



Plastic
Waste



SynTao
Sustainability Solutions



**Consumer Goods Industry Sustainable Packaging
Management System and Best Practice Case Study Booklet**

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About the Report

The Consumer Goods Forum (CGF) initiated the Booklet, with efforts from CGF members and technical support from SynTao, as the first report delivering sustainable packaging management paradigms and case references to companies in the consumer goods industry.

The sustainable packaging transformation is creating a new wave of challenges and growth opportunities for companies and the society amidst the global trend of actively combating climate change, reducing environmental pollution, preserving biodiversity, and increasingly focusing on ESG investments. During the transformation, CGF's Golden Design Rules (GDRs) have offered an excellent reference for companies in reducing plastic packaging pollution. However, there are still some problems facing by consumer goods companies in applying the GDRs and implementing packaging management. Under such context, CGF joined hands with member companies and SynTao to develop this booklet by providing an industrial-wide applicable management roadmap and best practices on sustainable packaging to inspire and engage more companies to accelerate the sustainable packaging transition.

About the Consumer Goods Forum

The Consumer Goods Forum (CGF) is a global, parity-based industry network that is driven by its members to encourage the global adoption of practices and standards that serves the consumer goods industry worldwide. It brings together the CEOs and senior management of some 400 retailers, manufacturers, service providers, and other stakeholders across 70 countries. The CGF accelerates changes through eight Coalitions of Action: forests, plastics, healthier lives, food waste, food safety, supply chains, product data and net zero. Its member companies have combined sales of EUR 4.6 trillion and directly employ nearly 10 million people, with a further 90 million related jobs estimated along the value chain. It is governed by its Board of Directors, which comprises more than 55 manufacturer and retailer CEOs. For more information, please visit: www.theconsumergoodsforum.com

About SynTao

SynTao Co., Ltd. (hereinafter referred to as "SynTao") is a leading independent consultancy that has been devoted to sustainability and ESG consulting for about 20 years in China. Equipped with the global vision and profound local experiences, SynTao is committed to working with our clients to develop and implement sustainable development solutions, facilitating the sustainable business growth and creating a prosperous future together. Among all the sustainable issues, SynTao puts the special focus on sustainable consumption as well as the sustainable transition of retail and consumer goods industry. For eight consecutive years, SynTao has launched the China Sustainable Consumption Report with Jiemian News, providing profound insights on consumers' awareness, attitude and behaviour toward sustainable products and consumption. This report has been regarded as an important reference for enterprises, governments, industry associations, NGOs, and media to understand China's sustainable consumption trends. For more information, please visit: <http://www.syntao.com/home>

Report Writing

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Limitations and Applicability

This report is prepared with a limited scope of data, case studies, and professional expertise, and it is conceivable that there may be other innovative cases not encompassed. Please feel free to point out shortcomings if any. Since companies employ different internal management frameworks and modes, this report should be referred to and applied according to their reality.

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Executive Summary

In recent years, the impact of packaging on climate change, environmental pollution, biodiversity, and human health has gained significant attention. On the international front, the inaugural global treaty addressing plastic pollution is being prepared quickly. In China, following the establishment of the goals of "carbon peaking and carbon neutrality," the promulgation of policies and regulations about the circular economy, plastic pollution control, and excessive packaging has been frequent in China, and consumers' environmental awareness has steadily escalated. In the investment sphere, packaging waste management has gradually emerged as a critical risk factor. The consumer goods industry, serving as a pivotal downstream segment in the packaging industry chain and a vital link between product packaging and consumers, holds the key to promoting sustainable production and consumption of packaging. In this context, numerous consumer goods companies are undertaking packaging transformation efforts, striving to make packaging not only functional in protecting products but also more eco-friendly towards the planet and humankind.

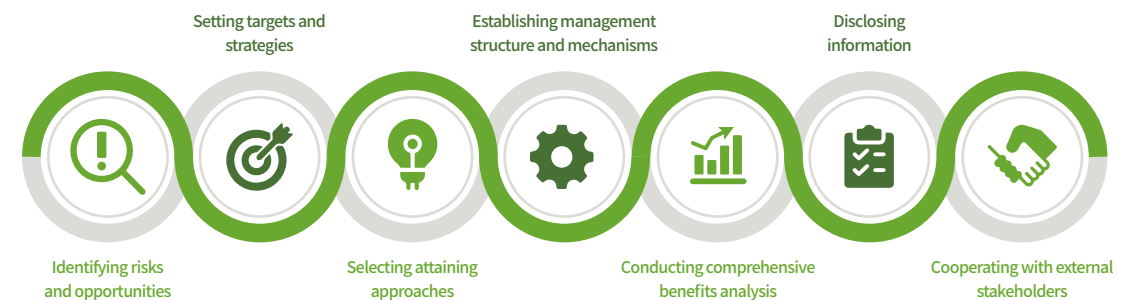
The Booklet presents in-depth research through various methods, including company research, conference deliberations, desk research, and expert consultation, to establish a general roadmap, action framework, and exemplary best practices for sustainable packaging management within companies. The main contents are as follows:

- By synthesizing relevant content from both international and Chinese national standards, the Booklet defines sustainable packaging as: Sustainable packaging fulfils essential functions throughout the entire lifecycle, employs recyclable design, utilizes recoverable, renewable raw materials, minimizes resource

and energy consumption during production, and mitigates any potential harm to human health and the ecological environment. Ultimately, it enhances net welfare benefits derived from production and economic activities.

- According to our investigation, the driving forces for companies to manage packaging mainly come from the macro policy, standards and regulations, sustainable consumption awareness, and enhancement of ESG investment. However, in terms of the entire lifecycle of product packaging, companies still encounter various challenges in promoting sustainable packaging, including high material costs in the supply stage, the investment for transformation and upgrading in the production stage, lack of unity of knowing-doing from consumers, and the incomplete infrastructure for waste disposal.
- In addition, we learned that due to the complexity of packaging management, companies lack awareness of the importance of packaging governance and management skills. To facilitate sustainable packaging governance within companies, the Booklet offers insights through detailed case studies and summarisation methodologies, providing a reference to companies for sustainable packaging management:

- ◆ **Offering the general roadmap for sustainable packaging management.** The Booklet provides clear operational steps for companies, which mainly include seven steps: identifying risks and opportunities, setting targets and strategies, selecting attaining approaches, establishing management structure and mechanisms, conducting comprehensive benefits analysis, disclosing information, and cooperating with external stakeholders to facilitate comprehensive transformation.



Roadmap for Sustainable Packaging Management in Companies

- ◆ **By providing an integrated sustainable packaging management action framework,** the Booklet aims to provide practical guidelines for companies to take action.
- ◆ **By showcasing best practices of sustainable packaging,** the Booklet demonstrates how leading companies incorporate packaging into their company strategies, set specific packaging targets, choose approaches to achieve those targets, establish

effective packaging management systems, and collaborate with internal stakeholders to drive the progress towards their goals. In addition, the Booklet invents a comprehensive performance evaluation module to help consumer goods companies evaluate their sustainable packaging from environmental, social and economic values, thus facilitate the decision-makings.

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Packaging and Sustainability

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Packaging and sustainability

Consumer goods packaging appears everywhere in our daily lives, which plays an important role in combating climate change, reducing environmental pollution, and preserving biodiversity. The sustainable packaging transformation is creating a new wave of challenges and growth opportunities for companies. In the future, packaging is expected to be more eco-friendly, good for human health, and economically sustainable, while still fulfilling its basic function of protecting products.

Packaging and combating climate change

The World Meteorological Organization confirmed that 2023 was the hottest year on record, with an average annual temperature $1.45 \pm 0.12^\circ\text{C}$ higher than the pre-industrial temperature, far exceeding the temperature rise range of the previous hottest year and further approaching the 1.5°C temperature control target set by the *Paris Agreement*¹. *The Sixth Assessment Report on Climate Change* released by the United Nations Intergovernmental Panel on Climate Change (IPCC) points out that all regions are facing unprecedented climate system changes, such as rising sea levels and frequent extreme climate events and rapid melting of sea ice.

The impact of packaging on climate change mainly stems from its production process, especially plastics as fossil fuel products. As suggested by a research, plastics emit 90% of greenhouse gases throughout their entire lifecycle during their production process². A study by Tsinghua University found that China's plastic industry emitted about 350 million tons of carbon dioxide equivalent (CO₂e) in 2020. By developing a circular economy, it is estimated that the carbon emissions could be reduced by 11% to 38% by 2060³.

Therefore, one of the core challenges for packaging sustainability is carbon reduction. On one hand, more sustainable production is required at the manufacturing end, encompassing lighter, recyclable, and reusable packaging designs, as well as the utilization of more sustainable packaging materials. On the other hand, consumers need to adopt more sustainable consumption habits, such as opting for green packaging and reusing packaging materials, to foster an eco-friendly lifestyle.



Packaging, plastic reduction, and circular economy models

Packaging accounts for 31% of global plastic use, yet its average lifecycle is extremely short. Globally, about 430 million tons of plastic are produced annually, with two-thirds becoming waste after brief use⁴, while 42% of plastic waste is packaging waste². However, plastics possess an extremely long half-life period and strong biochemical stability in natural environment. If the waste plastic packaging is not properly disposed of, it can severely damage the environment and biodiversity.

However, currently the treatment and recycling mechanisms for waste plastic in most countries are not mature enough to realise the circulation of waste, resulting in significant carbon emissions and environmental pollution. Globally, 46% of plastic waste is landfilled, 22% is mismanaged and ends up in the environment, 17% is incinerated, and only 15% is recycled, with the actual recycling rate being less than 9%². Therefore, the governance of packaging must be considered from a full lifecycle perspective, embracing a circular economy that prioritizes resource conservation and maximal utilization. For example, encouraging the use of recycled and bio-based material, and increasing the reuse and recycling rate to prevent plastics from leakage.

Packaging sustainability and health

Sustainable packaging signifies safer packaging, posing no harm to human health. On one hand, packaging fulfills the function of protecting products, preventing them from contamination, and ensuring their integrity and usability. It extends the shelf life of products, thereby reducing the loss rate, especially for food. In the case of food packaging, it is crucial to ensure that the packaging materials in contact with food are free from hazardous chemicals. However, on the other hand, the increasing amount of packaging waste is posing a threat to human health. Research has shown that microplastics, smaller than 5mm in diameter, present in various environmental media such as soil, water, and air. They have infiltrated the food chain and ultimately become a part of human diets, posing hazards to cardiovascular health, endocrine systems, and gastrointestinal functions.

¹ Source: World Meteorological Organization: 2023 smashes global temperature record and 2024 could be even hotter. UN News, January 2024.

² Source: Global Plastics Outlook. OECD. February 2022. https://www.oecd-ilibrary.org/environment/global-plastics-outlook_de747aef-en

³ Research Report on Potential of Circular Economy to Help China Achieve Carbon Neutrality Goals. Tsinghua University. <https://cloud.tsinghua.edu.cn/d/50f6503d80c74f319127/>

⁴ Beat Plastic Pollution Practical Guide. UNEP. June 2022. https://wedocs.unep.org/bitstream/handle/20.500.11822/42437/Plastic_Pollution_WED23CH.pdf?sequence=11&isAllowed=y



Packaging and sustainable consumption growth

Sustainable packaging serves as a new driver for the green and sustainable growth of the consumer goods industry in addressing policy and regulatory requirements, meeting consumer and sustainable investment expectations, and reducing environmental pollution. In 2023, the total retail sales of consumer goods amounted to RMB 47.15 trillion, a YoY increase of 7.2%, with consumption expenditure contributing 82.5% to economic growth. A study conducted by the China Council for International Cooperation on Environment and Development (CCICED) based on the period from 2020 to 2025 indicates that if products of about RMB 400 billion (accounting for 1% of total consumer consumption) in food, automobiles, construction, home appliances, and household products are replaced with green products, it is estimated that GDP will grow by 0.05% relative to the scenario without such replacements. Given the increasing importance of consumption in driving China's economic development, sustainable packaging transformation, as a crucial governance topic for the sustainable transformation of the consumer goods industry, holds significant implications for the overall green development of the national economy and the society.

What is sustainable packaging

Sustainable packaging needs to meet intergenerational equity. The United Nations defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." This definition mainly emphasizes intergenerational equity and limited resources. For packaging, the key lies in controlling the consumption of raw materials within a certain range, thereby ensuring the sustainability of resources and intergenerational equity.

Sustainable packaging will contribute to achieving the circular economy. According to the definition of a circular economy of the Ellen MacArthur Foundation (EMF), the circular economy contrasts with the "take-make-waste" linear model where resources are taken from nature, made into products, and ultimately wasted as garbage. The goal of packaging management should also be to decouple packaging-related economic activities from resource consumption. This means designing packaging in a way that avoids pollution and waste generation from the outset.

Sustainable packaging will contribute to the sustainability of products during the entire lifecycle. Concerning the relevant expressions from the United Nations Sustainable Development Goal 12 and Chinese national standard *Method and Criteria for Green Packaging Assessment* (GB/T 37422-2019), sustainable packaging can be described as packaging that reduces resource consumption, environmental degradation, pollution, and carbon emissions throughout its entire lifecycle, while ensuring product quality and enhancing people's living standards and health, ultimately improving the net welfare of economic activities.

By synthesizing the definitions of "Sustainability", "Circular Economy", and "Green Packaging" in international and Chinese national standards, the Booklet defines sustainable packaging as follows: **While meeting the essential functions, package alongside its entire lifecycle adopts recycle-ready design, uses the recyclable and renewable raw materials, minimizes the resource and energy consumption, and mitigates any potential harm to human and ecological health, ultimately enhances the net welfare of economic benefits.**

Driving forces of sustainable packaging management

Precisely due to its systemic impact on sustainability, packaging has gradually become a crucial part of national environmental governance and corporate social responsibility. The sustainable governance of packaging is gradually attracting attention from NGOs, business managers, and investors, further driving companies to proactively engage in packaging management.

Driving forces from laws, regulations and policies

To support the plastic circular economy initiative, the UN Environment Programme is promoting a legally binding Global Treaty on Plastic Pollution, covering the entire lifecycle of plastics from production to disposal. Its "Zero Draft" proposes several major directions to end plastic

pollution¹², including preventing and mitigating the hazards caused by the production of primary plastic polymers, reducing or eliminating the use of harmful chemicals and polymers, reducing or eliminating problematic, avoidable, short-lived and single-use plastics, improving the design, composition, and performance of plastic products, promoting the reduction and reuse of plastic products, and encouraging the development of non-plastic substitutes, encouraging the establishment and implementation of Extended Producer Responsibility (EPR), focusing on the emissions and releases of plastics throughout their entire lifecycle, implementing effective waste management and trade in some hazardous chemicals and polymers, promoting just transition, reducing plastic pollution (especially which is in the marine environment), enhancing transparency, tracking, monitoring and labelling, with a total of 13 requirements.

In China, In 1996, China formulated its first national standard on packaging waste, *General Rules of Packaging Waste Disposal and Utilization* (GB/T 16716-1996). Since then, with the promulgation and implementation of the *Solid Waste Law*, the *Clean Production Promotion Law* and the *Circular Economy Promotion Law*, China has gradually improved the packaging and environmental standardization system, and formulated the *Packaging and Environment* (GB/T 16716) in 2018 with reference to ISO, IEC and other international standards. In 2019, with the release of the *Method and Criteria for Green Packaging Assessment* (GB/T 37422-2019), it provided a unified assessment method for green packaging. In addition, for key industries and areas, China has issued various national standards such as *Green Product Assessment - Packing for Express Service* (GB/T 39084-2020) and *Green Product Assessment - Plastic Products* (GB/T 37866-2019). Furthermore, specific requirements for restricting excessive packaging for products such as *Foods and cosmetics* (GB 23350-2021) and *Fresh edible agricultural products* (GB 43284-2023) were released, in which it addresses issues like interspace ratio, number of packaging layers, and the proportion of packaging costs. In February 2023, China officially began promoting the application of the *Packaging Recycling Marking* (GB/T 18455-2022), which stipulates regulations for the marking of recyclable packaging materials such as paper, plastic, metal, glass, and composite materials. This national standard has effectively promoted the correct classification, recycling, and reuse of packaging waste.

In recent years China has issued a series of policies and development plans such as *the Guiding Opinions of the State Council on Accelerating the Establishment and Improvement of a Green and Low-Carbon Circular Development Economic System*, the *14th Five-Year Plan for Circular Economy Development*, the *Opinions on Accelerating the Green Transformation of Express Packaging*, the *14th Five-Year Plan for Plastic Pollution Control*, the *Notice on Further Strengthening the Control of Excessive Packaging of Commodities*, and the *Development Plan of Packaging Industry in China (2021-2025)*. These policies have imposed higher requirements on the overall green transformation of packaging, especially plastic packaging and excessive packaging. In February 2024, The China State Council issued *Guiding Opinions on Accelerating the Establishment of the Waste Recycling System*, in which it sets goals that by 2025, a waste recycling system covering all fields and links will be initially established and by 2030, a comprehensive, efficient, regulated and well-organized waste recycling system will be built up, and the value of various waste resources will be fully utilized, and the overall level of waste recycling will rank among the top in the world.

Driving forces from awakening awareness of sustainable consumption

With the increasing awareness of environmental protection among Chinese consumers, they are becoming more willing to choose products with eco-friendly packaging. According to a global survey by McKinsey, Chinese consumers express higher concern about environmental issues of packaging and a stronger willingness to pay for "sustainable packaging" product compared to those in other countries¹⁴. The *China Sustainable Consumption Report 2023* reveals that the majority of respondents demonstrate a certain degree of environmental and sustainability preferences in their daily dietary habits, reflecting in the choice of food packaging, respondents prefer food with simple and eco-friendly packaging, with 22.82% choosing "always" and 36.84% choosing "often".

As a communication medium with consumers, product packaging plays a crucial role in delivering corporate values and sustainable consumption concepts. The survey in the *China Sustainable Consumption Report 2023* shows that nearly 70% of respondents identify low-carbon products through sustainability certification labels on product packaging or relevant information in the instructions. While companies strive to achieve sustainability transformation in packaging materials and design, they should also attach importance to packages' role as media. By effectively conveying information about the low-carbon, green, and sustainability attributes of their products and packaging to consumers, companies can bring more sustainable product choices to consumers by aligning with their values.

⁵ Chizitere E E, J. C O, Toluwalase O, et al. From oceans to dinner plates: The impact of microplastics on human health [J]. *Heliyon*, 2023, 9(10): e20440-e20440.

⁶ <https://www.gov.cn/>, https://www.gov.cn/jianbo/bumen/202401/content_6927456.htm#:~:text=%E5%95%86%E5%8A%A1%E9%83%A8%E6%B6%88%E8%B4%B9%E4%BF%83%E8%BF%9B%E5%8F%B8,%E6%80%A7%E4%BD%9C%E7%94%A8%E4%B8%BD%E6%96%AD%E5%A2%9E%E5%BC%BA%E3%80%82

⁷ Special Policy Research Report on Green Transition and Sustainable Social Governance. China Council for International Cooperation on Environment and Development. 2020. <http://www.cciced.net/zcyj/yjbg/zcyjbg/2020/202008/P020200911142551553749.pdf>

⁸ Sustainability. United Nations. <https://www.un.org/zh/124653>

⁹ What is the circular economy? Ellen MacArthur Foundation. The circular economy in detail (ellenmacarthurfoundation.org)<https://ellenmacarthurfoundation.org.cn/topics/circular-economy-introduction/overview>

¹⁰ Sustainable Consumption and Production. United Nations. <https://sdgs.un.org/zh/topics/sustainable-consumption-and-production>

¹¹ Method and Criteria for Green Packaging Assessment. <http://c.gb688.cn/bzgk/gb/showGb?type=online&hcno=052FF52B23A7B1C94B3C155528DEAD9B>

¹² Intergovernmental Negotiating Committee on Plastic Pollution. IN4 Working Documents.

¹³ UN Environment Programme. "Zero Draft" of the UN Global Treaty to End Plastic Pollution. September 2023. <https://www.unep.org/inc-plastic-pollution/session-3/documents#WorkingDocuments>

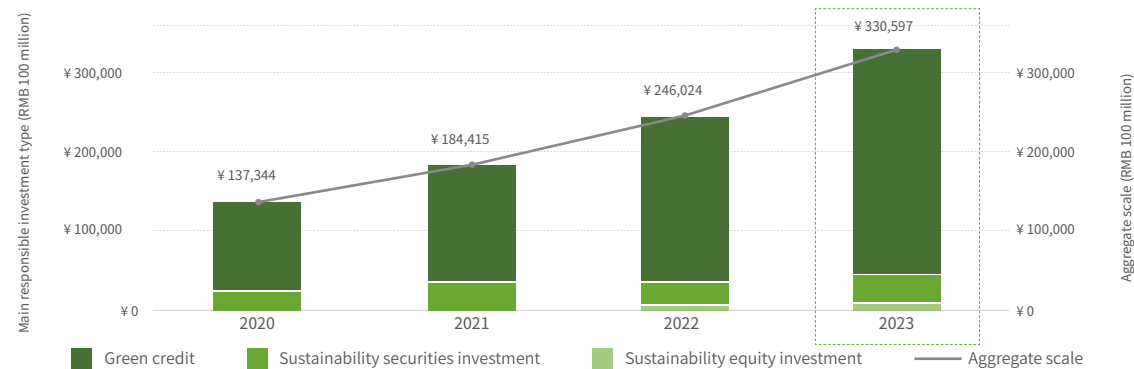


Driving forces from ESG investment

Despite numerous unstable factors accompanying global economic development, responding to climate change and promoting sustainability remain global consensus, which is reflected in the rapid expansion of ESG investment in financial markets. As of the end of 2023, 5,372 financial institutions globally have signed the Principles for Responsible Investment (PRI), with assets under management totaling USD 121.3 trillion, including 141 Chinese institutions. The scale of responsible investment in China has also grown rapidly. In 2023, the overall scale of China's responsible investment market maintained a relatively high growth rate. By the third quarter of 2023, the scale had reached RMB 33.06 trillion¹⁵ and 85.6% of surveyed individual investors agree to some extent that ESG-related risks and opportunities have become increasingly important in shaping their investment decisions.

