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**CJ CHEILJEDANG IS COMMITTED  
TO REALIZING ENERGY  
DECARBONIZATION AND BRINGING  
INNOVATION TO OFFER SUSTAINABLE  
PRODUCTS AND SOLUTIONS TO  
MOVE TOWARDS “2050 CARBON  
NEUTRAL & ZERO WASTE”.**



# CEO MESSAGE



NATURE  
TO NATURE

**“IN PURSUIT OF A “NATURE TO NATURE” CYCLE, CJ CHEILJEDANG IS COMMITTED TO BRINGING THE NATURE TO THE TABLE AND THEN BACK TO THE NATURE. BY REALIZING THIS VIRTUOUS CYCLE IN A TRUE SENSE, WE TAKE PART IN THE GLOBAL COMMUNITY’S ENDEAVOR TO MITIGATE CLIMATE CHANGE AND CREATE A SUSTAINABLE ENVIRONMENT”**

Climate crisis is no longer a matter of the future, but a critical and imminent issue facing the global community today. The repercussion of climate change has been evident in many different ways from extreme climate events, natural disasters, water shortage, declining agricultural productivity to damage to ecological systems, posing a substantial threat to the sustainability of our lives. Amid these crises, the social responsibility of businesses is all the more vital in leading innovation for mitigation.

In pursuit of a “Nature to Nature” cycle, CJ CheilJedang is committed to bringing the nature to the table and then back to the nature. By realizing this virtuous cycle in a true sense, we take part in the global community’s endeavor to mitigate climate change and create a sustainable environment.

CJ CheilJedang has set the goal of becoming a carbon-neutral and zero-waste business by 2050. To this end, we have defined specific targets for each category of greenhouse gas, energy, water and waste to reduce the environmental impact across all business areas. We continue to diversify our sustainable product and solution offerings to help our community to better respond to climate crisis. Robust innovation will follow in operations across entire value chain from manufacturing, sourcing, sales to disposal to minimize carbon emissions.

While climate change presents both crisis and opportunity, there is an open path to sustainable growth for businesses that lead the way to respond and bring innovation to mitigate the crisis. CJ CheilJedang will guide not only our employees but our business partners and stakeholders to work together towards carbon emissions reduction and a higher resource productivity to act on climate change, contributing to making our planet a more sustainable habitat.

 Eun Seok Choi  
CEO of CJ CheilJedang



# WHAT DO WE MEAN BY THE COMMITMENT?



Head of Corporate Communication Office

**GIL GEUN CHUNG**

**“OUR CORPORATE STRATEGIES REFLECT BOTH RISKS AND OPPORTUNITIES PRESENTED BY CLIMATE CHANGE. CREATING SUSTAINABLE VALUES IS AT THE CENTER OF OUR JOURNEY WITH INTERNAL AND EXTERNAL PARTNERS.”**

CJ CheilJedang's Environment Management Strategy mirrors the needs of customers, investors and the government as well as the conclusion of internal feasibility studies. Our responses against climate change have been defined not for mere publicity purposes; they are the demonstration of how our corporate strategy for value creation integrates climate actions with specific targets and detailed execution roadmaps. To successfully serve the role of the “ESG control tower”, the Corporate Communication Office will continue to promote companywide collaboration to deliver sustainable values.

**“CLIMATE ACTION IS ABOUT CREATING A CONCRETE BUSINESS FOUNDATION AND IMPROVING OUR CORPORATE DNA IN RESPONSE TO GLOBALLY INCREASING CARBON REGULATION.”**

Countries are racing to set ambitious carbon reduction goals in response to increasing carbon regulation. Early actions taken for energy decarbonization at our manufacturing plants will spare us from potential damage to profitability stemming from carbon taxes and emissions allowances and help stay relevant in the market. In this light, CJ CheilJedang plans to measure the carbon impact and financial risk for every infrastructure investment and new product development project, and define standards and procedures to incorporate the measured impact and risks into the decision-making process.



