives. It bans such single-use items for which alternatives exist, i.e. single-use plastic cutlery, straws, plates, balloon sticks, cotton buds. For SUP products whose alternatives are not easily available and affordable, the directive encourages consumption reduction, design-for-recycling, and eco-labeling, as well as extended producer responsibility for waste collection and management. In addition, it sets the targets for 77 % separate collection of plastic bottles by 2025, growing to 90 % by 2029; and 25 % recycled plastic in PET beverage bottles by 2025 as well as 30 % in all plastic beverage bottles by 2030.



EU POLICY FRAMEWORK ON BIOBASED, BIODEGRADABLE, AND COMPOSTABLE PLASTICS.

EU Commission has initiated a stakeholder consultation to acquire more evidence and feedback. The effort aims to clarify the role biobased, biodegradable, and compostable plastics can play in meeting commission obligations and the risks involved, including setting clear definitions, applications, criteria for these plastics, measurement methods, and labeling standards in light of the EU Circular Economy Action Plan and the waste hierarchy principles.



CAP SEA POLICY RECOMMENDATIONS FOR THAILAND



MARKET RESTRICTIONS AND BANS MEASURES

- Identify problematic single-use products in Thailand.
- Ban on all single-use products, irrespective of the material
- The usage of old stocks is permitted during a one-year transition period.
- Ban on foam or rigid polystyrene (PS) and polyvinyl chloride (PVC).



MEASURES TO STRENGTHEN THE RECYCLING MARKET

- Moving towards the mandatory implementation of environmental-friendly packaging standards.
- Supportive measures for recycled content targets.
- Institutionalizing material flow analysis in Thailand.
- Product-specific recycled content targets.
- Design for recycling standards



FISCAL MEASURES

Investments (BOI's tax package)

- Recycling Investment
- Use of reusable packaging
- Use of packaging with recycled content

Taxation

- Applying a tax (e.g., excise tax) to single-use plastic containers made of the top four resins
- Applying a tax on plastic packaging (irrespective of the material, by weight)

Extended Producer Responsibility

- Integrated informal waste collector
- Stimulation package for enhancing a quality of life for the informal waste collector
- Evaluation of EPR pilot programme in Chonburi
- Set up a PRO
- EPR legislative framework



MEASURES OF BIOBASED, BIODEGRADABLE, AND COMPOSTABLE ITEMS

- Labeling requirement for biobased, biodegradable, and compostable products.
- Allow selected uses for biobased, biodegradable, and compostable products.



MEASURES FOR CONSUMPTION REDUCTION AND PROMOTING REUSE

- Long list of measures to initiate and support the transition to reusable food packaging.
- Promoting reusable alternatives
- Levies on carry-out bags.
- Green public procurement (GPP).
- Deposit-Return System on beverage containers



SUPPORT MEASURES IN THE DOWNSTREAM SEGMENT

- Ban imports of plastic waste and focus on strengthening the domestic collection, sorting, and recycling infrastructure.
- Invest in domestic recycling, i.e., material recovery infrastructure, to ensure stable supplies of high-quality recycled plastic for selected packaging applications.
- Introduce a mandatory segregation obligation of wet, dry, and biomedical waste in households.
- Set collection and recycling targets (in mass percent) for selected packaging by 2023:
- Prioritize mechanical material recovery and increase percent age targets over time.
- Define "chemical recycling." Solvolysis and hydrolysis (chemical material recovery) should be distinguished from pyrolysis and gasification (chemical recovery).
- Invest in industrial composting plants for wet waste.
- Implement Pay-As-You-Throw (PAYT) to reduce waste in households and the private sector.
- Analyse the feasibility and effectiveness of introducing incineration and landfill taxes by 202X.

Since April 2021, several government and private sector agencies have worked in the project's Technical Working Groups (TWGs) and Steering Committee (SC) accordingly.



The TWGs role are as follows

- To develop the project's work plan
- To provide technical data and knowledge that is used as a basis for developing the Single Use Plastic (SUP) prevention policy recommendation, standards and guidelines
- To enable a cooperation among relevant government departments and institutes

The project transfers technical knowledge from the Oeko Institute (Germany) to support the development of the two key products.

- SUP and packaging waste prevention policy recommendation paper,
- Design for Recycled (D4R) guideline for three plastic product groups, namely HDPE non-food containers, PET bottles (food-grade) and PP cups/containers (food grade).

CAP SEA works in Thailand, Malaysia, Indonesia and is part of a global project "Export Initiative for Green Technologies", commissioned by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV). The project employs a blended approach, consisting of policy advice on circular economy approaches, capacity development for key stakeholders, local government pilot activities and support for innovative business models tackling SUP prevention.

MARKET RESTRICTIONS AND BANS

The National Roadmap on Plastic Waste Management (2018-2030) and its action plan phase 1 are the first important steps to addressing plastic pollution. The Roadmap aims to

- Ban 7 types of SUP (Oxo-degradable plastic, cap seal, microbead, thin bags (thickness less than 36 microns), straws, SUP cup, Styrofoam food container) by 2022, and
- Make 100% of target plastic products recyclable by 2027: bag (HDPE/LLDPE/LDPE/PP), mono-film package (HDPE/LLDPE/LDPE), bottle, cap, cup, food tray/box, utensil)

However, more action is needed which is detailed in the CAP SEA policy recommendations.

MARKET RESTRICTIONS AND BANS : 4 ACTIONS

1

IDENTIFY PROBLEMATIC SINGLE-USE PRODUCTS IN THAILAND

2

BAN ON ALL SINGLE-USE PRODUCTS, IRRESPECTIVE OF THE MATERIAL

3

BAN ON FOAM OR RIGID POLYSTYRENE (PS) AND POLYVINYL CHLORIDE (PVC)

4

PREPARE A BAN ON PLASTIC PACKAGING FOR UNPROCESSED FRESH FRUIT AND VEGETABLES IN RETAIL

ROADMAP - PLASTIC WASTE MANAGEMENT 2018 - 2030

THE 1st GOAL
Plastic reduction and elimination is the main goal, aiming to achieve this goal by using environmentally friendly material instead.



