MIGHTY EARTH

STANDING STILL:

ASIAN RETAILERS' METHANE FAILURE

Executive Summary

Methane is a climate super-pollutant greenhouse gas that traps more than 80 times as much heat as carbon dioxide over a 20-year period. Methane has driven around 30% of global warming since pre-industrial times. The global food system accounts for about one third of human-caused GHG emissions, with agriculture responsible for up to 40% of global methane emissions. Livestock dominates agricultural methane emissions, followed by rice cultivation – underscoring methane's outsized role in food system climate impacts.

This report is the first assessment of methane and climate disclosures, and of actions by major food retailers in Asia. We assessed eight key players – AEON, DFI, FairPrice, Emart, Lotte, Seven & i, Sun Art, and Walmart – operating in China, Japan, Singapore and South Korea. Overall performance across the eight retailers was disappointly poor; all retailers scored less than a quarter of the points available, with Japan's AEON topping the list at just 20.5 out of 100.

Our findings reveal a stark structural gap between retailers' methane-related climate ambitions and their real-world actions. While scorecard results were disappointingly low, AEON ranked first with 20.5 points, ahead of DFI (17 points) and Lotte (13 points). FairPrice performed worst, scoring 0 points.

- **None of the Asian retailers assessed discloses methane emissions separately or has methane reduction targets.**
- **Only AEON acknowledges methane's climate impacts from livestock – but fails to implement specific, measurable reduction actions.**
- **Only AEON has a net zero target by 2040; Emart and Lotte aim for a 2050 deadline. The remaining five retailers' "net zero" targets are weak commitments that exclude their full value chains, and lack credibility and ambition.**
- **DFI and Seven & i publicly recognize methane impacts from rice cultivation, but only DFI provides financial support to farmers for reducing rice-related methane emissions.**
- **Methane emissions from rice cultivation and livestock – which are especially high in Asia's growing markets – remain largely unaddressed.**
- **Not a single retailer has a publicly available deforestation- and conversion-free (DCF) policy, despite deforestation's severe climate and nature impacts driven by meat and dairy production.**
- **Driving plant-based sales increases is an opportunity currently not been realized by any of the retailers assessed.**

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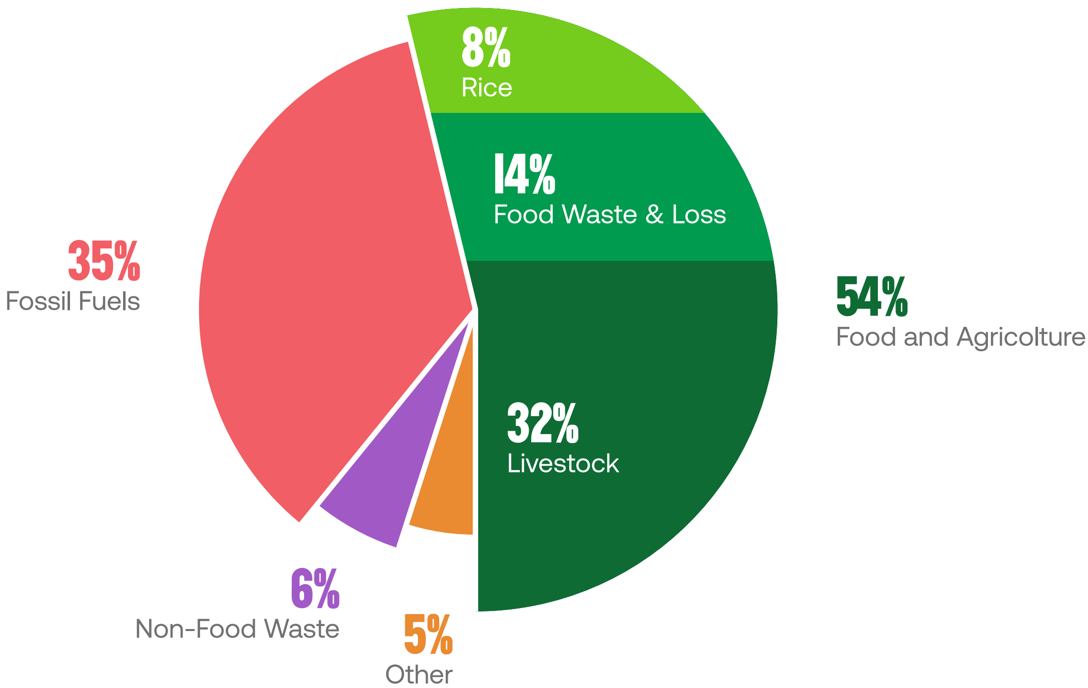
Introduction

As more frequent and extreme weather events become the world's new normal – and average global temperatures exceeded 1.5 °C above pre-industrial levels for the first time in recorded history between 2023 and 2025 – the urgency to slash climate emissions has never been greater.[1]

Carbon dioxide (CO_2), the most abundant and familiar greenhouse gas, traps heat in our atmosphere. But rising methane emissions are now a major cause for alarm: Indeed, methane (CH4) is 84 times more potent than CO2 over 20 years, significantly accelerating global heating.[2]

The global food system is a major driver of climate change, responsible for more than one third of all human-caused greenhouse gas (GHG) emissions and estimated at up to 37%.[3] Focusing on methane, agriculture accounts for up to 40% of global emissions (alongside fossil fuels at 35% and waste at 20%). Within agriculture, livestock – including enteric fermentation and manure management – is the dominant source (around 60%), while rice accounts for 8–12% of total global methane emissions.[4, 5, 6]

Anthropogenic Methane Emissions By Source



Source: Climate Advisors[7]

Home to more than 4.8 billion people,[8] Asia dominates global rice production and consumption – accounting for 90% of the total[9] – and is emerging as the largest driver of the global beef trade.[10] In 2023, methane emissions from the region reached approximately 4.58 billion tons of carbon dioxide equivalent (CO_{2e}).[11] With the Asia region warming at roughly twice the global average, climate impacts are already hitting economies, ecosystems and societies. The need to curb the region's methane emissions is urgent.[12]

Food retailers occupy a unique position at the nexus of global food supply chains and consumer markets, giving them critical leverage to drive GHG reductions across the entire food system – from farm production and processing, to product use and waste disposal. They also hold unparalleled potential to shift consumer awareness and behavior.

This report assesses eight of Asia's major food retailers operating in China, Japan, Singapore and South Korea against key methane and climate criteria. Our analysis concludes that all are failing to address the most potent – and yet neglected – greenhouse gas in their supply chains: methane.