Chart 1. Changes in Scale of China's Responsible Investment Market¹⁵

Changes in the scale of China's responsible investment market over the past four years (2020-2023)



The attention from various investment institutions towards ESG investment has prompted companies to prioritize sustainability management in all aspects of their operations. Particularly for consumer brands industries such as food and beverage, cosmetics, household products, and catering, "packaging waste governance" as a critical risk dimension has become a key area of focus for ESG investment.

In addition, packaging has become a high-priority ESG assessment metric across six major industries, namely household products, personal care products, food, beverages, retail, and clothing & luxury. Taking the MSCI ESG rating as an example, the topic of packaging materials and waste carries an average weight of 7.4% in the entire consumer staples. Below is an overview of key industries that prioritize packaging management.

Chart 2. List of Key Industries for Packaging Management

Key industries for packaging management	Policies and regulations	MSCI ESG Rating	S&P Global CSA Rating	Plastic Section in CDP Water Questionnaire
Consumer Staples Industry				
household products	✓	✓	✓	
Personal care products	✓	✓	✓	✓
Food	✓	✓	✓	✓
Alcohol/beverages		✓	✓	✓
Retail			✓	✓
Consumer Discretionary Industry				
Clothing & luxury		✓	✓	
Catering		✓	✓	
Food delivery	✓			
Material Industry				
Packaging		✓	✓	✓
Other Industry				
Express delivery, logistics, and e-commerce	✓	✓	✓	✓

Challenges of sustainable packaging management

From the perspective of the entire product lifecycle, companies still face multiple challenges in achieving sustainable packaging targets. In the supply stage, eco-friendly packaging materials have not yet developed on a large scale, resulting in high costs. In the production stage, the use

of recycled materials (such as r-PET) in food packaging is still subject to policy restrictions, making it difficult to promote the use of recycled materials, and companies need to invest in research and development for innovative materials as well as upgrades and renovation of production equipment. In the consumption stage, the gap between consumers' awareness and actions regarding sustainable consumption is the biggest issue. Balancing consumers' experience with sustainable packaging and companies' pursuit of sustainable profit is also an urgent problem to solve. In the disposal stage, the core challenges lie in the establishment of regional recycling systems and the improvement of recycling infrastructure.

Chart 3. Challenges of Sustainable Packaging Management

Supply stage	Production stage	Consumption stage	Disposal stage
<ul style="list-style-type: none"> High costs of eco-friendly materials 	<ul style="list-style-type: none"> Restricted use of r-PET materials in food packaging Renovation and upgrade of production equipment R&D and production of innovative materials 	<ul style="list-style-type: none"> Enhancement in advocating the concept of sustainable packaging and consumer willingness User experience and acceptance of sustainable packaging to be improved 	<ul style="list-style-type: none"> Construction of recycling infrastructure Establishment of scaled recycling stream

In September 2022, the World Business Council for Sustainable Development (WBCSD) released a packaging sustainability framework called SPHERE, in which "optimize circularity" and "optimize end of life" are important indicators of packaging sustainability.

Drawing upon global experiences in the development of packaging waste management systems and the control of plastic pollution, it becomes abundantly clear that attaining the optimized circularity and optimal disposal of packaging requires a comprehensive array of top-level design, policy directives and infrastructure, including enhancing the recycling and regeneration system, enriching the recycling mechanism and stream tailored to different material categories, various consumption scenarios and packaging waste with varying recycling values, increasing the scale of recycling and regeneration of recyclable materials, addressing the recycling loop of low-value waste, and reducing incineration and landfills. In addition, efforts must be intensified in the innovative research of regenerated materials and it is necessary to encourage the high-value utilization of regenerated plastics in premium and high-end applications, revitalize the circular economy market, and clarify the responsibilities of each stakeholder within the industry chain and the ways that they participate in governance.

Taking the recycling and regeneration of plastic packaging in China as an example, its development stage and operational model still exhibit significant disparities compared to developed countries in Europe and America. When promoting the circular economy for consumer goods plastic packaging, it is essential to take into account the current status and capacity of China's plastic recycling and regeneration systems and regeneration systems.

	Features of Plastic Recycling and Regeneration in Developed Countries in Europe and America	Features of Plastic Recycling and Regeneration in China
Recycling mechanism	After being programed collection in the community, recyclables are transported to the sorting center of a Material Recovery Facility (MRF) and categorized and classified by sorting equipment.	Waste recycling practitioners and the urban waste classification system are the main recycling players.
Formation of recycling stream	The recycling stream is naturally formed based on the types of materials identifiable by MRFs and the output volume, without any preference for value.	The recycling stream is dependent on the scale of operations and the recycling and regeneration value. Only when commercial feasibility is sufficient, plastic waste will be gathered in recycling factories.
Recycling driver	Environmental value as the main driver.	Recycling and regeneration value of waste as the main driver.
Degree of automation	High degree of mechanization and automation.	Low degree of mechanization and automation.
Sorting	Pneumatic separation, near-infrared detection, magnetic separation, metal detection, pneumatic ejection sorting, etc.	Sorting is mainly conducted manually, based on personal experience. Intelligent sorting equipment has emerged in the front end in recent years.
Hard plastic packaging	Container packaging made of common materials such as PET, HDPE, and PP undergoes automated sorting with relatively accurate material identification. However, there is limited fine sorting for these materials.	The packaging is sorted more finely according to the requirements of recycling factories. There are more detailed classification levels based on factors such as brand, color, material, and cleanliness.
Low-value waste	The low value waste is still classified and packaged in the MRF sorting center according to identifiable materials.	Driven by material value, the waste is hard to collect and transport. Also, it is difficult to form a scaled recycling stream due to subjective preferences.
PE film and flexible PE packaging recycling stream	Recycled recycled through the store drop-off program and stores and stored in separate plastic recycling bins (shopping bags, wrapping films, dry cleaning bags, express bags, and other PE film bags).	Large PE films mainly collected from agricultural, commercial and household consumption. i.e. agricultural films, wrapping films, packaging bags, and other PE film bags (agricultural films, wrapping films, packaging bags, and other PE film bags).
Other plastic flexible packaging	It is encouraged to use PE and PP mono material, so that these flexible packaging can enter to the 'Store Drop-off' recycling stream. so that the packaging can enter the recycling stream of supermarkets and stores.	It is difficult for low-value plastic flexible packaging to enter the value-driven recycling stream of PE films from agricultural and commercial sources. There is no large-scale recycling stream of plastic flexible packaging for consumer goods.

Furthermore, the sustainability and circularity of packaging are intimately linked to its design. Material selection and product design determine the potential for high-value recycling and regeneration, directly impacting the performance, application areas, and market value of regenerated materials. It tends to prioritize cost, functionality, and visual appeal for conventional packaging while the crucial aspect of facilitating its subsequent recycling and regeneration is often ignored. Some of these products become impractical for large-scale collection and recycling after consumption, leading to economically unsustainable situations or even complete loss of reuse value, ultimately culminating in disposal through landfilling or incineration.

Therefore, it is necessary to carry out research on the recycling and the recyclability design of various types of packaging, to understand current development stage of the recycling system and the production processes for downstream recycling and regeneration. At the same time, we should adhere the concept of "beginning with the end in mind and controlling pollution from the source" and establish design principles, guidelines and standards for sustainable packaging, eliminating potential problematic elements in design to improve the recycling and regeneration value of various types of packaging and furthermore ensure their compatibility with the production needs of the subsequent circulation process.

¹⁴ <https://www.mckinsey.com.cn>

¹⁵ China Sustainable Investment Review 2023. CHINA SIF. <https://chinasif.org/products/csir2023>

¹⁶ MSCI ESG Industry Materiality Map. November 2023.

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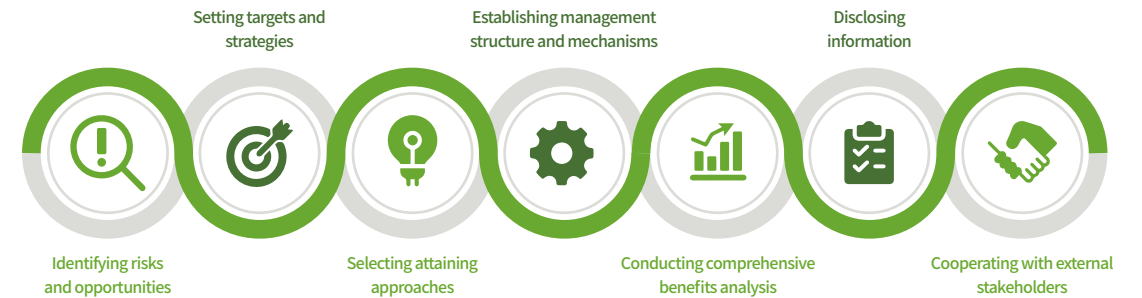
General Roadmap for Sustainable Packaging Management

- Identification of risks and opportunities of sustainable packaging 10
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In response to external environmental trends and the prevailing challenges in current sustainable packaging management, this booklet, based on comprehensive market research and company case studies, proposes a universal roadmap for sustainable packaging management for the first time. The aim is to provide clear and specific practical guidelines for companies to implement packaging management. The roadmap mainly consists of seven

steps with consideration of both internal management mechanisms and external collaborations, specifically, identifying risks and opportunities, setting targets and strategies, selecting attaining approaches, establishing management systems, conducting comprehensive benefits analysis, disclosing information, and cooperating with external stakeholders.

Chart 4. Roadmap for Sustainable Packaging Management in Companies



Identification of risks and opportunities of sustainable packaging

Packaging is seriously impacting the corporate sustainability. The plastic pollution crisis poses significant financial, legal, technological, regulatory, and reputational risks to both companies and investment institutions. As predicted, companies could face a financial risk of up to USD 100 billion annually if government require companies to pay waste management fees based on the expected volume

of plastic waste they generate and their recycling capabilities¹⁷. Specifically, packaging-related risks and opportunities for companies primarily originate from packaging and carbon-related policies and regulations, changes in consumer preferences, and extreme weather events caused by climate change.

Chart 5. Types Risks Related to Packaging Management

Type of risk	Risk description
Increased operating costs due to policy and regulatory risks	Chinese and international policies, regulations, and standards regarding packaging are becoming increasingly stringent, posing higher requirements and stricter regulation for the green development and sustainability of product packaging. Companies should plan early to cope with the increase in operating costs resulting from the packaging transformation, including design adjustments, material updates, market cultivation, recycling, and compliance costs due to regulation.
Increasing operating costs caused by carbon emission reduction and carbon pricing	Since the launch of China's carbon trading market in 2021, the overall carbon price has been steadily increased from RMB 48 per ton to about RMB 80 per ton at present. The carbon pricing mechanism may impact the operating costs along the value chain, such as the increased procurement costs for packaging raw materials. Companies that lack a comprehensive greenhouse gas emission reduction plan across the entire value chain may continuously face related operational risks.
Market and reputational risks brought by shifting consumer preferences	While responding to policies and regulations, companies also need to constantly satisfy the growing consumer demand and expectations for sustainable products and services. As suggested by <i>China Sustainable Consumption Report 2023</i> , consumers' awareness of the ecological environment and climate change is growing and they are paying more attention to sustainable products and packaging. If companies fail to undergo a timely transformation, they may face a loss of market competitiveness or related reputational risks.
Investment increased in technology R&D	The packaging transformation also relies on innovative R&D in related materials and process technologies. Companies may incur additional costs in promoting the R&D of sustainable packaging-related technologies. Poor management of inputs and outputs may result in corresponding financial losses.
Material supply risks caused by climate change and geopolitics	Due to climate and geopolitics, the packaging supply chain is currently under strain. Companies may suffer from increased prices and supply disruptions of packaging raw materials due to supply chain interruptions, thereby having a substantial impact on business operations.

¹⁷ <https://www.cdp.net/en/plastics>

¹⁸ The performance of the national carbon emission trading market has remained stable and improving. Xinhua News Agency, February 2024.



Chart 6. Types of Opportunities Related to Packaging Management

Type of opportunity	Opportunity description
Reduced operating costs from increased resource efficiency	By developing sustainable packaging and implementing resource recycling, companies can reduce the use of resources associated with packaging, increase resource efficiency, thereby reducing operating costs related to packaging.
Increased market competitiveness through product and service transformations	By improving product packaging throughout its entire lifecycle, from raw material selection, product packaging design, and packaging distribution to packaging disposal and recycling, companies can produce more products and services that meet policy requirements and consumer expectations. This, in turn, strengthens their market competitiveness, satisfies consumer expectations, and creates opportunities for revenue growth.
New growth opportunities brought by technological innovation	Investments in sustainability-related technologies, such as materials and processes, and upgrading and transforming packaging in the supply chain, will help companies establish exclusive technological and market advantages, and enhance the resilience and competitiveness of the entire value chain.

Identifying the risks and opportunities of packaging for enterprises is the premise of packaging management for enterprises. However, many Chinese consumer goods companies fail to incorporate packaging into their overall risk management, resulting in a failure to identify relevant risks and opportunities in a timely and effective manner. On the other hand, due to the lack of quantitative financial analysis of packaging risks and opportunities, packaging management has been difficult to implement systematic management as a high priority.

To assist companies in identifying packaging-related risks and opportunities, this report outlines the following action steps:

I. Key industries matching. Companies can refer to the *List of Key Industries for Packaging Management (Chart 2)* to determine if they are operating in "key industries for packaging management". They can also assess the importance of product packaging management to their business through a scoring system that considers both impact and financial materiality.

II. Packaging management inventorying in value chain. A systematic inventory is the foundation for achieving good management. Key aspects of packaging management in companies are as follows: (1) upstream procurement and transportation of product packaging; (2) use of packaging materials self-produced; and (3) secondary or multiple packaging during downstream product transportation. It is important for companies to record the weight, and material composition of the packaging used.

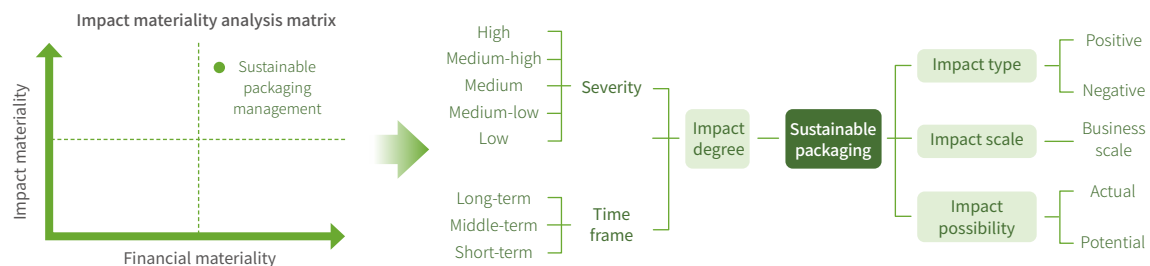
Chart 7. Key Aspects of Packaging Management in Companies



Especially, companies need to pay particular attention to their use of plastic. The CDP has set up a plastic disclosure section in its Water Questionnaire for the first time in the 2023 disclosure cycle, requiring disclosure of information on the production and use of plastic products. It has raised nine questions regarding plastic use inventory, impact assessment, business risks, and goals in the company value chain. For companies engaged in specific plastic production or use activities, there are also questions related to the total weight of plastics used, raw material sources, and recycling potential.

III. Assessing internal and external impacts of packaging. Based on the use of packaging, companies can further analyze the substantial impacts of packaging, including potential impacts on the environment or human health (impact materiality) and financial or strategic impacts on the business (financial materiality). To optimize management, companies need to conduct a more detailed impact assessment, focusing on impact type (positive or negative), impact possibility (actual or potential), impact scale, impact degree (e.g., high, medium-high, medium, medium-low, and low), and time frame (e.g., short-term: 1-2 years, medium-term: 3-5 years, and long-term: 5-10 years).

Chart 8. Analysis of Importance of Sustainable Packaging Topics and Specific Assessment Dimensions



¹⁸ The performance of the national carbon emission trading market has remained stable and improving. Xinhua News Agency. February 2024.
¹⁹ Information Disclosure Requirements in the Plastic Section of CDP Water Questionnaire. <https://guidance.cdp.net/zh/guidance?cid=48&ctype=theme&idtype=ThemedID&inchild=1µsite=0&otype=Guidance&tags=TAG-596%2CTAG-646%2CTAG-607%2CTAG-599>

Setting strategies and targets for sustainable packaging management

Incorporating packaging into companies' sustainability strategy and setting targets for it is crucial. On the basis of clearly identifying internal and external risks and opportunities, it is necessary to further incorporate them into the strategic planning of sustainable development of company and carry out targeted management.

Effective packaging strategy and target formulation will further promote the achievement of company long-term strategic objectives. For instance, sustainable packaging often serves as an important lever for companies to participate in the circular economy, reduce Scope 3 emissions, and minimise environmental pollution.

Chart 9. Company Case Studies of Sustainable Packaging Strategy

Sustainable packaging promotes the long-term business growth

In 2022, Mondelez International promoted sustainability as the fourth pillar of its long-term growth strategy and established the "Snacking Made Right" sustainability strategy commitment. With packaging topics as a key aspect of sustainability, Mondelez will promote sustainable packaging to achieve more sustainable growth.

Sustainable packaging helps company achieve their net-zero emission targets

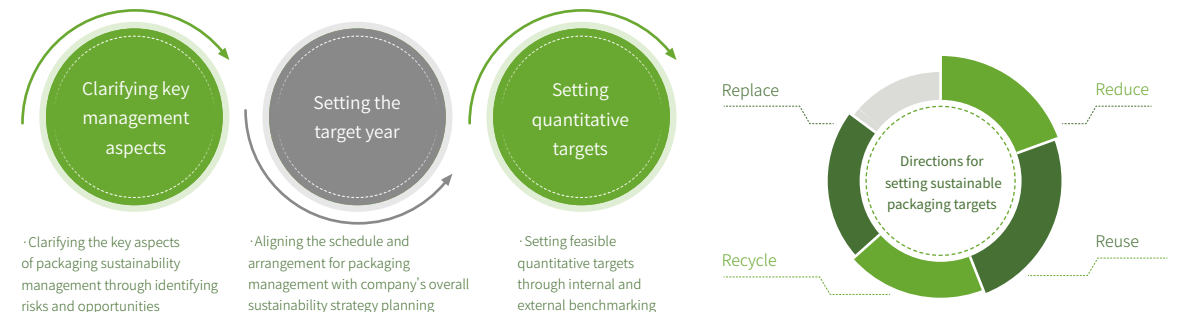
Nestlé publicly promised to achieve net-zero emissions by 2050 in September 2019 and, in December 2020, released the "Nestlé's Net Zero Roadmap", in which addressing the challenge of plastic wastes is one of the eight major actions. Nestlé has realized that improving packaging design and production processes, promoting packaging reuse and recycling, and strengthening packaging waste disposal will have a significant impact on Nestlé's achievement of net-zero emissions by 2050.

Given its importance and complexity, many consumer goods companies have yet to initiate strategy and target-setting related to packaging. Due to the multiple impacts of packaging in terms of resource efficiency, ecological environment, climate change and market demand, it is often unclear how to integrate packaging issues into the formulation of strategies and targets. At the same time, due to the importance of packaging management, the setting of packaging goals should meet the requirements of policies and regulations and consumer expectations, but also match the status quo and ability of enterprise development, so that "set what goals" and "how to quantify goals" are problems. According to CDP research, 88% of companies indicate that plastic topics are relevant to their business, yet 32.5% of these companies have not set any targets in this regard¹⁷.

Setting packaging management targets is crucial for driving the transformation towards sustainable packaging in companies' daily production and operations. Based on comprehensive surveys and desk research, this report outlines the key considerations, target-setting directions, and strategies for companies when setting packaging management targets.

Particularly, multinational companies could localize the targets in China based on their operational status while aligning with the targets of their parent companies.

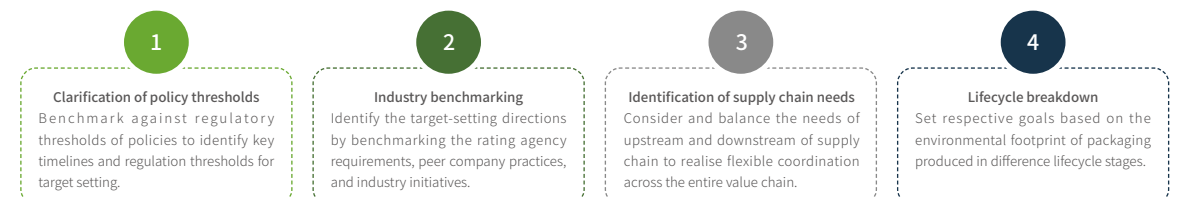
Chart 10. Key Considerations and Directions for Setting Sustainable Packaging Targets*



- Clarifying the key aspects of packaging sustainability management through identifying risks and opportunities
- Aligning the schedule and arrangement for packaging management with company's overall sustainability strategy planning
- Setting feasible quantitative targets through internal and external benchmarking

* Note: The above chart only displays four core target directions of sustainable packaging. Companies could add more based on their specific circumstances.

