

No Time to Waste

***Managing Food Waste in Asia's Food Retail
and Foodservice Channels***



RaboResearch
Food & Agribusiness



Rabobank

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1

Food Waste Is a Global Problem

Both Food Retail and Foodservice Face an Enormous Challenge



01

Loss of invaluable natural resources

- The Food and Agriculture Organization of the United Nations (FAO) estimates 1.6bn metric tons, or one-third, of the world's food is lost or wasted every year.
- About 360m metric tons of food waste* occurs in foodservice and food retail, which equates to ~47kg per person.

02

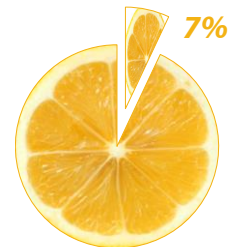
Environmental disaster

- Food loss and waste account for 8% to 10% of total greenhouse gas (GHG) emissions.
- The World Resources Institute (WRI) estimates food loss and waste consume 25% of all water used for agriculture, as well as land greater than the size of China.

03

Too big to ignore

- The FAO estimates the economic, environmental, and social costs of food waste at USD 2.6 trillion.
- This is equivalent to twice the annual food expenditure in the US.



Seven percent of all food produced is wasted in foodservice and food retail.



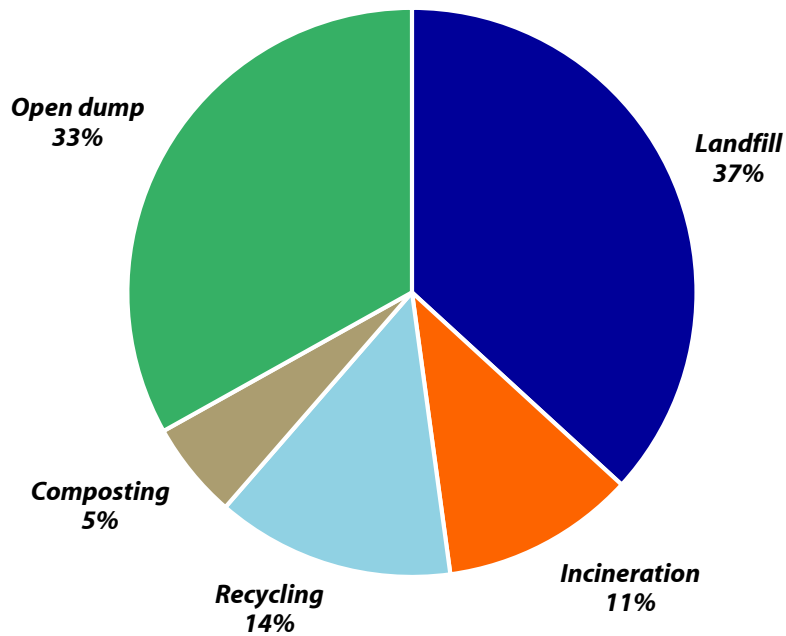
That equals the annual gross domestic product of France.

Notes: *We use the United Nations' (UN) definition of food waste, which is defined as the food (including drinks) and associated inedible parts that are removed from the human food supply chain in the food retail and foodservice part of the food value chain. This excludes items under the FAO's definition of food losses, which measures losses of key commodities in a country across the supply chain up to, but not including, retail.
Source: UNEP Food Waste Index Report 2021, World Resources Institute 2019 "World Resources Report: Creating a Sustainable Food Future," World Bank report: "What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050," FAO, Rabobank 2021

Traditional Waste-management Practices Exacerbate the Environmental Impact



Global waste treatment and disposal methods



Most solid waste goes to landfills or incineration. This is not a developing world issue, but rather a global problem.

Sending food waste to landfills adds another layer of environmental risk by polluting the local environment and generating both carbon dioxide and methane.

The UNEP's "Food Waste Index Report 2021" suggests that 8% to 10% of global GHG emissions are associated with food eliminated from human consumption.