2019

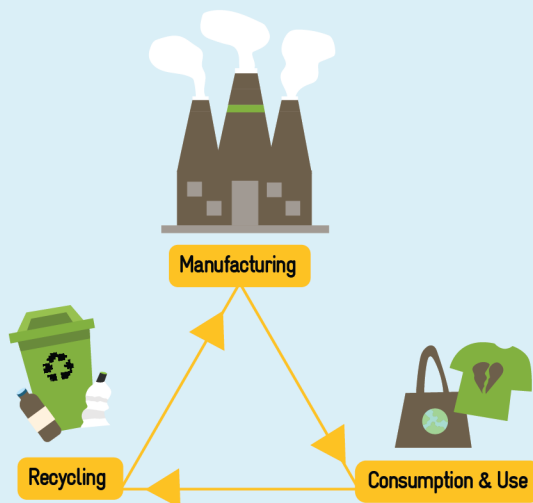


2022

THE 2nd GOAL
Recycling plastic waste.

2027

100%



PLASTIC WASTE MANAGEMENT

1. Plastic waste reduction from the beginning
2. Plastic waste reduction from the consumption
3. Plastic waste management after consumption

IDENTIFY PROBLEMATIC SINGLE-USE PRODUCTS IN THAILAND

Objective : To propose additional Single-use items to be banned
Action : The study shall be conducted and should involve representatives of junk yards, waste pickers and other relevant actors.

The study shall:

1. List 10 most problematic single-use items, irrespective of their material
2. List the 10 most common single-use plastic items found at Thai beaches
3. Verify the environmental and end-of-life management problems of the identified items, including review of life-cycle analysis studies on the potential alternatives
4. If needed, add more relevant items to the list of potential candidates, e.g. PET bottles smaller than 500 ml volume.
5. Suggest which of the identified items under 1, 2 and 4 shall be banned.
6. For each of the suggested items, explain the item which will most likely be the alternative that will evolve in the market as a consequence of a ban, and how to deal with the alternatives if they are not necessarily environment-friendlier than the banned items.

The methodology of the study shall serve as a blueprint to collect data on product level (e.g., single-use items). It is recommended to include this study format under the umbrella of the Steering Committee nominated to conduct Material Flow Analyses. It can be used to monitor the progress made in single-use plastic prevention with regards to the items monitored and banned.

The same study shall be re-conducted 2 years after coming into force of the ban on other single use products in order to evaluate its effectiveness as well as the resource reduction achieved.

BAN ON ALL SINGLE-USE PRODUCTS, IRRESPECTIVE OF THE MATERIAL

- The extended list of single-use items to be banned should not only focus on single-use plastic items, but also consider banning single-use items made from materials beyond plastics. This approach shall be discussed in a participatory process with all stakeholders before implementation.
- In a transition period of 1 year, the use of old stocks shall be allowed.
- Biobased, biodegradable, and compostable single-use products should not be exempted from this requirement. The only exception shall be given to biodegradable and compostable plastic bags for separate collection of organic waste in private households, or products made from biobased materials from agricultural waste.

BAN ON FOAM OR RIGID POLYSTYRENE (PS) AND POLYVINYL CHLORIDE (PVC)

Implement a ban on distribution and sales of single-use food ware, containers and cups made from foam (EPS, XPS) or rigid polystyrene (HIPS) and polyvinyl chloride (PVC) for the purpose of serving of single meals and beverages. This includes PVC-based cling film (household use) and wrap film (industrial use). Industry has made progress and technical improvement of PE/PP alternatives so that they can be used as the substitute PVC cling wrap. In a first phase, this shall apply to :

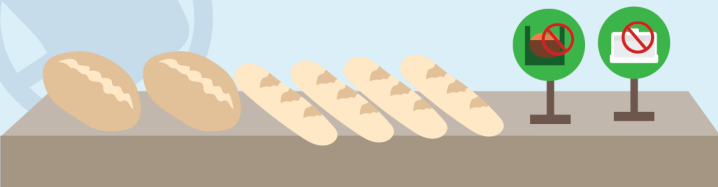
- dine-in places for instant consumption,
- take-away restaurants,
- company-owned take-away stands (compared to individuals selling food, drinks and fruits in the streets), and
- retail stores.

This phase shall start as soon as possible. Only in a second phase, for instance after a transition period of 2-3 years, the ban shall apply completely to all application areas including “traditional” markets and street vendors.

Multiple-use EPS containers for transportation of fresh fruits, for the cooling of beverages, etc. as well as any products for logistics and construction sector shall not be affected.

Justification

Foam or rigid PS will cover all forms of polystyrene, including expanded polystyrene (EPS) and extruded polystyrene (XPS). EPS & XPS are often confused and used interchangeably. XPS should be considered a subcategory of expanded polystyrene. Both are non-solid polymers, not the normal form of styrene, but rather a foam. Using foam or rigid PS (HIPS) in scope will help in preventing circumvention. EPS and XPS are mostly not recycled due to high costs and have a high littering potential due to light weight. PS-based clam-shell food containers are much cheaper than alternative food containers so vendors in the “traditional” markets and street vendors are still using them. In order not to burden the small vendors and open markets, they shall be given a transition time. End-of-life management of PVC is a serious concern. Recycling of PVC is difficult & costly, poorly controlled incineration of PVC leads to the emission of toxic dioxins of furans.



PREPARE A BAN ON PLASTIC PACKAGING FOR UNPROCESSED FRESH FRUIT AND VEGETABLES IN RETAIL

A dialogue should be initiated together with the retail sector with the objective to discuss the framework conditions for a ban on plastic packaging for unprocessed fresh fruits and vegetables in retail. This includes questions such as what the appropriate weight of the packaged fresh fruit for display for sale in retail would be, and which local fruits and vegetables shall be exempted due to concerns of rapid deterioration. Other clarifications shall be made as to the need for a differentiation between fruits and vegetables. The responsible organization for this dialogue shall consider widening the stakeholder group for this discussion, e.g., consulting representatives from open and fresh markets. It is recommended to use the existent expertise at NSTDA/MTEC. The overall target of this measure is to implement a ban on plastic packaging for unprocessed fresh fruit and vegetables that are displayed for sale in all retail outlets. The measure shall reduce unnecessary packaging, e.g., fruit foam nets & expanded PE, while at the same time reducing food waste for those fruits and vegetables that need long shelf life. Exemptions can be made to fruit and vegetables packaged in batches of a certain weight and to fruit and vegetables presenting a risk of deterioration when sold in bulk. It is recommended that the final measure differentiates different levels of ambition for modern and traditional, open markets.