Why methane matters

Methane accounts for up to 30% of global warming since pre-industrial times and is considered one of the most important drivers of climate change.[13] It has a global warming potential (GWP) up to 84 times greater than CO_2 in the first 20 years – meaning methane traps up to 84 times more heat, accelerating global heating over two decades. [14]

The United Nations Environment Programme's Global Methane Assessment shows that anthropogenic methane emissions must fall 45% by 2030 to align with the Paris Agreement.[15] Methane reductions would have more a rapid and impactful effect on limiting near-term temperature rises, curbing the worst effects on global heating – forecast to disrupt agriculture severely.[16]

Insufficient plans to curb agricultural methane emissions

Given methane's outsized role in short-term temperature rise, rapidly cutting emissions is critical to tackling global warming. In light of this urgency, the Global Methane Pledge (GMP) – a voluntary commitment launched at COP26 in Glasgow in 2021 – aims to cut global methane emissions by 30% by 2030 to help limit global warming to 1.5 °C.[17] Japan and South Korea are signatories to the GMP and have committed to 30% reductions by 2030. However, China is not yet a signatory.[18]

The UNEP's Global Methane Assessment shows anthropogenic methane emissions must fall by 45% by 2030.

Under current trajectories, food system emissions alone could push global warming beyond 1.5 °C, even without non-food sectors.[19] Yet agricultural methane remains underrepresented in global discussions, national plans, climate policies and corporate strategies. Governments must urgently implement supportive policies to accelerate mitigation and bolster corporate efforts to deliver much-needed action. The window for methane reductions is narrow, and delays are no longer an option.

Food retailers and their supply chains

Beyond operational emissions (known as Scopes 1 and 2), food retailers' climate impact is overwhelmingly driven by Scope 3 emissions from agricultural production, processing, distribution, consumption and waste – which account for approximately 97% of their total GHG footprint.[20, 21] Of these, 67% are generated "upstream" (food production and processing), and 30% "downstream" (product use and disposal). Consequently, tackling Scope 3 emissions offers retailers a significant opportunity to lower their GHG footprint.

Beef is among the largest sources of retailers' Scope 3 emissions.[22] Globally, meat and dairy supply chains drive around half of food retailers' Scope 3 emissions.[23, 24] A recent Mighty Earth report on Ahold Delhaize – one of the world's biggest supermarket groups by global revenue – shows that 44% of the group's Scope 3 within its Forest, Land and Agriculture (FLAG) category emissions come from methane associated with meat and dairy products.[25]

Whose emissions?

Emissions from food production are usually classified as Scope 3 emissions – which are typically upstream (before retailer operations) or downstream (after) – as shown in the diagram below.

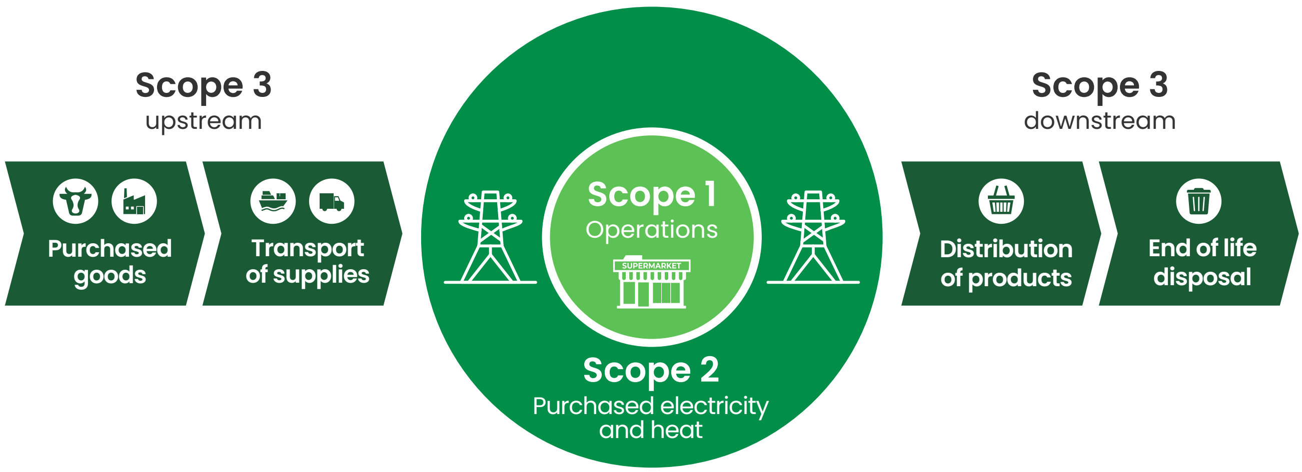
These emissions arise from the producing and disposing of products retailers sell, making retailers responsible for reducing them.

Scopes 1, 2 and 3 emissions explained

Scope 1: Direct emissions from company-owned/controlled resources (e.g. offices, company vehicles and equipment). Some companies include farm emissions from livestock on company-owned farms.

Scope 2: Indirect off-site emissions from purchased electricity, heating and cooling. For meat retailers, this covers energy to refrigerate meat products sold.

Scope 3: Upstream/downstream value chain emissions, including those associated with meat production (livestock, manure, farm equipment fuel, animal feed production and inputs for its production (e.g. nitrogen fertilizer), land-use change from grazing and feed expansion, and other sources. Meat companies also account for emissions related to the transportation of goods, waste disposal, and product use.[26]



Drivers of agricultural methane emissions

Meat and dairy: Drivers of Asia's methane crisis

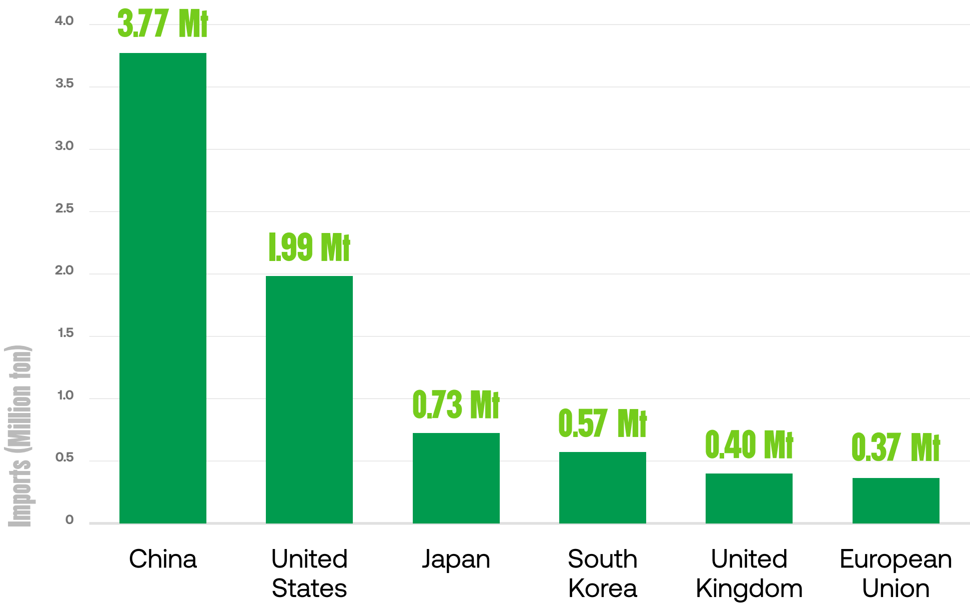
As global population growth and shifting dietary trends toward greater meat consumption continue unabated, demand for meat and dairy products is projected to rise by 60 to 70% by 2050 – along with emissions from this highly polluting sector.[27] Global food production represents the largest single human impact on the planet. Even if all non-food sectors decarbonized linearly from 2020 to 2050, food emissions alone would still exceed the 1.5 °C limit by 2030.[28] Addressing the food system is therefore essential to solving climate change.

