

MSCI ESG Ratings Methodology: Packaging Material & Waste Key Issue

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Introduction

This document provides essential information on the components of the Packaging Material & Waste Key Issue to enable users of ESG Ratings to understand how our outputs are determined. Packaging Material & Waste is a Key Issue in the Environmental Pillar of the MSCI ESG Ratings model. Companies are evaluated on their production of or reliance upon packaging materials, their potential exposure to waste management and packaging regulations, as well as their efforts to reduce the environmental impact of packaging materials.

For additional details on the MSCI ESG Ratings Model, refer to Section 2, Data, ratings and scores, of “ESG Ratings Methodology.”

Exhibit 1: MSCI ESG Key Issue hierarchy

3 Pillars	10 Themes	33 ESG Key Issues
Environmental	Climate Change	Carbon Emissions
		Climate Change Vulnerability
		Financing Environmental Impact
		Product Carbon Footprint
	Natural Capital	Biodiversity & Land Use
		Raw Material Sourcing
		Water Stress
	Pollution & Waste	Electronic Waste
		Packaging Material & Waste
	Environmental Opportunities	Toxic Emissions & Waste
		Opportunities in Clean Tech
		Opportunities in Green Building
		Opportunities in Renewable Energy
Social	Human Capital	Health & Safety
		Human Capital Development
		Labor Management
		Supply Chain Labor Standards
	Product Liability	Chemical Safety
		Consumer Financial Protection
		Privacy & Data Security
		Product Safety & Quality
		Responsible Investment
	Stakeholder Opposition	Community Relations
		Controversial Sourcing
	Social Opportunities	Access to Finance
		Access to Health Care

3 Pillars	10 Themes	33 ESG Key Issues
Governance	Corporate Governance	Opportunities in Nutrition & Health
		Board
		Pay
		Ownership & Control
	Corporate Behavior	Accounting
		Business Ethics
		Tax Transparency

Risks associated with this Key Issue

- Loss of access to markets due to reform of regulations governing packaging material and waste.
- Loss of revenue due to changing consumer preferences.
- Increased costs to reformulate packaging and comply with producer responsibility regulations.

Packaging Material & Waste Key Issue Score

The Packaging Material & Waste Key Issue Score evaluates the company's level of exposure to, and management of, risks on this Key Issue. The Key Issue Score on this Key Issue is based on the Exposure Score and the Management Score using the formula below. The Exposure Score and the Management Score are combined such that a higher level of exposure requires a higher level of demonstrated management capability in order to achieve the same overall Key Issue Score.

$$KI_i = 7 - (\max(EXP_i, 2) - MGMT_i)$$

Where:

- KI_i is the Key Issue Score for company i .
- EXP_i is the Exposure Score for company i .

$MGMT_i$ is the Management Score for company i .

Packaging Material & Waste Management Score

The Packaging Material & Waste Management Score evaluates the company's ability to manage its exposure to risks on this Key Issue. It is based on an average of the

scores associated with each of the Management Score categories listed below, modified by Controversies. These scores are derived from data points that are scored on a 0-10 scale, with 10 corresponding to best practice and 0 corresponding to lack of management. Refer to Section 3.3, Analyzing risk management, of “ESG Ratings Methodology” for additional details. Sources are company disclosures except where otherwise indicated. The following formula is used to calculate the Packaging Material & Waste Management Score - Excluding Controversies:

$$MGMT_{PMW,i} = \frac{PRA_{PMW,i} + PERF_{PMW,i}}{2}$$

Where:

- $MGMT_{PMW,i}$ is the Packaging Material & Waste Management Score - Excluding Controversies for company i .
- $PRA_{PMW,i}$ is the Practices Score for company i .
- $PERF_{PMW,i}$ is the Performance Score for company i .

The following data points, without constituting an exhaustive list, are representative of the inputs to the Management Score and are used in the Management Score calculation:

Management Score category: Practices Score

- **Disclosure of packaging material mix.**
Definition: How transparent the company is about the type of materials used in its packaging. Best practice is full disclosure.
- **Scope of consumer programs to reduce waste.**
Definition: The scope of the company’s consumer education programs on recycling (e.g., take-back locations) or recycling instructions.
- **Scope of recycling programs where not mandated by law.**
Definition: The extent of the company’s involvement in recycling or recovery of packaging materials in locations or circumstances where packaging waste recycling is not mandated by law. Best practice is to have an overarching packaging waste strategy.

- **Strategy to reduce the environmental impact of packaging.**

Definition: The comprehensiveness of the company's strategy to reduce the environmental impact of its packaging, such as through waste elimination, packaging redesign, and engagement with suppliers or customers. Best practice is to have specific initiatives that reduce the environmental impact of packaging.