Head of BIO Engineering Division

**JOON WON LEE**

# WHAT DO WE MEAN BY THE COMMITMENT?



White BIO)POLYMERS AP  
**BYUNG HAK KIM** / Professional

**“CLIMATE ACTION IS A STRATEGIC DECISION MADE TO PURSUE SUSTAINABLE GROWTH THROUGH OUR TECHNICAL INNOVATIONS THAT ADDRESS ENVIRONMENTAL ISSUES.”**

The rapid growth of demand for environmentally sustainable materials has been buoyed by the globally worsening marine ecological damage caused by plastic waste. Not only advanced states but also developing nations have begun to introduce new standards and regulations to promote alternatives to petrochemical materials. This trend for CJ CheilJedang holds a prospect of new business for which we can capitalize on our long-accumulated biological material technologies.

**“IT IS ABOUT LISTENING THE VOICES OF CONSUMERS AND RESPONDING TO SOCIAL DEMAND. IT IS A JOURNEY TOWARDS PRODUCT INNOVATION WITH CUSTOMERS IN PURSUIT OF SUSTAINABLE GROWTH.”**

The covid pandemic has further accelerated the trend of health-centric, sustainable consumption. Side-streams from our manufacturing plants are no longer treated as waste, but they are now transformed into new high value-add products for customers to choose healthier offerings to join efforts for environmental protection. CJ CheilJedang will continue to engage customers and communities in our continued endeavor to bring sustainable food innovations.