Meat consumption in Asia has doubled since 1990, with further increases projected.[29] In 2021, GHG emissions from the region's meat production totaled nearly one billion tons of CO_2 – far exceeding Latin America's approximately 700 million tons, or the 200 million tons estimated for both Europe and North America.[30]

Beef – the single biggest driver of agricultural methane emissions – is Asia's second most widely consumed red meat after pork. According to the FAO/OECD Outlook, meat and seafood consumption in Asia is set to rise by 78% by 2050.[31]

Fueled by dietary shifts among the expanding middle class and by the rising demand for animal protein, Asia has emerged as the largest driver of the global beef trade.[32]

Ranking of the World's Largest Beef-Importing Countries in 2024 (in Million ton)



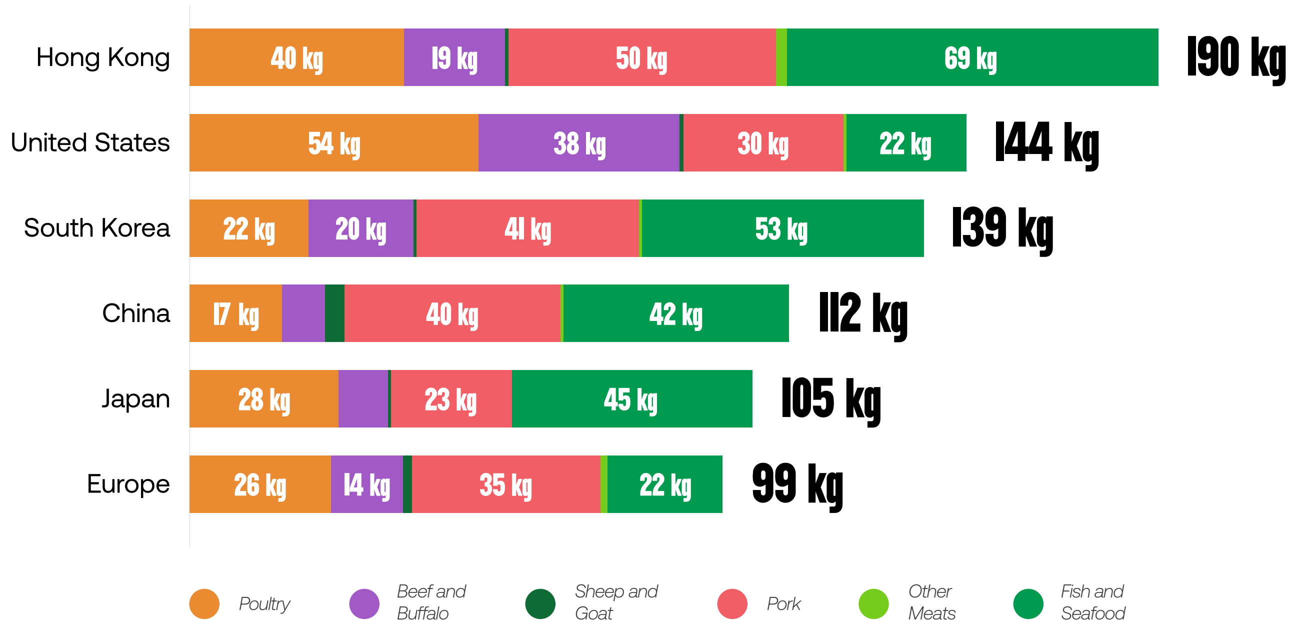
Source: National Beef Wire[33]

China remains the world's largest beef importer, with total imports reaching approximately 3.8 million metric tons – accounting for over 37% of global beef trade volume.[34] Japan ranks third globally, importing around 730 thousand metric tons of beef in 2024.[35] South Korea has emerged as one of Asia's fastest-growing beef market, driven by rising incomes and the widespread adoption of Western-style diets.[36] South Korea also leads per capita beef consumption (12 kg/year), followed by Vietnam.[37, 38]

While meat trade and consumption quantities are rising across Asia, per capita meat consumption remains lower than in other regions of the world – about 62 kg per person per year in Asia, compared with 145 kg in the United States and 99 kg in Europe, as shown below.[39]

Per capita meat and fish consumption, 2022

Measured in kilograms per person per year.



Source: Our World in Data [40]