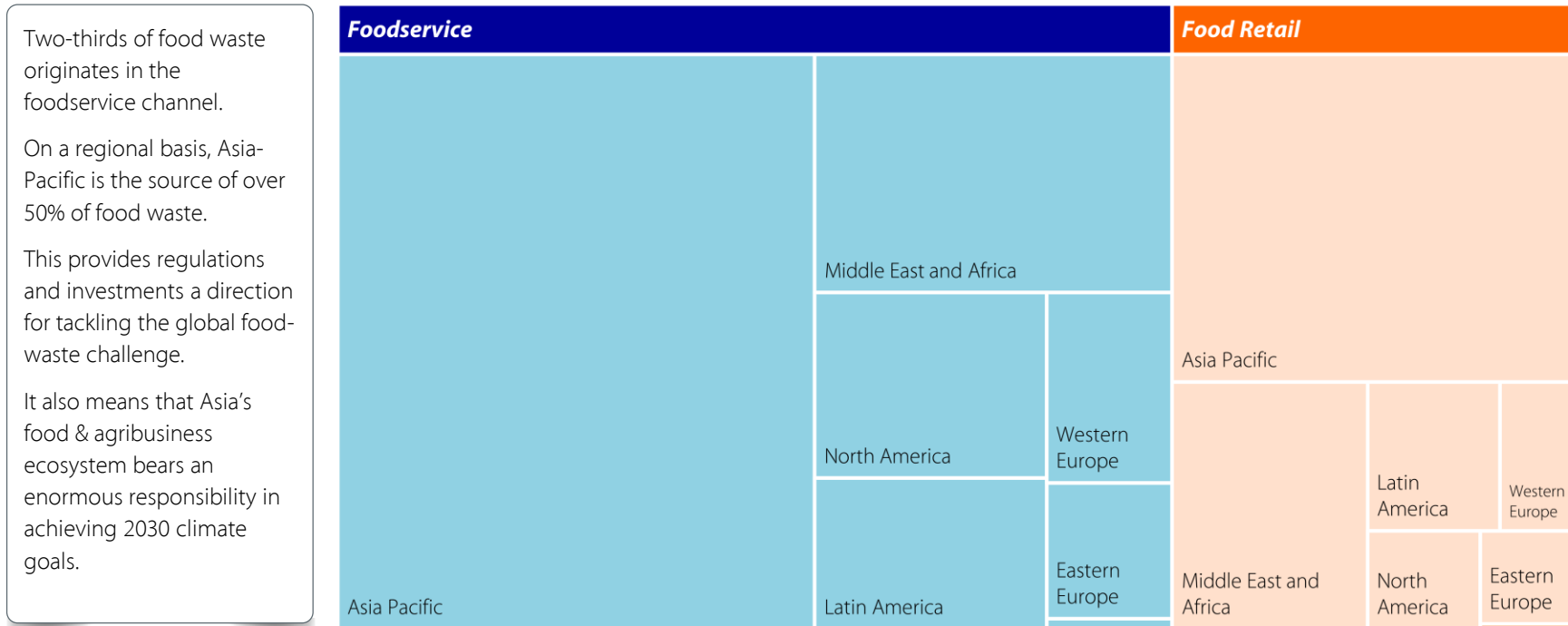
A targeted approach to reducing food waste could lower emissions and pollution.

2

Reducing Food Waste in Asia Is Critical to Achieving the UN's 2030 Sustainable Development Goals

The Scale of the Challenge in Asia Is Enormous

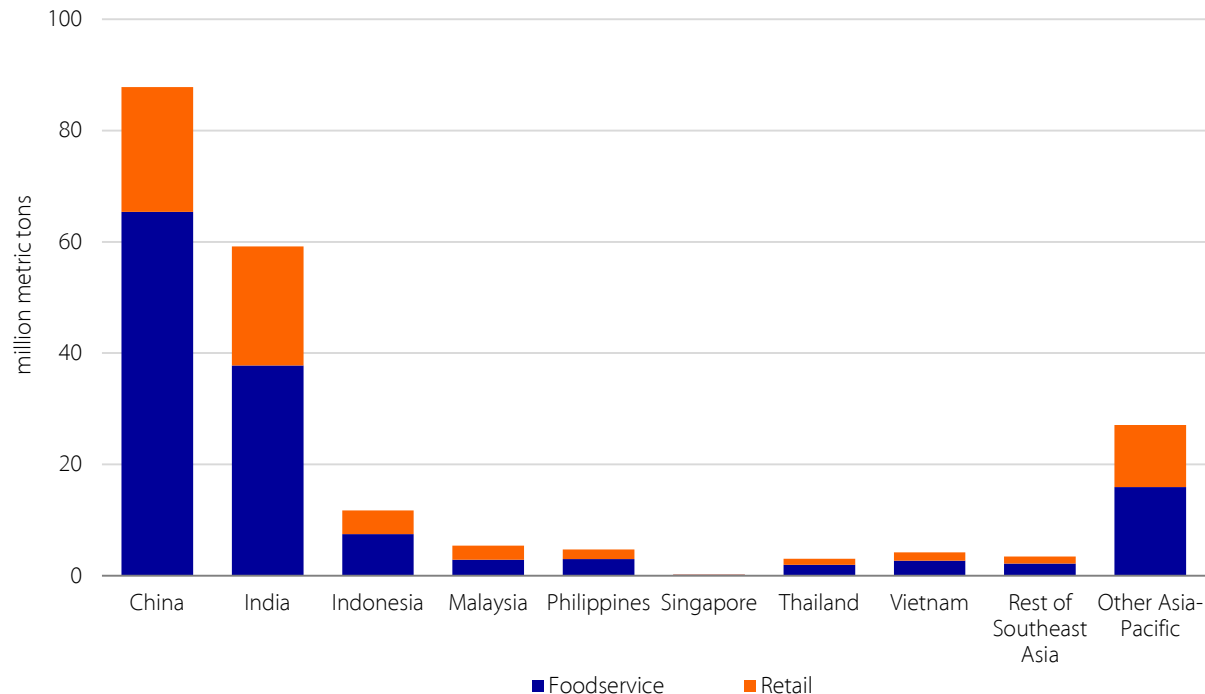
Share of food waste by channel and region - %



Increasing Out-of-Home Spending in Asia Underscores the Need for Investment in Food-waste Management



Food waste by channel, 2020



China accounts for over 40% of the region's food waste, driven mostly by the foodservice channel, which generates two-thirds of the food waste in the entire region. Independent businesses operating in wet-market conditions dominate the foodservice channel across Asia.