- **Targets to increase recycled or renewable material content of packaging.**

Definition: The specificity of the company's targets related to recycled or renewable content in packaging. Best practice is to set specific and time-bound targets.

- **Scope of targets to increase recycled material content of packaging.**

Definition: The scope of the company's targets related to recycled or renewable content in packaging. Best practice is for targets to be company-wide or across all relevant packaging.

- **Targets for packaging material circularity or waste elimination.**

Definition: The specificity of the company's targets on packaging material circularity and waste elimination. Best practice is specific and time-bound targets.

- **Scope of targets for packaging material circularity or waste elimination.**

Definition: The scope of the company's targets related to packaging material circularity and waste elimination. Best practice is for targets to be company-wide or across all relevant packaging.

Management Score category: Performance Score

Representative performance metrics:

- Achievements on packaging content.

- Achievements on product recovery.

Controversies

A controversy deduction ranging from 0 to 5 points is subtracted from the overall Management Score, based on the severity and type of controversies facing the company on this Key Issue. The following categories of controversies are used in the assessment:

- Packaging waste controversies.

For more details on how controversies are included in the MSCI ESG Ratings model, refer to Section 3.3.2, Controversies cases, of “ESG Ratings Methodology.”

Packaging Material & Waste Exposure Score

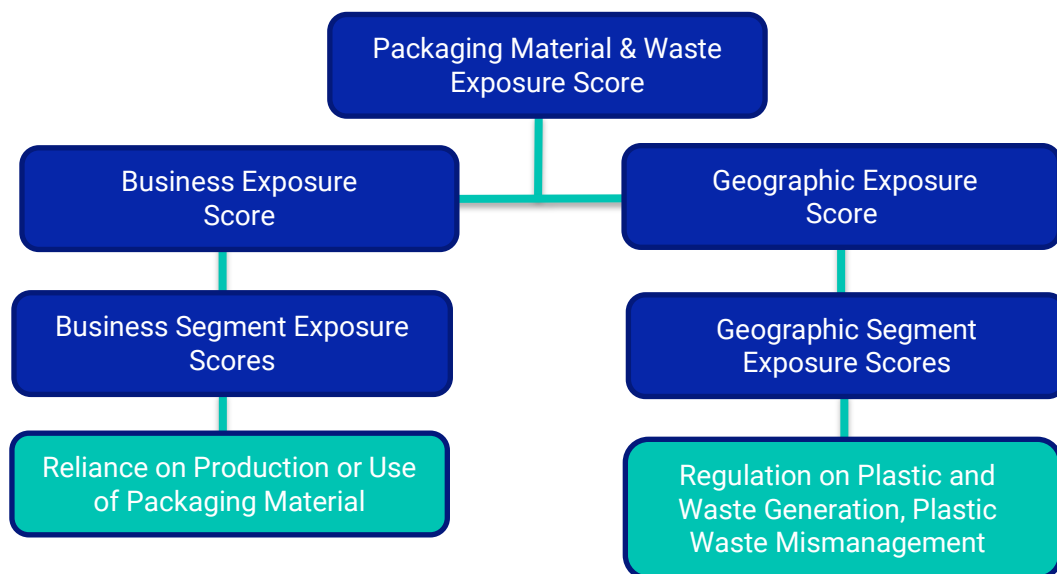
The Packaging Material & Waste Exposure Score evaluates the company’s exposure to risks on this Key Issue. It is based on the Business and Geographic Exposure Scores. The Geographic Exposure Score functions as a multiplier on the Business Exposure Score, with an impact ranging from -50% to +50%. The Business and Geographic Exposure Scores are scored on a 0-10 scale, with 10 corresponding to the highest risk and 0 corresponding to the lowest risk. Refer to Section 3.2, Analyzing risk exposure, of “ESG Ratings Methodology” for additional details. The following formula is used in the Exposure Score calculation:

$$EXP_{PMW,i} = BUS_{PMW,i}(1 + 0.1(GEO_{PMW,i} - 5))$$

Where:

- $EXP_{PMW,i}$ is the Packaging Material & Waste Exposure Score of company i .
- $BUS_{PMW,i}$ is the Business Exposure Score of company i .
- $GEO_{PMW,i}$ is the Geographic Exposure Score of company i .