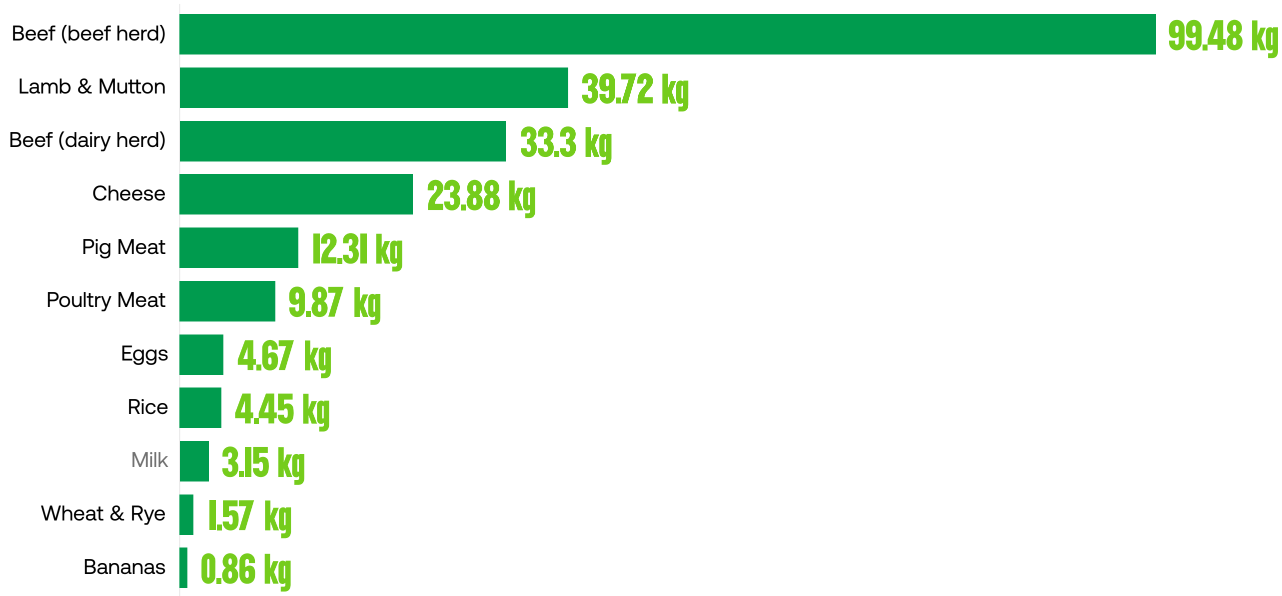
Asian rice production's impact on methane emissions

Rice cultivation plays a particularly important role in Asia's food system and is a critically overlooked source of methane emissions, releasing approximately 60 million metric tons each year – around 10% of global anthropogenic methane.[41] As Asia accounts for approximately 90% of global rice production and consumption, these emissions represent a major and persistent climate challenge for the region.[42]

The urgency to reduce rice-related methane emissions is further underscored by its inclusion in corporate climate frameworks such as the Science-Based Targets initiative (SBTi). Other international efforts, such as the International Rice Research Institute's (IRRI) Accelerating Methane Reductions in Rice Productions in Southeast Asia, aim to scale up low-emission rice practices and track progress toward 2030 climate goals.[43] At the same time, some Asian countries have launched initiatives like Japan's J-Credit – a government-led carbon credit program – to mitigate rice methane. However, these efforts remain largely confined to agricultural production, with limited engagement from downstream actors such as food retailers.[44] Carbon credit schemes have faced numerous criticism for over-ambitious targets, a lack of transparency, and a failure to deliver promised emission reductions.[45]

Greenhouse gas emissions per kilogram of food product

Greenhouse gas emissions are measured in kilograms of carbon dioxide-equivalents. This means non-CO_2 gases are weighted by the amount of warming they cause over a 100-year timescale.



Source: Our World in Data

Current solutions for methane reduction in the beef sector

A growing portfolio of solutions is being explored to cut methane emissions from livestock. These include enhancing livestock efficiency through better feed quality – such as feed that reduces rumen fermentation in cow's digestion –, breeding more productive, lower-emitting breeds, and deploying methane-inhibiting additives like 3-NOP or red seaweed, which some studies have shown can lower enteric methane emissions by around 30% in specific environments.[46] Additional approaches encompass alternative manure management technologies, including solid-liquid separation and manure acidification.[47, 48]

While pilot schemes show varied overall reductions from these practices, they do not yet deliver sufficient impact collectively to offset – or substantially reduce – the projected global rise in meat consumption.[49]

Current solutions for low-methane rice production

In practice, farmers can reduce methane emissions from rice cultivation through two main approaches. First, improved irrigation and crop management practices have proven effective at significantly cutting emissions while providing additional environmental benefits.

Alternate wetting and drying (AWD) – an agroecological technique that periodically drains paddies to interrupt the anaerobic (oxygen-free) conditions fostering methane-producing microbes – is a relatively simple and widely applicable method. It can reduce water consumption by 30% and methane emissions by 30%-70% without impacting yields.[50] Another effective option is direct-seeded rice (DSR), which involves sowing seeds into dry soil rather than continuously flooded fields. Depending on regional conditions and management practices, DSR can cut methane emissions by 45–87%.[51, 52]

Plant-based transition is now urgent

Animal farming and feed production account for 60% of food system emissions and 12–20% of global GHG emissions.[53] Shifting protein supply from animal-based foods to plant-based alternatives – including vegetables, fruits, whole grains, legumes (beans, lentils, chickpeas), nuts, seeds, and plant oils – offers a viable path to lessen the food sector's environmental impact, build a more resilient food system, and improve health outcomes.[54] Projections suggest that if alternative proteins reach 11% of the protein market by 2035, they could cut GHGs on a scale comparable to fully decarbonizing the aviation industry.[55]

Urgent action is needed to avoid the worst effects of global warming. While various strategies exist to reduce greenhouse gas emissions, transitioning to plant-based diets and food systems stands out as one of the most promising opportunities for meaningful climate mitigation.[56] With animal-based foods carrying roughly twice the greenhouse gas footprint of plant-based ones,[57] accelerating this shift provides one of the most effective pathways to slash climate-heating emissions – by up to 75%—while easing pressure on water and land resources.[58]

Food retailers must act immediately to curb meat and dairy consumption by reshaping product offerings and sales. Although interest in sustainable, healthy diets is growing, achieving the necessary scale will prove challenging, if not impossible, without the collaboration and active involvement of food retailers – who reach deep into both supply chains and consumer communities.

Regulation and legislation of GHG emissions

All industries are entering a new era of urgency for emission reductions, bringing increased accountability. Through legislation such as the EU's Corporate Sustainability Reporting Directive (CSRD), or industry standards like the SBTi, the growing emphasis on Scope 3 emissions is making sustainability reporting a defining element of business performance in sectors like food. The global framework for climate disclosure is transforming – despite regional variations – with mandatory regimes now in place in over 30 jurisdictions worldwide to boost transparency in corporate climate reporting.[59] In Asia, the regulatory landscape is rapidly evolving toward mandatory climate disclosure.