In contrast, food retail produces only a third of food waste, despite moving the bulk of the food consumed and being dominated by the traditional trade.

Consumption habits in emerging Asian markets are rapidly evolving, which will drive food waste across both the foodservice and food retail channels.

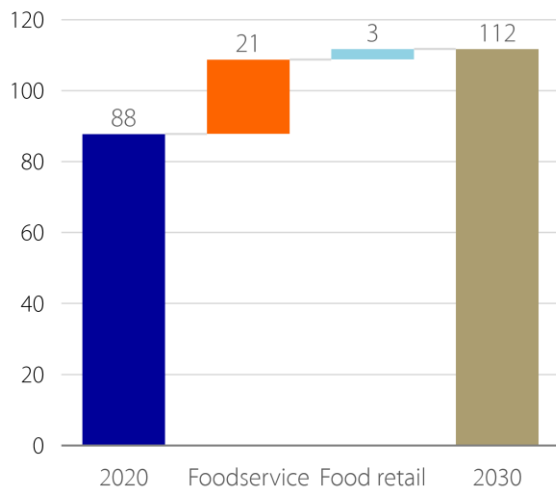
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Future Direction for Food Waste in Asia

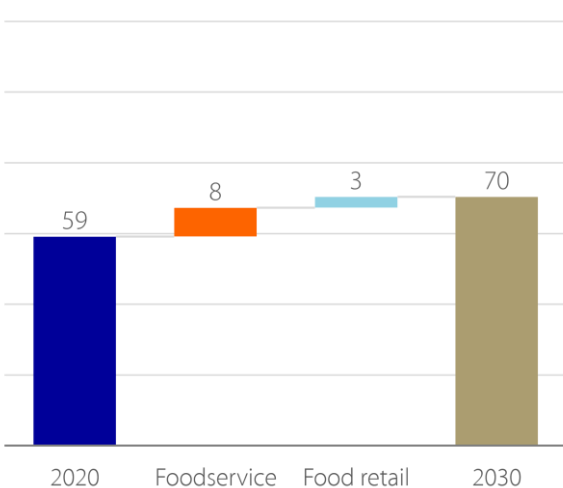
A Business-as-Usual Scenario Would Exert Tremendous Pressure on the Food System and Sustainability



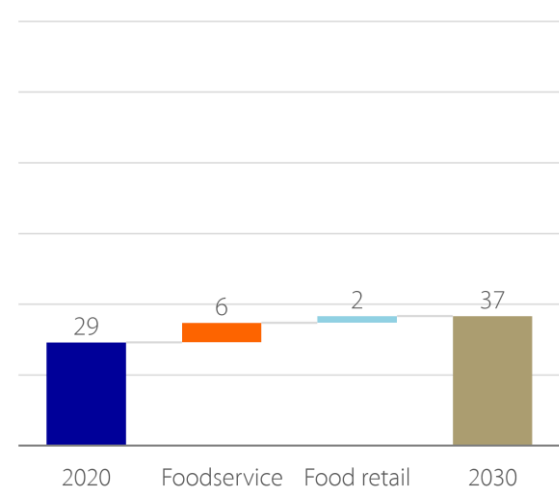
**China's food waste
(million metric tons)**



**India's food waste
(million metric tons)**



**Southeast Asia's food waste
(million metric tons)**



- In the business-as-usual (BAU) scenario, food waste across China, India, and Southeast Asia will increase, on average, by 24% over the next decade.
- This is equivalent to 43m metric tons, or an incremental 1% loss of 2020 annual food production.

