



Authored by:

MEKONG  
INSTITUTE ecos



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Norwegian Retailers'  
Environment Fund

# REDUCING SINGLE-USE PLASTIC IN STREET FOOD MARKETS IN THAILAND

December 2024



**GUIDELINES FOR VENDORS, MARKET  
MANAGERS AND PUBLIC AUTHORITIES**



## Foreword

These guidelines were developed in 2024 as part of the project “Upstream single-use plastics reduction solutions for Khon Kaen’s street food complexes” funded by the Norwegian Retailer’s Environment Fund (NREF). The project is implemented by the Mekong Institute and ECOS.

The recommendations are based on the result of customer and vendor surveys in Khon Kaen, assessments of operating procedures of two street food markets in Khon Kaen (Mor Din Daeng Night Market and Ton Tann Green Market), as well as two policy workshops with market vendors, market managers and public authorities.

While street food in Thailand is at times offered to the general public on streets, sidewalks and other informal places, these guidelines are best adapted to licensed vendors, selling street food vending areas designated by local public administration and that abide to some form of formalised market management.





# About ECOS

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ECOS - Environmental Coalition on Standards is an international NGO with a network of members and experts advocating for environmentally friendly technical standards, policies and laws. We ensure the environmental voice is heard when they are developed and drive change by providing expertise to policymakers and industry players, leading to the implementation of strong environmental principles.

# About MI

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The Mekong Institute (MI), an intergovernmental organization owned and operated by the six countries of the Greater Mekong Subregion (Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam and Yunnan province and Guangxi Autonomous region of the People's Republic of China), promotes regional cooperation and integration through capacity development programs and projects in three thematic areas namely, agricultural development and commercialization, trade and investment facilitation and sustainable energy and environment.

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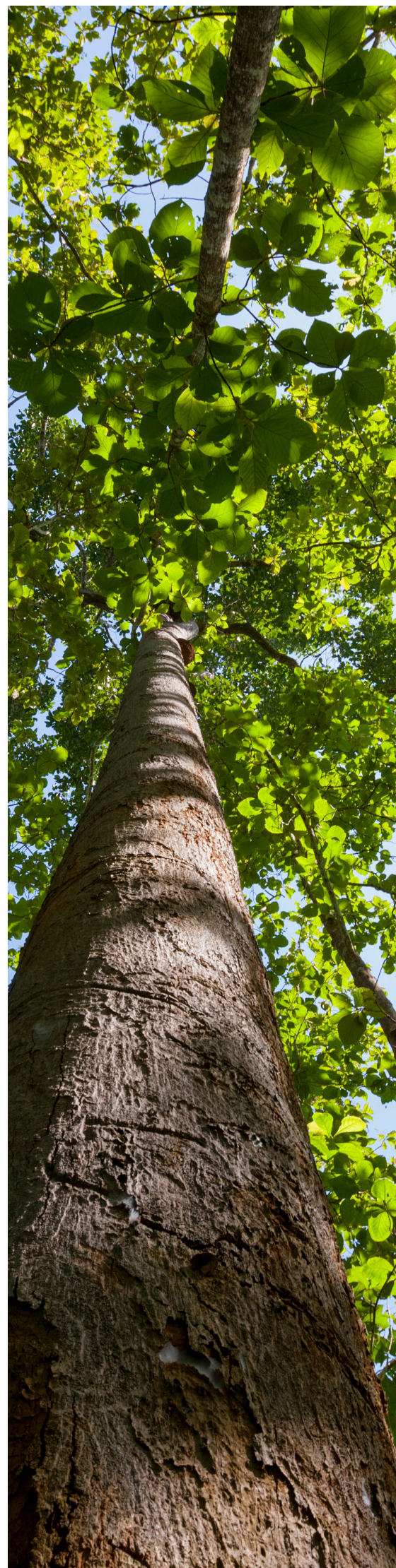
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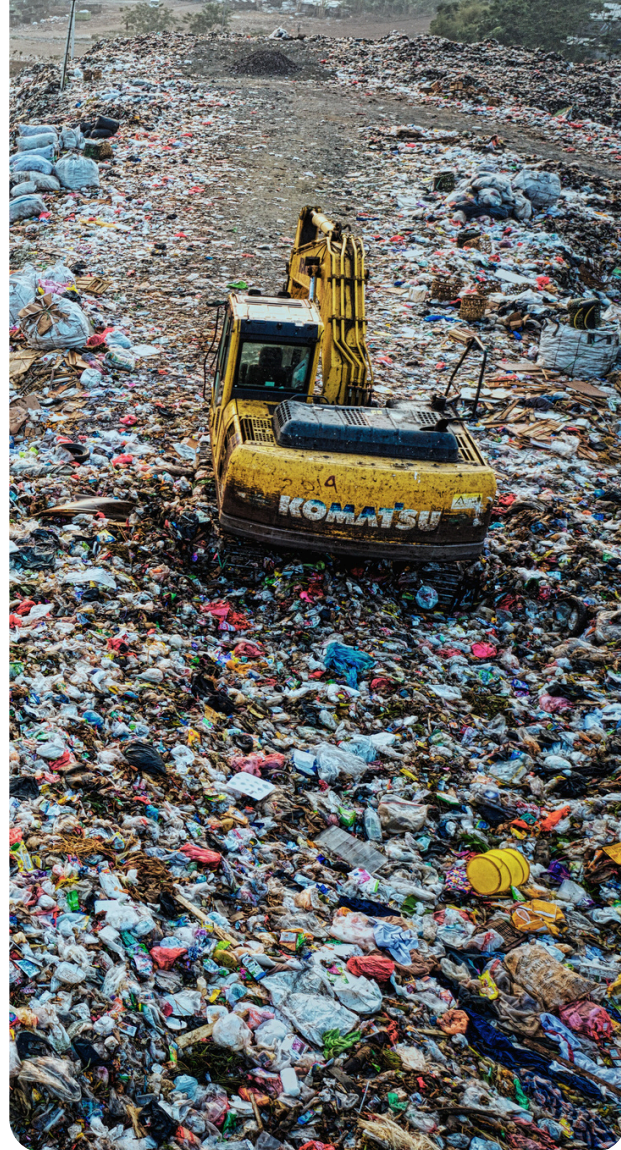