To promote international comparability, Japan is among the countries adopting the International Sustainability Standards Board (ISSB) framework for climate disclosure.[60] In March 2025, the Sustainability Standards Board of Japan (SSBJ) issued its inaugural standards mandating Scope 1, 2, and 3 GHG reporting for companies with a market capitalization of over ¥3 trillion (around USD 20 billion) starting March 2027.[61, 62]

Singapore is also transitioning to mandatory climate disclosure through a phased approach tailored to different company sizes. The Accounting and Corporate Regulatory Authority (ACRA) and Singapore Exchange Regulation (SGX RegCo) have announced that all listed companies must report Scope 1 and Scope 2 GHG emissions for financial years starting on or after January 1, 2025.[63] Meanwhile, Straits Times Index (STI) constituents will lead the implementation of ISSB-based climate disclosure from financial year 2025 and will begin reporting Scope 3 emissions from financial year 2026.[64]

China has also taken a decisive step toward mandatory climate disclosure with a homegrown approach. In December 2025, it issued the Corporate Sustainability Disclosure Standard No.1 – Climate (Trial) with implementation remaining voluntary until authorities define the scope and timeline.[65, 66] In 2024, South Korea's Korea Sustainability Standards Board (KSSB) released an exposure draft for ESG disclosure.[67] Mandatory adoption is pending, with no formal climate-disclosure requirements in place yet.[68]

With these major Asian markets establishing clear timelines for Scope 3 disclosure, leading retailers must move swiftly to ensure compliance.

Methodology

This assessment evaluates how – or if – eight of Asia's influential supermarkets are addressing climate disclosure and methane emissions. These retailers were selected based on their annual revenue, grocery sales volume, and overall market dominance in the Asian food retail sector. They were scored across 20 indicators in six categories, with research conducted from December 1, 2025, to January 15, 2026. Where possible, the analysis drew on the latest climate-related disclosures published on retailers' websites, except for Indicator 3.4, which also incorporated data from the SBTi commitment database. The total score is out of 100 points, distributed across the 20 indicators. Each was evaluated on a three-tier scale: full points, half points, or zero. Indicators carry different weights, assigned according to their importance and potential impact on retailers' methane emissions and broader climate accountability. Detailed criteria and rationale for each is addressed in the following analysis.[69]

Limitations

This assessment relies solely on public disclosures – such as company reports, websites, and the SBTi commitment database – with no use of confidential or proprietary data. It focuses on transparency rather than on-the-ground implementation, viewing public disclosure as a fundamental measure of accountability. A consistent methodology ensures all companies are evaluated on a level playing field.

Methane Action Tracker

Country and Retailer	Role Of Methane	Emissions Reporting	Commitments and Action Plans	Rice Related Methane Emissions	Protein Alternatives	Food Waste and Landfill	Score
AEON	7.5/14	3/18	6/34	0/10	4/16	0/8	20.5/100
DFI Retail Group	2.5/14	3/18	0/34	7.5/10	4/16	0/8	17/100
LOTTE	0/14	6/18	3/34	0/10	0/16	4/8	13/100
Seven & i Holdings	0/14	0/18	0/34	5/10	4/16	0/8	9/100
emart	0/14	6/18	3/34	0/10	0/16	0/8	9/100
SUN ART Retail Group Limited	0/14	0/18	0/34	0/10	6/16	0/8	6/100
Walmart	0/14	0/18	2.5/34	0/10	0/16	2/8	4.5/100
FairPrice Group	0/14	0/18	0/34	0/10	0/16	0/8	0/100

Category I: The Role of Methane

As the primary interface between food producers and consumers, food retailers must first recognize methane's significant role in driving climate change and leverage their market power to engage suppliers and consumers in reducing methane across the value chain.

Indicator I.1: Acknowledgement of livestock methane's role in climate change

Among the eight retailers assessed, only one – AEON Group – explicitly acknowledges the role of livestock-related methane emissions in rising GHG emissions and climate change. It states:

"Not only does it require vast tracts of land and the mass production of animal feed, but greenhouse gases such as methane, which are generated during the treatment and composting of manure, are also a cause of concern as they are a source of environmental burden." [70]

DFI Retail Group does not explicitly mention methane, but recognizes the climate impacts of livestock-related emissions. In parallel, DFI has launched pilot initiatives for low-emission beef and dairy production through its "Sustainability Innovation Challenge" program.[71] That said, these efforts remain limited in scope and would benefit from integration into a comprehensive company-wide strategy for methane reduction. The remaining six retailers showed no recognition of livestock methane in climate change. This gap highlights not only a low level of awareness, but also a broader failure to assume responsibility for a key driver of their climate impact.

Indicator I.2: Meat and dairy consumption reduction

Given meat and dairy's central role in methane emissions, both globally and regionally, we evaluated whether retailers provide information, guidance, or support to help customers understand and reduce the climate impacts of products such as meat, dairy, and rice.

AEON was the only retailer to score points, earning half a point for its public website messaging:

"replacing animal-based foods with plant-based foods and actively producing and eating them is good for the Earth too!" [72]

None of the other seven retailers mentioned any measures or commitments to reduce meat and dairy consumption. This reveals a lack of responsibility in informing their customers about the outsized climate and deforestation impacts of these products – and a missed opportunity to promote lower-emission alternatives like plant-based foods.

Indicator I.3: Executive remuneration

Globally, companies are increasingly tying executive remuneration to climate efforts – a trend fueled by investors' growing interest in companies integrating climate-related targets into executive remuneration. This linkage is helping spur corporate enthusiasm for integrating such targets into compensation structures.[73,74]

However, none of the assessed retailers publicly discloses remuneration structures linked to targets for reducing methane emissions or boosting plant-based alternatives sales. Seven & i does tie executive compensation to CO_2-reduction targets, helping advance its medium- and long-term decarbonization goals; however, methane emissions are not yet explicitly addressed.[75]

Category 2: GHG emissions reporting

Once retailers acknowledge methane emissions from meat, dairy and rice, they must take the next essential step: measuring and publicly reporting their GHG emissions across Scopes 1, 2 and 3. Reporting should follow standardized frameworks such as the Greenhouse Gas (GHG) Protocol, enabling companies to identify, calculate, and disclose greenhouse gases – including methane – separately.[76]

Indicator 2.1: Emissions reporting across all scopes

Two Korean retailers – Lotte and Emart – earned full points for disclosing emissions across Scope 1, Scope 2, and Scope 3 in line with the GHG Protocol. AEON and DFI trailed behind, receiving only half points; while they report Scope 3 emissions across their global supply chain, they do not specify the methodology used.

Seven & i, Sun Art, and Walmart disclose only some categories of their Scope 3 emissions, limiting transparency and comparability. Prioritizing Scopes 1 and 2 risks obscuring the largest source of emissions, while incomplete disclosure raises concerns about progress toward achieving reduction targets.

Indicator 2.2: Methane emissions across all scopes and global operations

In Asia, where Scope 3 emissions also encompass staple foods like rice, methane likely represents an even larger share of retailers' total footprints compared to their global rivals. Public methane disclosure is essential for transparency, accountability, and enabling effective mitigation plans.

The disappointing scores across all assessed Asian retailers reveal a significant blind spot in public reporting and accountability for this potent greenhouse gas. Not a single retailer discloses methane emissions in any operational scope – despite methane's outsized role in their emission profiles.