Adopting Existing Best-in-Class Practices Can Reduce Food Waste Substantially



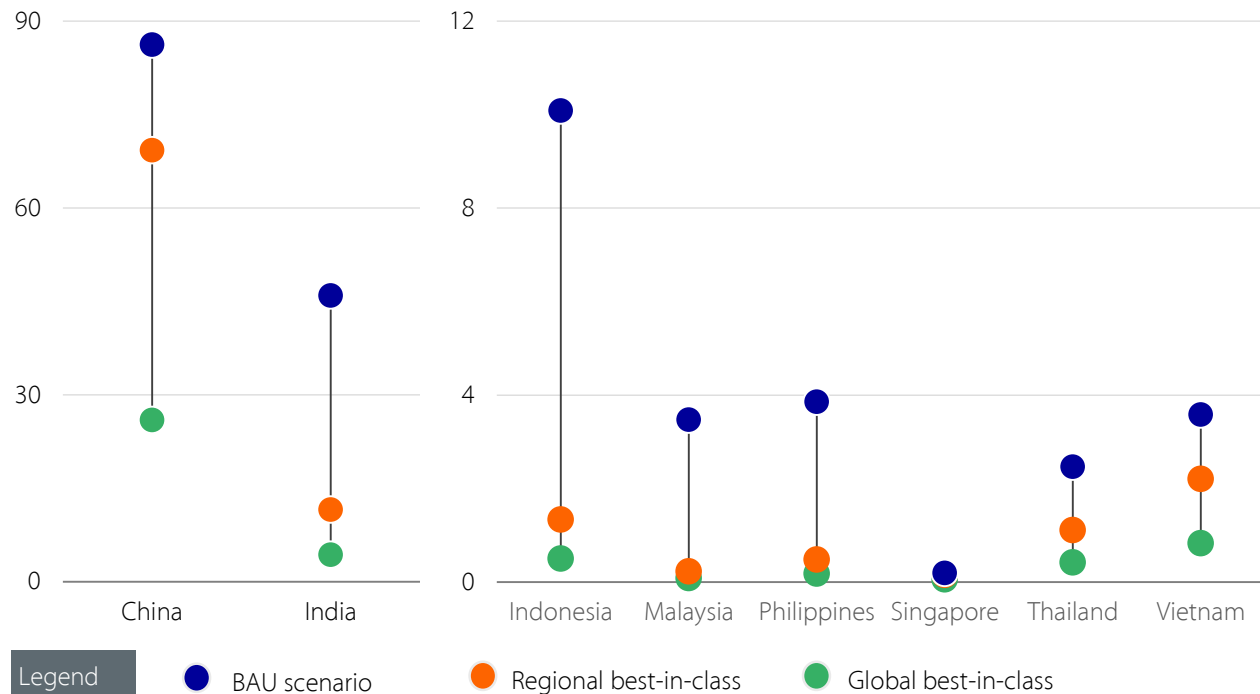
South Korea and Singapore are the global and regional best-in-class performers (calculated as waste per outlet) in the foodservice sector.

The current best-in-class benchmark highlights a significant opportunity to reduce food waste in the foodservice channel.

With the global benchmark, Asian foodservice channels could achieve a nearly 80% reduction in food waste.

Adopting a regional benchmark would still allow a reduction of 45% across the identified countries.

Scenario analysis of food waste in the foodservice channel (million metric tons)



Benchmarking Retail Outlet Performance Against Existing Best Practices Offers Similar Reductions in Food Waste

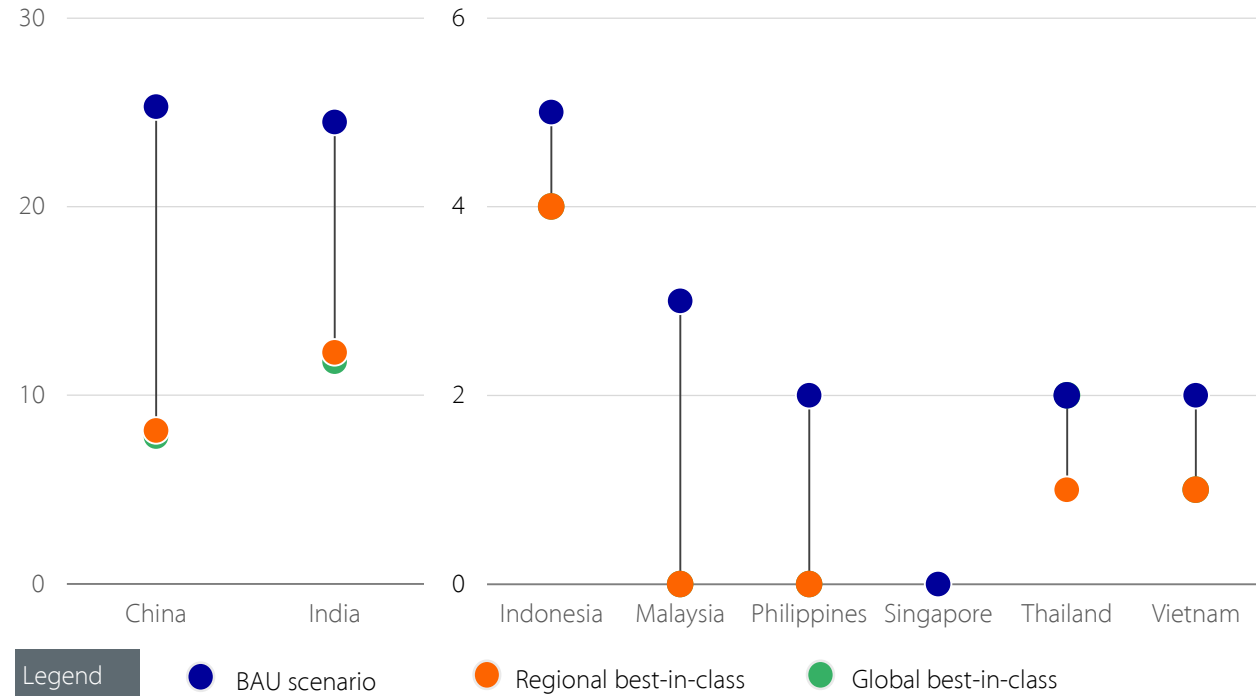


The UN Food Waste Index identifies Italy's food retail sector as the global best-in-class performer.