Justification

Proper handling, storage and distribution of fresh fruits and vegetables in the supply chain are important to prevent food damage and loss. Appropriate packaging is important, but only one of many aspects that need to be considered. Distribution and display of fresh products in retail can happen in large packed batches which reduces the total volume of plastic packaging used. The retail can also display unpackaged fresh fruit and vegetables in small batches. France has introduced a ban on the sale of fresh unprocessed fruits and vegetables with packaging made up entirely or in part of plastic in 2022.



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MEASURES FOR CONSUMPTION REDUCTION AND PROMOTE REUSE

The BCG Action Plan 2021 has included a target on reducing national resource consumption by 25% until 2027. However, sector-specific targets for achieving this objective have not been defined. The Roadmap on Plastic Waste Management (2018–2030) has the objective to reduce and replace some single-use plastic with environmentally friendly products. Apart from the ban of seven single-use plastic items, only few concrete actions have been defined until now to achieve reduction objectives. According to the Pollution Control Department (PCD), actions to reduce plastic waste would include, among others, stop using plastic cap seal for drinking water bottles with five large drinking water producers from 1 April 2018 onwards, and implementing measures to reduce and separate waste in government sectors and educational institutions. More specific mandatory targets and measures for reduction and reuse are not known to be defined or implemented yet. Where measures are detailed, they focus on education and awareness programs and supporting voluntary industry initiatives and pledges. In this regard, the following proposed measures present additional possibilities to reduce plastic waste at sources (in the industries) and reduce the use of single-use plastic and packaging at consumption process.

5 RECOMMENDED ACTIONS

1 LONG-LIST OF MEASURES TO INITIATE AND SUPPORT THE TRANSITION TO REUSABLE FOOD PACKAGING



2 PROMOTING REUSABLE ALTERNATIVES



3 LEVY ON CARRYOUT BAGS



4 GREEN PUBLIC PROCUREMENT (GPP)



5 DEPOSIT-RETURN SYSTEM (DRS) ON BEVERAGE CONTAINERS



1 LONG-LIST OF MEASURES TO INITIATE AND SUPPORT THE TRANSITION TO REUSABLE FOOD PACKAGING

A high amount of single use plastic is associated with food and beverage consumption. The long-term measure to promote reusable alternatives to food and beverage packages shall be initiated and supported with a variety of activities as detailed below:

- ✓ Integrate a dedicated overarching objective to promote the reusable packaging in food and beverage sector in the BCG Action Plan and define new Big Rock Projects specifically for a transition to reusables.
- ✓ Decision makers shall assign the task to take leadership in the transition to reusable food packaging to an existing governmental body.

This competent body / agency shall take the lead in or commission the following tasks:

- ✓ Conduct a study on good practice examples from Thailand where reuse tableware is already common (e.g., in several open markets, each stall uses differently colored or formed plates which after use are collected in a central place next to tables and sorted based on form and color).
- ✓ Conduct various prototype pilot projects, e.g., in collaboration with large stores and chains with a large number of stores.
- ✓ Conduct a survey on the objections and willingness of consumers for reusable tableware. Thereby, identify the actual challenges and options for consumers to switch to reusable tableware.
- ✓ Design an information and awareness campaign that present examples from the study and prototypes as well as provide comprehensive information on objections and willingness of consumers for reusable tableware.
- ✓ After two years, but not later than by the end of 2025, the competent body / agency shall publish a status-quo report on the use of reusable



LONG-LIST OF MEASURES TO INITIATE AND SUPPORT THE TRANSITION TO REUSABLE FOOD PACKAGING

Thai Industrial Standards Institute (TISI) and Food and Drug Administration (FDA) shall develop a set of guidelines and standards for reusables and thereby establishing criteria for both products (reusable containers and cups) as well as processes (collection, transportation, washing etc.).

- The competent body / agency shall reach out to the relevant governmental bodies with the objective to
 - Set up and promote an investment and financial incentives program in the infrastructure or in businesses active on reuse, e.g., through the creation of an app-based return logistics network.
 - Establish a fund for promoting reusable food ware and for covering the costs of installing off-site dishwashing services that comply with the requirements of XYZ as well as covering costs of setting-up logistic and distribution systems for reusable food ware, beverage containers and beverage cups.
- If by the year 2024, no centralized off-site dishwashing services are established, the competent body / agency shall take measures to support entrepreneurs willing to engage in this business.
- The National BCG Economy Management Committee shall set out targets (%) for reusable containers in the 4 use scenarios mentioned below that shall be reached until 2030.

2 PROMOTING REUSABLE ALTERNATIVES

It is favorable to reduce single-use plastic consumption associated with food and beverages through the implementation of reusable systems. Such systems might be differently designed depending on the use scenario. It is recommended to differentiate between:

- | | |
|-----------------------------------|---|
| 1 Dine-in orders | 2 Public events and governmental buildings |
| 3 Food delivery businesses | 4 Open systems |

1 USE SCENARIO : DINE-IN ORDERS



Restaurants, hotels, eating joints and other providers of food and beverages shall be obliged to serve food and beverages only in reusable containers' for immediate (dine-in) consumption on their premises, irrespective of outdoor or indoor dining area.

It is recommended to discuss possible exemptions for this requirement, e.g.: Small restaurants, hotels, eating joints and other providers of food and beverages for immediate (dine-in) consumption with less than X employees (permanent, temporary, full-time, part-time, sub-contracted

and others) or with total sales area less than X^{m2} (including outdoor and indoor dining area and storage area), or those offering reusable alternatives without an on-site or off-site dishwashing capacity to sanitize reusable containers in compliance with XYZ.

In order to ensure a transition to reusable containers also in the businesses proposed for exemption, the Thai government shall set-up a Fund for promoting reusable containers. The fund shall be used, for e.g. for covering the costs of installing off-site or shared on-site dishwashing services that comply with the requirements of XYZ as well as covering costs of setting-up logistic and distribution systems for reusable containers.

By year 2025, all businesses shall have access to on-site or off-site dishwashing facilities, including logistic and distribution systems for reusable containers.