Indicator 2.3: Reporting methane emissions from dairy and beef products

A recent Mighty Earth report estimated that methane emissions from meat and dairy products account for 44% of Dutch-based retailer Ahold Delhaize's 2023 Scope 3 emissions within its Forest, Land and Agriculture (FLAG) category.[77] Given the heavy concentration of emissions from meat and dairy products, transparent reporting of methane from these sources represents a critical first step in tackling the methane challenge head-on.

However, none of the Asian retailers assessed here currently provides separate disclosure of methane emissions linked to beef and dairy products. Overall, our analysis points to a clear lack of customer information and corporate acknowledgement of the major footprint these products leave within company climate plans.

Category 3: Emissions reduction commitments and action plans

The global transition to net zero is well underway. Around 77% of global GDP is now covered by net zero commitments, including those from Japan, South Korea and Singapore.[78,79, 80] Across the Asia-Pacific region, more companies are adopting net zero commitments alongside improved GHG emissions disclosure – a trend driven by rising regulatory, investor, and market pressure.[81]

Indicator 3.1: Net zero commitment

Under the Paris Agreement, global efforts seek to limit global warming to 1.5 °C, requiring emission cuts of 45% by 2030 and net zero by 2050.[82] To meet this agreement, many countries, including Japan, South Korea and Singapore, have committed to net zero emissions by 2050, albeit China targets 2060. Given the food system's massive emissions, retailers must be Paris-aligned to meet these goals. However, AEON is the only retailer to have earned full points for its group-wide net zero commitment by 2040.

Lotte and Emart each received half points for net zero targets by 2050, falling short of the more ambitious 2040 timeline needed for full credit. FairPrice, Walmart, Sun Art, DFI and Seven & i did not meet the criteria, as their net zero pledges cover only Scopes 1 and 2 – which typically accounts for just 2–5% of retailers' total emissions.[83] Although Sun Art's aim for net zero by 2030, excluding Scopes 3, means it overlooks over 90% of its climate footprint and does not qualify as a true zero target.[84]

Indicator 3.2: Methane specific commitment

Food retailers' Scope 3 emissions are dominated by methane-heavy products such as beef, dairy and rice, so they should set specific methane reduction targets across their entire value chain.[85] Methane cuts represent one of the most cost-effective and high-impact opportunities for companies aiming at net zero targets. Yet, no food retailer publicly discloses methane emissions across its value chain, or has a standalone methane reduction target.

This signals clear avoidance of climate accountability and a missed opportunity to seize one of the most immediate and impactful levers for reducing emissions.

Indicator 3.3: Private label meat and dairy action plans

Retailers' growing private label capability helps them stay competitive and appealing to shoppers.[86] Private label meat and dairy alternatives give them direct control over quality, pricing, and marketing – while delivering healthier, more sustainable options for consumers.[87] Unfortunately, no retailer has set or publicly disclosed clear targets for shifting its private label meat and dairy toward these alternatives[88]

Indicator 3.4: Scope 3 emissions reductions

The SBTi offers standards and tools to help companies set validated science-based targets for GHG reduction and net zero targets, aligned with a set of methodology and sector-specific criteria.[89] Since Scope 3 emissions make up over 90% of food retailers' total GHG emissions, retailers need to adopt validated Scope 3 reduction targets – including near- and long-term Forest, Land and Agriculture (FLAG) aligned with 1.5 °C scenarios – alongside a credible plan for absolute emission cuts.[90] Yet no food retailers have SBTi-validated Scope 3 targets. Without these science-based commitments, net zero pledges risk remaining empty promises.

Indicator 3.5: Scope 3 emissions targets

Scope 3 emission reductions and time-bound targets are essential to achieve net zero commitments, as they represent the largest share of food retailers' climate impact. Without clear measures and deadlines, retailers cannot credibly claim to address their responsibilities or deliver meaningful cuts – particularly in high-methane food supply chains.

AEON, DFI, Lotte, Emart, Seven & i and Walmart mention Scope 3 emissions in their sustainability materials, but fail to set specific time-bound targets. Indeed, none of them met the criteria for targeting Scope 3 reductions, despite the urgent need, revealing a significant gap between words and action.

DFI stands out, stating it has *"developed a structure transition plan for Scope 3 emissions, concentrating on four priority categories: rice, dairy, beef, and coffee, ... First focus on our Own Brand products in these categories where we have more direct control or significant influence."*[91] While it scored no points, DFI claimed a 30% reduction from targeted rice fields through its Low-Carbon Rice Project in Thailand in 2024 – yet it did not disclose these cuts' impact on total Scope 3 emissions or the share of rice cultivation [92] by this scheme.[93]

AEON features a "Managing and Reducing Scope 3 GHG Emissions" section in its sustainability report, highlighting efforts by supply chain partners to reduce CO_2 but lacks a clear Scope 3 reduction target and earned no points for this indicator.[94] Walmart's Gigaton Plan targets 1 billion metric tons of carbon reduction across its global value chains by 2030 – a commendable goal – but it stops short of a firm Scope 3 emissions reduction commitment, despite these representing over 97% of its footprint.[95]

Indicator 3.6: Deforestation - and conversion - free commitment

Deforestation- and conversion-free (DCF) sourcing ensures products and supply chains are deforestation- and conversion-free. Since the Consumer Goods Forum launched its DFC policies in 2010 – with a 2020 cut-off date – many leading retailers worldwide have implemented them.[96] However, none of the eight Asian retailers assessed here publicly discloses adequate DCF policies or commitments, leaving the region far behind global leaders in the US and Europe on deforestation-free goods.

Amid two decades of global momentum to end deforestation, it is deeply concerning that none of the retailers studied has a public DCF policy – especially given deforestation's toll on climate and nature. Lotte's environmental statement largely echoes Korean law, which omits deforestation and sticks to a vague "do no harm" principle.[97] This approach overlooks impacts from imported goods, focusing only on domestic forests. FairPrice has a zero-deforestation statement for its timber use:

"Zero deforestation: Trees are harvested responsibly so there is no net loss of forest over time. Forests with irreplaceable values, such as old-growth forests, are identified and maintained. Reversing deforestation and maintaining irreplaceable forests are crucial to fighting climate change."[98]

The company also references the Roundtable on Sustainable Palm Oil (RSPO), supporting deforestation efforts via certified palm oil purchases – but without disclosing the share of its supply chain covered. Certification alone doesn't guarantee zero-deforestation supply, as certified commodities often mix with sources from deforested areas. Seven & i's agriculture and livestock policy aims for full traceability across all commodities, including the lighter "environmental burden of feed production." However, it lacks a dedicated deforestation policy.[99] Walmart *"aspires to source deforestation-free and conversion-free ('DCF') products"* and mentions high-risk areas in Latin America and expects suppliers to:

"Commit to achieving DCF sourcing, with a target date of December 31, 2025, or earlier; Use a cut-off date of no later than December 31, 2020 to measure and report DCF sourcing;"[100]

Walmart details specific policies for palm oil, beef and soy, pulp, paper, and timber, but falls short on precise procurement guidelines for each commodity. Moreover, these standards do not appear to apply across all its global operations.