Indonesia is the regional best-in-class performer.

Against either standard, food waste in the Asian food retail channel would be reduced by 37m metric tons, a decline of nearly 60% from 2020.

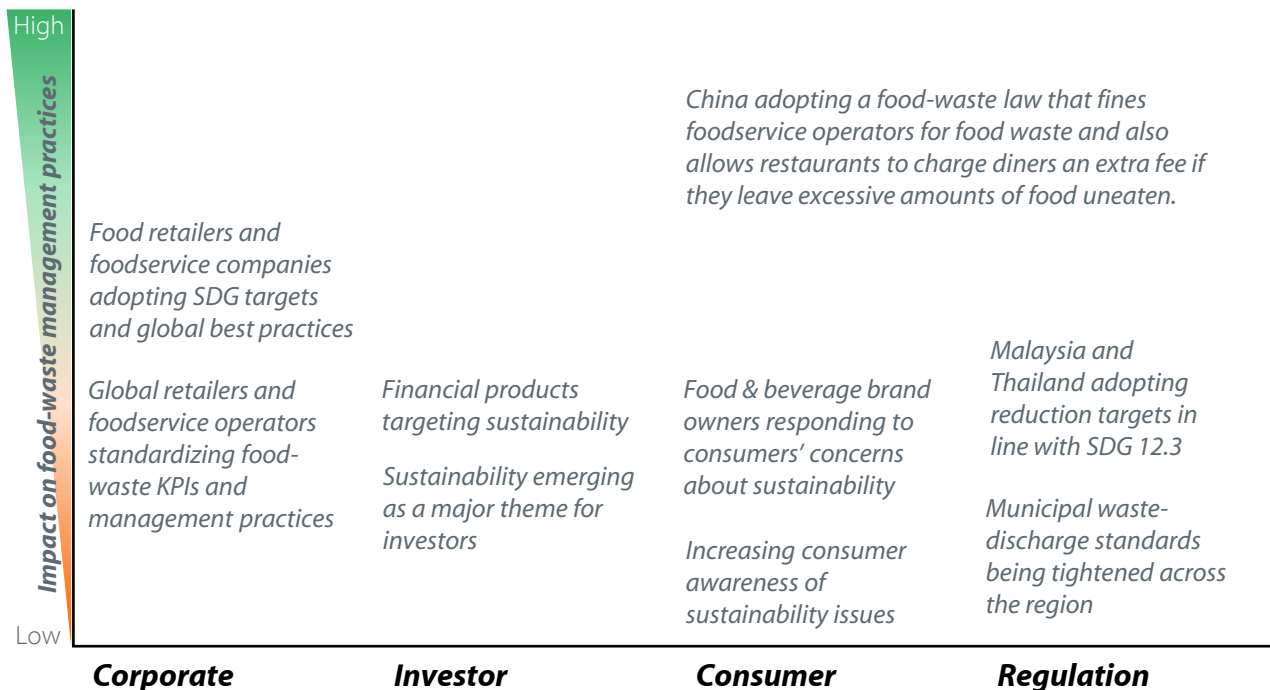
Scenario analysis of food waste in the food retail channel (million metric tons)