Chart 11. Strategies for Companies to Set Quantitative Targets

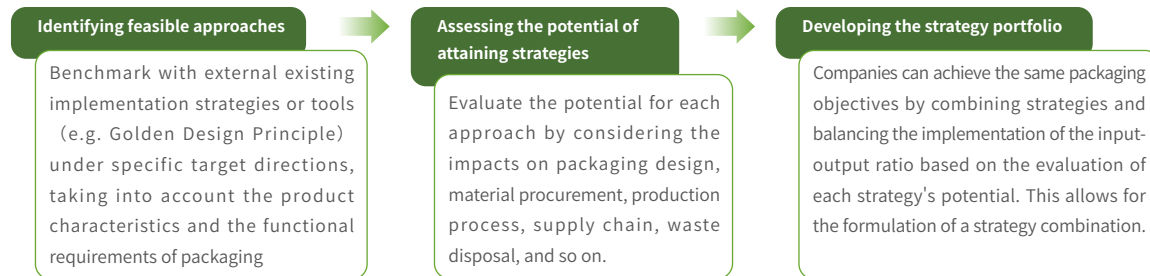




Attaining approaches for sustainable packaging targets

Through holistic benchmarking, we found that the directions of packaging sustainability is mainly concentrated in four aspects, namely Reduce, Recycle, Reuse, and Replace. However, direction alone are not sufficient. Companies typically need to develop more detailed and executable approaches to support the realization of these targets. For instance, if a company has set the target related to packaging reduction, it can achieve the target by replacing lighter packaging materials, reducing the number of layers of packaging, reducing the volume of packaging and so on. The selection of approaches can be carried out with reference to the following process:

Chart 12. Company goal achievement approach selection process



There are various approaches that companies can adopt to achieve sustainable packaging targets. The chart below summarizes some common approaches for achieving sustainable packaging targets in different directions.

Chart 13. Achieving Approaches for Packaging Sustainability of Companies*

Target areas	Achieving approaches
Reduce	<ul style="list-style-type: none"> To avoid excessive packaging To reduce unnecessary packaging: Reduce unnecessary packaging such as outer plastic packaging * (refer to Rule 4 of the Golden Design Rules) To lower the interspace ratio: Control the interspace ratios of various kinds of product packaging within %* (refer to Rule 3 of the Golden Design Rules). To reduce the layer of packaging To reduce the usage of packaging materials per unit To use lightweight materials To reduce the use of packaging materials in B2B transactions (refer to Rule 8 of the Golden Design Rules)
Reuse	<ul style="list-style-type: none"> To promote reusable packaging design To design replacement or supplementary packaging for products To use reusable packaging materials
Recycle	<ul style="list-style-type: none"> To simplify packaging materials To eliminate problematic elements in packaging and enhance recyclability (refer to Rule 2 of the Golden Design Rules) To increase the percentage of recyclable materials in packaging To increase the percentage of recycled materials in packaging To conduct R&D on recycling processes for waste plastics To initiate recycling programs for waste packaging (mark recycling instructions on packaging by referring to Rule 9 of Golden Design Rules during project implementation)
Replace	<ul style="list-style-type: none"> To reduce the use of single-use plastic products and replace them with biodegradable materials in scenarios where recycling infrastructure is available To replace plastics with paper or research, develop, and use more biobased materials

* Note: The chart presents only benchmarking results at current stage. It is provided for reference purposes only, as there may be additional approach options.

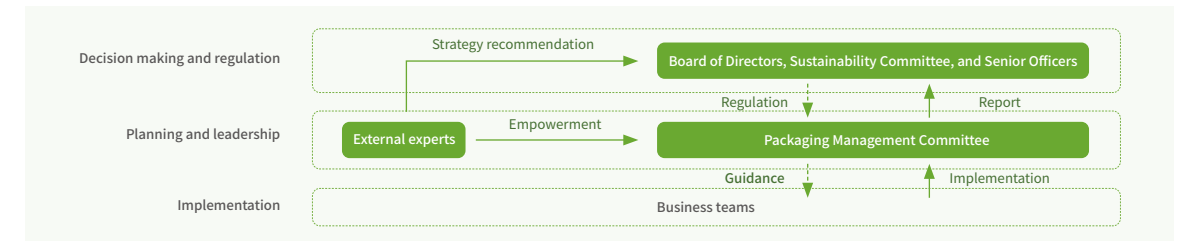
Establishing sustainable packaging management structure and mechanisms

Based on clear packaging targets and achieving approaches, companies furthermore need to assemble dedicated personnel and teams to oversee and continuously follow up the progress of implementation. Through the company case study we found that although most consumer goods companies have established a overall sustainability management structure, the management structure in packaging remain unclear, and lack of effective indicator systems and management methods, resulting in inadequate allocation of management indicators and unsatisfactory implementation effects.



A clear management structure is the foundation for effective packaging management. The management structure of packaging sustainability can be mainly divided into three levels: decision-making and supervision, planning and leading, and implementation. The decision making and supervision level consists of the Board of Directors or the Sustainability Committee, responsible for confirming the key directions and priorities of the company's packaging sustainability, as well as assisting in the allocation of related resources. At the planning and leading level, a Packaging Management Committee composed of managers of relevant business units could be established to design packaging management strategies, pathways and action plans, as well as to measure the financial performance. At the implementation level, departments such as procurement, operations, R&D, marketing, and sales, along with relevant product lines, collaborate to advance specific projects.

Chart 14. Example of Sustainable Packaging Management Structure



A sound management mechanism guarantees effective and systematic daily management and implementation. We recommend companies to adopt following approaches to carry out daily management of sustainable packaging.

Chart 15. Summary of Sustainable Packaging Management Methods

Regular communication and decision making	Allocation of management indicators	Performance assessment	Formulation of policies and guidelines	Capacity building
<ul style="list-style-type: none"> Annual meeting for target-setting discussion Progress communication meetings Decision making and discussion meetings for major projects Daily communication meetings 	<ul style="list-style-type: none"> Allocate management indicators to related departments based on their respective responsibilities 	<ul style="list-style-type: none"> Set sustainable packaging management KPI for relevant responsible personnel Establish reward mechanisms related to performance indicators 	<ul style="list-style-type: none"> Develop packaging management policies, including sustainable packaging principles, standards, guidelines, and related management processes for sustainable packaging 	<ul style="list-style-type: none"> Conduct sustainable packaging themed training programs or co-creation workshops for employees and suppliers

Which departments should be involved in the sustainable packaging management? According to case studies, sustainable packaging management involves specific departments and functions such as sustainability, packaging R&D, supply chain, procurement, quality management, finance, legal affairs, marketing, and factories. Company can further disassemble management tasks by evaluating the relevance and importance of various departments for achieving packaging goals, incorporate those tasks into the corresponding management line, and carry out comprehensive and systematic management through multi-department cooperation.

Chart 16. Departments Involved in Sustainable Packaging Management

Department	Responsibilities
Sustainability Department	Set packaging targets and coordinate efforts from all parties
Packaging R&D Department	Develop packaging solutions based on target directions
Supply Chain Management/Procurement Department	Purchase packaging materials based on target directions and packaging requirements
Quality Management Department	Ensure the quality of eco-friendly packaging
Finance Department	Plan budget and conduct cost-benefit analysis
Legal Affairs Department	Monitor packaging-related policy trend and conduct internal promotion and education
Marketing Department	Conduct research on the development trend of sustainable packaging and carry out consumer communication and product marketing programs
Factories	Upgrade packaging production equipment and processes



Assessing comprehensive benefits of sustainable packaging

Carrying out regular benefit and effectiveness review for packaging projects can help company to timely identify risks and opportunities, balance inputs and outputs, further promote sustainable packaging management optimization, and guide the right decision-making.

Environmental benefits. The packaging transformations of companies directly or indirectly promote the harmlessness of waste, resulting in less waste entering the ecological environment, and reduced carbon emissions, environmental pollution, biodiversity damage, and human health hazards.

Economic benefits. Packaging transformation enables companies to directly reduce the use of raw materials through the reduction, reuse, and recycling of packaging, generating certain resource benefits and thereby achieving cost savings.

Social benefits. By promoting active packaging transformations, companies could drive the industry and value chain to develop more sustainably.

Chart 17. Indicators for assessing comprehensive benefits of sustainable packaging

Assessment of comprehensive benefits	Environmental benefits	Resource conservation	<ul style="list-style-type: none"> ◆ Reduction in overall/unit product packaging ◆ Reuse of overall/unit product packaging ◆ Percentage of recycled materials in overall/unit product packaging ◆ Reduction in virgin plastic usage ◆ Percentage of recyclable, reusable, or degradable packaging 	
		Environmental protection	<ul style="list-style-type: none"> ◆ Reduction of hazardous substances in overall/unit product packaging ◆ Percentage of sustainable raw materials procured 	
		Combating climate change	<ul style="list-style-type: none"> ◆ Reduction of carbon emissions from overall/unit product packaging 	
	Social benefits	Industry actions and initiatives	<ul style="list-style-type: none"> ◆ Packaging-related industry initiatives participated 	
		Supplier engagement	<ul style="list-style-type: none"> ◆ Number of suppliers engaged in the joint action of packaging transformation 	
		Consumer advocacy	<ul style="list-style-type: none"> ◆ Actions taken to promote sustainable consumption awareness and behavior 	
	Economic benefits	Costs	<ul style="list-style-type: none"> ◆ R&D costs invested to achieve packaging targets, including materials, labor, etc. ◆ Increase in procurement costs due to packaging transformation ◆ Market education/marketing investment for new packaging products 	
			Economic benefits	<ul style="list-style-type: none"> ◆ Cost reduction results from packaging reduction, reuse, or recycling ◆ Reduction in waste disposal costs due to packaging reduction, reuse, or recycling ◆ Cost savings in transportation due to packaging optimization
			Economic benefits	<ul style="list-style-type: none"> ◆ Government rewards obtained or regulatory fines avoided due to packaging improvements ◆ Revenue increase due to packaging management ◆ Other benefits due to packaging management

* Note: Companies can add or remove indicators based on their specific circumstances..

Information disclosure of sustainable packaging management

Consumer goods companies are encouraged to disclose packaging-related information in their sustainability reports or ESG reports. Comprehensive information is suggested to cover the packaging target, attaining approaches, as well as corresponding management structure and mechanisms, implementation projects, and performance evaluation. S&P Global CSA Ratings requires disclosures on packaging in the "Resource Efficiency and Circularity" section, primarily focusing on packaging commitments, packaging materials, and the use of plastic packaging (see Chart 18 for details). Similarly, MSCI ESG Ratings requires disclosures on packaging practices, targets, performance, and product recovery targets in the "Packaging Material & Waste" section (see Chart 19 for details).

Chart 18. Requirements for Packaging Information Disclosure in S&P Global CSA Rating

CSA-Resource Efficiency and Circularity

Packaging Commitment

- ◆ Time-bound target to reduce the volume and/or weight of packaging
- ◆ Programs to increase the use of reusable packaging
- ◆ Programs to increase the use of recyclable packaging
- ◆ Programs to phase out single-use plastic packaging
- ◆ Programs to increase the use of recycled material as packaging solution
- ◆ Programs to ensure that recyclable packaging is actually recycled
- ◆ Allocation of R&D resources for sustainable packaging and alternative solutions

Packaging Materials

- ◆ Percentage of recycled or certified packaging materials of each different type, including wood/paper fiber, metal, glass.

Plastic Packaging

- ◆ Total weight of all plastic packaging
- ◆ Percentage of recyclable plastic packaging
- ◆ Percentage of compostable plastic packaging
- ◆ Percentage of recycled content within plastic packaging
- ◆ Coverage of related expenditure in the cost of goods sold

Chart 19. Requirements for Packaging Information Disclosure in MSCI ESG Rating

MSCI-Packaging Material & Waste

1 Practices

- ◆ Strategies to reduce the environmental impacts of packaging
- ◆ Weight of various packaging materials
- ◆ Scale of recycling programs implemented in areas where there are no mandatory legal requirements for packaging waste recycling
- ◆ Scale of consumer education programs on packaging recycling, design, and marking

2 Targets related to product recovery

- ◆ Targets related to product recovery
- ◆ Scale of product recovery

3 Targets related to packaging content

- ◆ Scope of targets related to packaging content (apply to to individual product or package lines only or company-wide or across all relevant packaging)
- ◆ Specific and time-bound targets related to packaging content (reduction and recycling)

4 Performance

- ◆ Achievement on packaging content and product recovery

Based on the disclosure guidelines, companies can conduct self-inspection to check if all the requirements are met, and gradually improve their sustainable packaging management systems. At the same time, company can refer to this framework to establish their own packaging sustainable development information collection system, and regularly carry out information collection and collation, so as to promote the complete disclosure of information.

Cooperating with external stakeholders

By cooperating with various external stakeholders, companies can promote industry synergy on sustainable packaging transformation. Potential stakeholders include government agencies, standard-setting and certification authorities, social organizations, industry associations, universities, and packaging R&D and recycling institutions.

Chart 20. Partners in Sustainable Packaging Management



- ◆ Cooperate with government departments to provide suggestions for sustainable packaging related policy-making and promote the improvement of sustainable packaging policies and regulations.

Government agencies: such as national Development and Reform Commission, Ministry of Industry and Information Technology, Ministry of Justice, Ministry of Ecology and Environment, Ministry of Housing and Urban-Rural Development, Ministry of Commerce, State Post Bureau, Ministry of Transport, State Administration for Market Regulation, other ministries and commissions, or their subordinate departments.

- ◆ Cooperate with standard setting and certification authorities to promote the standardization of sustainable packaging standards.

Standard-setting and certification authorities: such as China Quality Certification Centre (CQC), China Environmental United Certification Center (CEC), National Quality Supervision and Testing Centre of Plastic Product, National Plastic Product Standardization Center, etc.

- ◆ Promote joint action on sustainable packaging in partnership with social organizations.

Social organizations: such as Ellen MacArthur Foundation (EMF), The Consumer Goods Forum (CGF), World Wildlife Fund (WWF), China Environmental Protection Foundation (CEPF), China Oceanic Development Foundation (CODF), UN Environment Programme (UNEP), etc.

- ◆ Cooperate with industry associations and alliances to actively participate in relevant initiatives to promote the technological development and industry advocacy of sustainable packaging.

Industry associations, alliances, and initiatives: such as China Packaging Federation (CPF), China Association of Circular Economy (CACE), China Plastics Reuse and Recycling Association - China Sustainable Plastics Association (CPRRA), China Resource Recycling Association (CRRA), China National Resources Recycling Association (CRRA), New Plastics Economy Global Commitment, Business Coalition for a Global Plastics Treaty, Sustainability and Environmental Protection Initiative of Packaging Industry, etc.

- ◆ Cooperate with universities to develop and pilot advanced sustainable packaging materials and technologies, and promote industry-university-research cooperation and landing.

Universities: such as School of Environment, Tsinghua University; College of Urban and Environmental Sciences, Peking University; School of Printing and Packaging Engineering, Beijing Institute of Graphic Communication, etc.

- ◆ Cooperate with professional packaging research and development institutions to promote the scale use of innovative packaging materials; Cooperate with recycling agencies to facilitate the construction of packaging recycling infrastructure.



03

Action Framework for Sustainable Packaging Management

Chart 21. Action Framework for Sustainable Packaging Management

Management dimension	Level 1 indicators	Level 2 indicators	Indicator description	Relevant responsible departments
Identify and assess risks and opportunities	Conduct packaging inventory study	Conduct packaging usage inventory	Inventory the usage, material composition of packaging through the product lifecycle	Strategy Department Risk Control Department Procurement Department
	Assess the impact of risks and opportunities	Identify risks and opportunities	To Identify packaging-related risks and opportunities associated with packaging based on inventory study	
		Conduct financial analysis on risks and opportunities	Assess the financial impact of specific risks and opportunities	
Set sustainable packaging target and strategy	Set targets for sustainable packaging management	Clarify the focus area for management	Identify the focus area of packaging management based on risk and opportunity assessment and external benchmarking	Strategy Department Risk Control Department Procurement Department Sustainability Department Packaging R&D Department
		Set target for each management area	Clarify the target scope (by single product/ product line/across the board) and target year	
			Set achievable quantitative targets based on holistic benchmarking and assesment of comanpy current level and future potentiality	
	Integrate packaging management into company's overall sustainability strategy	Integrate the packaging strategy into company's sustainable development framework to manage it cohesively.		
Formulate attaining approaches	Identify feasible attaining approaches		Select feasible implementation strategies by referring to external existing implementation strategies or tools (e.g. Golden Design Principle), while taking into account the product characteristics and functional requirements of the packaging	Sustainability Department Packaging R&D Department Quality Management Department Finance Department
	Evaluate the potential of approaches		Evaluate the potential for each approach by considering the impacts on packaging design, material procurement, production processes, supply chain, waste disposal, and so on.	Legal Department Procurement/Supply Chain Management Department Marketing Department
	Develop the approach portfolio		Formulate a combined approach if needed, by evaluating the input-output ratio of various approaches	Sales Department Product Lines ...



Establish management structure and mechanisms	Establish packaging management structure	Establish a multi-level packaging management structure that includes decision making and regulation, planning and leadership, and implementation	<ul style="list-style-type: none"> ◆ Decision-making and supervision level: responsible for confirming key directions, priorities, and resource allocation for packaging sustainability. ◆ Planning and leading level: responsible for determining specific strategies, paths, and action plans, as well as measuring the financial performance related to sustainability. ◆ Implementation level: responsible for implementation of specific working tasks and assigned projects 	Board of Directors Sustainability Committee Sustainability Department and Head Finance Department and Head Packaging Management Committee Refer to the departments in the section 'Selecting achieving approaches'			
	Regular communication and decision-making	Regular communication and decision-making	<ul style="list-style-type: none"> ◆ Annual meeting for target-setting ◆ Progress communication meetings ◆ Decision making and discussion meetings for major projects ◆ Daily communication meetings 	Board of Directors Sustainability Department Packaging Department			
					Allocation of management indicators	<ul style="list-style-type: none"> ◆ Allocate management indicators to departments 	Refer to the departments in the section 'Selecting achieving approaches'
	Formulation of policies and guidelines	<ul style="list-style-type: none"> ◆ Develop packaging management policies ◆ Develop sustainable packaging principles, standards or guidelines 	Sustainability Department Packaging Department				
				Capacity building	<ul style="list-style-type: none"> ◆ Carry out sustainable packaging themed training programs 	Human Resources Department Packaging Department	

Disclose information	Establish the information disclosure framework	Packaging commitment/ targets	<ul style="list-style-type: none"> ◆ Disclose qualitative or quantitative targets with specific timeline and coverage 	Sustainability Department
		Packaging management strategies and actions	<ul style="list-style-type: none"> ◆ Disclose the attaining approaches and specific actions or projects that support the achievement of packaging targets 	
		Packaging management performance and assessment of comprehensive benefits	<ul style="list-style-type: none"> ◆ Disclosure the progress of target implementation, emphasising the performance on environment, social, and economy (see Chart 17 for details) 	
		Packaging management structure and mechanism	<ul style="list-style-type: none"> ◆ Describe the departments responsibility for packaging management, including decision-making, supervision, and implementation levels ◆ Describe the packaging management mechanism, including communication meetings, allocation of management indicators, performance assessment, policies system, and capacity building programs 	



04

Best Practice Cases

- Danone 06
- Haleon 07
- Mengniu 08
- Nestlé 09
- Mondelēz 10
- Colgate 12



Danone Case

Danone is committed to offering nutritious and high-quality food and beverage in packaging that is 100% circular and low-carbon

Corporate Profile

Danone entered China in the late 1980s. With a mission of “bringing health through food to as many people as possible” and acting under the “One Planet. One Health” frame of action, Danone has actively developed its business in the country. After more than

30 years, China is now Danone’s second largest market where the company has 10 factories and employs more than 8,000 people, accounting for around 11% of its global sales as of year 2023.

Leadership Message

As a leading global food and beverage company, Danone shoulders the dual responsibilities of commercial success and social progress, and aims to inspire healthier and more sustainable eating and drinking practices while committing to achieving measurable nutritional, social, and environmental impact. In 2023, Danone released a new sustainable strategy called "Impact Journey." The Company's goal for 2030 is that every piece of packaging will be reusable, recyclable, or compostable. In China, bottles of the Mizone, a brand of Danone are 100% recyclable, more conducive to sorting and recycling. Danone continuously explores and develops low-carbon materials. In 2022, Danone announced a partnership with LanzaTech in a research and development project to develop new packaging materials based on "carbon capture" technology to reduce reliance on fossil resources. We appreciate Consumers Goods Forum's work on promoting sustainability and are glad to know that Danone is included in the Consumer Goods Industry Sustainable Packaging Management System and Best Practice Case Study Booklet of CGF . We look forward to working together with all stakeholders through the CGF to promote the circular economy, contribute to the goals of "carbon peaking and carbon neutrality", and build a beautiful China.

— Peng Qin
Chairman, Danone China

Goals and Roadmap of Sustainable Packaging Management

Identification of packaging-related risks and opportunities

Danone maintains an active risk identification and management policy aimed at protecting and developing its assets and reputation, the achievement of its targets and objectives, and protecting the interests of its consumers, shareholders, employees, customers, suppliers, the environment, the people impacted by its activity, and its other stakeholders. Danone's main risks have been assessed on

the basis of the probability of their occurrence and the expected magnitude of their negative impact, after taking into account risk management measures effect, to give an assessment of the materiality of each risk. Under its overall risk identification system, Danone has systematically analyzed packaging-related risks.