Upcycling CIC  
**JOO HEE JUNG** / Specialist

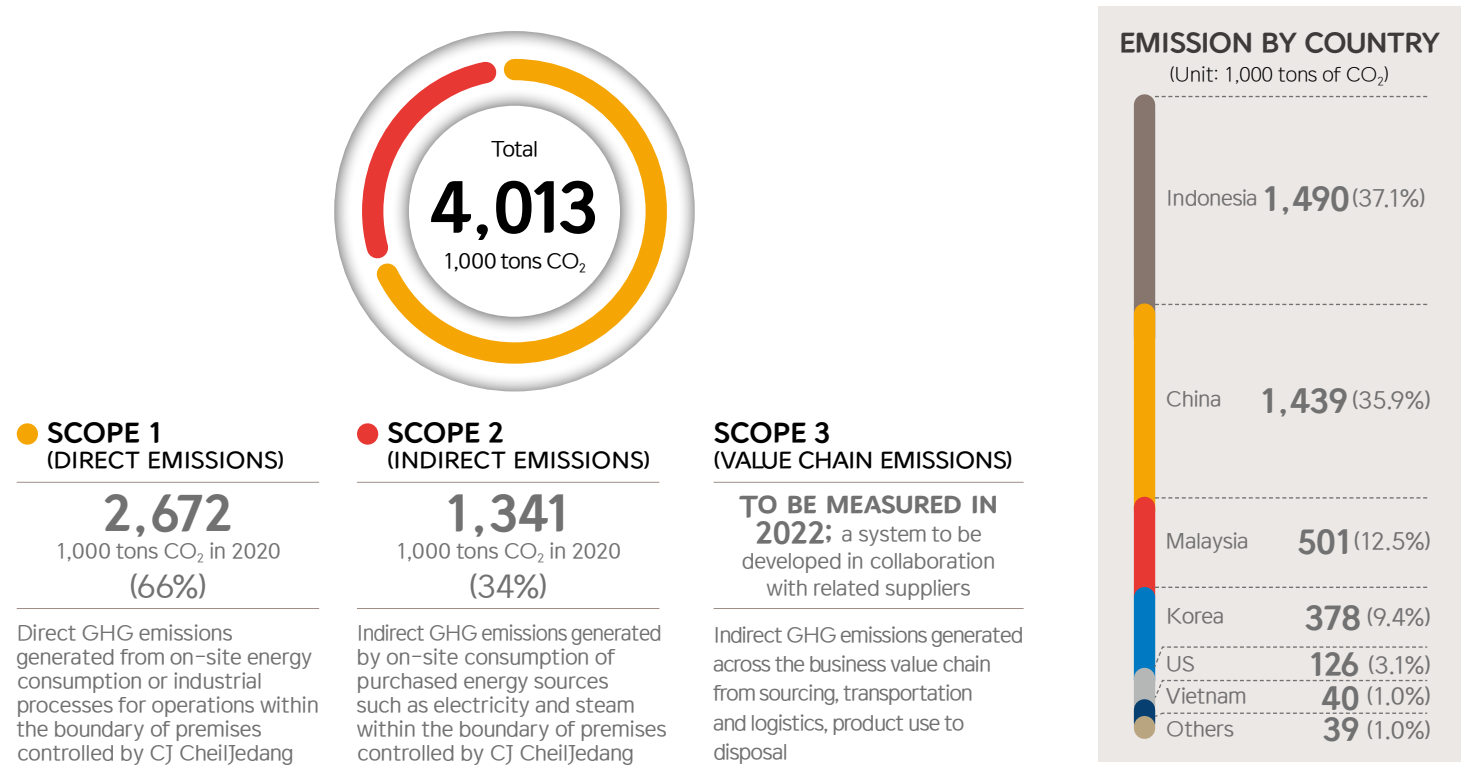
# OUR CARBON FOOTPRINT



## GHG EMISSIONS AT MANUFACTURING PLANTS (SCOPE 1 AND 2)

In 2020, GHG emissions of CJ CheilJedang totaled 40,013,000 tons CO<sub>2</sub>. Direct GHG emissions (Scope 1) that resulted from energy combustion and manufacturing processes within CJ CheilJedang's plants amounted to 2,672,000 tons CO<sub>2</sub>, or 66.6% of the total emissions. Indirect GHG emissions (Scope 2) associated with the use of purchased energy sources such as electricity and steam stood at 1,341,000 tons, or 33.4%. 37.1% of the total emissions come from operations in Indonesia, followed by China (35.9%), Malaysia (12.5%), Korea (9.4%), the US (3.1%) and Vietnam (1.0%). CJ CheilJedang plans to measure GHG emissions that occur throughout our operations and disclose relevant information in the annually published sustainability report.

\* Baseline: Sites controlled by the Food Business Unit and BIO Business Unit across 9 countries



Direct GHG emissions generated from on-site energy consumption or industrial processes for operations within the boundary of premises controlled by CJ CheilJedang

Indirect GHG emissions generated by on-site consumption of purchased energy sources such as electricity and steam within the boundary of premises controlled by CJ CheilJedang

Indirect GHG emissions generated across the business value chain from sourcing, transportation and logistics, product use to disposal



# IMPACT ON OUR BUSINESS

Failure to responding to increasing GHG regulation and changing policies such as the Carbon Border Adjustment Mechanism (CBAM) may result in a higher compliance cost or lower product profitability in key markets such as European countries. There is also a pressure for carbon emission reduction imposed by global customers, and inaction to respond to the pressure may expose businesses to a potential loss of critical sales opportunities.

Meanwhile, a more stringent regulatory environment is expected to result in new market trends, which will fuel new demand for low-carbon products and solutions. This will create new business opportunities for CJ CheilJedang.

To effectively respond to the rapid-changing regulatory and market environments, CJ CheilJedang will establish fundamentals for low-carbon operations across the value chain to stay competitive in a new business environment. We will continue to bring sustainable food offerings and innovative biomaterial solutions that live up to expectations of customers and communities, further moving forward on our path to carbon neutrality.