# Introduction

Governments around the world agree that “high and rapidly increasing levels of plastic pollution represent a serious environmental problem at a global scale, negatively impacting the environmental, social and economic dimensions of sustainable development<sup>1</sup>”. The United Nations Environment Programme warns that “Humanity produces over 430 million tonnes of plastic every year - two-thirds of which are short-lived products which soon become waste. This has devastating consequences for wildlife, ecosystems, human health and the global economy<sup>2</sup>”.

In 2019, Thailand adopted a roadmap for plastic waste management for 2020-2030 with the objective to reduce the volume of plastic waste by 0.78 million tons per year and save 3.9 billion baht in cost of waste management annually, help reduce greenhouse gases emission to 1.2 million tons of CO2 equivalent and 1,000 acre of landfills’ space.

One of the measures of Thailand’s roadmap is a ban of foam food containers, plastic straws, plastic cups and plastic bags and a reduction or a ban of further single-use plastic items until 2026. The street food markets the project visited implemented the foam food container ban but other items are still being used. Street food is traded using an excessive amount of plastic and there are different options to phase out or curb the use of single-use packaging from street food markets.



The overall objective of these guidelines is to help reducing the environmental impact of street food vending operations by minimizing the use of single-use plastics, promoting the adoption of reusable and environmentally friendly alternatives, and enhancing waste management practices within street food vending complexes. In addition to reducing plastic waste, this shift also addresses public health concerns, as reusable alternatives help mitigate the risks of harmful chemicals found in single-use plastics, particularly when used with hot food and beverages. This effort aims to create a more sustainable, eco-friendlier, and safer marketplace, contributing to the broader goals of environmental conservation and improved public health.

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<sup>1</sup>Resolution adopted by the United Nations Environment Assembly on 2 March 2022 (UNEP/EA.5/Res.14)

<sup>2</sup><https://www.unep.org/news-and-stories/story/quiz-how-much-do-you-know-about-plastic-pollution-crisis>





# Specific Objectives

01

**Reduce the consumption of single-use plastics in daily operations.**

02

**Promote the adoption of reusable and environmentally friendly alternatives.**

03

**Improve waste management practices within street food vending complexes.**

These guidelines are designed for three key audiences:

## Purpose of the Guidelines



### Vendors

To reduce the use of single-use plastics in daily operations, adopt reusable and eco-friendly alternatives, and improve packaging and waste disposal practices.



### Market Managers

To implement policies and incentives that encourage sustainable practices, manage the collection and recycling of waste, and facilitate vendor compliance with environmental standards.



### Public Authorities

To enforce regulations related to plastic waste reduction, provide support and training to market managers and vendors, and ensure that markets align with Thailand's plastic waste management goals.