Packaging-related Risks of Danone

Type of risks	Description of risks
Possible cost increase due to plastic issues	There is a global focus on plastics because of its associated risks on nature, workers rights, and quality & food safety. As a result, pressures from regulators, consumers, and other stakeholders (e.g., NGOs and retailers) around plastics are moving at an unprecedented pace. In many countries, packaging design and packaging waste management is now regulated through measures related to reduction, including reuse, recyclability, and use of recycled material, on top of Extended Producer Responsibility (EPR) framework. In this context, Danone is transitioning towards a circular economy and more low-carbon packaging, which could result in a cost increase related, for instance, to packaging redesign, alternative materials usage, or recycled materials integration.
Potential market and reputation risks due to changes in policies, regulations, and consumer preferences	In the event where: (i) Danone would not deliver its Impact Journey agenda and notably reduce sufficiently its use of virgin fossil-based plastics; (ii) Reuse and Recycling systems and infrastructure do not realize the required scale up, and Danone could be exposed to the following risks: (i) reputational risks, (ii) challenges on its license to operate, in relation to regulatory measures, retailers packaging restrictions that can induce additional costs, and (iii) consumer preferences evolution impacting the demand for the Group's products.
Impacts of raw materials and energy price volatility	Variations in supply and demand at global or regional levels expose Danone to potential: price increase for key raw materials that may not be passed on, either in full or in part, in the selling price of Danone's products; reduced availability of key raw materials which could adversely affect Danone's ability to meet consumer demand for its products; disruption in supplier ecosystem especially in packaging and logistics; which could negatively impact the sales, margin and results of Danone. The major impact factors include the impact of weather conditions and natural disasters, government control and regulatory changes, geopolitical events, and shifts in consumer preferences.



Sustainable Packaging strategies and goals

Danone's idea for packaging: In terms of packaging, Danone holds the idea that Packaging is essential for Danone's activities as it protects food and beverages, increases shelf life and reduces food waste.

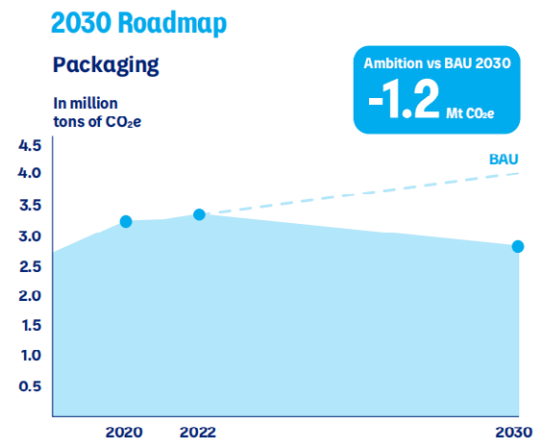
Danone's vision for packaging: We want to offer nutritious and high-quality food and drinks in packaging that is 100% circular and low carbon, keeping materials in use and out of nature.

Danone's strategy to achieve the packaging vision: Drive the transition to a circular and low-carbon packaging system & recover as much as we use. As part of the "Renew Danone" strategy, Danone has redefined the framework for its sustainability journey, focusing on the three pillars of Health, Nature, People & Communities. Danone has defined new priorities and set relevant medium- and long-term goals for each pillar to help the Company generate maximum impact and create maximum value. One pillar of the new strategy is "preserve and regenerate nature", with low-carbon circular packaging as one of the five major goals of this pillar. In 2022, the Science-Based Targets initiative (SBTi) officially approved Danone's 1.5°C temperature control target. Committed to the science-based targets, Danone has developed a packaging carbon reduction roadmap for 2030 to reduce carbon emissions related to packaging by 1.2 million tCO_{2e} in 2030 (compared to the scenario of normal business development without emission reduction measures), based on the peak carbon emissions in 2022.

Danone Impact Journey - New Sustainable Strategy



Danone's Packaging Carbon Emission Transformation Roadmap for 2030



Upholding the "Impact Journey" strategy, Danone will continue to transform its activities towards a recyclable and low-carbon packaging system.

Sustainable Packaging Goal Setting of Danone

Sustainable packaging strategy of Danone	Packaging goal
Drive the transition to circular and low-carbon packaging system & recover as much as we use	Have 100% of its packaging to be reusable, recyclable, or compostable by 2030
	Halve the use of virgin fossil-based packaging by 2040, with 30% reduction by 2030, accelerating reuse and recycled materials
	Lead the development of effective collection systems to recover as much plastic as we use by 2040

In working to achieve sustainable packaging, Danone adheres to three guiding principles: "Brand leadership is key for positive change," "Collaboration is the cornerstone of success," and "Circularity should drive innovation and inclusion."

Attaining strategies for sustainable packaging goals

Danone strives to offer nutritious, high-quality food and beverages in packaging that is 100% circular and low-carbon. This means all packaging is designed to be safely reused, recycled or composted and in a way that the materials used by Danone could stay in the economy and never become waste or pollution. In order to step up the transition to a circular and low-carbon economy, Danone works with many value chain stakeholders to explore different solutions and business models with a view to reducing its packaging use, improving the circulation of packaging that cannot be eliminated, recovering what is not circulated, tackling leakage and improving livelihoods of communities. On the way to achieving the packaging goal, Danone has identified relevant challenges and developed targeted strategies, as well as initiated corresponding actions.

Strategies and Roadmap for Achieving Danone Sustainable Packaging Goals

Packaging Commitments	Key Areas and Strategies for Packaging Governance	Danone's Actions
Have 100% of its packaging to be reusable, recyclable, or compostable by 2030 Halve the use of virgin fossil-based packaging by 2040, with a 30% reduction by 2030, accelerating reuse and recycled materials Lead the development of effective collection systems to recover as much plastic as we use by 2040	Reduce packaging usage ♦ Eliminate problematic or unnecessary packaging (complying with the GDR 2: Remove Problematic Elements from Packaging) ♦ Replacing plastic packaging with alternative materials. ♦ Reducing packaging through lightweighting and design optimization	☑ Elimination of sleeves on Danone's products ☑ Offer consumers plastic-free options that are economically viable, tailored to local needs, such as glass or metal bottles for mineral water ☑ Offer alternative paper-based solutions in products ☑ Markets large formats for Waters (6L and 8L). The plastic in the Volvic 8L format, for example, weighs 25% less per liter than the 1.5L format.
	Improve the circulation of packaging that cannot be eliminated ♦ Develop the reuse model ♦ Actively participate in co-creating the future of reuse ♦ Redesign packaging to ensure its recyclability ♦ Reducing virgin fossil-based packaging by using recycled materials from responsibly managed sources	☑ Around 50% of Danone's water volumes are sold in reusable packaging ☑ Collaborate with supply chain partners and retailers to promote recycling and reuse ☑ Supports policies aimed at addressing current challenges concerning the expansion of reuse models ☑ Be committed to supporting consumer engagement on reuse ☑ Adapting packaging design to ensure an efficient sorting ☑ Redesign colored PET to recyclable and clear PET ☑ Collaborate with partners to establish a recycling stream for Essential Dairy & Plant- ☑ Based cups made either of PS or PET, ☑ Promote the use of rPET in countries where local standards and regulations allow it ☑ Support breakthrough technologies to enable the recycling of hard-to-recycle packaging
	Recover what is not circulated by fighting against dumping in nature, and improving livelihoods for workers in the collection and recycling sectors ♦ Co-build and co-finance collection systems to recover as much as Danone uses ♦ Build projects to provide direct support to waste pickers, improving their well-being while expanding the capacity to reduce leakage into the environment ♦ Offtake of recycled materials to create an after-use economy	☑ Continuously support the Extended Producer Responsibility (EPR) and the Deposit Refund System (DRS) of product packaging ☑ In high-leakage markets, in addition to its commitment to EPR, Danone has invested voluntarily in impact funds and provided grants to mitigate structural barriers during the transition phase. ☑ Closing the loop is Danone's priority to reduce the carbon footprint and conserve natural resources. Moreover, it can help to create new jobs and stimulate economic growth ☑ Enter into longer-term contracts with suppliers to facilitate the recycling and reuse of rPET, thereby encouraging them to invest in innovative technologies and recycling infrastructure ☑ Continuously expand the use of recycled materials across all product categories, such as promoting the use of food-grade HDPE recovered for beverage products

Sustainable Packaging Management Structure and Mechanism

Management structure

Danone's Nature Strategy is sponsored by the Chief Executive Officer and the Chief Sustainability and Strategic Business Development Officer. In coordination with the Chief Sustainability Officer and the Chief Cycles & Procurement Officer, they review its priorities, key issues, and implementation within the Group governance dedicated to the Nature Strategy. Circular Packaging topic is managed in a cross-functional way including key functions such as Research & Innovation, Procurement, Operations, and General Secretary with the coordination of the Circular Economy dedicated team.

Furthermore, the Nature Strategy is monitored through the following global and local departments: the Sustainability Department, which designs and implements the Climate strategy, roadmaps, and action plans, and the Sustainable Finance Department, which manages the financial performance related to sustainability.

In China, Danone Waters China has a "One Planet. One Health" Sustainability Management Committee, with the decision-making level represented by the Company's General Manager and Vice President, leaders in charge of sustainability, and business leaders from various departments participating.



Management mechanism

Regularly assessing packaging-related policies, footprints, and goals. National and regional regulatory monitoring is undertaken by the General Secretary, including ongoing dialogue with NGOs and governments. A global policy assessment is conducted on a yearly basis to identify policy trends and anticipate upcoming developments. Danone's packaging footprint is assessed annually in terms of volumes marketed and using environmental Key Performance Indicators (KPIs) calculated for each country and for each type of packaging. These environmental KPIs include packaging recyclability rates, actual recycling rates, recycled content use and greenhouse gas emissions.

Setting KPIs to achieve goals more effectively. To better facilitate the achievement of global goals in China, Danone has incorporated ESG-related indicators into the performance evaluation of its employees at the manager level and above. Safety and health indicators are mandatory components in the annual performance targets for said employees. Business leaders of each department are responsible for specific indicators such as energy and water conservation ratios, green energy ratios, carbon emission reduction ratios, and certification rates for waste zero-landfill management systems. This ensures that relevant work is executed effectively and efficiently.

Providing defined packaging policies and guidelines. To manage packaging more effectively, Danone developed a defined Danone Packaging Policy in 2018 to guide the sustainable development of packaging and accelerate packaging recycling transformation. Danone China adheres to the Group's packaging policy in packaging practices.

Centering on capacity development and improvement of employees' awareness. Danone Group offers training courses and online training to improve employees' awareness of environmental issues.

Danone Packaging Achievements

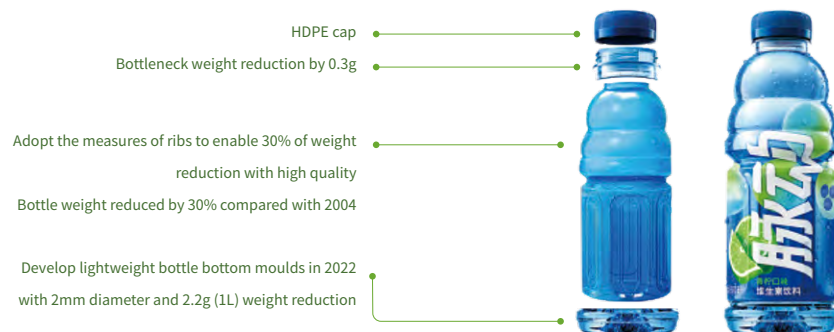
Achievements in Sustainable Packaging Management of Danone

Packaging goal	Progress (up to 2022)
◆ Have 100% of its packaging to be reusable, recyclable, or compostable by 2030	Q 84% - proportion of reusable, recyclable or compostable packaging
◆ Halve the use of virgin fossil-based packaging by 2040, with a 30% reduction by 2030, accelerating reuse and recycled materials	Q 74% - proportion of reusable, recyclable or compostable plastic packaging
◆ Lead the development of effective collection systems to recover as much plastic as we use by 2040	Q 50% - proportion of reusable packaging used in global sales of water products
◆ Transform towards low-carbon packaging	Q 14.6% - proportion of recycled materials in plastic packaging
	Q 23.8% - proportion of rPET in the packaging of drinking water and beverage products worldwide
	Q 16% - reduction in the usage of virgin plastic (compared to 2018, excluding basic dairy and plant-based products in Russia)
	Q 8% - reduction in the usage of plastic packaging (compared to 2018, excluding basic dairy and plant-based products in Russia)
	Q 58% - usage of Danone plastic recycled from the market

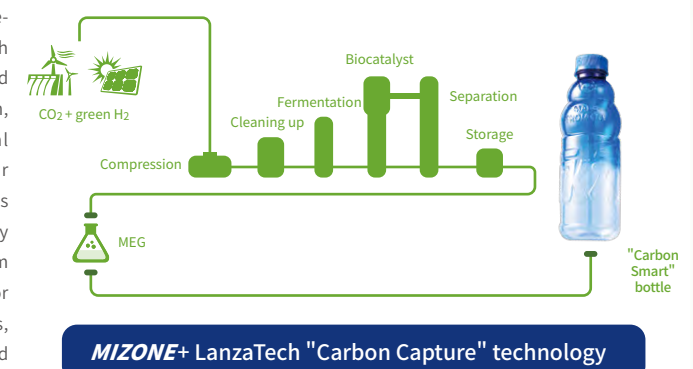
Environment benefits

◆ Whole recyclable Mizone bottles:

Danone Beverage China (DBC) adheres to the idea that product packaging should contribute to recycling from the design stage. In 2021, DBC successfully replaced the PVC labels of all Mizone products with PETg labels, obtained the recyclable design certification by CPRRA, and finally achieved whole bottle recyclable.



◆ Mizone "Carbon Smart" concept bottle: Danone-owned Mizone announced a partnership with LanzaTech, an innovative company specialized in long-term carbon capture and transformation, to invest in a brand-new packaging material production technology. As a major tool for responding to global climate change, LanzaTech's advanced "carbon capture" technology can directly convert carbon monoxide and carbon dioxide from carbon-rich gas sources into key raw materials for producing PET bottles through microorganisms, thereby reducing the impact of petroleum use and carbon emissions on the environment.



Social benefits

Danone is engaged in co-developing efficient and inclusive collection and recycling systems, through a collaborative approach with its ecosystem, while offering stable jobs.

◆ Danone is committed to invest \$15 million to the Circulate Capital Ocean Fund (CCOF) in South and South-East Asia. In 2022, its portfolio companies had an impact on an additional amount of approximately 81,579 tons of plastic leakage prevented and created more than 1,792 safe and stable additional jobs in the collection and recycling sectors.

Danone actively participates in industry action initiatives, calling more partners in the value chain to promote sustainable packaging.

◆ In 2018, Danone signed up to the Ellen MacArthur Foundation (EMF) Global Commitment on Plastics in collaboration with the United Nations Environment Programme (UNEP), and published its Packaging Policy, setting out the Group's roadmap to (i) shift from a linear to a circular economy of packaging.

◆ In 2022, Danone joined the Business Coalition for a Global Plastic Treaty led by the EMF and the World Wildlife Fund (WWF). The Coalition brings together companies and financial institutions committed to supporting the development of an internationally legally binding instrument to end global plastic pollution.

◆ Danone, as a member of the Consumer Goods Forum Plastic Waste Coalition of Action (CGF PWCofA), working to set standards and align industry practices to improve plastic collection, reuse and recycling.

Danone promotes sustainable consumption behavior through sustainable packaging.

◆ In 2021, Danone launched the "LOOP" initiative in Shanghai, advocating for the public to classify garbage and recover recyclable materials. After the initiative was launched, Danone piloted and installed innovative intelligent plastic bottle recycling machines in Shanghai. Citizens obtained product discount coupons by putting empty plastic bottles in them, fully promoting their active participation in green and low-carbon practices.

◆ In 2021, Danone, together with the China Guanghua Foundation of the Central Committee of the Communist Young League and the China Education Support Project, launched the "Mizone Huanjin Green Action for College Students" initiative. Students from 15 colleges and universities actively joined this initiative. Nearly 80 environmental protection activities were organized by students, with almost 10,000 participants. The campaign reached a cumulative audience of more than 2.18 million people through campus promotions and social media communications.

◆ In 2022, Danone participated in the "Plastic Clean-up Action" initiated by Unilever. Together we promoted "empty bottle recycling" in more than 150 colleges and universities to inspire young consumers to protect the environment. It also encouraged students to explore critical environmental topics such as reducing plastic waste pollution, driving innovations in plastic recycling, and advocating sustainable consumption. Building on this, Danone and Unilever have planned a "city tour" in 2023. The program includes comprehensive environmental campaigns on campus and a visit to Mizone's carbon-neutral plant in Wuhan.

◆ In 2023, Danone launched the "One Planet" Carbon Reduction Initiative with partners, calling on suppliers to utilize sustainable packaging, improve material utilization, and reduce CO₂ emissions.

Economic benefits

The Sustainable Finance Department, reporting to the Group Deputy CEO in charge of Finance, Technology & Data, which is responsible for environmental indicators of production sites and GHG indicators.



Haleon Case

Haleon is making packaging more sustainable for a better tomorrow

Corporate Profile

Haleon aims at being a global leader in consumer health with a clear purpose to **deliver better everyday health with humanity**. Its portfolio comprises of Oral Health, Pain Relief, Respiratory Health, Digestive Health, and VMS. The brands under the portfolio include Caltrate, Centrum, Sensodyne, Fenbid, Voltaren, Contac, Bactroban, Flixonase, and Polident. Comprehensively with its predecessor-Consumer Healthcare business that had been separated from GSK Group since July 2022, Haleon has been developing its business in

China for nearly 40 years. It is a multinational company that ranks first in the offline channels of retail pharmacies for OTC drugs and VMS. The China headquarter of Haleon are located in Shanghai, with manufacturing sites in Suzhou and Tianjin. The Suzhou R&D Center is one of three Haleon global R&D centers. Haleon is working to take practical actions to facilitate the achievement of China's "carbon peaking and carbon neutrality" goals and the "Healthy China 2030" goals.

Leadership Message

Haleon's purpose is to deliver better everyday health with humanity. Haleon has been working to make everyday health more inclusive and reduce its environmental impact. Haleon is determined to break down the social and environmental barriers that hold people back from better everyday health. We aim to achieve this by tackling carbon emissions, making our packaging more sustainable, sourcing trusted ingredients sustainably, and integrating water stewardship and waste circularity. As for reducing carbon emissions, all Haleon China manufacturing sites have achieved operational carbon neutrality in 2022, as certified by Bureau Veritas (according to PAS 2060:2014). In terms of the management of sustainable packaging, we have developed Sustainable Packaging Management Standard Operating Procedure to standardize the development and implementation of plans for sustainable packaging. Breakthrough solutions, such as Fenbid's plastic and carbon reduction packaging, and Caltrate's non-film transfer metallized packaging, have been widely recognized. We will continue to move forward towards our goals, collaborate with our peers to explore and promote sustainable packaging solutions, and thus contribute to achieving China's "dual carbon" goals.

— Susan Gu
General Manager, Haleon China

Goals and Roadmap of Sustainable Packaging Management

Identification of packaging related risks and opportunities

Haleon has been committed to continuously reducing its environmental footprint. Haleon conducted a comprehensive assessment for packaging-related risks and opportunities based on a

stakeholder survey and business analysis, by which Haleon will better understand its strength and resilience, and know where and how to take actions.

Risks and Opportunities Related to Haleon Packaging

Type of risks and opportunities	Description of risks and opportunities
<p>Risk: Loss of attractiveness due to consumers' increasing expectations described, not quantified</p> <p>Opportunity: Additional revenue with sustainable products</p>	<p>Haleon has discovered that the expectations and demands of customers and consumers for sustainable products are increasing day by day. Haleon analyzed the relationship between company sustainability and market share, and estimated potential opportunities associated with improved sustainability performance. Investing in sustainability is expected to positively impact Haleon's performance in all three scenarios tested. In the short-term (2030), demographic evolutions and regional growth differences will drive an increase in sustainably marketed products and services. OECD and Europe represent currently the largest sustainable development markets¹. High consumer concern for sustainability issues in emerging economies, where fast market growth is expected and among generations Z and Alpha whose purchasing power is increasing over time, will accelerate the shift toward more sustainable products. The expansion and high growth rates of retailer-led sustainable choices ranges will also drive sustainability market growth. Sustainable packaging is an important part of Haleon's promotion of sustainable products and services. Haleon is actively responding to the demands and expectations of stakeholders, and has conducted a life cycle assessment of 11 key products of the company's top brands, continuously promoting the green transformation of packaging</p>
Reduced availability and increased price volatility of raw materials due to climate change	Continuity of supply is a priority for Haleon's procurement team. Haleon has found the impact of climate change on the availability and prices of raw materials. The continuously escalating climate risks have led to stricter global laws and regulations, as well as requirements from non-governmental organizations, which have had a significant impact on Haleon's packaging strategy
Increased investments or transformation opportunities caused by technological R&D	As a healthcare company who aims at bringing trusted science together with human understanding, Haleon believes that technology will support delivery of Haleon's Responsible Business strategy. For example, it could provide solutions to facilitate the decarbonization strategy, and/or aid the creation of new and more sustainable product formulations and packaging

Sustainable Packaging strategies and goals

Clarify the concept of CSR within the framework of the corporate strategy. "Run a responsible business" is one of the four pillars of Haleon's corporate strategy. In China, Haleon has put forward the concept of corporate social responsibility - "every day, for a better tomorrow," continuously committing to eliminating social and environmental issues that hinder daily health.

Acknowledge the importance of packaging and make packaging commitments. Haleon believes that packaging plays a key role in delivering consumer health products safely to customers and consumers safely. Globally, Packaging waste is having a significant impact on the environment. To address the risks and opportunities related to packaging, Haleon has made a commitment to "making our packaging more sustainable" as one of the four key strategies for

Environment Sustainability Management.

Adhere to packaging commitments and clarify development strategies. To achieve this goal, Haleon is transitioning towards a more circular model. Making packaging recycle-ready is the first step for Haleon to achieve the ultimate objective of making all our packaging recyclable or reusable. Haleon is working with partners to drive global and local initiatives to improve the recyclability of consumer health product packaging and to pioneer the use of alternative materials for healthcare packaging, including using recycled content, bioplastic and pulp-based alternatives to plastic. Haleon is promoting the removal, reduction, and replacement of carbon-intensive packaging materials, and will always promote material innovation.