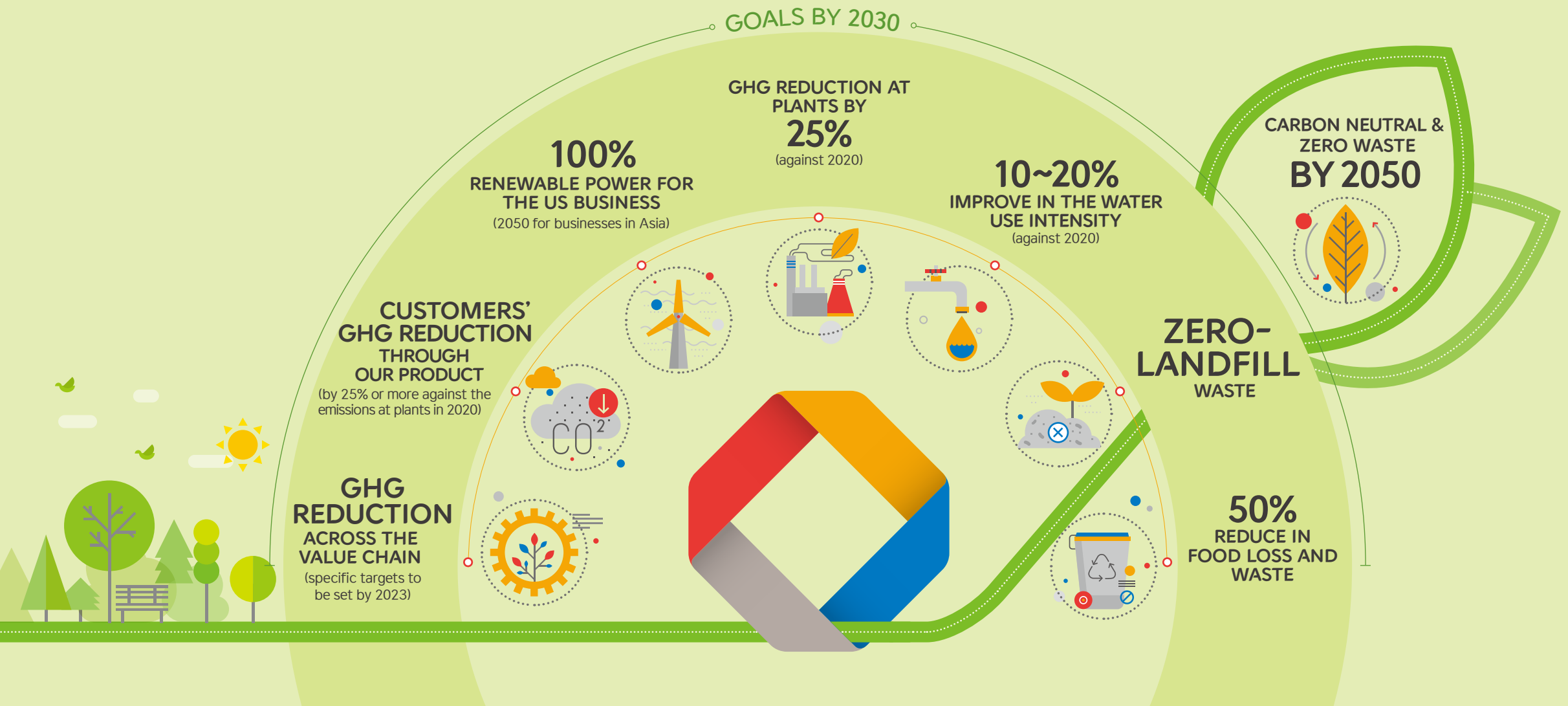
	IMPACT	RESPONSE
<b>REGULATION</b>	The price of traditional energy sources represented fossil fuels is expected to rise due to increasing regulation on GHG emissions, and the cost for carbon credits is expected to follow the same trend. Introduction of the CBAM is likely to drive down the profitability of Europe-destined products.	Introduction of standards and processes that ensure investment decision-makings take into account of risks associated with carbon costs in support of phased implementation of actions for shift towards low-carbon energy and renewable energy sources.
<b>MARKET</b>	Global customers will increasingly set carbon reduction targets (Scope 3). Failure to fulfill customers' requirement to reduce carbon footprint of our products may result in lost sales opportunities or customers.	Preparation to build a system for GHG emission measurement and diagnosis aimed at every segment across the value chain from sourcing, sales to disposal; development of a collaboration model with suppliers and business partners to reduce GHG emissions throughout product life cycle.
<b>REPUTATION</b>	Corporate reputation may be damaged due to a negative community perception caused by excessive use of water due to climate change-induced water shortage and increase in use of plastic packaging.	Prioritization of water-stressed regions to reduce water use intensity, introduction of a risk diagnosis process and robust use of recyclable and renewable waste to realize a business that circulates resources throughout operations.