# Street Food Markets in Thailand

Thailand is famous for street food. Most Thai nationals consume hot and cold food and drinks away from home several times a week. The trade in street food has become more and more formalised, with food vendors often licensed and operating on vending areas designated by local public authorities. However, a lot of informal hawkers are adding to the vast supply in street food.

Most vendors are operating their food stalls or carts as a one- or two-person enterprise. Some of the stalls and carts are mobile, others, in particular those in food markets can be permanent stalls. Many of the food markets are night markets.

Many are specialised in selling either main dishes, appetizers and snacks or desserts, some are focusing entirely on selling beverages and others have a large menu to pick from. Food and drinks can be prepared on the spot or pre-cooked and pre-packaged.

**Public policies around the sector have in the past been limited to regulating street food vendors use of public spaces as well as focusing on hygiene. With Thailand's government recently adopting a roadmap to curb plastic waste, the sector's extensive reliance on single-use plastic packaging and other single-use items has received increasing attention.**

## Single-use plastic items used for street food

There is a wide variety of single-use plastic used to trade street food.

- Food can be offered in flexible plastic bags (sealed or unsealed) or in containers (with or without lid). Containers sometimes are made with paper or plastic foam (EPS). Condiments are sometimes pre-packed (e.g. in sachets) or come in small containers. Some fruits are wrapped in fruit nets.
- Beverages are sold in PET bottles or in carton boxes. Sometimes they come in sealed bags or in cups (with or without lid).
- Cutlery and straws and carrier bags are other types of common single-use plastic items found on street food markets.







# Reducing single-use plastic

On most street food markets, there is a great potential to reduce the amount of single-use plastic packaging and other single-use plastic items consumed. While some street food hawkers are acting informally, others - especially the ones in official food markets- are more organised and adhere to joint rules implemented by the market authority. In some of the latter settings, **best practices, such as offering reusable tableware or banning the most problematic single-use items**, have already been introduced successfully. These markets showcase that reduced use of single-use plastics can be achieved.

The following chapters highlight measures that street food markets should adopt to phase out single-use plastic from their businesses. The first chapter focuses on measures to prevent the use of single-use plastics, the second chapter discusses the benefits of using reusable tableware and the third chapter discusses how to improve single-use where the other options cannot be implemented.

## Prevention

The best single-use item is the one never used. In this regard, preventing the use of single-use plastic packaging and other items is the best solution to reduce the amount of plastic waste stemming from street food markets. Measures should focus on limiting the use of unnecessary plastic items, favouring dining in instead of take-away options and, for take-away customers, creating incentives and promoting a culture of “bring your own” packaging.

*“...best practices, such as offering reusable tableware or **banning the most problematic single-use items**”*



# MOST COMMON SUP Single-use Plastics

Single-use plastics or SUP are designed to be thrown away after just one use. They're harmful to the environment, contribute to climate change, and pose risks to our health.



Plastic Bags



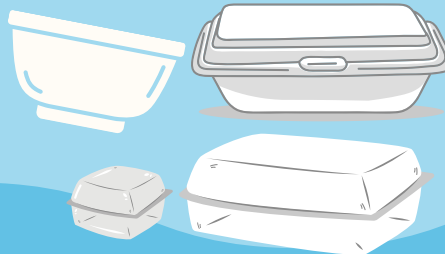
Plastic Cups



Plastic Bottles



Spoons & Forks



Food Containers



Straws



Sachets and Packets  
for Sauces and  
Condiments



Plastic Wraps



Cup Carriers



## Stop using unnecessary single-use plastic

A simple measure is to no longer offer unnecessary single-use plastic packaging and other single-use plastic items to the customer as a standard procedure. Most vendors routinely add single-use plastic items, such as straws, lids, bags, sachets with condiments instead of asking the customer if he intends to use it.

What is considered necessary typically varies from one customer to another. When vendors hand out food and drinks together with a standardised set of plastic items some items go to waste without a single use or are used but without adding value to the customer's experience.

**Customers:** Our customer surveys show that customers believed that many of the single-use plastic items they received were not actually needed. However, hardly any customer had ever rejected single-use plastic items they were offered. Awareness-raising campaigns should focus on citizens concerned by environmental pollution and health issues related to plastic and motivate them to say no to excessive single-use plastic and point out wasteful practices. This would change the perception of vendors who may feel that they need to provide a lot of single-use packaging to customers.

**Vendors:** Can reduce plastic use by reducing overpackaging of food and beverages prepared on the premises and packaged in advance to display the offer and increase the speed of customer service.