Sustainable Packaging Strategy System of Haleon



The Sustainable Development Framework of Haleon

Haleon adheres to sustainable packaging strategies and establishes sustainable packaging goals.

Sustainable Packaging Goal Setting of Haleon

Sustainable packaging strategies of Haleon	Key points of packaging governance	Packaging goals ¹
Removing, reducing, and replacing carbon-intensive packaging materials, promoting innovation in packaging materials	Reducing the use of plastics and other packaging materials	Reduce our use of virgin petroleum-based plastic by 10% by 2025 vs 2022 and a third by 2030
Improving the recyclability of packaging	Recyclable or reusable	Develop solutions for all product packaging to be recycle-ready by 2025 and recyclable or reusable by 2030 where safety, quality and regulations permit
Working with business partners to drive global and local initiatives to improve the recyclability of consumer health product packaging	Establishing a recycling system	Work with partners to drive global and local initiatives to collect, sort, and recycle our packaging at scale by 2030
Sourcing trusted ingredients sustainably	Reducing packaging damage and depletion of ecosystems and resources	All key agricultural, forest and marine-derived materials used in our ingredients and packaging are sustainably sourced and deforestation-free by 2030

¹ Further information on the reporting criteria for each goal can be found within the corresponding sections of this report and in the Haleon 2023 Responsible Business Basis of Reporting.

Roadmap for achievement of sustainable packaging goals

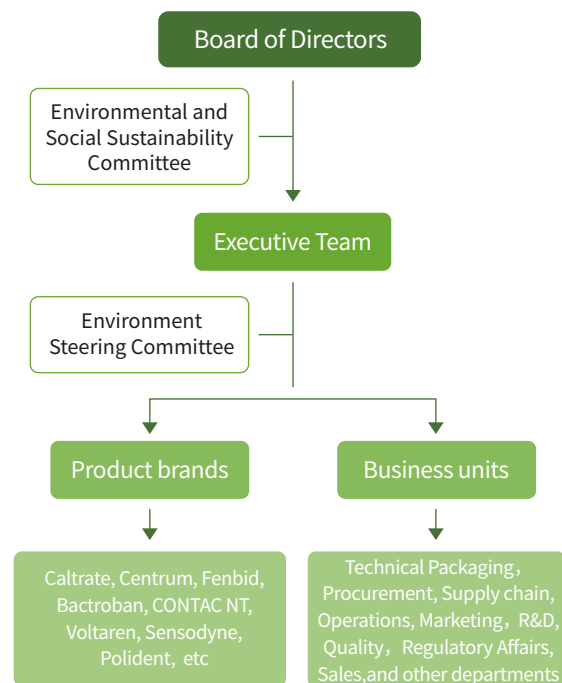
Roadmap for Achievement of Sustainable Packaging Goals of Haleon

Packaging goals ¹	Implementation of strategies	Innovative points
Reduce our use of virgin petroleum-based plastic by 10% by 2025 vs 2022 and a third by 2030	Lightweight product packaging <ul style="list-style-type: none"> ◆ Comply with the GDR 4, reducing plastic outer packaging ◆ Comply with the GDR 8, reducing the use of virgin plastics in plastic packaging in B2B packaging Developing alternative packaging materials <ul style="list-style-type: none"> ◆ Utilize recycled packaging ◆ Utilize bio-based plastic packaging 	<ul style="list-style-type: none"> 🕒 Blister redesign, change from 8 capsules/blister to 12 capsules/blister, reducing plastics usage by 1/3 🕒 Lightweight toothpaste caps to reduce the use of virgin plastics 🕒 rPET thermoforming tray for toothpaste multi-pack 🕒 Reduce the bundle pack plastic film usage
Develop solutions for all product packaging to be recycle-ready by 2025 and recyclable or reusable by 2030 where safety, quality and regulations permit	Improving the recyclability of packaging <ul style="list-style-type: none"> ◆ Transform multi-layer materials into Recycle Ready mono materials ◆ PET replacing PVC 	<ul style="list-style-type: none"> 🕒 Plastic film removal from film-laminated paper carton by moving to film-free metallic paperboard and cold foil process, making paper cartons recyclable after consumer use 🕒 Launch recyclable toothpaste tubes by using plastic barrier laminated tubes 🕒 Replace PVC with PET to improve recyclability
Work with partners to drive global and local initiatives to collect, sort, and recycle our packaging at scale by 2030	Enabling effective collection, classification, and recycling of packaging wastes	<ul style="list-style-type: none"> 🕒 Promote the R&D of classification and reuse technologies for small packaging
All key agricultural, forest and marine-derived materials used in our ingredients and packaging are sustainably sourced and deforestation-free by 2030.	Procuring more sustainable packaging materials	<ul style="list-style-type: none"> 🕒 Procure packaging materials with sustainability certification

Haleon has developed a environment sustainability impact assessment tool, incorporating the tool into the development assessment process of new products. During the development, scientists and technicians use quantitative data to conduct environment sustainability impact assessment on each raw material and packaging material, ensuring the sustainability of new products.

Sustainable Packaging Management Structure and Mechanism

Management structure



Sustainable Packaging Management Architecture of Haleon Global

Decision making and governance	Haleon Global is fully responsible for Haleon's responsible business strategy, promoting the company's long-term and sustainable success				
	The functions of the Board of Directors in sustainable development: <ul style="list-style-type: none"> - Review and approve sustainable strategies and associated targets - Discuss progress on the sustainability agenda - Discuss the establishment of relevant business departments Environmental and Social Sustainability Committee: At the level of Board of Directors, Haleon established an Environmental and Social Sustainability Committee. The role of the Committee is to provide oversight and effective governance over progress with the environmental and social sustainability agenda and the external governance and regulatory requirements relevant to these areas				
Planning and leadership	Haleon Executive Team is responsible for overseeing and driving responsible business performance and execution of the strategic initiatives, and established a dedicated committee in the environmental field				
Implementation	Environment Steering Committee: Responsible for providing recommendations on Haleon's strategic direction in environmental fields, including sustainable packaging				
	The relevant product brands and business units are responsible for the implementation of relevant projects and participate in at least quarterly meetings of the Environment Steering Committee.				
	<table border="1"> <tbody> <tr> <td>Product brands</td> <td>Caltrate, Centrum, Fen bid, Bactroban, CONTAC NT, Voltaren, Sensodyne, Polident, etc</td> </tr> <tr> <td>Business units</td> <td>Departments of Technical Packaging, Procurement, Supply chain, Operations, Marketing, R&D, Quality, Regulatory Affairs, Sales, and other departments</td> </tr> </tbody> </table>	Product brands	Caltrate, Centrum, Fen bid, Bactroban, CONTAC NT, Voltaren, Sensodyne, Polident, etc	Business units	Departments of Technical Packaging, Procurement, Supply chain, Operations, Marketing, R&D, Quality, Regulatory Affairs, Sales, and other departments
Product brands	Caltrate, Centrum, Fen bid, Bactroban, CONTAC NT, Voltaren, Sensodyne, Polident, etc				
Business units	Departments of Technical Packaging, Procurement, Supply chain, Operations, Marketing, R&D, Quality, Regulatory Affairs, Sales, and other departments				

Management mechanism

Regularly tracking the progress towards goals through meetings and tools:

- ◆ **Responsible Business Scorecard:** Haleon established the responsible business scorecard and tracked the development of sustainable development indicators on a quarterly basis, including "recycle-ready packaging."
- ◆ **Quarterly Environmental Performance Meeting:** Haleon holds the Environment Steering Committee once every quarter and regularly reviews the climate performance and other environmental indicators of Haleon. It is composed of members of senior management, including the Vice President of Sustainability, representatives from our categories and business units, the Chief Supply Chain Officer, the Chief Corporate Affairs Officer, the Chief Scientific Officer, the Chief Procurement Officer, the R&D Head of Packaging, the Head of Global Ethics & Compliance plus appropriate experts from the Sustainability team.
- ◆ **Monthly Risk Discussion Meeting:** To embed risk management

in day-to-day business, a series of Compliance and Risk Forums (CRF) is run by our functional teams, categories and business units, including the Sustainability Team. The Sustainability CRF is responsible for monitoring, assessing, and mitigating potential risks that may impact Haleon's responsible business strategy delivery, including risks associated with packaging. The meeting is held monthly, with the participation of the Vice President of Sustainability.

Driving the development of key ESG topics including sustainable packaging through performance incentives: We use an ESG qualifier as part of our 2022 long-term incentive plan called Performance Share Plan (PSP). The Company has made commitments across carbon reduction, recycle-ready packaging and gender diversity. These commitments have been incorporated in our incentive structure, such that the Remuneration Committee will apply an ESG qualifier at vesting of the 2022 PSP award.

Sustainable Packaging Management Achievements

Achievements in Sustainable Packaging Management of Haleon Global

Goals for 2030 ¹	Progress (up to 2023)
Reduce our use of virgin petroleum-based plastic by 10% by 2025 vs 2022 and a third by 2030	In 2023, our estimated virgin petroleum-based plastic footprint increased by 3% compared to our 2022 baseline year. Our programmes of right-sizing our packaging and using less plastic have helped us begin to de-couple business and volume growth from plastic consumption, but their impact is not yet sufficient to offset the combination of sales volume growth and the mix of products sold that have driven an increase in the 2023 reporting period
Develop solutions for all product packaging to be recycle-ready by 2025 and recyclable or reusable by 2030 where safety, quality and regulations permit	70% of our packaging was recycle-ready in 2023, increasing from 65% in 2022. This increase continues to be driven by: the rapid roll-out of recycle-ready mono-material toothpaste tubes; modifications in our bottle portfolio, including mouthwash, so that plastics are capable of being recycled; and the continued roll-out of recycle-ready sachets, primarily in India for our Eco product
All key agricultural, forest and marine-derived materials used in our ingredients and packaging are sustainably sourced and deforestation-free by 2030	48% of paper-based packaging is sustainably sourced. Over the next reporting period, we plan to significantly improve our percentage of sustainably sourced paper-based packaging, with an aim to achieve more than 70% in the 2024 reporting period

Environment benefits

Plastic and carbon reducing packaging

- ◆ In order to ensure that the design changes of the blister do not affect the product quality, after multiple trials and verification for Fenbid Ibuprofen Capsules(400mg), Haleon improved the loading efficiency of the blister without changing the size of each blister, increasing the number of capsules from 8 to 12 per blister, reducing the use of packaging materials by one-third. This practice was recognized by the "Attraction Dot" and "Green Dot - Sustainable Practice" awards from Yicai.
- ◆ Sensodyne toothpaste caps have been changed from flip top to screw on, reducing the use of virgin plastic by about 36%. Since they have gone on the market, Haleon China has reduced the consumption of virgin petroleum-based plastic by over 200 tons.
- ◆ Caltrate and Centrum have adopted film-free metallic transfer paperboard and cold stamping processes to replace the film-laminated silver card board, without compromising the appearance and performance of the packaging. The annual reduction of plastic consumption is about 24 tons.
- ◆ Bundle pack plastic film (LDPE low-density polyethylene) has been removed for Centrum, Caltrate and Polident products, the annual reduction in plastic consumption is approximately 20 tons.
- ◆ Low-carbon tube has been used for Bactroban Mupirocin Ointment, reducing the use of a large amount of aluminum, which can reduce carbon emissions by more than 60%, decreasing carbon emissions by more than 2,000 tons of CO₂e per year, product quality and safety is ensured.
- ◆ The first carbon neutral white cardboard in China has been utilized for Fenbid and Contac OTC paper cartons. It is expected to reduce the Scope 3 emissions by about 300 tons of CO₂e by 2024.



Recyclability design

- ◆ Haleon has achieved its goal of producing 1 billion recycle-ready toothpaste tubes – across multiple brands – two years ahead of the 2025 plan. Having first launched this initiative in Europe in 2020, while part of GSK, we have since expanded the availability of recycle-ready tubes across several continents. (GDR 7)
- ◆ Caltrate and Centrum, have implemented film-free metallic transfer paperboard and cold foil board to replace the film-laminated silver card board without compromising the appearance and performance of the packaging. Approximately 400 tons of paper will be recycle ready, which is equivalent of avoiding the deforestation of approximately 6,000 trees.
- ◆ The shrink sleeve label of Bactroban Wound Wash Spray was changed from PVC to PET, eliminating problematic plastic (GDR 2) and a step on the journey to improving the recyclability of bottles.

Industry Impact

From raw materials to the material quality and technology, the packaging drove carbon reduction throughout the entire value chain.

- ◆ Driving the carbon reduction through the whole packaging value chain by focusing on packaging materials, texture, and technology innovation.
- ◆ Haleon China is the first company to apply the first domestic carbon neutral white cardboard launched by Asia Symbol, with the initial batch adopted on Fenbid Ibuprofen Chewable Tablets.
- ◆ Haleon has promised to work closely with suppliers to reduce the volume of plastics used in the entire product portfolio.
- ◆ Haleon China collaborated with its industry partners to exploit new technology of film-free transfer aluminum plating paperboard applied in heavyweight paper box, and participated the draft of the group standard *Transfer Metallized Paper Products for Packaging (T/CPF 0045-2022)* to promote the post-consumer recyclability of paper boxes in the industry.
- ◆ In addition, Haleon is devoted to attracting consumers' interests on green products through its packaging. Together with Alibaba and 24 industry leading consumer brands, Haleon participated in the "Decarbonization-Friendly Actions". So far, Haleon has introduced over 50 low-carbon products connected with 88 Carbon Account on Taobao to promote low-carbon consumption, among which 10 of them have been selected in the "Low-Carbon Packaging" category.

Economic benefits

In addition to resources saving and carbon emissions reduction, some of the sustainable packaging projects have brought certain cost savings to Haleon.

- ◆ The low-carbon design of Fenbid Ibuprofen Capsules (400mg) blister realizes the reduction in the use of plastic and aluminum foil by 1/3, which leads to the direct reduction of packaging material costs. At the meantime, the downsized packaging has improved the storage and transportation efficiency, consequently the cost of over RMB 4 million was saved annually.
- ◆ As Haleon gradually removed the bundle pack plastic film from products of Caltrate, Centrum, while reducing the use of plastics, the process of heating plastics sealing has been removed, which has resulted in the decrease in electricity consumption and carbon emissions, as well as cost savings. Currently, the cost of most sustainable packaging ready to recycle is relatively high, which makes it challenging to scale up the application of recyclable packaging. For example, the cost of recyclable all-plastic tubes is higher than that of aluminum-plastic ones, and the cost of post-consumer recycled (PCR) plastics is higher than that of virgin petroleum-based ones. **However, Haleon believes that as more companies and consumers embrace sustainable consumption, and the trend of large-scale application for innovative packaging continuously evolves, the premium for new technologies will become lower, and the cost of recyclable packaging will also get less, that will facilitate the sustainability of both business development and the ecological environment.**



Mengniu Case

Mengniu delivers green and nutritious products to consumers through more sustainable packaging design.

Corporate Profile

China Mengniu Dairy Company Limited (stock code: 2319) specializes in delivering dairy products, ranking among the world's top eight in the dairy industry. Founded in 1999, Mengniu is headquartered in Hohhot, Inner Mongolia Autonomous Region, China. Listed in Hong Kong in 2004, it is a constituent stock of the Hang Seng Index, the Hang Seng China Enterprises Index and the Hang Seng Corporate

Sustainability Index in 2023. Mengniu focuses on providing nutritious, healthy and delicious dairy products to Chinese and global consumers, through a rich product portfolio including liquid milk, ice cream, milk powder, cheese and other categories under well-recognised brands.

Leadership Message

Green packaging is not only a key topic of Mengniu's sustainable development but also a vital element of "Mengniu's climate change strategy." Considering the entire life cycle of packaging and guided by our goals, we strive to promote the research, development, design, and application of green packaging solutions. We collaborate with industry chain partners to enhance the recycling and reuse of packaging materials. Through these efforts, we aim to convey the concept of sustainability to our consumers and contribute to safeguarding our planet for a more sustainable future.

— Li Hanqing
Vice President of Mengniu Group

Goals and Roadmap of Sustainable Packaging Management

Identification of packaging related risks and opportunities

Mengniu attaches great importance to the potential significant impacts that ESG risks and opportunities may have on the Company, Through communication with stakeholders, Mengniu fully identifies risks and opportunities throughout the process of sustainable development. Mengniu continuously evaluates the possibility

and extent of such risks and opportunities, and develops plans and measures to mitigate ESG risks associated with the business operations. The Board of Directors participates in the evaluation of ESG risks and opportunities, and oversees the effective operation of the Company's ESG risk management and internal control systems.

Packaging-related Risks and Opportunities of Mengniu

Type of risks and opportunities	Description of risks and opportunities
Risk of increasingly stringent regulation and external cost increases due to policies and laws	With the national trend of promoting carbon trading, failing to initiate carbon reduction measures promptly may lead to an increase in external costs caused by carbon emissions. As climate change intensifies and China implements measures for its goals of carbon peaking and carbon neutrality, the regulation of enterprises' carbon emissions and carbon information disclosure will become increasingly stringent. Therefore, Mengniu will actively promote carbon reduction measures such as comprehensive energy solutions and emission reduction of packaging to address related risks.
Increase in demand for green products due to shift in customer preferences	With the increasing environmental awareness of customers and consumers, Low-carbon packaging and other products with the low-carbon and eco-friendly attributes have become increasingly important considerations for consumption. Mengniu will continue to invest in reducing the carbon footprint of products and provide more products with green labels and eco-friendly products accepted by consumers. The Company will remain market-oriented, maintaining its competitive advantage in the market.



Sustainable Packaging strategies and goals

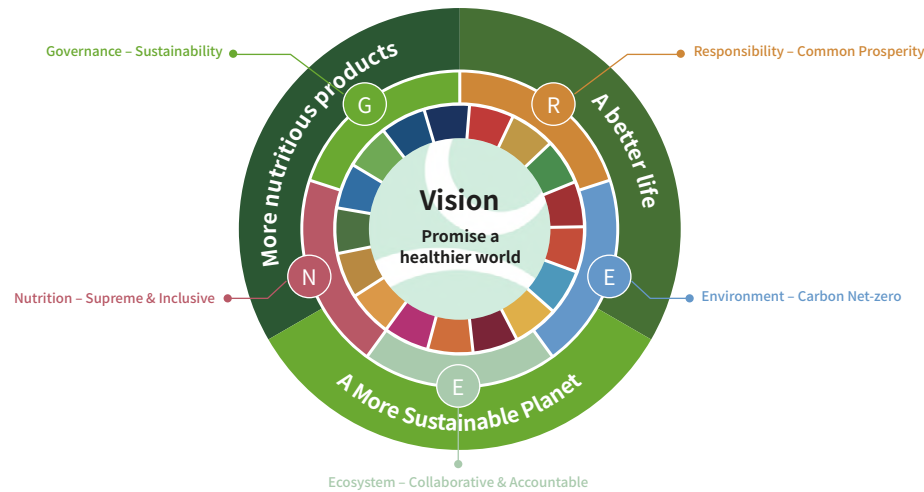
Sustainable development strategy and packaging management of Mengniu

By combining its own business with the UNs' Sustainable Development Goals, Mengniu has formulated the Group-level sustainable development strategy - the GREEN Strategy, which contains five strategic pillars, 15 issues, and 28 specific actions.

◆ **Low carbon and recycling are key areas of focus for Mengniu in driving packaging management.** Under the pillar of "eco-friendly green production," Mengniu identifies "Dual-Carbon Action" and "Recycle" as key management issues to effectively manage packaging while promoting the management effectiveness.

◆ **Green packaging will be significant in realizing the overall carbon reduction goal.** Packaging, as a crucial element of products' carbon footprints, has become a key part of environmental performance management. Through its "4R1D" packaging strategy, Mengniu keep strengthening scientific research and innovation and incorporate green packaging concepts into the entire lifecycle of packaging research, design, and application through measures such as reducing packaging materials and using recyclable packaging materials. This will continuously reduce the environmental impact of packaging waste and help Mengniu achieve its goals of "carbon peak by 2030 and carbon neutrality by 2050."

GREEN Sustainable Development Strategy of Mengniu



Green Packaging Management Strategy of Mengniu

Aligning with the goals of "addressing environmental pollution, protecting resources of the planet, and contributing towards net-zero emissions," Mengniu has formulated and upgraded the "4R1D(Reduce, Recycle, Reuse, Renew, Degradable)" packaging strategy by referring to the CGF's Golden Design Rules in line with the concept of circular economy. By reducing packaging materials, Mengniu reduces the environmental burdens at the source and designs recyclable and reusable packaging to promote recycling and extends the lifecycle of packaging. Mengniu also explores the use of renewable materials to protect the resources of the planet and utilize degradable materials to completely address the pollution caused by a small amount of packaging components that are difficult to recycle.

Sustainable Packaging Management Strategy of Mengniu

Reduce	Recycle	Reuse	Renew	Degradable
Reduce the use of packaging materials on the premise of meeting the functions of product packaging, thereby reducing the impact of packaging on the environment at its source	Design recyclable packaging to improve its recyclability and attempt to use recycled materials in packaging to maximize resource utilization	Enhance the reusable value of packaging to further extend the lifecycle of packaging and reduce resource waste	Apply renewable resources such as paper, bamboo fibers, and plant-based plastics to reduce the use of petroleum-based native plastics and lower dependence on fossil resources	Utilize degradable materials to address the environmental pollution caused by the difficulty of recycling small amounts of packaging components (such as bottle caps and straws)

Sustainable Packaging Goals of Mengniu

To implement the Group's sustainable development strategy, Mengniu has set the goal of "addressing environmental pollution, protecting resources of the planet, and contributing towards net-zero emissions" in packaging management. Mengniu is committed to achieving 100% environmentally friendly packaging materials technically ready for application by 2025, and leading the way in the industry to achieve low-carbon packaging solutions across all product lines.