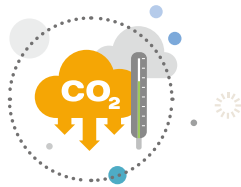
	IMPACT	RESPONSE
<b>RODUCTS &amp; SERVICES</b>	Tighter regulations are expected in line with the growing trend of health and value-centric consumption. Consumer needs for sustainable food products – that are sustainable from the ingredient and manufacturing standpoints – will grow.	Programs to spur product innovations to reduce carbon footprint by phase starting from products that are better fit to address consumers' sustainability expectations. Priority products to be selected based on analysis of environmental impact throughout product life cycle (e.g. plant-based meat).
<b>MARKET</b>	Use of petrochemical ingredients or materials – commonly represented by plastic – continues to exacerbate the severity of environmental contamination. This will drive up demand for technologies that use biomaterials as alternatives to petrochemicals and invigorate related markets.	Development of natural ingredient-based petrochemical alternatives such as biodegradable plastic by mobilizing microbial fermentation technologies accumulated for the past 6 decades to pioneer the sustainable biomaterial space.
<b>ENERGY TRANSITION</b>	A regulatory environment conducive for corporates to directly source renewable energy sources will become available thanks to rapid technological advancement. Businesses will be given more opportunities to reduce costs for energy and carbon emissions in the mid- and long-term while taking the advantage of clean energy sources.	Business model transformation to switch to renewable energy in partnership with external partners (e.g. a long-term energy purchase contract to acquire carbon credits and minimize the cost for energy sourcing in the mid- to long-term).

# OUR PLAN

To become a business that is “Carbon Neutral & Zero Waste” per the vision set for 2050, CJ CheilJedang will continue our push for carbon-free plants, sustainable products and solutions, GHG reduction in collaboration with partners across the value chain and robust resource productivity improvement. On our path to achieve the 2050 vision, our goals by 2030 include a GHG reduction at manufacturing plants of 25% below the 2020's level, renewable energy-only operations, a 20% increase in the water use efficiency and zero-landfill waste. Products and solution innovation will continue to help our customers' GHG reduction by the amount that outperforms the reduction achieved at our plants. For our supply chain and sales network, we also plan to roll out a host of actions to minimize GHG emissions as well as food loss and waste.