When food and beverages are packaged following a customer order, vendors can ask if packaging is necessary and if additional plastic items are needed.

Vendors can also reduce packaging by preparing food and drinks on the premises and buying ingredients in large quantities instead of purchasing pre-packaged food and drinks to sell them on with a mark-up.

**Market Managers:** Can prohibit the use of single-use plastic items when it is generally considered unnecessary or when alternatives exist. Instead of outright bans, market managers can also provide specific incentives to individual vendors to use less single-use plastic packaging and other single-use plastic items. They can evaluate vendors based on plastic consumption when considering contract renewals and carrying out the street food vendor selection procedure. They could also impose reduced stall fees on vendors who implement plastic reduction measures.

**Public Authorities:** The Government should adopt bans of the most problematic single-use plastic packaging and items and make sure such rules are enforced. In Thailand, the government banned Styrofoam food containers, for instance.





## Promote “bring your own” packaging

Another measure that can have an impact to reduce take away packaging is to promote a culture of “bring your own” packaging. The practice only works where food and drinks are packaged on the premises which often is the case. It works best for beverage packaging (e.g. coffee or drinks on the go) but can also have an impact on food packaging (e.g. Tupperware boxes).

**Customers:** The difficulty is to incentivise the customer. It is not always convenient to carry reusable packaging to the street food market (reusable drinking bottles are more common than Tupperware) and the decision to visit the market may be taken spontaneously and without access to reusable containers owned by the customer (e.g. at home).

It can therefore be necessary to couple awareness-raising about environmental concerns around single-use plastics with information around health concerns of plastic additives.

**Vendors:** The most effective measure to incentivise “bring your own” packaging would be to offer price reductions to customers bringing their own packaging. This can also take the form of a coupon system, where, for instance, customers who brought their own packaging ten times, as demonstrated by stamps on their coupons, are offered a drink for free. However, in practice, the vendor may be against incentivizing “bring you own” packaging as it may reduce his own convenience and speed of service. The margin for offering price reductions is also limited by the small cost saving for the vendor from not using the packaging he purchased.

**Market Managers:** As for the reduction of unnecessary single-use plastic packaging, market managers may also introduce incentives to push vendors to accepting and even promoting “bring your own” packaging, otherwise it may not be in the vendors own interest to promote such a behaviour by customers.







## Promote “dine in” consumption

An important measure to take is to allow for the possibility to dine in and to disincentivize take away. Plastic use is typically reduced for dine in customers (e.g. reduced need for plastic bags), in particular when reusable tableware is available on the premises.

**Customers:** Whether customers decide to dine in depends on many factors. Undoubtedly, the availability of free seating space and perceived cleanliness of the premises play a role. However, other factors, such as the availability of parking space, access to restrooms, availability of entertainment options play a role. In Thailand, many customers preferred to eat at home as the outdoor food market was considered too hot.

**Vendors:** On the other hand, vendors can disincentivize customers from ordering food on the go by, for instance, charging higher prices for take away customers. This is however not always in the business interest of the vendor or the market who are in competition for customers, including customers who want to take away food to eat at home or order drinks on the go.





# REUSE SYSTEM

A very effective way of reducing the use of plastic is to replace single-use plastic with reusable items. This approach is easier to organize and more effective for dine in customers than for take away customers although solutions for take away do exist.

Customers receive food in reusable containers.

1



Customers pick up reusable spoons and forks from a designated station.

2

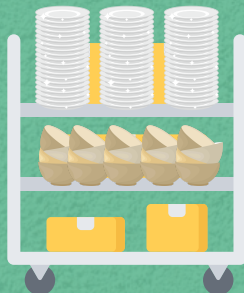


After eating, customers either return their used dishes to designated collection points, or market staff gather the used dishes.

3



5



Clean reusable dishes, spoons, and forks are returned to the vendors or placed at collection points.

4



A service provider is responsible for washing and sanitising the dishes.





## Introducing reusables

Street food market vendors can either offer reusable plates, glasses and cutlery individually or, and this is the more efficient option, they can cooperate to invest in a common pool of reusable plates, glasses and cutlery and. This system would include the organization of organize the return, washing and sanitizing of these items collectively. Organising a reuse system for dine in customers is typically the role of market authorities or the market owner.

**Vendors:** In some cases, it can make sense for individual vendors to invest in reusable tableware, for instance if the market management is not taking the initiative to organise a joint reuse system for all market participants. In this case, the vendor needs to ensure the return of reusable packaging, which can prove difficult, unless he is offering his customers seating options and he can easily collect reusables. However, collection, washing and redistribution can be very time-consuming and not implementable for a one or two-person business. Pooled reuse systems are therefore often the preferred approach.