Sustainable Packaging Goal Setting of Mengniu

Sustainable packaging strategy of Mengniu	Key areas	Packaging goal
Addressing environmental pollution, protecting resources of the planet, and contributing towards net-zero emissions	Reduce Recycle Reuse Renew Degradable	To achieve 100% environmentally friendly packaging materials technically ready for application by 2025, and lead the way in the industry to achieve low-carbon packaging solutions across all product lines

Roadmap for achievement of packaging goals

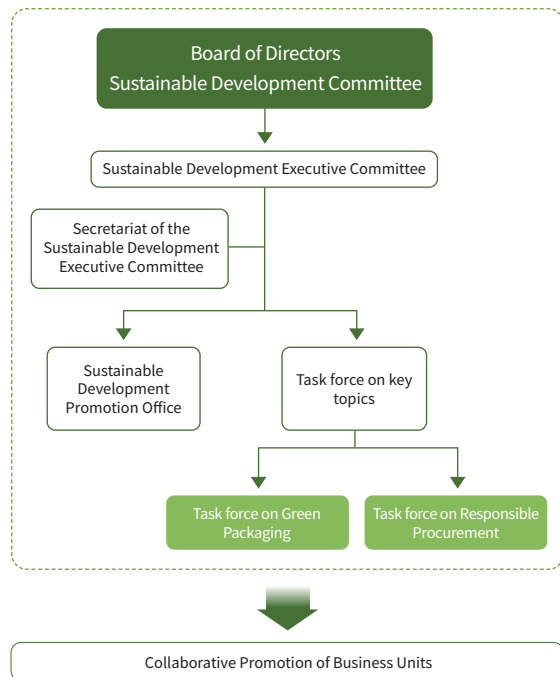
To achieve this goal, Mengniu is committed to taking a "4R1D" packaging design approach, exploring value chain cooperation, and facilitating the recycling and reuse of packaging materials, comprehensively assisting in achieving environmental performance in packaging.

Roadmap for Achievement of Sustainable Packaging of Mengniu

Goal	Strategy	Innovative measures			
To achieve 100% environmentally friendly packaging materials technically ready for application by 2025, and lead the way in the industry to achieve low-carbon packaging solutions across all product lines	4R1D packaging design	Reduce	Reduce the weight of packaging materials per unit product to achieve packaging lightweighting	<ul style="list-style-type: none"> Gradually replace the original 23g and 21.3g PET bottles with 19g bottles Design the yogurt barrel structure to reduce weight by 17% Optimize the cap membrane structure to reduce thickness by about 15% Redesign prefabricated cups to remove snap rings Remove the outer caps of products Research on the application of foaming technology in packaging materials 	
			Remove problematic elements from the packaging (complying with the GDR 2, Remove Problematic Elements from Packaging)	Remove PVC completely from low-temperature prefabricated bottles and replace PVC with PETG in prefabricated cups	
			Reduce the components of packaging materials that raise the environmental burden	<ul style="list-style-type: none"> Reduce the content of barrier in PET bottles Engrave product information on the bottle body for unlabeled products Replace aluminum foil in high-barrier paper-based composite packaging Upgrade the one-step opening structure for the yogurt barrel and remove the sealing gasket 	
			Increase the proportion of mono material	<ul style="list-style-type: none"> Change composite materials of adhesive labels to mono material Use mono PP material for inner and outer packaging of probiotic powder products 	
			Recycle	Improve the level of easy recycling of packaging	Reduce PS and replace it with PP
				Use on-pack recycling instructions (complying with the GDR 9, Use On-Pack Recycling Instructions)	<ul style="list-style-type: none"> Use the Double E Certification marking Use special markings on paper-based composite packaging
		Reuse	Apply recycled materials	Use PCR as product wrap and shrink label	
			Design reusable packaging for the consumer end	Design interactive outer boxes	
		Renew	Utilize reusable packaging in the circulation process to reduce the use of disposable packaging	Replace disposable turnover boxes with circular PP boxes	
				<ul style="list-style-type: none"> Use sugarcane-based PE plastic bottle caps Research on pulp molding materials as substitutes for EPS gaskets, cup caps, and bottle caps 	
		Degradable		Research on the preparation of straws from compostable and degradable materials such as PLA	
			Value chain cooperation		<ul style="list-style-type: none"> Cooperate with retailers to recycle and use circular PP boxes Cooperate with technology providers and universities to build a path of recycled waste plastic for environmental protection
Recycle		<ul style="list-style-type: none"> Obtain sustainability certifications such as Double-E Certification and FSC/PEFC/CFCC Initiate packaging recycling programs Participate in the formulation of packaging recycling standards 			

Packaging Management Mechanism

Management Structure



Management mechanism

Creating plans and guidelines to promote the low-carbon transition of packaging: Packaging is a critical element in promoting the achievement of Mengniu Group's carbon reduction goals. Mengniu has formulated relevant policies at both the Group and business unit levels. These policies include the *Mengniu Group Low-Carbon Development Plan (2023-2025)*, the *Mengniu Group Carbon Emission Management Method*, the *Mengniu Group for Carbon Emission Accounting Technical Guidelines*, and the *Packaging Sustainable Recycling Design Guidelines in Chilled Product Business Unit*. These policies provide a roadmap and implementation guidelines for the realization of carbon reduction in packaging.

Carrying out programs based on annual goals and managing them systematically: Each Business Units within Mengniu sets annual goals for packaging management following the Group's overall sustainable development goals and designs relevant special actions for achieving these goals. These actions cover the entire process from feasibility analysis, program establishment, testing, and verification to program

Sustainable Packaging Management Structure of Mengniu

Decision making and regulation	<p>The Sustainable Development Committee of the Board of Directors reviews the Company's sustainable development strategy, goals, and directions, including programs related to the packaging topic</p> <p>The Sustainable Development Committee: Established at the level of the Board of Directors, it deliberates the ESG strategy, goals, and risks of the Group and reviews information disclosure.</p>
Planning and leadership	<p>The Sustainable Development Executive Committee and its Secretariat promote, supervise, and coordinate the implementation of strategies.</p> <p>Sustainable Development Executive Committee: Composed of executives, it promotes the sustainability management and strategies of the Group, monitors the implementation progress of strategies, and reviews annual work plans.</p> <p>Secretariat of the Sustainable Development Executive Committee: Playing a coordinating role, it coordinates the planning, promotion, and implementation of ESG work.</p>
Implementation	<p>Mengniu has established a Sustainable Development Promotion Office and Task forces to promote program implementation and manage specific topics.</p> <p>Task force on Green Packaging: Composed of representatives from the Group's Procurement Department and Business Units, it coordinates the Company's work related to the green packaging topic and jointly discusses, formulates, and implements relevant work goals and plans. Each Business Units independently plans and implements programs related to product packaging goals.</p> <p>Task force on Responsible Procurement: To achieve "Zero Deforestation" by 2030, it monitors and manages commodities involved in deforestation risks in the industrial chain. For paper packaging materials, it encourages suppliers to obtain third-party certification with international credibility.</p> <p>The packaging R&D, technical, and production departments of Business Units collaborate to promote sustainable packaging both internally and within the Group as a whole.</p>

implementation.

Conducting regular discussions, sharing, and decision-making on new products and packaging: Mengniu organizes internal discussions and progress disclosure meetings for the launch of new products regularly, allowing departments to share updates and iterations related to their respective products. These also include discussions on packaging transition for new products.

Increasing the enthusiasm of relevant responsible personnel through performance assessment: Chilled Product Business Unit of Mengniu incorporates packaging management performance into the performance assessment of relevant responsible personnel, encouraging active participation in packaging sustainability transition programs. For example, indicators such as "number of innovative packaging programs" and "cost savings" are included in the performance assessment of junior, intermediate, and senior engineers, supervisors, and managers in the Packaging R&D Department and technical and supply departments.

Sustainable Packaging Management Achievements

Achievements in Sustainable Packaging of Mengniu

Goal for 2025	Awards and certifications
To achieve 100% environmentally friendly packaging materials technically ready for application by 2025, and lead the way in the industry to achieve low-carbon packaging solutions across all product lines	<ul style="list-style-type: none"> ◆ 4 products of Mengniu won the "Outstanding Contribution Award for Best Practice Case" of Gold Design Rules of CGF. ◆ Mengniu's "Low-carbon Yoyi C" Case won the "China Green Point Case in 2022" Award of China Financial Media outlet Yicai, becoming a pioneering demonstration of low carbon and environmentally friendly packaging. ◆ Mengniu's Yoyi C 800 recycled rPETG shrink label won the Innovation Award for Green Material Application in the "2023 Blue Planet - Sustainable Packaging Competition." ◆ Mengniu's Low-carbon and Eco-friendly Yoyi C 340/330 Series Packaging Optimization Program won the title of 2023 Golden Cauldron Innovation Project of the National Technical Standard Innovation Base (Dairy Industry) and the 13th Cougar Cup Packaging Innovation and Sustainable Development Award. ◆ Mengniu's Deluxe desert organic pure milk product won the "Sustainable Ecosystem Innovation and Exploration Award - 13th Cougar Cup Packaging Innovation and Sustainable Development Award." ◆ Mengniu's Circular PP Box Program has been shortlisted as an excellent case of circular economy by the British Chamber of Commerce Shanghai in 2023.

Environment benefits

Mengniu's Business Units actively promote the sustainable transition of product packaging, achieving significant environmental benefits.

- ◆ Mengniu's Room Temperature business unit changes the packaging box types of some e-commerce products, reduces the use of gaskets and turnover boxes, and makes the products more closely attached to the outer boxes. This improves the compression resistance of the packaging boxes and reduces the costs of packaging materials. This measure is expected to reduce paper usage by 16,588 tons throughout the year, equivalent to reducing the logging of 45,446 trees aged 20 years each year.
- ◆ Mengniu's Room Temperature business unit implements a series of measures to reduce plastic usage in product packaging through redesigned packaging types. These include removing the prefabricated cup ring from the YUMMY YOGHURT and eliminating the outer cap from the Just Yoghurt Xiaomanyao product. It is estimated that these measures will reduce plastic usage by about 1,300 tons per year and reduce carbon emissions equivalent to over 3,300 tons of carbon dioxide, which is equivalent to planting 170,000 trees.
- ◆ The first Yoyi C product from Mengniu's Chilled Product business unit, featuring a no-label design, has achieved a 44.6% reduction in the carbon footprint of related products through packaging improvements such as reduced plastic usage and ink consumption. This reduction in carbon emissions is equivalent to planting 117,752 trees.
- ◆ The first product from Mengniu's Chilled Product business unit to utilize rPETG recycled shrink labels, incorporating 30% recycled PET, reduces 7.6 tons of virgin plastic usage and an 11% decrease in carbon emissions.
- ◆ Mengniu's Chilled Product business unit adopts mono PE layer to replace the original multi-layer composite structure. This not only ensures the exquisite and attractive appearance but also provides superior performance and improves its recyclability.



Social benefits

Mengniu explores and applies circular economy on the B2B end, promoting innovative practices of responsible environmental actions among partners in the industrial chain.

- ◆ Mengniu utilizes PP as the raw material for turnover packaging, achieving 100% recycling of packaging materials. Via the "Circular PP Box" Program, Mengniu brings upstream suppliers, factories, circular packaging box service providers, trunk logistics providers, distributors, urban distribution logistics providers, merchants, and stores together to participate in the circular economy. This program has been applied in multiple product lines of various business units such as the Room Temperature business unit, Chilled Product business unit, and Fresh Milk business unit, with an annual usage of about 740,000 units, significantly reducing the use of cartons.



Mengniu actively promotes sustainable packaging certification, increasing consumers' awareness of sustainable packaging.

- ◆ Mengniu, as a representative of the dairy industry, participated in the formulation of the *General Guidelines for the Evaluation for Plastics Products' Easy-to-collect and Easy-to-regenerate Design*.
- ◆ In 2023, Mengniu continued Double E Certification for packaging, covering 2 product lines and 10 factories.
- ◆ Mengniu's Shiny Meadow brand, in collaboration with LOVERE, launched a "Recycling Program" to recycle PET bottles and make them into equipment such as sun hats and raincoats, paying tribute to the guardians of Earth while attracting consumer attention to plastic recycling.

Economic benefits

Transiting and innovating packaging not only generates environmental and social benefits but also holds the potential to yield certain economic benefits for the Company in the long run.

- ◆ Through the innovative structure design of the bottle, the Shiny Meadow Mini 450ml product of Mengniu's Fresh Milk business unit reduces the weight of the original PET bottle from 36g to 32g. This not only lowers packaging costs but also enhances the bottle's resistance to negative pressure, improving its overall performance. It increases design interest, with a distinct differentiation from similar products on the market, strengthening the brand's terminal icon identification.



- ◆ For Mengniu's Yoyi C 100g milk products, the PETG bottle label is canceled and product information is directly engraved on the bottle body, reducing plastic usage while gaining consumer recognition.



While promoting the sustainability of its products, Mengniu remains committed to advancing the sustainability of packaging. Through technological innovation and large-scale application, Mengniu aims to bring consumers more green, sustainable, and affordable products.



Nestlé Case

Nestlé strives to shape a waste-free future

Corporate Profile

Nestlé Zone Greater China is one of the five zones in Nestlé group and is one of the fastest-moving food and beverage markets in the world. At present, Nestlé China operates 22 factories, 3 R&D centers and 5 product innovation centers, Dairy Farming Institute & Grain Competence Center, Nescafé Coffee Center, Food Safety Institute,

4 Customer Engagement Centers, and around 23,000 employees in China. Creating Shared Value is fundamental to how we do business at Nestlé. We believe that our company can only be successful in the long term by creating value both for our shareholders and for society.

Leadership Message

Plastic packaging is one of the important sustainability topics for Nestlé, which not only relates to effectively solving plastic pollution, but also to achieving Nestlé's Net Zero Roadmap. We strive to create a waste-free future. With goals for Virgin Plastics Reduction and Designed for Recycling, we actively drive project implementation through effective governance. We are looking forward to working together with all stakeholders in the value chain to create a more sustainable future.

— David Fang,
Senior Vice President of Corporate Affairs and Sustainability, Nestlé Zone Greater China

Goals and Roadmap of Sustainable Packaging

Identification of packaging related risks and opportunities

Nestlé conducts internal and external research to determine its impacts on the society and environment, as well as to identify key issues that have substantive or potential impacts on Nestlé's business. In the process of benchmarking domestic and foreign

policies, standards, and industry initiatives, delivering group commitments, and collecting consumer insights, Nestlé Zone Greater China has recognized the importance of packaging for Nestlé's development and associated risks:

Packaging Related Risks and Opportunities for Nestlé

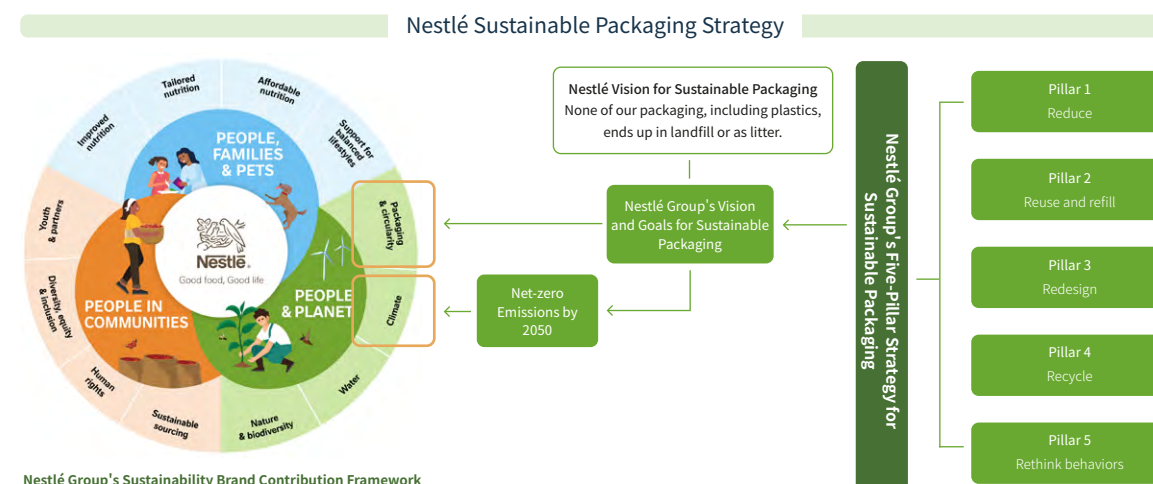
Type of risks and opportunities	Description of risks and opportunities
Increased operation costs due to progressively strict legal and regulatory requirements	Nestlé must comply with climate related laws and regulations. Therefore, in risk management, we must pay attention to the newly launched relevant policies and regulations in the market where we operate, and strengthen the management and supervision of our own operations accordingly. For example, China is promoting carbon peak and carbon neutrality goals, and circular economy has played an important role in achieving these goals and helping to build ecological civilization. The Chinese government has successively promulgated documents such as the 14th Five-Year Plan for Circular Economy Development and the Guiding Opinions on Accelerating the Construction of Waste and Old Material Recycling System, which have put forward requirements and suggestions for promoting green packaging design and reducing the use of plastics. The State Administration for Market Regulation (SAMR) has also issued the Requirements of Restricting Excessive Package - Foods and Cosmetics to restrict the use of secondary packaging materials, especially gift box packaging. With the tightening of policies and regulations, if packaging transformation is not carried out in a timely manner, Nestlé will face an increase in the packaging cost.
Potential market risks due to shifting consumer preferences	Nestlé has found that people's concerns with the sustainability of the Earth's resources and the consumer's concerns with the environment friendliness of consumption are increasing, leading them to have more environmental consideration about Nestlé's products. If the consumption behaviors and needs of consumers who are concerned with environmental protection cannot be met, the company may take the risk of missing out on business growth opportunities. Sustainable packaging is one of the important transition risks and opportunities that Nestlé has identified.

Sustainable Packaging strategies and goals

Packaging transformation is an important action to support Nestlé's net-zero emissions goal and sustainability transformation. Nestlé Group has pinpointed packaging as a key topic and set a sustainable packaging vision and goals to contribute to its sustainable development and net-zero emissions.

◆ Packaging and circular economy are the key topics in Nestlé Group's sustainability brand contribution framework. Nestlé Group has developed a sustainability brand contribution framework, identifying 12 key topics in three pillars, helping brands identify their roles and key development directions in supporting group goals.

◆ Promoting sustainable packaging will effectively help Nestlé achieve the goal of net-zero emissions. Nestlé publicly committed to achieving net-zero emissions by 2050 in September 2019 and, in December 2020, released Nestlé's Net Zero Roadmap, in which addressing the challenge of plastic wastes is one of the eight major actions. Nestlé has realized that improving packaging design and production processes, increasing reuse and recycling rates, and end-of-life management will have a significant impact on Nestlé's achievement of net-zero emissions by 2050.



Nestlé Group's Sustainability Brand Contribution Framework

Under the sustainable packaging strategy, Nestlé has set packaging goals. Nestlé Zone Greater China keeps the same commitment with the Group. Nestlé has set a long-term vision of "None of our packaging, including plastics, ends up in landfill or as litter" and a short-term goal of "by 2025, more than 95% of our plastic packaging are designed for recycling and reducing the use of virgin plastics by one-third."

Nestlé Sustainable Packaging Goals

Nestlé Sustainable packaging strategy	Packaging five pillars	Packaging goals
Simplify the packaging	Reduce Reuse and refill	By 2025, reducing the use of virgin plastics by one-third
Optimize the packaging	Redesign	By 2025, over 95% of plastic packaging designed for recycling
Improve the system	ecycle Rethink behaviors	Continuous promotion of recycling infrastructure and improvement of stakeholders' behavior

Roadmap for achievement of sustainable packaging goals

To achieve the above goals, Nestlé takes actions in five directions: Reduce, Reuse and Refill, Redesign, Recycle, and Rethink Behaviors. Meanwhile, Nestlé believes that packaging need to strike a balance between environmental impact, performance, and cost, while ensuring products' safety and quality.