# IN OUR OPERATION



## GHG REDUCTION

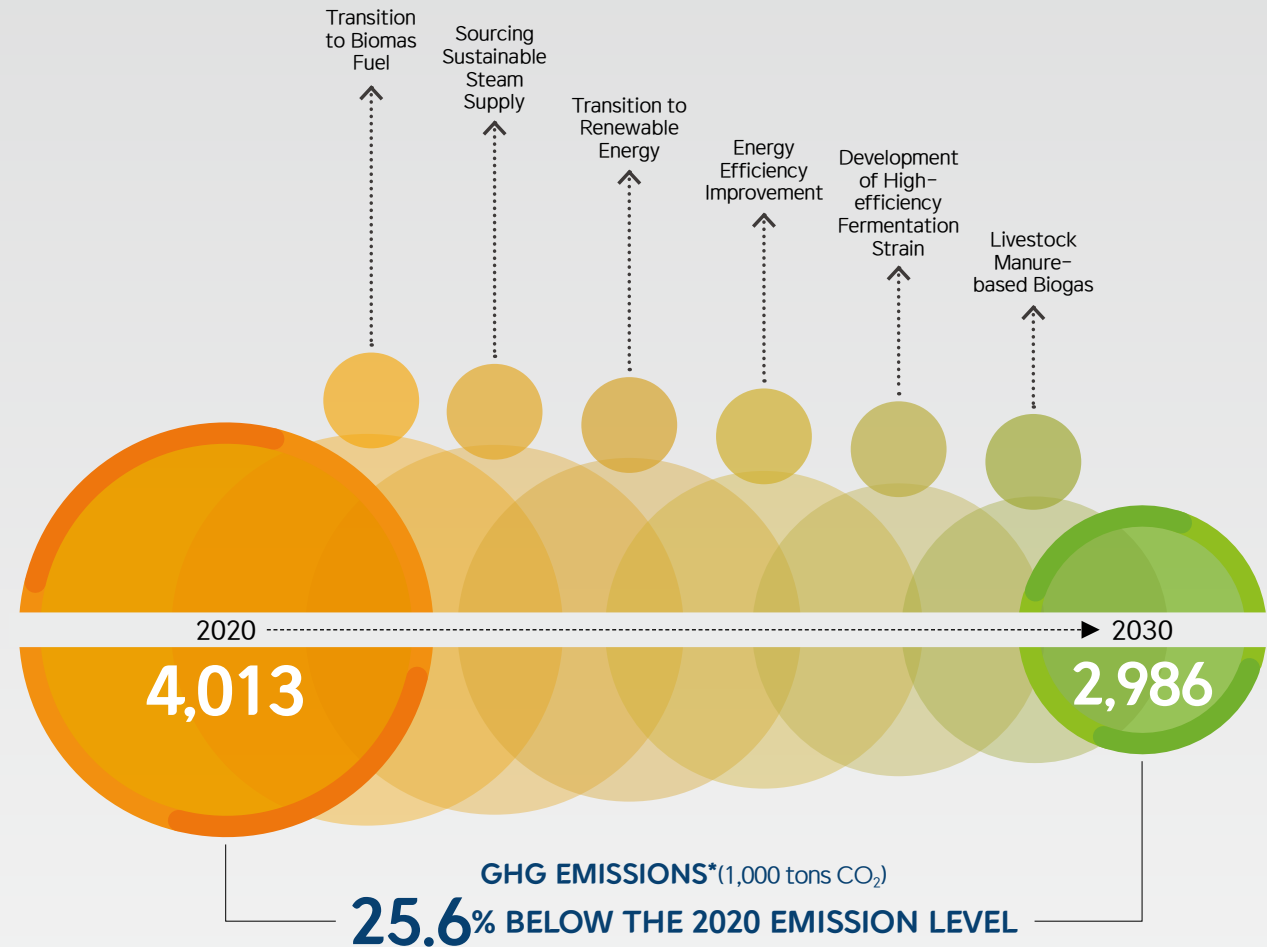
Steam supply is a requirement for both the manufacturing process for the Food Business Unit and fermentation process for the BIO Business Unit. The steam supply is originated from fossil fuels such as coals and gasses. CJ CheilJedang will gradually replace these traditional sources of fuels with biofuels as we look to increase sustainable energy sourcing.

For electricity, in particular, external partnerships will allow direct sourcing of renewables from solar or wind farms. Along with this effort, we will continue to reduce energy use by improving the energy efficiency of manufacturing processes and developing new technologies that will boost the microbial fermentation efficiency of the manufacturing processes deployed by our BIO Business Unit.

Initiatives as such will guide us to gain competencies and lay groundwork required for the transition to carbon-neutral energy. In the longer term, our goal is to bring innovative technologies and measures such as green hydrogen energy to deliver a carbon-neutral operating model for our manufacturing plants by 2050.