4

Stakeholder Pressure Is Pushing Food Waste up the Corporate Agenda

Stakeholder Pressure to Reduce Food Waste Is Increasing Exponentially



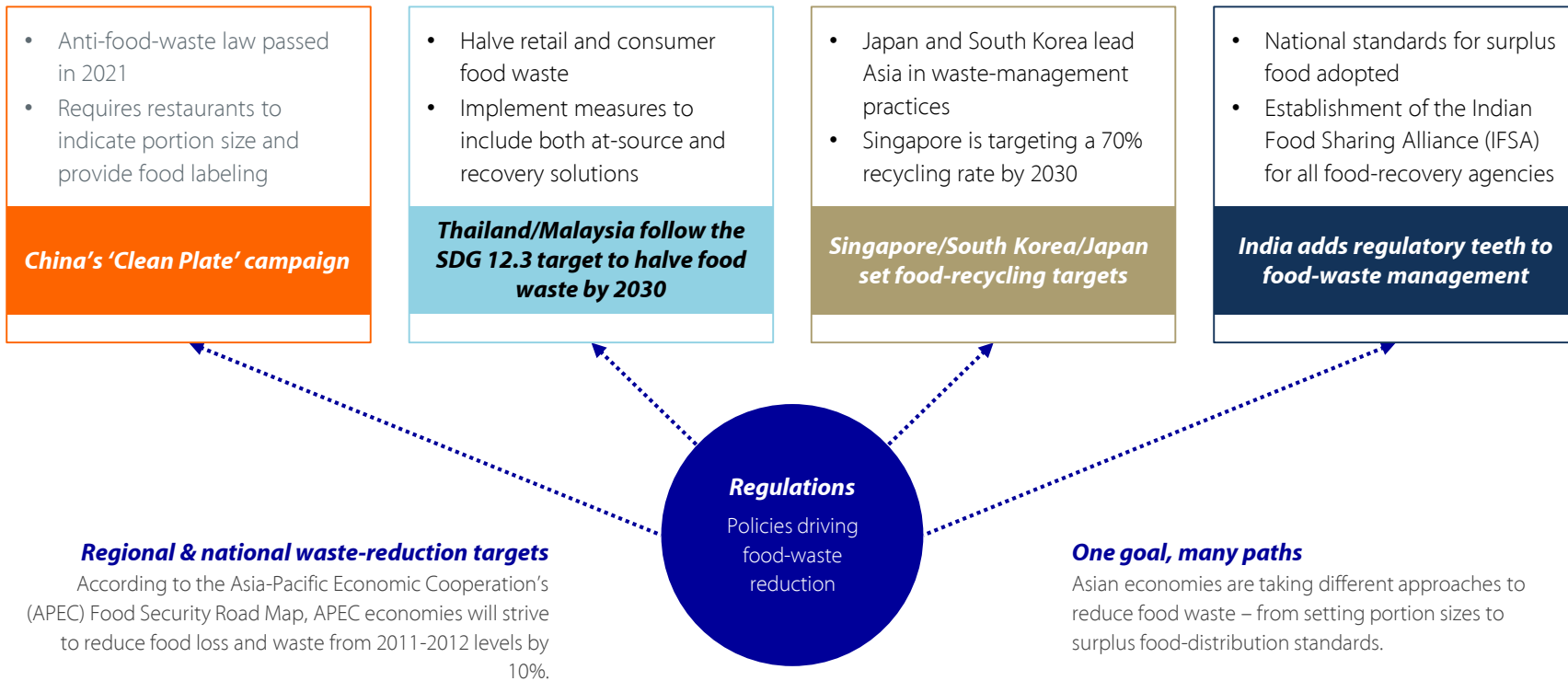
Regulatory oversight of sustainability issues is increasing across Asia.

Food-waste policies target specific supply chain actions and metrics.

Regional units of global food & beverage brands derive their food-waste policies and practices from the best practices and targets of their headquarters.

Investors are actively guiding capital toward solutions that target the evolving sustainability ecosystem.

Across Asia, Policies With a Focus on Foodservice Are Driving Food-waste Management



Food-waste Management Can Play a Role in Achieving SBTi Targets, as It Helps to Reduce GHG Emissions



The Science-Based Targets initiative (SBTi) is driving a 'total supply chain' approach to sustainability standards and commitments.

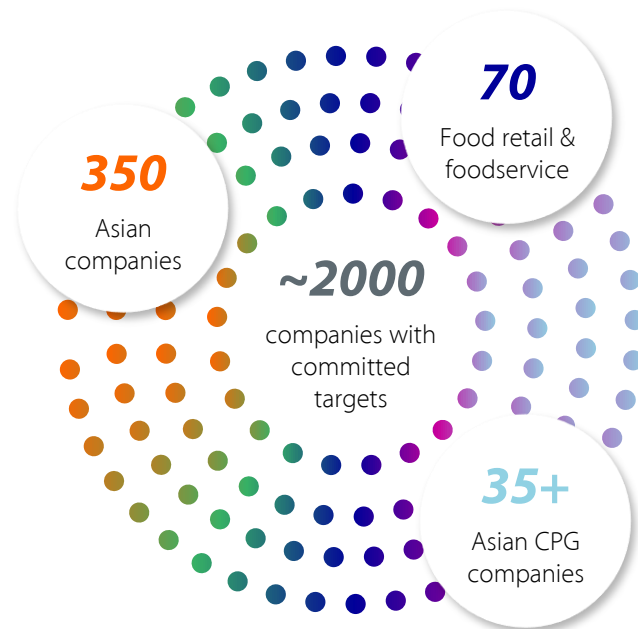
This requires setting and committing to halving GHG emissions by 2030 and hitting net-zero emissions by 2050.

This goes beyond current sustainability practices, which typically cover Scope 1 and Scope 2 emissions. With SBTi, companies will need a strategic agenda to achieve net-zero via reductions in Scope 3 emissions.

For stakeholders, this is emerging as an important means to track corporate performance on GHG emissions.

Given that food loss and waste account for 8% to 10% of total GHG emissions, reducing food waste could help to reduce GHG emissions. For the food retail and foodservice sectors, this will require investments in technology to track food waste, as well as collaboration across the value chain toward preventing, reducing, and managing end-of-life food waste.