Category 4: Rice-related methane emissions

Rice cultivation – a uniquely Asian issue and overlooked methane super-emitter – releases about 60 million metric tons annually, or roughly 10% of global anthropogenic methane.[101] With Asia driving about 90% of global rice production and consumption, these emissions pose a critical challenge.[102] Proven mitigation pathways include water management practices, organic inputs, improved soil properties and the development of resilient rice varieties – but they remain far from scaled enough to deliver the much needed reductions.

Indicator 4.1: Acknowledging rice methane emissions' role in climate change

DFI and Seven & i earned full points for this indicator. Seven & i explicitly recognizes rice cultivation's role in global warming via methane emissions, stating: *"Rice cultivation has an impact on global warming through methane emissions."*[103] Similarly, DFI identifies rice as a priority commodity and plans pilots of proven methane-cutting practices such as alternate wetting and drying (AWD).[104]

AEON, Emart, Sun Art, Lotte, Walmart and FairPrice overlook rice cultivation's climate impacts entirely, highlighting a major gap in their emissions reduction strategies.

Indicator 4.2: Certified rice or low-methane rice policy

Commodity certification schemes provide frameworks to verify social and environmental standards, helping improve farmers' practices.[105] In this assessment, the rice certification indicator signals retailers' methane reduction efforts.

Among the retailers assessed, DFI earned half a point for its 2024 Thailand AWD rice pilot, targeting 200 tons of "Own Brand" low-carbon rice for Hong Kong stores in 2025.[106] While encouraging, this initiative remains limited to the Hong Kong market rather than implemented group-wide. Retailers could accelerate methane cuts by scaling such initiatives across all operations.

None of the remaining retailers – AEON, Seven & i, Emart, Lotte, Sun Art, Walmart, and FairPrice – scored points, lacking rice methane reduction plans in their public materials.

AEON's private brand Top Valu sells "specially cultivated rice" (Tokubetsu Saibai Mai), but the company does not link this product to methane reduction.[107] Instead, water pollution reductions and nature protection are the key drivers of this isolated initiative. It is unclear whether this program can generate methane cuts. This information was not identified on AEON's official website; therefore, it did not score under this indicator.

Seven & i states that *"supporting producers' efforts for sustainable agriculture, including heat-tolerant rice cultivation, dry direct seeding, regenerative agriculture…"*.[108] That said, the company doesn't provide evidence of dedicated financing to back these farmers, nor does it highlight support for certified emission reduction programs, or detail specific pilots with measurable outcomes.

Category 5: Alternative proteins and investment

The plant-based market in Asia is set for rapid growth.[109] Food retailers should seize this opportunity to shape consumer choices and position themselves as key players in the plant-based transition. Despite these clear market signals, none of the retailers we assessed showed firm commitments to ramp up investment in plant-based meat alternatives.

Indicator 5.1: Offering of private label alternatives

Private labels play a crucial role in building customer loyalty, as they are favored by 50% of consumers.[110] Extending these strategies to alternative protein products helps retailers normalize sustainable choices and guide diets toward more sustainable options. Despite strong forecasts for South Korea's alternative protein market –a projected 11.7% compound annual growth rate from 2026 to 2033 – neither of the leading food retailers, Lotte and Emart, offer private-label alternatives; as a result, both scored zero under this indicator.[111] Lotte Wellfood – a subsidiary of Lotte – did launch a plant-based "Zero Meat" brand in 2019 as its first entry into the alternative protein market. However, the line was discontinued in 2023, with the company citing weak sales.[112]

Seven & i, AEON, DFI, Sun Art, and Walmart offer private-label alternatives to meat and dairy products, earning full points under this indicator. AEON Group's private label Top Valu features the "Vegetive" series, a range of plant-based alternatives to meat and dairy products. Similarly, Seven & i has expanded access to plant-based foods through product lines such as the Miracle Meat series and Mirai Deli, delivering a wide variety of processed plant-based products to consumers. DFI stocks in its supermarkets private-label plant-based alternatives, from ready-to-eat products and dairy alternatives (e.g. oat milk), to plant-based meat substitutes.[113]

Indicator 5.2: Alternative product range sales increase targets

The Planetary Health Diet – a science-based framework from the EAT-Lancet Commission – charts an optimal healthy diet with 60% of proteins from plant sources and 40% from animal ones.[114] The Commission estimates shifting to this diet could slash agriculture's methane emissions by 15% by 2050.[115] This proportional benchmark offers a vital scientific guide and a clear blueprint for reshaping food systems.

Even as plant-based growth stands out as one of the most efficient solutions for retailers to curb meat and dairy methane emissions, none of the assessed retailers have set sales targets for alternative products, and therefore all scored zero points under this indicator.[116]

Indicator 5.3: Prices of private label alternatives

Food retailers' stronger private-label capability helps them remain attractive, and wider, more compelling ranges of lower-priced private-label products are strongly associated with market share gains in the current market environment.[117] Improving price competitiveness for plant-based alternatives, they can broaden consumer uptake, support more diverse diets, and unlock additional supermarket revenue growth.[118] Despite this opportunity, none of the retailers scored any points under this indicator.

DFI highlights that its *"Own Brand products ranging from food, beverages, groceries to health and beauty, all offering high quality at prices that are on average over 20% lower when compared to similar national or name brands."*[119] However, it does not set out any price parity or affordability policy for alternative proteins or plant-based products, and therefore received no points here. Walmart likewise promotes affordable pricing for plant-based items on its website, but does not state a formal price parity policy, and also scores no points under this indicator.[120]

Indicator 5.4: Alternatives sales figure publication

Only Sun Art publicly disclosed its sales volumes for alternative protein product sales, including the ratio of sustainable protein products to total sales amounts – and earned half a point under this indicator. The remaining seven retailers offered no public data on alternative protein sales. Limited disclosure of such sales figures makes it challenging to estimate how widely alternative proteins are gaining traction and how effectively retailers' strategies are working. Without publicly reported plant-based sales data, it is difficult to assess the sector's progress or compare retailers' performance in driving the shift to more sustainable food systems.