2 USE SCENARIO : PUBLIC EVENTS AND GOVERNMENT BUILDINGS



Drinks should not be served in single-use beverage containers and cups in public events or government buildings starting one year after introducing measures described under the first recommended action but not later than 2024.

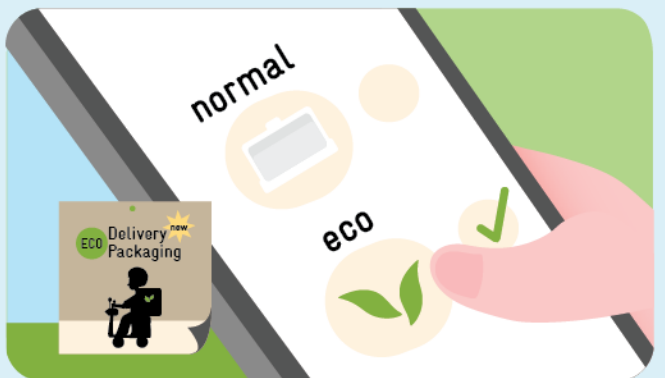
It should be mandatory to install refillable large containers for the provision of drinking water to the visitors.

Until 2024, public events can be exempted from this requirement if event organizers can guarantee that at least 90% of beverage containers and cups are separately collected and recycled, primarily for material recovery, in recycling centers.

From 2024 onwards, food shall also not be served in single-use food containers and using single-use cutlery at public events, open markets or government buildings.

The scope of premises of public events is not limited to government territory, but also to private properties that are used to execute public events contracted by the government.

3 USE SCENARIO : FOOD DELIVERY BUSINESSES



Food delivery services shall be obliged to offer reusable containers to customers. They shall be obliged to inform the final consumers in all media sections (print, website, videos etc.) by means of clearly visible and legible information or signs of the possibility to obtain the products in reusable alternatives.

When using single-use containers, food delivery services shall be obliged to pay an annual fee of X BHT. The fee can be calculated on the basis of the weight of single-use containers sold, or X% share of income achieved as a result of selling food and beverages in single-use containers. Fees collected on this basis shall be deposited to the government Fund for promoting reusable alternatives.

After X years of implementation of this rule, food delivery services shall achieve a minimum share of xx% reusable containers delivered to the consumers. The share of reusables shall increase by minimum 10% every year afterwards.

As soon as the minimum share of reusables in food delivery services is mandatorily implemented, the businesses shall be obliged to implement a take-back system, either individually or in partnership with other businesses, including external service providers. The take-back system shall ensure that at least 70% of reusable containers (by weight) are collected, prepared for reuse, and re-introduced in the service loop.

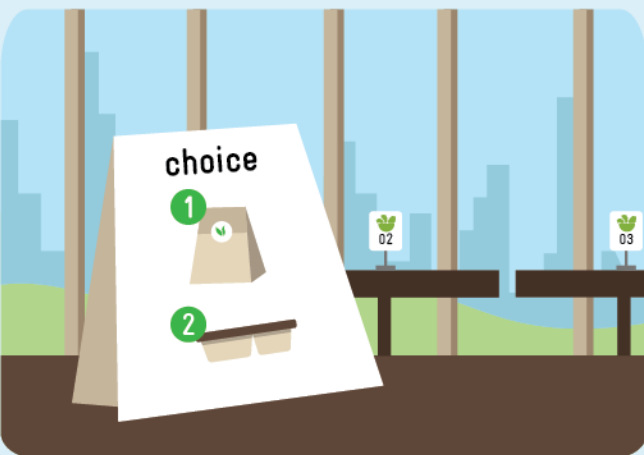
After X years, single-use cutlery should be phased-out completely and customers shall be given the opportunity to opt-out of receiving reusable cutlery and use only home cutlery.

Food delivery services shall be obliged to install on-site dishwashing equipment, either individually or in partnership with other food delivery systems. In absence of on-site dishwashing equipment, external off-site dishwashing service providers can be contracted. The dishwashing services shall fulfill the requirements of XYZ (e.g. standard for dishwashing facilities for reusable containers).

Introduction of a reimbursable deposit fee for reusables delivered to customers should be possible. The deposit fee for reusables should not lead to a higher price of delivered food and beverages compared to the goods offered in single use containers.

4

USE SCENARIO : OPEN-SYSTEMS



In this policy paper, in contrast to closed systems where the boundaries are clearly defined, e.g. a restaurant's area, open systems include take away orders, open markets, fresh markets, and street food.

Latest by 2025, business operators in open systems, shall be obliged to offer reusable containers to customers. They shall be obliged to inform the final consumers at the point of sale by means of clearly visible and legible information boards or signs of the possibility of :

- obtaining the products in reusable alternatives, or
- consumers getting the goods filled into self-brought reusable containers.

If entities, where immediate (dine-in) consumption is possible (see use scenario 1), offer take-away options, they shall be obliged to increase the share of reusable containers continuously as also described under use scenario 3 for food delivery businesses.

3

LEVY ON CARRYOUT BAGS

By year 2023, all retail stores and small shops shall charge a non-reimbursable fee of X BHT for each carryout bag (independent of the material, size, and materials) provided to any customer. Retail stores and small shops shall allow customers to bring their own carryout bags to purchase products. There should not be any compulsion to buy a new carryout bag from the stores for purchasing products.

Carryout bags labelled as biobased, biodegradable, compostable or any other term suggesting the breakdown of the product shall not be allowed to be sold or delivered to the customers.

Justification

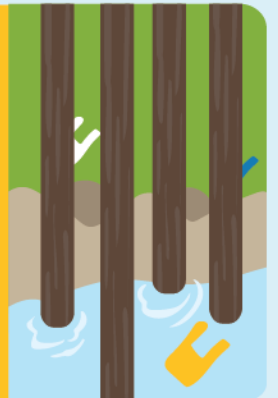
80%

About 80% of all plastic waste generated in Thailand consists of single-use plastic bags. Very few bags are collected for recycling. They are lightweight and often too contaminated for recycling.