Asian foodservice and retail companies are also committed to SBTi targets

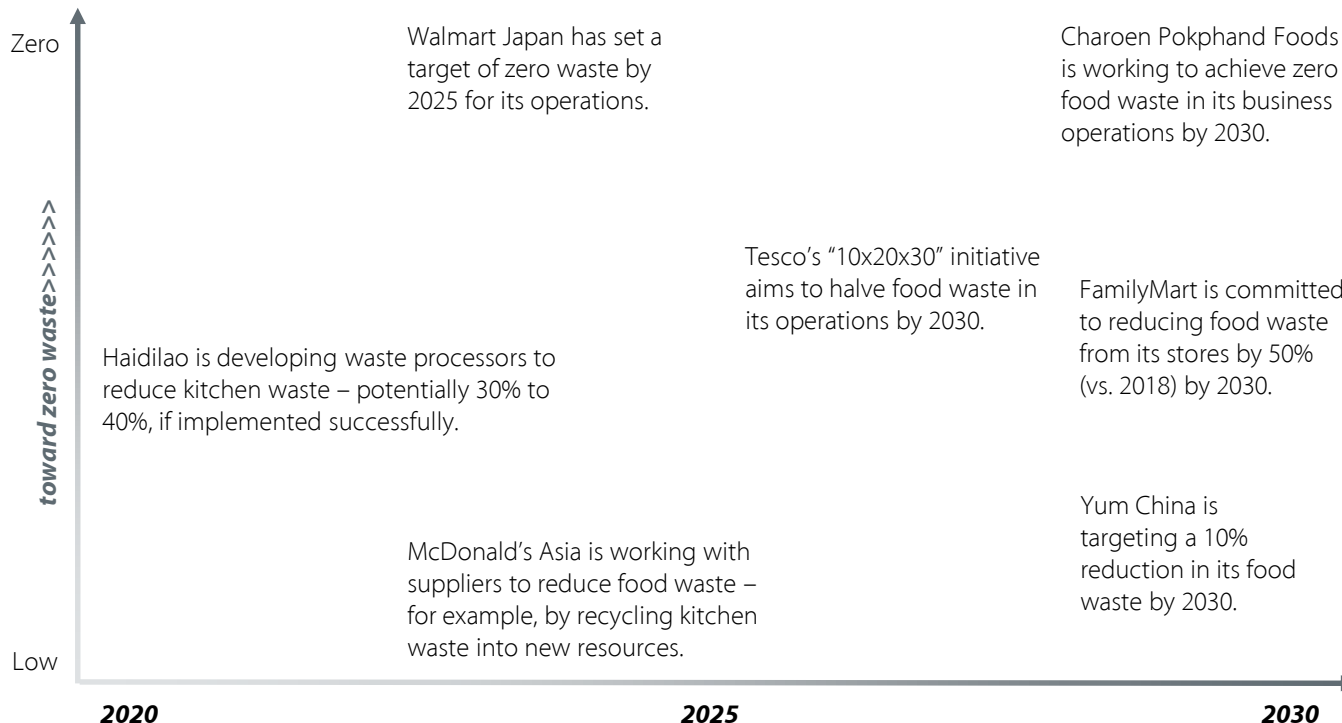


Industry Leaders in Asia Are Taking Action



Global foodservice and grocery retail brands have taken the lead in establishing reduction targets by adopting global best practices.

This trend is percolating to Asian business owners, as leading Asian food retail and foodservice operators adopt food-waste targets linked to UN SDG goals and the SBTi.



5

The Road Ahead for Food-waste Management

A Food-system Approach to Food-waste Management Is Critical

A food-system approach will offer visibility on food waste across the value chain.

More importantly, this approach allows collaborative practices to emerge to tackle the systemic challenge.

Government and industry bodies have a large role to play in creating a framework to enable food-waste management across the value chain.

Waste-management across the food value chain



Manufacturing & distribution



Food retail & foodservice

Prevention	<ul style="list-style-type: none"> Initiate systemic tracking of sales and consumer usage with smart labeling. Invest in R&D and collaboration to improve shelf life for both retail and foodservice. Collaborate with distribution to develop end-to-end cold chain. 	<ul style="list-style-type: none"> Portion control to reduce wastage of prepared foods Offer flexible grading standards. Improve demand forecasts with data-driven inventory and production planning. Utilize rapidly evolving AI technology to automatically track food waste. Invest in cold-chain infrastructure.
Reduction	<ul style="list-style-type: none"> Reduce waste in the supply chain by improving efficiencies and logistics. Adapt current product portfolios to reduce waste – for example, reducing package size or reformulating products using ingredients with lower wastage rates. 	<ul style="list-style-type: none"> Offer fewer SKUs on retail shelves and reduce menus to optimize production and distribution systems, based on purchase analytics. Offer consumer incentives to purchase foods past peak quality. Plan menus to target food approaching expiration.
Reuse	<ul style="list-style-type: none"> Collaborate with retail and foodservice operators to create upcycled products. For example, RT-Mart utilizes fresh bananas close to their expiration date to make banana cakes. 	<ul style="list-style-type: none"> Reuse end-of-life food waste to produce energy (biodiesel) or animal feed. Develop surplus food-distribution strategies in order to create financial returns and social impact.

Companies Are Adopting a Food-system Approach to Manage Food Waste



Prevention

- FamilyMart switched to gas flush packaging for Mother's Kitchen prepared dishes, which preserves freshness longer and extends the expiration date without sacrificing taste.
- CP All applies post-harvest technology to improve packaging for longer shelf life.
- Yum China's Little Sheep brand has launched small portions and half-portions of their meals.