Roadmap for Achievement of Nestlé Packaging Goals

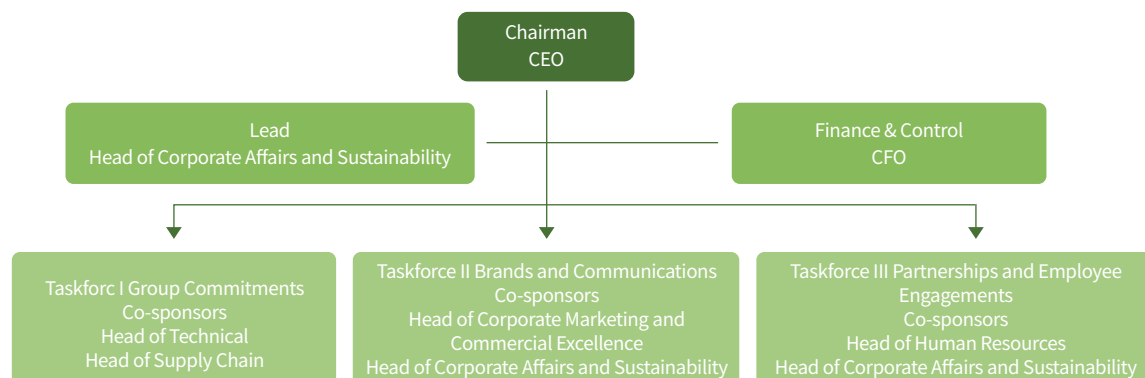
Packaging goals	Implementation methods	Innovation
By 2025, reducing the use of virgin plastics by one-third	<p>Reducing the use of plastic packaging, especially virgin plastics</p> <ul style="list-style-type: none"> ◆ Comply with the GDR 3 Eliminate Excess Headspace <ul style="list-style-type: none"> ◇ Reduce packaging headspace ◆ Comply with the GDR 4 Reduce Plastic Overwraps <ul style="list-style-type: none"> ◇ Reduce excessive packaging ◇ Reduce packaging size and thickness through systematic design ◇ Lightweight packaging ◇ Remove unnecessary packaging <p>Developing alternative packaging materials to promote recycling</p> <ul style="list-style-type: none"> ◆ Replace plastic packaging with paper packaging ◆ Promote the R&D of innovative alternative materials <p>Promoting reusable and refillable systems to eliminate the need for disposable packaging</p> <ul style="list-style-type: none"> ◆ Use fillable/replaceable packaging ◆ Reuse transport boxes and related plastic products within the factories 	<ul style="list-style-type: none"> Q Lightweight design of PET bottle Q Use paper packaging to replace plastics in secondary packaging that does not come into contact with food, and gradually promoting the practice Q Use 100% rPET in secondary packaging that does not come into contact with food Q Remove the wrapping film from transportation packaging and use reusable bands instead Q Use recyclable boxes for material storage and transportation in the factories and actively try to use recyclable boxes outside factories Q Actively explore food dispensers and advocate for the use of refillable/replaceable packaging, reducing packaging use
By 2025, over 95% of plastic packaging are designed for recycling	<ul style="list-style-type: none"> ◆ Comply with the GDR 2 Remove Problematic Elements from Packaging <ul style="list-style-type: none"> ◇ Remove PVC, PS, carbon black, and so on ◆ Comply with the GDR 5 Increase Recycling Value for PET Thermoformed Trays and Other PET Thermoformed Packaging <ul style="list-style-type: none"> ◇ Remove the carbon black of PET bottles, changing dark bottles to transparent ones ◆ Improve the use of recycled materials ◆ Upgrade the equipment to adapt to the use of environmentally friendly materials 	<ul style="list-style-type: none"> Q Use polyolefin structure for composite flexible packaging, removing aluminum foil and nylon, etc. Q Remove the wrapping film and heat shrink film
Continuous promotion of recycling infrastructure and improvement of stakeholders' behavior	<p>Supporting infrastructure construction, creating a waste-free system, and minimizing the generation of plastic wastes to the greatest extent possible</p> <p>Reflecting on and enhancing the behaviors of Nestlé employees, retailers, and consumers</p> <ul style="list-style-type: none"> ◆ Implement the GDR 9 Use On-Pack Recycling Instructions <ul style="list-style-type: none"> ◇ Provide recycling labels for packaging designed for recycling according to the requirements of national standards ◆ Conduct consumer education and promote consumer-end recycling 	

Sustainable Packaging Management Structure and Mechanism

Management structure

Nestlé believes that packaging must adapt to the infrastructure and environmental conditions of different regions. Therefore, Nestlé Zone Greater China has established a dedicated Sustainability Committee to promote the implementation of internal sustainability goals, including packaging.

Sustainability Committee of Nestlé Zone Greater China



Decision making and supervision	Nestlé Zone Greater China has established a Sustainability Committee , chaired by CEO and responsible for formulating the company's sustainability strategies and allocating relevant resources	
Planning and coordination	Corporate Affairs and Sustainability: Coordinate sustainability projects, including packaging projects, to ensure the achievement of sustainability goals, and to promote the disclosure and communications of sustainability progress and achievements	
	Finance and Control: Responsible for cost-benefit analysis, budgeting, and cost tracking of sustainability projects	
Implementation	Sustainability Committee has three sustainability taskforces responsible for the specific implementation of projects:	
	◆ Taskforce I: responsible for implementing Group's sustainability commitments, with one of the focus being sustainable packaging	
	◆ Taskforce II: responsible for promoting brands' sustainability marketing and communications	
	Corporate Packaging Services	Responsible for researching sustainable packaging solutions, providing technical training for projects, and conducting project management

Management mechanism

Comprehensive management of investments, costs, and benefits. Nestlé comprehensively consider the risks that the company might face, such as stricter legal and regulatory requirements for packaging and shifting consumer preferences, and evaluate the investments, costs, and benefits of related projects, providing necessary investments and supports for important projects.

Specific management indicators and cross-department collaboration. Nestlé establishes corresponding management indicators for relevant departments in the implementation of sustainable packaging goals, including packaging management performance in the KPI assessment of relevant personnel.

Regular review and tracking. Nestlé establishes a quarterly target review mechanism, regularly evaluating the progress. In combination with routine monthly and weekly meetings, the reviewers anticipate potential risks in achieving goals, provide timely feedback and punishment warnings, and propose solutions for decision-making of the management.

Clear packaging management policies and guidelines. Nestlé develops clear Nestlé Rules for Packaging, a negative packaging material list, and Packaging Fit for Purpose (FFP) guidelines to standardize and manage the recyclability design of packaging materials.

Nestlé Golden Rules of Sustainable Packaging



Negative Packaging Material List

1. Eliminate materials that are impossible to establish recycling plans or may contaminate existing recycling processes, including polyvinyl chloride, polystyrene, polyvinylidene chloride coatings, fiberglass, paper plastic composite materials with less than 50% paper content, and composite packaging containing PET, aluminum foil, nylon, and so on.
2. Eliminate carbon black and other materials used for hard plastic packaging that are difficult to detect in automated sorting facilities with near-infrared spectroscopy technology (NIR).
3. Eliminate complex packaging combinations and excessive packaging without functional requirements.
4. Eliminate anti-theft shrink sleeves and disposable plastic items and accessories (plastic straws, mixing rods, cups, and tableware, etc.).

Capacity Building and Reward Mechanisms:

To promote good collaboration and unified understanding among various teams in packaging management, the Corporate Packaging Services team regularly conduct packaging related training or sharing. Nestlé Zone Greater China has set up Annual Innovation Awards. In 2022, the lightweight PET bottle project of 268ml Nescafé ready-to-drink coffee won this award in Green and Sustainable Development category.



2022 Nestlé Zone Greater China Innovation Awards - Green and Sustainable Development Category
Lightweight PET Bottle Project of 268ml Nescafé ready-to-drink coffee



Sustainable Packaging Management Achievements

Achievements in Sustainable Packaging of Nestlé

Goals for 2025	Progress (up to 2023)
By 2025, reducing the use of virgin plastics by one-third (compared with the 2018 baseline)	14.9%
By 2025, over 95% of plastic packaging designed for recycling	83.5%

Environment benefits

Since 1991, Nestlé has been gradually reducing packaging weight. Nestlé continues reducing packaging use by lightening packaging weight, increasing the use of recycled content, and eliminating unnecessary packaging. From 2022 to 2023, Nestlé Group's packaging use has decreased from about 3,600,000 tons to about 3,400,000 tons.

Nestlé Sustainable Packaging Cases

<p>Before After</p> <p>Dairy metal closure Change from plastic to metal closure and from plastic to paper spoon</p>	<p>Before After</p> <p>HsuFuChi PCR on secondary packaging Increase up to 100% recycled content in secondary packaging of both jar and closure.</p>
<p>Before After</p> <p>POLO dispenser Pilot with Polo Alternative Delivery System to eliminate tiny pieces packaging</p>	<p>Before After</p> <p>RTD 268ml PET lightweight bottle Plastic weight reduction from 19g to 16.5g</p>

Social benefits

Nestlé conducts research projects to promote the innovation of cutting-edge technologies and policies

- ◆ Quality control research of rPET food-grade beverage bottles and that of multi-routes PET recycling in cooperation with the China Beverage Industry Association
- ◆ rPET contamination analysis with the Joint Working Forum for Sustainable Food Contact Materials in China (SFCM)
- ◆ Research on Sustainable Plastic Packaging Policies Under the Context of Carbon Peak and Carbon Neutrality with the China Development Research Foundation
- ◆ Open innovation challenge competitions with Tsinghua X-Lab, inviting Tsinghua University's teachers and students to develop new packaging solutions

Nestlé actively participates in industry initiatives, leveraging more people to promote sustainable packaging

- ◆ Sustainability initiatives of the Consumer Goods Forum, such as the Plastic Waste Coalition of Action

Nestlé actively participates in the formulation of packaging standards to promote the development of green packaging standards in China

Economic benefits

Nestlé attaches great importance to the economic benefits brought by projects in promoting sustainable packaging. By calculating the financial costs, and contribution to brand image and compliance requirements of related projects, Nestlé fully measures the economic benefits of the projects and ultimately selects cost-efficient packaging projects.

- ◆ The formulation of *Method and criteria for green packaging assessment (GB/T 37422-2019)*
- ◆ The Second Prize of China Standard Innovation Contribution Award in March 2023

Driving the transformation of both supply and demand sides through Nestlé's own practices

- ◆ Driving over 100 suppliers to undergo packaging transformation in sustainable packaging project implementation.
- ◆ In the consumption phase, Nestlé and 23 other companies, including Alibaba, jointly launched the "Decarbonization-Friendly Actions" focusing on the consumption sector, encouraging consumers to develop carbon reduction habits and providing reference for more consumer brands' carbon reduction actions
 - ◇ Up to now, over a hundred Nestlé products has been added to 88 Carbon Account on Taobao
 - ◇ In May 2023, Nestlé launched "88 Carbon Reduction Day" and the first live streaming event with the theme of "Traceability Journey for Delicious Coffee Products in Yunnan" in the coffee production site in Yunnan, providing consumers with low-carbon product choices from Nestlé



Mondelēz Case

Mondelēz is leading the way to a sustainable future in the snacks industry

Corporate Profile

Mondelēz International entered the Chinese market in 1984, with its Greater China headquarters located in Shanghai. As a leading snack company, Mondelēz Greater China manufactures and operates various categories, including biscuits, chocolates, chewing gum, candies, and powdered beverages. It toasts iconic brands such as Oreo, Stride, Chips Ahoy!, Pacific, Halls, and Tang. Currently, the

company has approximately 4,000 talented employees and operates four plants in North China, South China, and East China, as well as one Global Technical Center in East China. Starting from July 1, 2013, the company officially changed its name, reflecting the company's vision of bringing "Abundance of Deliciousness" to consumers.

Leadership Message

Sustainable Packaging is a critical integral part of sustainability strategy at Mondelēz International. The company aims to achieve 100% packaging designed to be recyclable and 5% reduction in virgin plastic by 2025. Our Greater China Packaging R&D team has made extensive exploration and implementation in terms of the research and application of recyclable packaging materials, and packaging reduction. Now, most of Mondelēz Greater China's biscuit packaging has achieved single material plastic packaging film, which is designed to be recyclable. This is also fully in line with the trend of green consumption. Meanwhile, we also look forward to working with CGF and stakeholders to accelerate the packaging circular economy, promote the closed-loop recycling of flexibles, advance the application of recycled plastics in food contact packaging in China, promote green development, and contribute to "Dual Carbon" goals in China.

— Joost Vlaanderen,
President of Mondelēz Greater China

Goals and Roadmap of Sustainable Packaging Management

Identification of packaging-related risks and opportunities

Mondelēz Greater China assesses and analyzes the risks associated with sustainable development, particularly climate change. In terms of sustainable packaging, Mondelēz faces two main risks or

opportunities: the rising costs caused by the promotion of sustainable packaging and the impact of changing consumer perceptions on company's markets and reputations.

Packaging Related Risks and Opportunities of Mondelēz Greater China

Type of risks and opportunities	Description of risks and opportunities
Increase in operating costs as a result of the company's efforts to promote sustainable packaging	<p>Since most of its products are in flexible plastic packaging, Mondelēz Greater China is expected to keep promoting the development of flexible plastic packaging recycling system and pay more for packaging management. Mondelēz Greater China is actively replacing multiple-material lamination to single-material lamination, which is adapted to the high-speed production line and designed to be recyclable. Thus, the company has paid higher costs.</p> <p>Mondelēz Greater China would like to accelerate the implementation of the "extended producer responsibility (EPR)" policy and the packaging circular economy in China, as well as the application of recycled plastic in food contacted packaging, so that flexible plastic packaging can be truly recycled and reused.</p>
Impacts of changing consumer attitudes on the market and reputation	<p>Mondelēz International finds more and more consumers are very focused on how their snacking choices impact the environment. Consumers recognize that both companies and consumers play key roles in sustainable snacking. An increasing number of consumers say they prioritize snacks with less plastic packaging, often recycle their snack packaging, and believe that sustainable packaging helps them enjoy snacks better.</p> <p>As a global snacking leader, Mondelēz International is committed to snacking made right. Sustainable packaging is one of the key components to achieve on sustainable growth. By understanding and meeting the needs of consumers, Mondelēz International is making great efforts to be part of the solution to help address key environmental challenges, including striving for net zero waste packaging and advancing a circular economy for packaging.</p>

Sustainable packaging strategies and goals

Sustainability strategy and packaging management of Mondelēz International

Mondelēz International is dedicated to offering the right snack, for the right moment, made the right way, and to leading the sustainable future of snacking, aiming toward a long-term goal of net zero emissions across the full value chain by 2050.

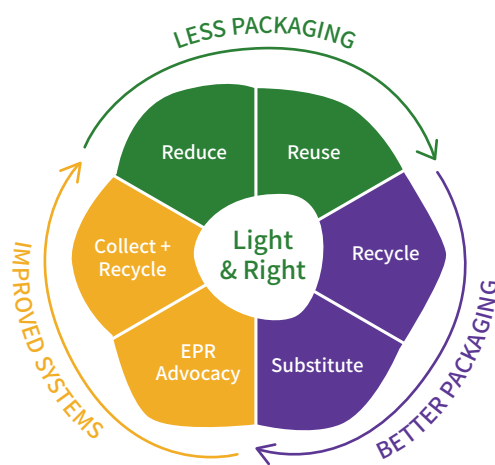
As a global snacking leader, Mondelēz International is leveraging its scale and influence to drive positive impact for people and the planet,

driving innovation and growth, and making snacking right. In 2022, Mondelēz International elevated sustainability as the fourth pillar of its long-term growth strategy to build a more sustainable snacking company, demonstrating the breadth and depth of its commitment to "Snacking Made Right". In Mondelēz International's sustainability strategy, packaging is managed as a key focus area and topic.

Sustainability Strategy Framework of Mondelēz International



Sustainable Packaging Development Strategy of Mondelēz International



Sustainable Packaging Management Principles of Mondelēz International

Mondelēz International follows the principles of less packaging, better packaging, and improved systems. By leveraging less and better packaging, and improving the infrastructure for packaging recycling, Mondelēz International tries to synergize each part of the packaging value chain for a more positive impact.

Moreover, Mondelēz International's sustainable packaging is not

simply about a green transformation, but rather reducing the impact on environment while fully protecting products and meeting consumer expectations. In the long run, Mondelēz International will continue to improve the sustainability of its packaging to achieve its long-term goals and advance a circular economy for packaging that benefits people and the planet.

Sustainable Packaging Goal Setting of Mondelēz International

Sustainable packaging strategy of Mondelēz International	Target areas	Sustainable Packaging Goal
Less packaging	Reduce	5% recycled plastic content by 2025 5% reduction in virgin plastic by 2025 25% reduction in rigid virgin plastic by 2025
	Reuse	
Better packaging	Recycle	100% packaging designed to be recyclable by 2025
	Replace	5% reduction in virgin plastic by 2025
Improved systems	Collect + Recycle	
	EPR Advocacy	

Synergy of Mondelēz International's long-term packaging sustainability goals and emission reduction targets

To address the risks posed by packaging, Sustainability Team and R&D Team of Mondelēz International have been working on packaging innovations. Mondelēz International has also set a goal of Net Zero Waste Packaging by 2050. As a key direction for Mondelēz International to reduce carbon emissions, promote zero packaging waste and facilitate a circular economy, sustainable packaging has also become one of the highest priorities of Mondelēz International's for sustainable development.

Roadmap for achievement of packaging goals

To achieve the above goals, Mondelēz International adopts the strategy to redesign snack packaging and reduce the use of packaging materials. Besides, it develops simpler packaging materials, increases the recyclable value of packaging, and uses recycled materials wherever possible.

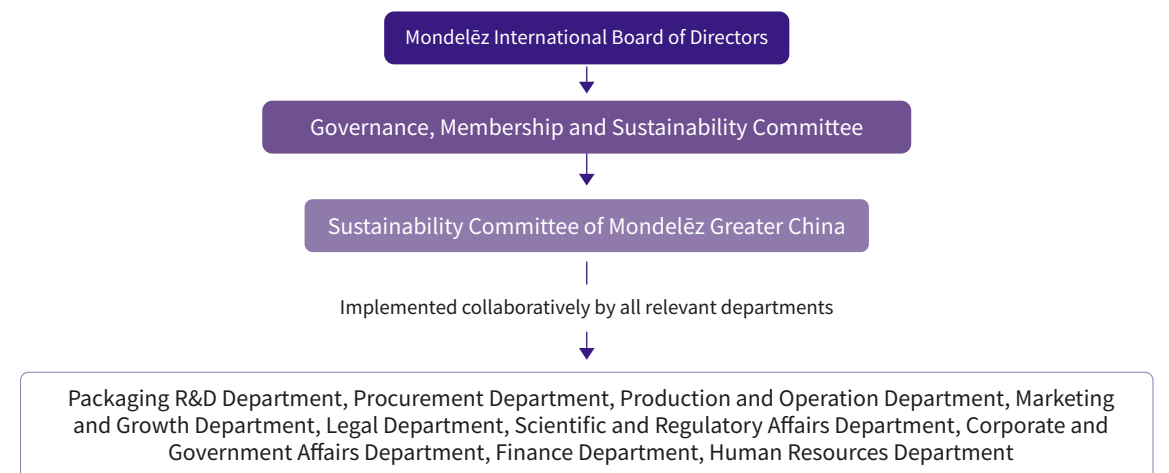
Roadmap for Achievement of Packaging Sustainability of Mondelēz International

Goal	Strategy
5% recycled plastic content by 2025	<ul style="list-style-type: none"> ◆ Increase the content of recycled plastic in packaging from responsibly managed sources ◆ Reduce the use of virgin plastic by using recycled plastic
5% reduction in virgin plastic by 2025 25% reduction in rigid virgin plastic by 2025	<ul style="list-style-type: none"> ◆ Implement GDR 4: Reduce Plastic Overwraps ◆ Implement GDR 3: Eliminate Excess Headspace <ul style="list-style-type: none"> ◇ Reduce excessive packaging and redesign to minimize the use of packaging materials ◆ Implement GDR 8: Reduce Virgin Plastic Use in Business-to-Business Plastic Packaging ◆ Reduce the use of plastic through changes in packaging design ◆ Reduce the use of virgin plastic by using recycled plastic
100% packaging designed to be recyclable by 2025	<ul style="list-style-type: none"> ◆ Implement GDR 2: Remove Problematic Elements from Packaging <ul style="list-style-type: none"> ◇ Eliminate problematic and unnecessary plastic packaging ◆ Implement GDR 6: Increase Recycling Value in Flexible Consumer Packaging <ul style="list-style-type: none"> ◇ Develop flexible packaging materials of a single material
Collect as much plastic as we produce Lead development of capabilities to scale infrastructure solutions Advocate for EPR schemes to include plastic packaging esp. flexibles	<ul style="list-style-type: none"> ◆ Work with waste management agencies to recycle post-consumer plastic packaging waste and convert recycled plastic waste into building materials ◆ Invest in institutions to help develop infrastructure and projects to collect, sort and recycle plastic wastes (especially flexible films) ◆ Implement GDR 9: Use On-Pack Recycling Instructions <ul style="list-style-type: none"> ◇ Use QR codes on packaging to help consumers know the corporate sustainability information

Sustainable Packaging Management Structure and Mechanism

Management structure

Sustainable Packaging Management Structure of Mondelēz International and Mondelēz Greater China



Decision making and regulation	Mondelēz International Board of Directors oversees ESG-related business globally, including packaging topics	
Planning and leadership	Mondelēz International Board of Directors oversees ESG-related risks, strategies, processes, alignment with goals, and stakeholder interests, and reviews the progress and challenges to Mondelēz International's growth culture and diversity and inclusion goals	
	The Governance, Membership and Sustainability Committee oversees Mondelēz International's ESG policies and programs related to corporate citizenship, social responsibility, and public policy issues, such as food labeling and packaging	
Implementation	The Sustainability Committee of Mondelēz Greater China is responsible for setting and managing packaging goals in Greater China, with senior executives involved in decision-making	
	Mondelēz Greater China has established the Sustainability Committee, which is responsible for setting and implementing the sustainable packaging goals and paths for Greater China. Senior executives of Mondelēz Greater China from R&D Center, marketing & development, supply chain, and other related functions get involved in the management	
Implementation	Packaging R&D Department	Packaging design, technology development, packaging testing and validation
	Procurement Department	Selection of packaging suppliers and procurement
	Production and Operation Department	Industrial mass production
	Marketing and Growth Department	Sustainable packaging marketing planning, consumer behavior and consumer trends insight and testing
	Legal Department	Provide legal consultation and support for sustainability projects; review packaging and related external publicity materials
	Scientific and Regulatory Affairs Department, Corporate and Government Affairs Department	Monitor and track of packaging related laws and regulations, and help Packaging R&D team understand and implement; provide opinions and suggestions to related government departments and industry associations to seek possible solutions
	Finance Department	Cost analysis and optimization, investment, and cost tracking of sustainability projects
Human Resources Department	Talent recruitment, capacity building, and empowerment	

Management mechanism

Overall planning to ensure the necessary funds and resources for project development. By designing a phased sustainability plan for 2025, Mondelēz International allocates its sustainability plan to business units around the world, so that projects such as packaging are aligned with the overall financial planning and that the investment and resources required for the projects are available.

Management in charge, and targets incorporated into the annual compensation plan. Mondelēz International continuously tracks the performance of ESG-related targets and holds management accountable for packaging-related targets, from global to regional and category, by incorporating packaging-related targets into executives' annual compensation plans.