Exhibit 2: Exposure Score components



Business Exposure Score

The Business Exposure Score is a weighted average of the Business Segment Exposure Scores of a company's business segments. Scores are weighted by the proportion of a company's total revenue in each business segment, using the following formula to calculate the Business Exposure Score:

$$BUS_{PMW,i} = \sum_{j=1}^{n_i} w_{Revenue,i,j} BSE_{PMW,j}$$

Where:

- $BSE_{PMW,j}$ is the Business Segment Exposure Score for business segment j .
- $w_{Revenue,i,j}$ is the weight of business segment j for company i based on the contribution to total company revenue.
- n_i is the number of business segments of company i .

Business Segment Exposure Scores

The Packaging Material and Waste Business Segment Exposure Score is based on a mapping of the business segment as disclosed by the company to a corresponding business activity. MSCI ESG Research uses the Standard Industrial Classification (SIC) system along with industry-specific adjustments to define business activities. The score associated with a business activity is used to calculate a Business Segment Exposure Score.

Each business activity score is determined by a simple average of the Plastic Packaging Use and Waste Intensity Score and the Plastic Packaging Reliance Score.

$$BSE_{PMW,j} = \frac{PPUWS_j + PPRS_j}{2}$$

Where:

- $PPUWS_j$ is the Plastic Packaging Use and Waste Intensity Score for business activity j .
- $PPRS_j$ is the Plastic Packaging Reliance Score for business activity j .

The Plastic Packaging Use and Waste Intensity Score for each business activity is determined by a combined measure of plastic use and plastic waste intensities in metric tons per million euros of economic output in the business activity.

The Plastic Packaging Reliance Score for each business activity is determined by a qualitative assessment of whether packaging plays a critical role in the delivery of products and services and whether plastic is a common form of packaging material used.

Geographic Exposure Score

The Geographic Exposure Score is a weighted average of the Geographic Segment Exposure Scores of the countries and regions in which a company operates. Scores are weighted by the proportion of a company's total revenue in each geographic segment through the following equation:

$$GEO_{PMW,i} = \sum_{r=1}^{n_i} w_{Revenue,i,r} GSE_{PMW,r}$$

Where:

- $GSE_{PMW,r}$ is the Geographic Segment Exposure Score of region r .
- $w_{Revenue,i,r}$ is the weight of total assets in region r for company i .

- n_i is the number of geographic segments for company i .

For geographic segments disclosed as regions (example: Asia Pacific), a nominal GDP-weighted country aggregation is used to calculate region-level scores, using the following equation:

$$GSE_{PMW,r} = \sum_{c=1}^{n_r} w_{GDP,r,c} GSE_{PMW,c}$$

Where:

- $GSE_{PMW,c}$ is the Geographic Segment Exposure Score of country c .
- $w_{GDP,r,c}$ is the specific weight of country c within region r .

Geographic Segment Exposure Scores

The Geographic Segment Exposure Score is determined by a simple average of the Recycling Mandates Score, the Extended Producer Responsibility Score, the Single-use Plastic Law Score and the Plastic Waste Mismanagement Score:

$$GSE_{PMW,c} = \frac{RM_c + EPR_c + SUP_c + PWM_c}{2}$$

Where:

- RM_c is the Recycling Mandates Score in country c .
- EPR_c is the Extended Producer Responsibility Score in country c .
- SUP_c is the Single-use plastics Score in country c .
- PWM_c is the Plastic Waste Mismanagement Score in country c .

The Recycling Mandates Score is based on a country's recycling mandate policies' stringency and the extent to which the policies are applied within a country.

The Extended Producer Responsibility Score is based on a country's extended producer responsibility regulations' stringency and the extent to which the policies are applied within a country.

The Single-use Plastic Law Score is based on a country's single-use plastics regulations' stringency and the extent to which the policies are applied within a country.

The Plastic Waste Mismanagement Score for each country is based on the quantity of plastic waste generated per capita.

Data Sources

The following sources are used to determine the Packaging Material & Waste Exposure Score:

"Plastics Policy Inventory," Duke University; United Nations Environment Programme, *Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations*; "What A Waste Global Database," World Bank; Cimpan, C., Bjelle, E.L., and Strømman, A.H., "Plastic packaging flows in Europe: A hybrid input-output approach," *Journal of Industrial Ecology* 25, no. 6: 1572-1587; World Development Indicators, World Bank; Refinitiv; MSCI ESG Research; and company disclosures.

Model Update History

- In April 2023, the Geographic Exposure Score model was updated to capture regulatory risk arising from country-level recycling mandates and extended producer responsibility regulations. A measure of plastic waste produced per country area was also introduced.
- In October 2023, the Business Segment Exposure Score model was updated to account for a more granular assessment of reliance on plastic packaging and plastic packaging usage and waste by business activity.

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