Reduction

- McDonald's Indonesia has partnered with FoodCycle in Jakarta and Scholars of Sustenance in Bali for food donations.
- Tesco works with FareShare to donate surplus food to local charities.
- Tops Supermarket collaborates with non-profit organizations like Scholars of Sustenance to supply excess food from 20 branches in Phuket and Bangkok.

Reuse

- Bio-bean procures spent coffee grounds from coffee shops and converts them into biomass pellets.
- Yum China recycles its cooking oil to be converted into sustainable biodiesel.
- CP All's Koh Samui project has diverted 20 metric tons of food waste to soil conditioner and feed.
- Walmart Japan recycles fish traces into raw material for pet food.

New Business Models Offer Both Food-waste Reduction and Opportunities to Create an Alternative Revenue Stream



Emerging business models

help foodservice and food retail owners to establish an alternative use for food waste or to build user groups for surplus food.



Surplus Redistribution

A business model focused on connecting a surplus food source with large buyers/consumers.

Company Shop Group is the UK's leading redistributor of surplus food and household products. The business was acquired in February 2021 for GBP 82.5m.



Upcycling

A business model with innovative uses for expired food and kitchen waste.

Toast Ale replaced 30% of malted barley in beer with leftover bread. Other brewers have been inspired to create similar beers.

UglyGood in Singapore is using fruit peel waste to create essential oils and cleaning solutions.

Elevate Food Waste From an Operational to a Strategic Agenda



Strategy

Reassess food-waste strategy

- Set short-term and long-term food waste-reduction targets
- Establish a food-waste tracking-and-monitoring system
- Leverage systemic tools to incentivize food-waste reduction through a food-system approach



Execution

Waste reduction

- Invest in menu and shelf strategies to optimize stock and kitchen waste
- Collaborate with stakeholders to encourage responsible consumer behavior

Recover

- Identify and remove policy barriers to food donation
- Invest in new business models for profitable distribution of surplus food

Recycle

- Create infrastructure for organic recycling
- Invest in and/or collaborate with businesses active in upcycling food waste (edible and non-edible)

6

Conclusion

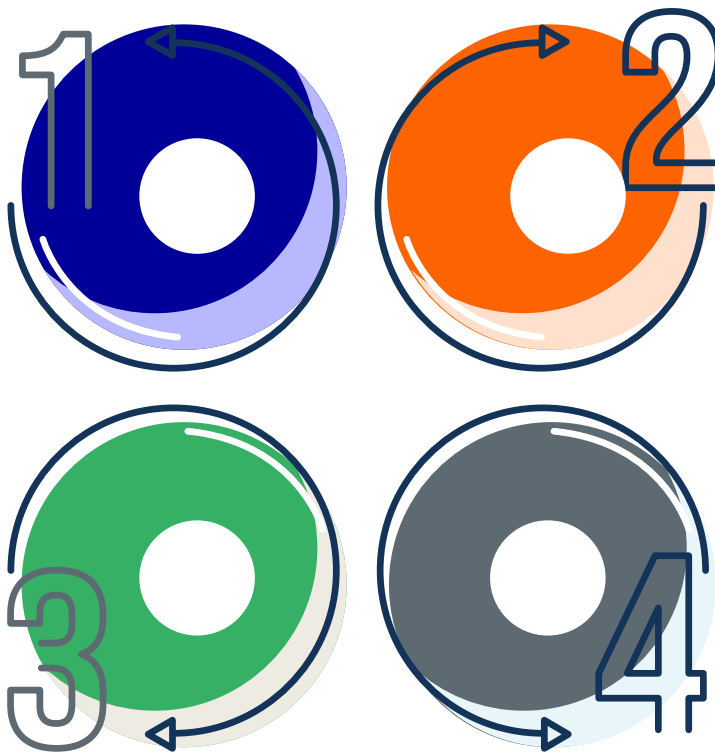
Key Takeaways

To meet the UN's 2030 SDG targets, Asia's food waste needs to decline

The Asia-Pacific region was the source of over 50% of global food waste, with foodservice accounting for two-thirds of the food waste generated. Increasing out-of-home spending in Asia underscores the need for investments in food-waste management.

Pressure from different stakeholders, including governments, investors, and companies, is increasing exponentially. Many global operators are following global best-in-class practises in Asia – for example, using technology to improve processes in procurement, storage, and application.

Increasing stakeholder pressure to reduce food waste calls for action



Adopting best-in-class practices has significant potential to reduce food waste in Asia

In the BAU scenario, food waste across Asia will increase, on average, by 24% over the next decade.

Rabobank estimates that Asian foodservice and food retail could reduce waste by 45%, to 80% and by 60%, respectively, by adopting best-in-class practices.

Leading players have set reduction goals, followed by appropriate monitoring and reporting measurements. Feasible food waste-reduction strategies include efforts in their own operations and supply chain initiatives, such as product innovation, packaging optimization, data, and tech solutions.

Industry leaders are taking action

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