Category 6: Food waste policy

According to the UNEP Food Waste Index, over one billion tons of food are wasted annually – equivalent to 14% of global methane emissions and to 10% of annual global greenhouse gas emissions.[121, 122] The retail sector alone generates 17% of global food waste, positioning it as a pivotal lever for cuts across the entire food supply chain.[123] To effectively reduce food loss and waste, retailers need to address overordering, fueled by fears of lost sales, and actively educate consumers on best-by date meanings.

Indicator 6.1: Zero-landfill and incineration food waste policy

Food loss and waste represent not only significant economic losses but also major drivers of climate change. In response to these climate impacts, UNEP launched the "Food Waste Breakthrough" initiative during COP30 this year, aiming to halve food waste by 2030 and cut up to 7% of methane emissions.[124] To help meet this ambitious target, retailers should set zero-landfill or zero-incineration goals, while collaborating with consumers and suppliers to reduce food loss and waste across their entire supply chain.

While Lotte does not publicly state a zero-landfill or zero-incineration policy, it reports diverting 100% of its food waste, setting a clear benchmark for competitors in reducing methane emissions from food waste and scored full points under this indicator.[125]

Walmart states that it "*aspire to divert 90% of operational waste (considered 'zero waste' by ZWIA) in our US, Canada, and Mexico operations by designing end-to-end circularity programs for the main sources of our operational waste: secondary packaging, receptacle waste, food loss and waste, automotive, and assets.*"[126] However, since this commitment does not include Walmart's China operations, the company scored half points.

Seven & i aims for a 100% food recycling rate by 2050, which may imply zero landfill.[127] However, a 2050 target lacks ambition and should align with the wider broader global industry commitments, which call for zero waste and landfill by 2025.

Under its "Zero Waste Initiative Concept," AEON pledges to make waste that is disposed of, incinerated, or landfilled "zero" based on the 3 Rs (Reduce, Reuse, Recycle).[128] However, without a clear deadline, the company could not be awarded points here.

FairPrice recognizes food waste as a critical issue, and articulates the need to reduce it and prevent landfill and incineration, but falls short of setting clear, measurable targets.[129]

Indicator 6.2: Food waste reduction policy

Food loss and waste represent a major global climate challenge, generating as much as 10% of global GHG emissions.[130] In response, many countries have begun adopting policies to reduce food loss and waste, partnering with businesses – including food retailers – and the public.

Under this indicator, not a single retailer scored any points. AEON's stated goal is to: "*Halve food waste by 2025 (food waste generation per million JTY in net sales)*".[131] This target merits recognition for its 50% volume ambition and a tight timeline; however, as an intensity-based metric rather than an absolute reduction target, it received no points. Similarly, Walmart has a global goal to "reduce global operational food loss and waste intensity by 50% by 2030 (vs. a 2016 baseline)". The commitment is framed as an intensity target, rather than an absolute target, and subsequently scored no points.[132]

Seven & i's target to halve food waste by 2030 is not an absolute reduction target and misses the 2025 deadline required to score points.[133] While DFI states that it has "set an ambitious waste diversion target of 80% by 2030," the company's lack of ambition to become a zero waster by 2025 means the company received no points under this indicator.[134] Emart failed to outline any targets to reduce food waste; it reported only the volume of food waste recycled and did not disclose total food waste generation.[135]

Conclusion

This report reveals that Asia's major food retailers are falling short on reporting and setting methane reduction targets – despite this GHG dominating their emission footprint. Across key areas – from acknowledging methane's role in global warming, to transparently reporting emissions, setting credible Net-Zero 2040 commitments, promoting protein alternatives and addressing methane from food waste – significant gaps persist among these leading Asian retailers.

Not one of the eight assessed food retailers separately discloses methane emissions or has set a methane reduction target. This marks a widespread failure to confront one of the most potent and prevalent greenhouse gases embedded in their meat, dairy and rice supply chains. While AEON shows relatively good performance compared to its competitors, its score remains far from that of a true climate leader.

Given methane's powerful short-term warming impact, reducing methane emissions presents one of the most immediate and effective opportunities for retailers to accelerate the transition toward a more sustainable food system and demonstrate climate leadership. Retailers must acknowledge the scale of the problem, measure and disclose methane emissions, set science-based reduction targets, develop clear action plans, publicly report progress, and invest in proven solutions.

As long as methane remains absent from transparent reporting and concrete reduction targets, these food retailers risk seriously delaying their net zero pathways and undermining the credibility of their climate commitments.

Recommendations

Retailers should acknowledge methane's significant impact on their emissions profile and climate change, while raising consumer awareness across Asia about this important issue.

The eight Asian retailers should:

Increase transparency in climate disclosure by:

- Publicly reporting methane and other GHG emissions across Scopes 1, 2 and 3, following the GHG Protocol 2.0 methodology with an annual third-party verification.
- Publishing methane emissions data from their meat, dairy and rice products, to inform climate plans, and empower consumers to make better product choices.

Set ambitious, transparent and accessible climate plans by:

- Establishing and committing to a collective net zero target by 2040 or earlier.
- Adopting science-aligned methane reduction targets of at least 30% below 2020 levels by 2030.
- Implementing group-wide zero-deforestation and zero-conversion policies for forest-risk commodities immediately, with clear cut-off dates and compliance with the Amazon Soy Moratorium.

Increase financial support for scaling plant-based products by:

- Investing in alternative proteins through an attractive extensive own-brand plant-based product range across the entire group and global operations.
- Setting a target to achieve at least 60% plant-based and 40% animal-based sales ratios by 2030, with regular public reporting progress.
- Introducing group-level price parity policies to make alternative proteins and plant-based products appealing to consumers.
- Redirecting marketing efforts and in-store food displays to promote healthy and sustainable plant-based proteins (including whole foods like legumes and traditional options such as tofu) while de-emphasizing meat and dairy.

Ramp up low-methane rice at stores by:

- Publicly reporting rice methane emissions and setting reduction targets aligned with the Global Methane Pledge of 30% reduction by 2030.
- Prioritizing rice produced with agroecological methane-reduction practices, such as alternative wetting and drying (AWD) and optimized fertilizer management.
- Promoting low-methane rice products and building consumer awareness that a low-carbon diet involves both reduced meat consumption and choosing lower-methane rice.

Retailer responses

All retailers were contacted and provided with their individual scores, a detailed overview of the methodology applied, and descriptions of the indicators.

Only DFI responded to our messages. DFI expressed keen interest in engaging further and improving its score by providing additional information, which we double-checked. However, this did not lead to any changes in the company's scores.

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