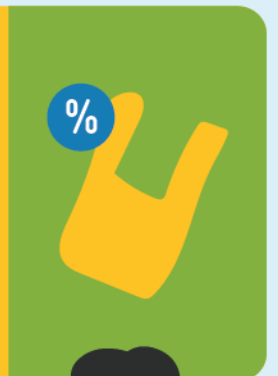
>60%

Over 60% of bags are improperly disposed or leak into the environment. This suggested measure aims to help scale the impact of the existing effort onto the wider market across the country.



>90%

In Ireland, over 90 % decrease in consumption of plastic bags was achieved after the introduction of a plastic bag levy (from 328 bags per consumer per year to 21 bags).



4

GREEN PUBLIC PROCUREMENT (GPP)

GPP 1: SET A GPP PRIORITY ON REUSABLE FOOD WARE, BEVERAGE CONTAINERS AND CUPS



GPP 2: CRITERIA FOR REDUCING SINGLE-USE PLASTIC CONSUMPTION



GPP 3: RULE OUT THE USE OF SINGLE-USE BIOBASED, BIODEGRADABLE, AND COMPOSTABLE PRODUCTS



GPP 4: REPORTING ON TENDERS FOR REUSABLE FOODWARE



Justification

Green Public Procurement is a strong instrument to use the large buying power of the government for triggering sustainable innovations. Ecolabel criteria serves as a sound scientific base to deriving the technical criteria on the basis of a life-cycle analysis. Ecolabels can also serve as a means to verification in the public procurement tenders

5

DEPOSIT-RETURN SYSTEM (DRS) ON BEVERAGE CONTAINERS

Final distributors of single-use and reusable beverage containers filled with beverages shall be obliged to participate in a mandatory DRS by year 2025. This comprises any container, e.g. cups, cans, paper cartons and bottles, irrespective of the material.

Justification

DRS is one of the most efficient instruments to increase the collection rate of beverage containers and prevent their leakage into the environment. According to the Zero Waste Europe, DRS can reduce drink containers in the ocean by up to 40%. If implemented properly, DRS would result in net savings for municipalities and they do not imply extra costs for public institutions.



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MEASURES TO STRENGTHEN THE RECYCLING MARKET



Justification

The collection-for-recycling rate for HDPE in Thailand is 8-25%; for PP between 10-20%. rHDPE can be used in shampoo bottles or plastic garbage bags; rPP can also be used for packaging applications. Collection-for-recycling rate for PET in Thailand is 31 to 62%, while rPET for non-food grade applications & rPET fibre comes up with a share of about 24 to 52%. Collection for Recycling Rate for PET in Thailand is between 31% to 62%. However, only 3% is manufactured as rPET for food grade applications and is currently exported.

MOVING TOWARDS THE MANDATORY IMPLEMENTATION OF ENVIRONMENT-FRIENDLY PACKAGING

It is understood that the responsibility of controlling packaging related standards is distributed mainly between the Thai Standardization Institution (TISI) and Thai Food and Drug Agency (FDA). FDA is responsible for food safety standards, e.g. by ensuring that hazardous substances do not migrate from the packaging material into the food. TISI is responsible for developing standards for environment-friendly packaging, e.g. recycling-friendly design, recycled content, biodegradability etc. Packaging filled with goods from food and beverage sector lies in the responsibility of FDA. As FDA is apparently not responsible for testing the environment-friendliness of the packaging, the TISI standards stay unapplied. In few cases, manufacturers of packaging may decide to use TISI standards for environment-friendly packaging, albeit only on voluntary basis. Therefore, it is likely that large-scale implementation of packaging standards targeting their environment-friendliness would remain ineffective in practice. Thus, it is recommended to establish a clear institutional mechanism between FDA and TISI on how implementation and enforcement of standards on environment-friendly packaging can be realized on a mandatory basis. Against the backdrop of the planned EPR in Thailand, a reliable mechanism for evaluating the recyclability and environment-friendliness of packaging will be indispensable.



SUPPORTIVE MEASURES FOR RECYCLED CONTENT TARGETS

It is timely that the use of rPET in food and beverage containers has been allowed in Thailand. It is furthermore recommended to develop an action plan to allow the use of other recycled polymers in food grade applications by the end of the year 2022. For creating acceptance for such measure, a standard or a labeling scheme for high quality recyclates in food containers shall be developed by the end of the year 2023. As a basis, it is suggested to set a list of criteria for a recyclate to be called a high-quality recyclate so that it may be used as a secondary resource in the production of food-contact material. Minimum quality criteria for recyclates that are used in food-contact material could be developed in a joint work of Thai FDA and TISI, and could be implemented, i.e., controlled, through the mechanism agreed upon in the consortium establishes as part of recommendation.



INSTITUTIONALIZING MATERIAL FLOW ANALYSIS IN THAILAND

It is recommended to establish a standardized procedure and steering structure for conducting Material Flow Analysis (MFA) for packaging by mid-2023 for the purpose of data collection and decision-making for setting product-specific collection, reuse and recycling targets for food and beverage containers as well as non-food and non-beverage containers. The steering committee of the MFA shall identify the data needed for the proper MFA. The overall task is to design data collection criteria (type, amount, flow, rapporteur). With the help of the Industrial Statistic Office, available data shall be gathered, and gaps shall be identified (e.g., it is understood that there is currently no data declarations from recyclers). Where additional data is needed, the committee shall undertake measures to set up (mandatory) reporting to the industrial statistic office. The data that is expected to be generated through this approach will support almost all other measures recommended in this paper.



PRODUCT-SPECIFIC RECYCLED CONTENT TARGETS

It is important to notice that this recommendation targets product-specific recycled content targets. Targets should be differentiated for different polymers and applications because materials are used in different functions with different requirements related to hygiene. Generally, it is recommended to introduce mandatory minimum recycled content targets for relevant packaging applications (food and non-food grade)

It is suggested to engage with recyclers and packaging manufacturers to define mid- and long-term targets for a continuous increase in the minimum recycled content for all products for which targets are set. The recycled plastic content target, as mentioned above, should be set only with respect to the domestically collected post-consumer waste.