## 2030 TARGETS & MEASURES FOR PLANT GHG REDUCTION

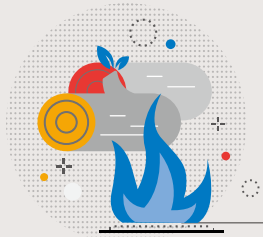


\* Including operations by both the Food and BIO Business Units in 9 countries



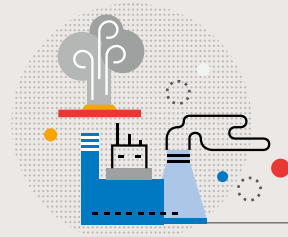
# IN OUR OPERATION

## MEASURES TO REDUCE GHG



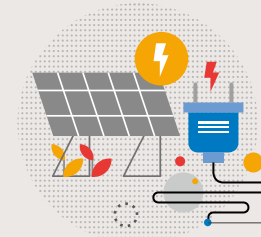
### TRANSITION TO BIOMASS FUEL

Biomass fuel extraction from wood pallets or agricultural residues (e.g. palm fruit peels, rice bran) to mix with fossil fuels such as coals and LNG for combustion to create biomass fuels for steam boilers or co-generation boilers, or installation of boilers that run on biomass fuels



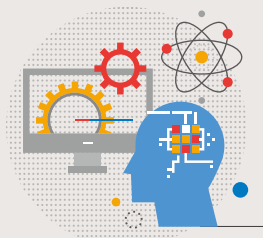
### SOURCING SUSTAINABLE STEAM SUPPLY

Identification of unused sources of thermal energy outside of plants with external partners (e.g. waste heat in an industrial complex or incineration plant) to replace existing fossil fuel-based sources for thermal energy used to supply steam or hot water required for manufacturing processes



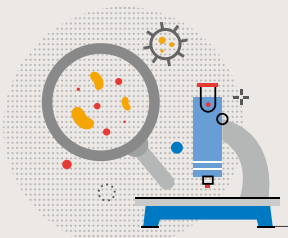
### TRANSITION TO RENEWABLE ENERGY

Solar power generation in idle lands within existing plants for internal use, direct sourcing of electricity from external solar and/or wind farm operators and/or purchase of renewable energy certificate to replace existing electricity purchased



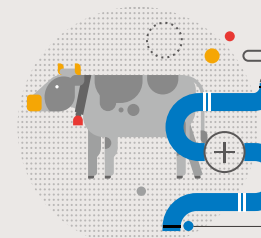
### ENERGY EFFICIENCY IMPROVEMENT

Introduction of AI and data-powered solutions for energy analysis with energy management system upgrade; identification of opportunities to enhance energy efficiency to reduce energy use and GHG emissions



### DEVELOPMENT OF HIGH-EFFICIENCY FERMENTATION STRAIN

Development of new high-efficiency strains to enhance process yields and newly streamlined purification processes



### LIVESTOCK MANURE-BASED BIOGAS

Introduction of anaerobic digesters to process livestock manure and extract biogas (methane) to turn into energy sources for methane emission reduction and fossil fuel replacement

# IN OUR OPERATION



## WATER USE EFFICIENCY IMPROVEMENT

The World Meteorological Organization reported the population that falls victim of water shortage for a period of a month or longer every year has amounted to 3.6 billion worldwide while the number of people who will experience water shortage is expected to exceed 5 billion in 2050. Such damning statistics indicate that conservation and sustainable use of water resources will become all the more critical. CJ CheilJedang will take part in addressing water shortage in countries where we have our operations in parallel with our target to reduce water intensity by up to 20% by 2030. Top priority for our efforts to be given to the most water-stressed regions to dial up investment in building infrastructures for water recycling and other initiatives that help improve water resource efficiency. Regular diagnosis will be carried out for each local community to better understand risks associated with water resources and current existing response systems for continued advancement in resource management while we engage in robust communication and collaboration with local communities.