Regular meetings to ensure timely communication of progress. In terms of packaging innovation, Mondelēz International summarizes and promotes the development of packaging innovation through the Annual Global Packaging Innovation Group Working Meeting. It carries out global sharing of key projects and synchronizes the latest progress at the quarterly global packaging conferences, and discusses packaging innovation direction at monthly meetings. In daily packaging management, Mondelēz Greater China holds monthly pre-assessment meetings (PAM), with senior executives of each business function participate in the approval of key projects and track project progress through weekly meetings. A dedicated project management department is set to manage and evaluate the work progress.

Formulation of policies and guidelines to effectively promote implementation. Mondelēz International has developed internal policies and guidelines related to packaging management in terms of sustainability, routine testing, and project management, including the new project development management process, packaging testing operation instructions and standards, and sustainable packaging playbooks.

Capacity building to empower business functions and new employees. Mondelēz Greater China benefits from sustainability workshops to better promote the synergy of internal packaging management. Mondelēz Greater China conducts packaging knowledge training for all other business functions except the packaging team and provides job rotation across departments. In terms of packaging technology development, Mondelēz Greater China organizes annual packaging technology training for packaging professionals and synchronizes market research insights.

Co-action of packaging management stakeholders. Mondelēz Greater China encourages internal employees and supply chain partners to share their ideas on "how to make less and better packaging", and adopts feasible ideas. For example, suppliers replace disposable cartons with reusable ones, reducing the use of packaging materials in logistics.

Packaging Management Achievements

Achievements in Sustainable Packaging of Mondelēz International

Goal for 2025	Progress (up to 2022)
100% packaging designed to be recyclable	96%
5% reduction in virgin plastic	-1.5%
25% reduction in rigid virgin plastic (vs. 2020)	7%
5% recycled plastic content	1%

Environmental benefits

Packaging designed to be recyclable. By the end of 2022, approximately 97% of Mondelēz Greater China's packaging had been designed to be recyclable. As of the end of 2022, the films used in Oreo sandwich biscuits had been made of recyclable materials, and about 3,000 tons of films were changed from non-recyclable structure to the one that is designed to be recyclable.



Optimizing packaging design. By redesigning packaging and adjusting packaging materials, Packaging R&D team of Mondelēz Greater China has reduced the use of plastic and paper board, diminishing the usage of packaging materials. For example, by optimizing the structure design of gifting boxes, approximately 400 tons of paper and 19.5 tons of metals were saved in 2022.

Social benefits

Actively participate in industry initiatives and actions, and collaborate with industry partners to drive packaging transformation

- ◆ In 2020, representatives from Mondelēz Greater China and upstream and downstream enterprises in the packaging industry chain jointly issued the *Environmental Initiative for Sustainable Development of Packaging Industry*, aiming to drive systemic change by bringing together stakeholders from different sectors to jointly develop scalable solutions.
- ◆ In 2020, Mondelēz International joined the Ellen MacArthur Foundation's *New Plastics Economy Global Commitment*, uniting other businesses, governments, and institutions around a common vision and purpose to tackle plastic pollution at its source by accelerating the transition to a circular economy for plastic.
- ◆ In 2020, Mondelēz International joined the Consumer Goods Forum (CGF) Plastic Waste Coalition of Action (PWCoA) and began implementing the GDRs.

- ◆ In 2022, Alibaba Group and 19 industry-leading corporate brands, including Mondelēz Greater China, jointly launched the "Decarbonization-Friendly Actions" and published the *Guidelines for Decarbonization-Friendly Actions*.
- ◆ In 2023, Mondelēz Greater China won the iSEE AWARD - Food Design of the Year for its design for recyclable Oreo mono-material eco-friendly flexible film
- ◆ In 2023, Mondelēz Greater China won the M-SUCCESS Group's Packaging Innovation and Sustainability Award for the environmentally friendly application of low density white board on Oreo packaging and removal plastic lamination from Chinese New Year Gifting Boxes
- ◆ In 2023, Oreo sandwich biscuit packaging design and Chips Ahoy! family packaging design were selected as Best Practice Cases of CGF GDRs for increasing recycling value in flexible packaging, eliminating excess headspace, and reducing plastic overwraps.

Economic benefits

Mondelēz International believes that sustainable development can drive growth, create value, and make our business more resilient. Analyzing potential risks and improving our impacts on environmental systems through sustainable packaging management will not only help Mondelēz International to lead the way to a sustainable future in the snacks industry and to achieve long-term sustainable business growth, but also benefit people and the planet.





Colgate Case

Colgate persists in finding better and more sustainable ways to improve products and packaging!

Introduction

As one of the most global companies, Colgate has branches in over 80 countries and regions, and our products target consumers in over 200 countries and regions. Our brand series is not limited to oral care, and "Colgate Smile" has a more extensive popularity than what many people are aware of. Colgate is a global leader in oral care, home care, and personal care. As indicated by the awards and honors we have

received, we are at the forefront of sustainable development. Colgate is also a caring, innovative growth company that is reimagining a healthier future for all people, their pets and our planet. For a better tomorrow on the planet, Colgate persists in finding better and more sustainable ways to improve products and packaging!

Leadership Message

Colgate is a caring, innovative growth company that is reimagining a healthier future for all people, their pets and our planet. Eliminating plastic wastes is one of our important missions in our global sustainability & social impact strategy. We promise to design and produce products with zero plastic wastes. We have set a global goal that, by 2025, we will reduce the use of native plastics by one-third, reuse 25% of recycled plastics, and ensure that the plastic packaging is 100% recyclable, reusable, or compostable. We are confident that acting responsibly just within our business scope is not enough. To truly make changes and bring positive impacts, we need a transition to a circular economy. The grand goal of achieving a circular economy cannot be achieved independently by any enterprise, but requires joint efforts with partners such as the Consumer Goods Forum (CGF) and the Plastic Waste Coalition of Action (PWCoA). We believe that by promoting the wider application of the CGF's Golden Design Rules (GDR) in China, we can help eliminate plastic wastes and march towards a better future.

— Wang Shaoqing

Vice President and General Manager of Colgate-Palmolive Greater China

Goals and Roadmap of Packaging Management

Identification of packaging-related risks and opportunities

Colgate is continuing to assess climate impacts, risks and opportunities and to integrate the sustainability strategy of Colgate across the organization while creating a healthier future for all people, their pets and our planet.

Colgate has assessed climate-related issues potentially arising in each time horizon (short-, medium-, and long-term) and their potential impacts on our business by using both our ERM process

and a climate-related scenario analysis that we carried out with a third party. Additionally, we consult with internal and external cross-functional subject matter experts of our company and assess climate-related issues we face.

The table below provides a description of each potential risk and opportunity Colgate has identified.



Packaging-related Risks and Opportunities of Colgate

Type of risks and opportunities	Description of risks and opportunities
The increasing procurement costs caused by carbon emission reduction or carbon pricing policies	Introduction of carbon pricing policies in regions where key suppliers of Colgate operate might impact our suppliers' operating costs. This may, in turn, directly or indirectly increase the cost of our raw and packaging materials. Suppliers who do not have robust GHG reduction strategies or who are otherwise unable to reduce their operating costs may face challenges in continuous operation, which may lead to disruptions to the supply chain of Colgate.
Changes in consumers' preferences may lead to losses of both income and market share	Consumer preferences are evolving as consumers are increasingly looking for products and services from companies that are addressing their climate change-related impact by launching products, packaging and services with improved sustainability profiles. Consumers are also interested in increased transparency on material sourcing and climate impacts of the products they purchase. We are also identifying potential opportunities for assessing and communicating the carbon footprint of our products. Colgate has the ability to innovate and develop more sustainable solutions to the products, such as products that require less carbon emissions during their use phase, and adjust our formulations, ingredients, packaging or supply chain to meet evolving consumer preferences in a timely manner during the R&D phase, dealing with the challenges that hinder the growth of our business, compromise our competitive position or adversely affect our business, results of operations, cash flows and financial condition.
Climate changes may lead to increased material costs and disruptions to the supply chain	Changes in weather patterns, the frequency and severity of extreme weather and natural disasters and rising global temperatures have the potential to impact the cost and availability of packaging materials. The impacts of these progressive physical risks could adversely affect our results of operations, cash flows and financial condition, and even our business and global supply chain.
Revenue growth brought about by increased demands for products and services	The majority of the GHG emissions of Colgate are associated with the consumer use of our products – accounting for about 80% of our total carbon footprint. By influencing the formulation of our products and the design of our packaging as well as consumer behavior during product use and waste disposal, Colgate has the opportunity to help reduce both water and carbon footprints. It is also an opportunity to work with our customers to deliver this messaging to consumers. As a way to reduce GHG emissions, Colgate has set sustainable packaging goals and is committed to making all our packaging recyclable, reusable or compostable by 2025 alongside other packaging targets.

Packaging strategies and goals

Based on the practical analysis, the issue of plastics and packaging is currently one of the important issues for Colgate in sustainable development. Currently, Colgate has fully identified packaging-related risks and opportunities in sustainable development and is managing them based on the 2025 Sustainability & Social Impact Strategy:

- ◆ Colgate has formulated the 2025 Sustainability & Social Impact

Strategy, in which one of the three key ambitions is "preserving our environment by accelerating action on climate change and reducing our environmental footprint". In 2022, Colgate continued our sustainability journey in the area of packaging and plastics with a sharp focus on more circular and innovative design.

- ◆ A key action of our 2025 Sustainability & Social Impact Strategy of Colgate is to eliminate plastic waste.



Sustainable Packaging Strategy System of Colgate

SMILE about Our 11 Actions

Driving Social Impact	Helping MILLions of Homes	Preserving Our Environment
<ul style="list-style-type: none"> Encourage Holistic Well-being Strengthen Diversity, Equity & Inclusion Help Young People In Our Communities Thrive 	<ul style="list-style-type: none"> Design Sustainable Products Build Sustainable Habits for Life Foster Lifelong Relationships between Pets & People 	<ul style="list-style-type: none"> Eliminate Plastic Waste Accelerate Action on Climate Change Conserve Water Lead with Zero Waste Facilities Drive Sustainable Sourcing

Roadmap for achievement of packaging goals

Colgate has continued our sustainability journey in the area of packaging and plastics with a sharp focus on more circular and innovative design.

Roadmap for Achievement of Packaging Sustainability of Colgate

Packaging goal	Strategy	Innovative measures
By 2025, Colgate will reduce the use of virgin plastics by one-third	<ul style="list-style-type: none"> Lightweighting and re-design Make full use of post-consumer recycled materials Use alternative materials Use new product forms Promote the development of recyclable and refillable products 	<ul style="list-style-type: none"> Replace plastics with glass products Use paper tube packaging Use toothbrush handles made of aluminum and bamboo Launch supplementary packaging products
By 2025, at least 25% of plastic packaging for all Colgate products will be recycled plastic		
By 2025, all packaging of Colgate will be recyclable, reusable, or compostable	<ul style="list-style-type: none"> Promote the construction of recycling and composting systems Promote research on the recycling potential of small packaging materials and develop technological solutions Improve the recycling and regeneration value of packaging <ul style="list-style-type: none"> Remove masterbatch from PET bottle and use transparent bottle body Reduce outer plastic packaging Use a single material Promote the recyclability of product labels Use paper-based or recyclable materials for packaging Comply with GDR 9: Use On-Pack Recycling Instructions 	<ul style="list-style-type: none"> Continue to transition to recyclable toothpaste tubes, and help transform the industry by sharing the technology Recycle toothpaste tubes, including the tube, shell and cover Use washable adhesive for cleaning and separate the label and bottle body, making the packaging recyclable Use all-aluminum mouthwash bottles, which are permanently recyclable theoretically
By 2025, there will be no harmful or unnecessary packaging	<ul style="list-style-type: none"> Comply with GDR 2: Remove Problematic Elements from Packaging <ul style="list-style-type: none"> Reduce PVC, PS, and black plastic in packaging 	<ul style="list-style-type: none"> Promote the recycling of pressure-sensitive labels and launch plastic labels that can detach from the bottle body on their own

In addition, Colgate has also developed non-viscosity bottles with partners. With a coating inside the PET bottles, high viscosity toothpaste does not adhere to the bottle wall, helping consumers use toothpaste more conveniently.

Packaging Management Mechanism

Management Structure

Colgate views sustainability as critically important to the overall business and growth strategy. We have a team of people responsible for assessing and monitoring sustainability issues.

Packaging Sustainability Management Framework of Colgate

Decision making and regulation	The Board of Directors of Colgate is deeply involved in strategic planning related to sustainability and is responsible for monitoring and timely understanding the progress of actions
	<p>The functions of the Board of Directors in sustainable development mainly include:</p> <ul style="list-style-type: none"> Our board is deeply involved in the development of the strategic plan of Colgate, and addresses sustainability in the oversight of the implementation of Colgate's strategic plan, annual budget, capital expenditures, capital structure and innovation plans. Keep abreast about the Company's sustainability efforts during reviews of our operating divisions and functions, product categories and competitive and marketplace trends.
Planning and leadership	<p>The Enterprise Risk Management (ERM) Committee monitors current and emerging risks our Company faces and has identified sustainability, specifically as it relates to climate transition and plastic transition, as a critical risk facing the Company. ERM Committee members provide the Board of Directors and the committee with regular updates on risks the Company faces. The Committee includes the Chairman, President and CEO, Chief Financial Officer, Chief Human Resources Officer, CSO, Chief Investor Relations Officer and SVP of Mergers and Acquisitions, Chief Legal Officer and Secretary, Chief Supply Chain Officer, Vice President and Corporate Treasurer and other members of the senior management of Colgate.</p>
	<p>The Colgate Sustainability Steering Committee is specifically responsible for evaluating and monitoring the sustainability</p> <p>Group President of Growth and Strategy: oversees the Sustainability Steering Committee and reports to the Board of Directors, President, and CEO. Chief Sustainability Officer (CSO): leads the work implementation of the Sustainability Steering Committee and reports to the Group President of Growth and Strategy and the Board of Directors</p> <p>The Sustainability Steering Committee makes strategic decisions related to sustainability, monitors climate-related issues and works to integrate the sustainability and social impact strategy of Colgate into broader organization and measure and meet the sustainability targets and KPIs.</p> <p>The Sustainability Steering Committee is composed of members of senior management, including Colgate's Chief of Staff, Group President of Growth and Strategy, Chief Financial Officer, Chief Legal Officer and Secretary, CSO, Chief Technology Officer, Chief Human Resources Officer, Chief Communications Officer, Chief Supply Chain Officer and Chief Investor Relations Officer and SVP of Mergers and Acquisitions.</p>
Implementation	<p>The relevant departments are responsible for the implementation of target related works: the sustainability efforts of Colgate span all aspects of our business, including supply chain, research and development, marketing, innovation, customer development and people development.</p>

Management Mechanism

Colgate has clear management responsibilities and a regular reporting system. The CSO of Colgate is responsible for providing the Board of Directors, and the Sustainability Steering Committee meets quarterly, reviewing the progress in achieving the sustainability objectives and adjusting the plan for the next action in a timely manner.

Colgate integrates sustainability goals into performance appraisal,

promoting the integration of business development and sustainable development. To integrate sustainability tracking and disclosures into our business strategy, operations and employee review process, the global sustainability initiatives of Colgate are among the individual objectives used to determine the compensation for many members of the senior management.

Packaging Management Achievements

Achievements in Packaging Sustainability of Colgate

Goal for 2025	Performance in 2022 ¹
Colgate will reduce the use of virgin plastics by one-third by 2025	The plastic packaging was reduced by 16.4%
At least 25% of plastic packaging for all Colgate products will be recycled plastic	The full-year PCR content in products reached 14.6%, up from 14.2% for the previous year
All packaging of Colgate products will be recyclable	0.75% of our packaging by weight was reusable or refillable; 87.6% of our packaging was technically recyclable, reusable or compostable
There will be no harmful or unnecessary packaging	The proportion of unnecessary and problematic packaging was just 0.5% by weight.

Environmental benefits

Recyclable toothpaste tubes: Colgate is committed to turning all toothpaste products into recyclable toothpaste tubes. By adding a recycling label on the recyclable toothpaste tubes and using one of the most recyclable materials, No. 2 HDPE (high-density polyethylene) plastic, we promote the recycling of toothpastes, which are then reworked to create new products and packaging materials.

Social benefits

Our collaborations and sharing of the recycling technology are helping transform the industry

- ◆ All major toothpaste tube suppliers of Colgate have received recognition for their recyclable designs from the recycling industry, and they committed that at least 75% of all toothpaste tubes sold globally would be recyclable by 2025.
- ◆ Along with Coca Cola and Unilever, Colgate has continued the partnership with the AB InBev 100+ Accelerator from 2021, and has been using fair trade plastics in packaging, promoting the transition of the industry to a more sustainable economy.

Colgate supports the development of cutting-edge policies and standards related to recyclable design

- ◆ Colgate supports the ecological regulation principles of extended producer responsibility system of Consumer Goods Forum.
- ◆ Colgate has joined the Business Coalition for a Global Plastics Treaty, initiated by the Ellen MacArthur Foundation (EMF) and World Wildlife Fund (WWF), promoting the realization of the vision of a plastic circular economy.

Economic benefits

Colgate has established “5% for the Planet” program, which helps ensure that our global the manufacturing base can identify, fund and implement climate, energy, water and waste projects that deliver environmental improvement and often cost savings.

¹Data as of December 31, 2022.



05

Tools & Resources for Sustainable Packaging Management



Golden Design Rules Case Study Booklets in 2022

Issuing Organization ▾
The Consumer Goods Forum (CGF)

Introduction

The booklet includes an introduction to the Golden Design Rules. And showcases 25 cases of plastic package designs from 7 pioneering companies, fully demonstrating the contrast between before and after of packaging change, providing a demonstration of the technical solutions for plastic packaging design in China's food, beverage, and daily cosmetic industries.



Golden Design Rules Case Study Booklets in 2023

Issuing Organization ▾
The Consumer Goods Forum (CGF)

Introduction

The booklet includes an introduction to the Golden Design Rules. 16 leading companies in consumer goods industry contribute about 40 cases on plastic package designs, both packaging innovations and packaging changes, and 70% of cases show the potentials on carbon emission reduction, providing a demonstration of the technical solutions for plastic packaging design in China's food, beverage, and daily cosmetic industries.



2023 China Sustainable Consumption Report

Issuing Organization ▾
SynTao

Introduction

While understanding the public's perception and attitude towards sustainability and sustainable consumption covering green packaging, the report comprehensively analyses consumers' behaviours and expectations in promoting low-carbon consumption by applying consumer behaviour change model, provide insights and recommendations for enterprises to formulate sustainability strategies, enable them to accelerate the systematic green transformation of their value chains, and promote the full participation of consumers in low-carbon consumption.



The White Paper of Green and Low-carbon Development in the Retail and Consumer Goods Industry

Issuing Organization ▾
SynTao

Introduction

Under the National efforts to promote green consumption and carbon neutrality, the retail and consumer goods industry is facing the urgency to accelerate its green and low-carbon transformation. This report provides a roadmap and practical cases for retail and consumer goods companies to tackle the challenges during transformation (including packaging), and to help them establish the indicator-tracking system and evaluation system of transformation.



Plastic Pollution Prevention and Control in China-Principles and Practice

Issuing Organization ▾
Institute of Economic System and Management, Academy of Macroeconomic Research, National Development and Reform Commission (NDRC), Institute of Quantitative Technological Economics, Chinese Academy of Social Sciences (CASS)

Introduction

The report aims to provide China's reference in plastic pollution control for other countries through summarizing the concept, practice, and experience of plastic pollution control in China, and make China's contribution to global plastic pollution control.



Investigation Report on Recycling and Utilization of Low-value Recyclables in China

Issuing Organization ▾
Institute of Economic System and Management, Academy of Macroeconomic Research, National Development and Reform Commission (NDRC)

Introduction

The report summarises China's low-value recyclables recycling policy and current situation, compares the typical practices of developed countries and China, and makes recommendations on how to build a perfect low-value recyclables recycling system.



A Comparative Study of Recyclability Design of Plastic Products in the United States, Europe, and China

Issuing Organization ▾
the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, China Plastics Reuse and Recycling Association (CPRRA)

Introduction

The report compares and interprets the development stages and recyclability design guideline systems for plastic packaging containers in Europe, the United States, and China. It discusses the definition, classification, recycling streams, design factors, judgment indicators, and testing methods. The report also highlights the relevance and importance of recyclability design for various stakeholders across the plastics industry chain. Additionally, it identifies bottlenecks and reasons for the slow advancement of the design and provides suggestions for its implementation in China.



Baseline Report on Recycling Flexible Packaging in China

Issuing Organization ▾
GRPG Flexible Plastic Reborn Team

Introduction

The report focuses on the recovery, regeneration, and utilization of non-degradable plastic flexible packaging. It elaborates on raw materials, consumption, waste, recycling, regeneration processing, application, value chain, and identifies factors affecting the recycling of plastic flexible packaging. Relevant recommendations are put forward to provide strong support for the development of the circular economy of plastic flexible packaging in China.



Environmental Impact Assessment and Sustainability Pathway Study of Plastic Packaging and Alternatives

Issuing Organization ▾
Tsinghua University School of Environment

Introduction

This study systematically compares the life-cycle environmental performance of plastic packaging and its alternative materials through material flow metabolism simulation and life-cycle environmental impact assessment. The aim is to provide scientific support for the sustainable development of plastic packaging and policy formulation, based on the current situation of China's domestic plastic packaging market and waste management system.



Integration of Plastics Impact Evaluation into ESG Assessments

Issuing Organization ▾
World Wide Fund for Nature Beijing Office (WWF)

Introduction

With inputs from interviews with six ESG D&I providers and three financial institutions, we discuss the current level of inclusion of plastic impact assessment in evaluation criteria of ESG D&I providers and the connected opportunities, and translate this into concrete recommendations.



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