Targets for the following specific application types are recommended:

- Non-beverage and non-food bottles and packaging (including plastic bags) made from HDPE and PP should incorporate (calculated on average for all products sold or imported, and not for every individual product) a 10% recycled plastic content by 202X, and 20% by 202X.
- Non-beverage and non-food bottles and packaging made from PET (including plastic bags) should incorporate (calculated on average for all products sold or imported, and not for every individual product) a 20% recycled plastic content by 202X, and 30% by 202X.
- Beverage bottles and packaging made from PET should incorporate (calculated on average for all products sold or imported, and not for every individual product) a 10% recycled plastic content by 202X, and 20% by 202X.
- Paper carryout bags and reusable durable plastic bags sold by retail stores shall have a minimum post-consumer recycled content (calculated on average for all products sold or imported, and not for every individual product) of X% by 202X



DESIGN-FOR-RECYCLING

The CAP SEA project works on three specific design-for-recycling standards on HDPE non-food bottles, PP containers and PET bottles. These are provided to TISI for endorsement. It is recommended to require compliance on a mandatory basis. Furthermore, it is recommended to implement mandatory use of Design-for-Recycling standards for other food ware, beverage containers and cups and non-food-contact packaging, e.g., PS or non-plastic packaging applications. As a priority, an overarching framework for ensuring the update of existing and developing of new D4R guidelines shall be created. As part of this framework, it is recommended to establish a definition of recyclability and a process/criteria to assess recyclability.

In accordance with mandatory of packaging standard, a process shall be established to demonstrate compliance with the guidelines. Recommendations from European undertakings show that different guidelines for the same products and/or polymers should be avoided.



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FISCAL MEASURES

In many countries, economic and fiscal incentives are used to discourage packaging waste generation and penalize wasteful behaviors. Such measures provide basic economic and regulatory guidance to influence the demand and supply for specific packaging materials and/or product groups. Selected measures are recommended by relevant stakeholders in Thailand based on their likelihoods of being implemented with moderate or low effort and potential positive impact to reduce consumption of single-use plastic packaging, strengthening the markets for reusable items, and increasing demand for packaging with recycled content.

1 Investments

Recycling Investment

22%



Thailand recycled about 17.6% of the key plastic resins in 2018 a significant shortfall from the National Plastic Waste Management Roadmap 2018–2030 target of 22% for 2018. About 2.8 million tons per year of plastics are disposed of (i.e., not recycled).

87%



87% of the material value of plastics is lost. This is translated to a plastic material value loss of USD 3.6–4.0 billion/year (World Bank Group 2021).

100%



To achieve the 100% circular economy for target plastics by 2027, a suite of incentives must be devised to strengthen the recycling industry whilst public communication campaigns to promote the separation of recyclable waste at source must be carried out continuously.

Investment in reusable packaging

Create a new category for circular economy promotion under the current BOI's support industries. With the new category, selected businesses and activities that aim to promote the 3Rs principle and meet the set conditions by BOI can be entitled to BOI's privileges (e.g., tax holidays, import duty exemption, seed grant, investment loans). Five types of businesses are proposed for this new category.

- Food delivery and takeaways → reusable containers as a service
- Fast-moving consumer goods (e.g., soap, shampoo, detergent, milk) → DRS/packaging price
- Refill stations and shops → vending machine, social enterprise
- Service providers of washing facilities → safety and hygiene standard
- Collection, transportation & logistics → service provider, self-operated restaurant

Investment in the use of packaging with recycled content

Under the new circular economy promotion category for BOI's support, selected tax incentives are suggested for manufacturers of plastic packaging with recycled content. The privileges are suggested for selected plastic packaging made of PP, PET, HDPE, and LDPE—the top four resins by production volume in Thailand. This measure should be introduced along with the EPR program and the upcoming guideline for recycling content traceability for plastic industry, as well as future requirements for recycled content in plastic packaging to strengthen its efficacy.

Raising awareness on biodegradable plastic and investments in treating

With the 3-year extended timeframe for tax deduction on the purchase of biodegradable plastics, it may be fair to assume the consumption of biodegradable plastics in Thailand would rise over the next three years thereby causing the price to be competitive with conventional plastics. This may render benefits to the Plastics Waste Management Roadmap (2018–2030) which aims to phase out four additional plastics by the end of 2022, including Styrofoam food box. But it also poses a danger for regrettable material substitution especially if the public is not aware of the degradability conditions of biodegradable plastics. To mitigate such a problem, a series of public communication campaigns must be launched to inform citizens about the degradable conditions. Proper disposal and collection of such packages must also be put in place as well as the investment in the facilities for treating the disposed packaging. For the latter, an additional BOI's support will be timely and most impactful if introduced through the above-mentioned tax support package.

2

TAXATION

To complement a fee to be collected at the retailers for single-use plastic bags, applying a tax (e.g., excise tax) for single-use plastic containers made of the top four resins is expected to increase the product prices at the consumption stage thereby influencing the consumer's behavior towards using the reusable containers or refillable services. The tax rates must be adjusted periodically to maintain their outcome.

A tax on packaging (irrespective of the material) can generate a steering effect towards environmentally friendly packaging solutions, whereby the following steering directions shall be considered and studied in detail:

- Steering toward reusable solutions (greater taxation of single-use solutions)
- Steering toward lower material use for packaging (strong weighting of the amount of material used in the taxation)
- Steering toward better recyclability (stronger taxation of packaging with poor recycling properties).
- Steering towards higher recycle use (higher taxation of packaging with low recycle use)

The respective steering measures are associated with verifiable environmental benefits and that these are also largely valid across the board for all packaging types and applications.

For an excise tax on disposable packaging to work, the types of packaging to be taxed must be clearly defined, and the basis for assessing consumption.

Likewise, it must be clearly defined by which actors the tax is levied. Multiple taxation at different points in the product life cycle shall be avoided. It should be reviewed if a consumption tax for privately consumed goods that can be passed on to the end consumers is a better option than a taxation at early stages of the production chain.

An effective design also requires a well-considered tariff structure so that the intended incentive effects are actually achieved. This requires various further analyses and surveys.

3

EXTENDED PRODUCER RESPONSIBILITY (EPR)



Extended Producer Responsibility (EPR) program is expected to increase the supply of recyclable packaging materials within the country and boost the demand for recycled products.



Evaluation of the pilot program must be undertaken to assess its impact against the program objectives and a clear timeline must be developed for the introduction of a nationwide regulated EPR program.