**Market Managers:** Organising an efficient reuse system requires joint investments in a pool of reusable tableware, washing and sanitizing infrastructure and will lead to increased needs of staff that collects, cleans and redistributes the tableware to vendors. The management of the pool of reusable requires a good knowledge of the number of customers, including in peak times, to ensure that there are always sufficient clean reusables available for dine in customers. The selection of reusables will typically be a decision considering the price, customer experience, ease of washing and handling, as well as durability. The reuse system typically is more effective the larger the pool of reusables, mostly due to the potential to use industrial washing infrastructure. It may be useful for street food markets to cooperate with other actors of the hospitality sector in the market's vicinity that may have made investments in washing infrastructure. If this is not working at full capacity, there may be an incentive to cooperate.







## Optimizing reuse systems

Most importantly, reuse systems must achieve very high rates of return of reusables from the customers to system operators to ensure that the potential environmental benefit materializes and to avoid that street food markets incur higher costs compared to the use of single-use items.

**Market Managers:** A common method to achieve high return rates is asking customers for a deposit that is returned when the reusable item is returned to the designated drop-off points. Deposit-return schemes can deliver high return rates. In these schemes, the customer has to pay a small amount of money when receiving the reusable items. The same amount is returned to the customer after returning the items at the designated areas. Typically, the amount of the deposit is correlating positively with the return rate. On the other hand, there is a negative correlation with the value (or perceived value) of the reusables and the ease of return (e.g. vicinity of return points, queuing to claim back deposits). Thus a high deposit alone is not a guarantee for a well-performing system. Deposit and return schemes are not very common in Thailand. Systems in Thailand that deliver on high return rates without a deposit usually rely on speediness of personnel to collect the reusables from dine in customers tables.

**Public Authorities:** Banning certain single-use items or introducing obligation to use reusables in certain settings can be necessary to mainstream reusable packaging and other reusable items on street food markets. Another regulatory approach is based on waste fees for street food markets. Well-designed fees for waste management can provide incentives to market managers or individual vendors to reduce the amount of single-use packaging (for dining in customers). Where reuse systems exist, they are voluntarily introduced, often because the market management is highly skilled and motivated to position itself in a higher market segment than other street food markets.





# Education and raising consumer awareness



Possibly the most effective measure in the long run is raising awareness and educate about the negative consequences of single-use plastic for the environment and for human health. While it is cumbersome to reach out to every customer and to sensitize for the plastic issue it is possible to change habits. Typically the majority will slowly adopt new habits introduced by first movers and when excessive plastic use and littering are perceived as socially unacceptable behaviors.

The responsibility for raising awareness lies with the civil society and its organisations, as well as with research institutes the education systems and the public administration. Some suggested collaborative efforts include:

- **Workshops and Plastic-Free Campaigns.** Civil society, schools and public administration can collaborate to host workshops in the markets, educating both vendors and customers about the environmental and health impacts of plastic waste. Events such as “Green Market Night” or “Plastic-Free Market Night” could be organized, encouraging the community to participate by bringing reusable containers and adopting eco-friendly practices.
- **Public Challenges and Competitions.** Engage local schools to hold challenges like “Bring Your Own Container” days, where students and families are rewarded for reducing plastic usage at markets. Competitions like these can help build a culture of sustainability and provide valuable learning experiences for younger generations.
- **Social Media Challenges.** To expand the campaign’s reach and engage a broader audience, a social media challenge can be launched, encouraging night market visitors to share their sustainable experiences online. Participants will use a campaign-specific hashtag, creating a unified and searchable thread of eco-friendly market stories and practices. The most creative and impactful posts can be featured to foster engagement. This strategy not only acknowledges individual efforts towards sustainability but also leverages the power of social media to raise awareness and inspire more people to adopt environmentally friendly practices at night markets.
- **Banners, Posters, and Local Media Engagement.** To reinforce these efforts, banners and posters can be placed around market entrances and stalls, displaying key messages on waste reduction and sustainability. Slogans like “Bring Your Own Container – Save the Earth” or “Say No to Single-Use Plastics” can effectively remind customers of their role in reducing waste.

Additionally, local media engagement through radio stations, newspapers, and community TV can spread the knowledge further, reaching people who may not be frequent market-goers. Interviews with market managers and vendors who are actively reducing plastic use can serve as inspirational.