The voluntary pilot Extended Producer Responsibility (EPR) program, now being implemented in Chonburi Province, will be a good driver for increased recycling activities in Thailand and a demand for recycled and reusable products.

An effective EPR program in Thailand should ensure it integrates the informal sector and, where possible.

- Strengthen support for the informal waste management sector by registering informal waste workers officially, providing them with ID cards and investing in capacity building to strengthen their ability collect waste more efficiently. The establishment of cooperatives should be supported, potentially by a government subcontractor.
- Promote the welfare and living standards of informal waste pickers – perks and initiatives could include annual health check-ups, life insurance and annual bonuses for collecting more than a certain amount.

Support EPR legislation and rules for EPR players to understand their roles and necessary conditions

Support the establishment of a central agency responsible for the coordination between manufacturers, collectors and processors and is a driver (Producer Responsible Organization – PRO).

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MEASURES ON BIOBASED, BIODEGRADABLE AND COMPOSTABLE ITEMS

1 LABELLING REQUIREMENT OF BIOBASED, BIODEGRADABLE AND COMPOSTABLE PRODUCTS

2 ALLOW SELECTED USES FOR BIOBASED, BIODEGRADABLE AND COMPOSTABLE PRODUCTS

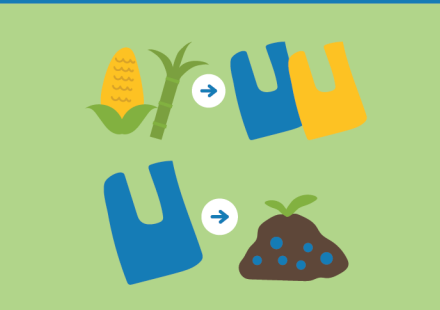
Justification:

A simple substitution of fossil-based materials by biobased alternatives is not appropriate to encounter problems associated with waste generation. Furthermore, this substitution does not lead to environmental benefits to the extent needed in the light of the challenges associated with plastic and packaging waste. Furthermore, biobased and biodegradable materials shall not undermine the waste hierarchy according to which the avoidance of waste is preferred over all other options. Additionally, there is a lot of confusion regarding the definitions, claims, benefits, and risks related to biobased, biodegradable and compostable plastics. As a result, consumers do not have access to clear and trustworthy information when making their purchasing decisions or disposing such products. A reliable labelling scheme would help in creating transparency for consumers.

1 LABELLING REQUIREMENT OF BIOBASED, BIODEGRADABLE AND COMPOSTABLE PRODUCTS



Based on the product and test standards, a mandatory labelling scheme for compostable, biodegradable and biobased plastic shall be established.



For those plastics that comply with the standard, a label demonstrates the compliance, by clearly specifying if the relevant material is designed for biodegradation in industrial composting, home composting or composting in the natural environment, time and conditions required for biodegradation, mentioning the appropriate disposal method etc.).



No other than this label shall be allowed to be used to claim compostability or biodegradability and biobased content. It is recommended to communicate the label to consumers in a broad awareness campaign in order to counter false claims. Prior to such a campaign, a research study shall be commissioned to collect common claims used in the Thai market with respect to compostable, biodegradable and biobased plastics and evaluate their reliability and correctness.

ANNEX

A1.1 PRODUCT STANDARD

| | |
|---------------|---|
| 2744-2559 | Single-use compostable plastic straw for food |
| 2793-2560 | Compostable plastic bag for waste |
| 2884 | Single-use compostable plastic packages and utensils for food Part 1 poly (lactic acid) |
| Volume 1-2560 | |

| | |
|------------|--|
| 2995-2562 | Compostable plastic bags |
| 2996-2562 | Biodegradable plastics nursery bags |
| 2997-2562 | Biodegradable plastics mulch films for agriculture use |
| 17088-2562 | Specifications for compostable plastic |

A1.2 TEST STANDARDS

| | |
|-----------|---|
| 3084-2563 | Methods for the preparation of samples for biodegradation testing of plastic materials. |
| 3115-2563 | Plastics – Determination of the ultimate anaerobic biodegradation of plastic materials in controlled slurry digestion. Systems – method by measurement of biogas production. |
| 2251-2563 | Lastics – determination of the ultimate aerobic biodegradability of plastic materials in soil by measuring the oxygen demand in a respirometer or the amount of carbon dioxide evolved. |
| 2509-2554 | Determination of the aerobic biodegradation of plastics under controlled composting conditions. |
| 2511-2563 | Plastics Determination of the degree of disintegration of plastic materials under defined composting conditions in a pilot-scale test. |
| 2512-2563 | Determination of the degree of disintegration of plastic materials under simulated composting conditions in a laboratory-scale test. |
| 2986-2562 | Plastics – determination of aerobic biodegradation of non-floating plastic materials in a seawater/sandy sediment interface – method by measuring the oxygen demand in closed respirometer. |
| 2987-2562 | Plastics – determination of aerobic biodegradation of non-floating plastic materials in a seawater/sandy sediment interface – method by analysis of evolved carbon dioxide. |
| 2988-2562 | Lastics – determination of the ultimate anaerobic biodegradation of plastic materials in an aqueous system – method by measurement of biogas production. |
| 2989-2562 | Plastics – determination of the ultimate anaerobic biodegradation under high-solids anaerobic-digestion condition – method by analysis of released biogas. |

2

ALLOW SELECTED USES FOR BIOBASED, BIODEGRADABLE AND COMPOSTABLE PRODUCTS

Do not incentivize the production and use of biobased, biodegradable and compostable plastics for packaging and other single-use plastic items that are already banned in Thailand and are recommended to be banned by this policy paper.



The exception to be above-mentioned recommendation should apply to following two segments:



Third-party certified and labelled garbage bags for separate collection of wet waste;



Biobased plastics made from agricultural waste and by-products as raw materials.

Ban 7 types of SUP (Oxo-degradable plastic, cap seal, microbead, thing bags (thickness less than 36 microns), straw, SUP cup, Styrofoam food container) by 2022

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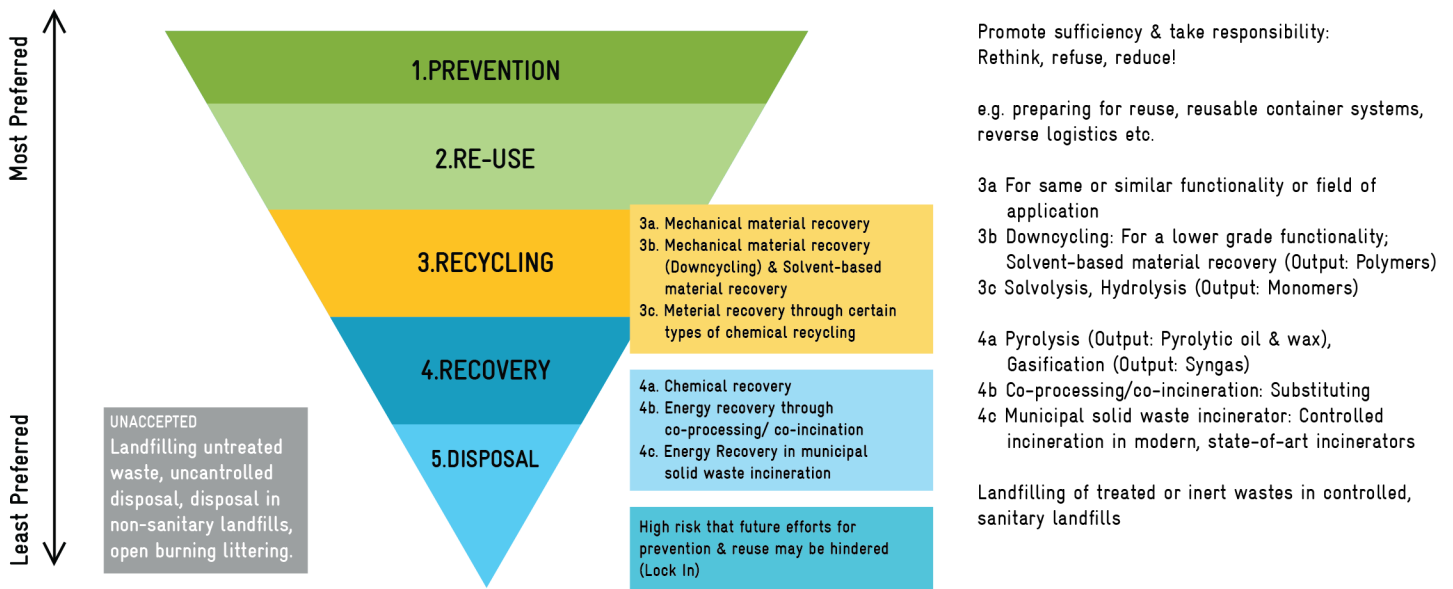
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SUPPORT MEASURES IN DOWNSTREAM SEGMENT

The focus of this policy recommendation paper is on strengthening upstream part of the single-use plastic and packaging value chain. The objective is to reduce the overall plastic & packaging consumption and to promote use. However, upstream measures need to be aligned and accompanied with downstream measures in order to be effective, especially when it comes to requirements pertaining to collection, reverse logistics and sorting as well as recycling for the purpose of producing high quality recyclates. In the following, few specific recommendations for the implementation of downstream measures within the framework of the Roadmap on Plastic Waste Management (2018-2030) and the BCG Action Plan 2021 are made (non-exhaustive list). These recommendations are intended to support the targets of the Thailand government in terms of achieving 50% plastic waste recycling by 2022 and 100% by 2027.

CIRCULAR ECONOMY WASTE HIERARCHY FOR PACKAGING IN THAILAND



Circular Economy Waste Hierarchy for Packaging in Thailand Source: Öko-Institut e.V, 2022

MEASURES IN DOWNSTREAM SEGMENT



Ban imports of plastic waste and focus on strengthening the domestic collection and sorting and recycling infrastructure



Investment in domestic recycling, i.e., material recovery infrastructure for ensuring stable supplies of high-quality recycled plastic for selected packaging applications



Investment in Material Recovery Facilities (MRF) for sorting dry waste



Introduce a mandatory segregation obligation of wet, dry and biomedical waste in the households as well as in public and private sector by year 2023

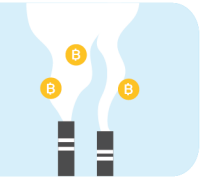
| | Collection target beverage container & cups | Recycling target beverage containers & cups | Collection target food containers | Recycling target food containers | Collection target non-beverage containers & cups | Recycling target non-beverage containers & cups | General packaging |
|---------------------------------------|---|---|-----------------------------------|----------------------------------|--|---|-------------------|
| Plastic | X% | X% | X% | X% | X% | X% | X% |
| Glass | X% | X% | X% | X% | X% | X% | X% |
| Metal (e.g. Fe, Al) | X% | X% | X% | X% | X% | X% | X% |
| Paper-based (incl. carton, cardboard) | X% | X% | X% | X% | X% | X% | X% |
| Composite packaging | X% | X% | X% | X% | X% | X% | X% |
| Other | X% | X% | X% | X% | X% | X% | X% |



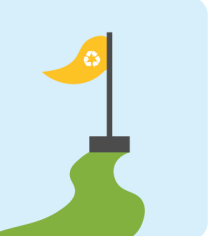
Introduce specific collection and material recycling targets (in mass%) for selected packaging applications by year 2023.



Analyze the feasibility and effectiveness of introducing incineration and landfill taxes to encourage material recovery of plastic waste by year 2025.



The plastic recycling targets defined in the Roadmap on Plastic Waste Management (2018–2030) are not specific with respect to the type of recycling. Thus, the recycling targets for plastic packaging should distinguish between mechanical and chemical material recovery as well as chemical and energy recovery.



Introduce financial mechanisms, such as Pay-As-You-Throw (PAYT), to encourage reduction of waste in households as well as private sector by year 2024.



The preference should be given to mechanical material recovery and the targets should reflect this priority, meaning increasing percentage share of mechanical material recovery over the years. Preference to and increasing share of mechanical material recovery would help in increasing the amount of recyclates in the market.



Set a clear definition for what is currently subsumed as 'chemical recycling'. Solvolysis, Hydrolysis (chemical material recovery) should be clearly differentiated from pyrolysis and gasification (chemical recovery). The latter should be included at a lower level in the waste hierarchy. Investment in industrial composting plants for wet waste.



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