## Using more sustainable packaging

In certain settings and for certain street food types, eliminating or replacing single-use plastic items with reusable alternatives may be challenging. Factors such as cost increase, significant inconveniences for customers or market requirements may in these singular cases be too strong to seek the environmental and health benefit of further reducing single-use plastic. Where, after careful consideration of the alternatives, it is considered that single-use items should for the time being continue to be used, efforts should be made to use the most sustainable single-use items for that specific setting.

The design of single-use items is a key factor determining sustainability as it determines the use of raw materials and other resources used to produce the item and the choice of the material, or a combination of materials, determines the potential recycling rate or the suitability for composting in different settings. It is important to this end to carry out life-cycle assessments following international standards and under consideration of local conditions.



Switching to alternative materials



Minimising resource use

Switching to alternative materials can bring sustainability benefits. Organic materials degrading quickly in different settings should be given preference where high rates of littering are expected and where littering awareness raising efforts have proven to deliver slow progress. It is important to understand that biodegradability will differ according to the environment and that international standards measuring compostability or biodegradability of plastics and other items do not guarantee full decomposition in every environment. Where high rates of separate collection are achieved and where opportunities or a potential for closed loop recycling exists for specific materials, use should be made of such materials.

Switching to designs of single-use items that minimizes resource use can also bring important benefits. Using items with reduced wall thickness reduces the amount of waste. However, it should be noted that there can be unintended consequences (e.g. customers asking for two plastic bags to avoid tear or for two plastic cups to avoid cold or heat).







## IMPROVING WASTE COLLECTION

Street food markets can improve the ways to deal with waste. Best practice waste management on street food markets include the separation and separate collection of food waste and organic materials and their subsequent transformation into animal feed, energy and compost. Likewise, the plastic fraction used by market customers should be collected separately where preparation for reuse or recycling opportunities are available.

The market should designate drop off points for plastic items (e.g. PET bottles) that are accepted by recyclers. The drop off points should have clear and easy instructions and be located close to the customer's seats or at exits, unless the street food market works with table service.

To understand which plastic items can be recycled, street food market managers, local public administration and recycling companies should be in continuous dialogue to ensure that the plastic waste stream of street food markets is of value to recyclers and can be recycled given the recycling mechanisms and infrastructure in place.



# THE ANATOMY OF SMOOTHIE & BUBBLE TEA PACKAGING

Bubble teas and smoothies are popular drinks in street food markets, but they are usually served with a lot of single-use plastic items





# ZERO WASTE



## How to address the plastic problem of bubble tea and smoothies?

Bubble tea (boba) is a popular drink on street food markets and its consumption typically involves a high amount of single-use plastic items. Bubble tea originated from Taiwan and in its classic form consists of black or green tea with condensed milk and syrup as well as tapioca pearls (made from the starch of cassava). Bubble tea is now widely popular in Southeast Asia and comes in many varieties. In Thailand, another noticeable trend on street food markets is fruit smoothies, often mixed with a Japanese sweetened probiotic fermented milk drink. Instead of tapioca pearls, various forms of jellies can be added.

Bubble tea and smoothies are most often served in a plastic cup and a plastic cup or sealed with heated plastic cellophane. Bubble tea is accompanied by an oversized straw, now referred to as a boba straw, which is larger than a typical drinking straw to allow the pearl to pass through. Often, the cups are handed out sitting in dedicated plastic cup carrier bags that allow holding the cup without getting cold hands.


On street food markets, bubble tea and smoothies are often prepared using single-serve units. Packaging of jellies, a Japanese sweetened probiotic fermented milk drink bottles and other ingredients are left in their packaging and put in a reusable cup to expose the ingredients a customer can expect in his bubble tea or smoothie.

While the overwhelming amount of bubble tea and smoothies are consumed in single-use plastic cups with lids and oversized straws reusable and dishwasher-friendly options are available on the market. Street food markets should opt for those reusable options to serve customers dining in.

Avoiding single-serve unit packaging to prepare bubble tea or smoothies would require changes that are more difficult to implement. Street food vendors want to expose the ingredients they are using to increase transparency and trust of the customer in the quality of the ingredients. However, for certain ingredients, vendors could make their purchases in larger units and still expose the larger packaging for customers to see. An incentive could be a reduced cost for vendors when making purchases in bulk. However, some ingredients are difficult to get in bulk. The probiotic fermented milk drink, for instance, is only available in single-serve units thus the street food market vendor cannot easily replace these with large and reusable packaging.






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