## WRI\* AQUEDUCT WATER RISK ATLAS MAP



- OVERALL WATER RISK
- Low(0-1)
  - Low Medium(1-2)
  - Medium High(2-3)
  - High(3-4)
  - Extremely High(4-5)
  - No data
  - CJ CheilJedang Plant Locations
- \* WRI(World Resources Institute)

### CJ CHEILJEDANG'S CURRENT OPERATIONS

**48 MILLION TONS**  
OF WATER INTAKE BY 91 PLANTS  
IN 9 COUNTRIES IN 2020

**31 PLANTS** IN COUNTRIES  
FACING SEVERE WATER STRESS\*  
(E.G. CHINA, INDONESIA, VIETNAM)

\*Source: World Resource Institute

### 2030 GOAL

**20% REDUCTION** IN  
WATER INTAKE PER PRODUCTION  
VOLUME IN PLANTS IN SEVERE  
WATER STRESS REGIONS

### KEY STRATEGY

**INVESTMENT IN FACILITY  
REFURBISHMENTS AND NEW  
INFRASTRUCTURES FOR WATER  
REUSE, RAIN WATER USE AND WATER  
USE EFFICIENCY IMPROVEMENT**

# IN OUR OPERATION



## ZERO-LANDFILL WASTE

In response to exacerbating resource depletion and environmental contamination, our goal is to increase the portion of reused, recycled and transformed into energy sources and eliminate landfill waste that ends up in our ecosystem by 2030.

Our food manufacturing plants in Korea are almost near the goal of zero-landfill waste with waste reuse as industrial ingredients or agricultural feed and compost (landfill waste accounted for 0.4% in 2020). Best practices in Korea will be rolled out to plants in overseas to achieve zero-landfill waste for the entire premises of CJ CheilJedang at home and abroad by 2030. Priority will be first given to plants in China, the US and Vietnam, where the volume of waste and food loss tops the ranking among our manufacturing plants, and we will continue to expand our best practices to all of our plants located globally.



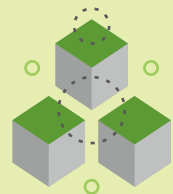


# WITH OUR PRODUCT & SOLUTION

## CONTRIBUTION TO GHG REDUCTION WITH SUSTAINABLE PRODUCTS AND SOLUTIONS

(25% REDUCTION FROM THE 2020'S LEVEL)

CJ CheilJedang helps customers and the downstream sector reduce GHG emissions by offering innovative, sustainable products and solutions. This, in turn, allows us to pursue new opportunities for business growth. We plan to upgrade our competencies and infrastructures for measuring the environmental impact and progress in reducing environmental footprint enabled by CJ CheilJedang's products and solutions. Meanwhile, process innovation will be another area of focus for our product development to take into account environmental impact from the planning and development stages. Progress made for our initiatives will be measured against objective criteria and disclosed for stakeholders' information. Our product and solutions will continue to observe global environmental standards while we monitor any potential environmental risks that may damage our reputation to become a more reliable and sustainable business that is always the first choice of customers.



**DEVELOPMENT OF SYSTEMS**  
TO QUANTIFY THE CONTRIBUTION OF PRODUCTS AND SOLUTIONS TO GHG REDUCTION BY CUSTOMERS AND COMMUNITIES



**NEW PROCESSES**  
TO TAKE INTO ACCOUNT OF THE ENVIRONMENTAL IMPACT OF PRODUCTS FROM INITIAL PLANNING AND DEVELOPMENT



**STRONGER STAKEHOLDER COMMUNICATION**  
ON SUSTAINABILITY PERFORMANCE OF PRODUCTS AND SOLUTIONS AND IMPROVED RELIABILITY

# WITH OUR PRODUCT & SOLUTION

## EXAMPLES OF CJ CHEILJEDANG'S SUSTAINABLE PRODUCT DEVELOPMENT

### UPCYCLED FOOD

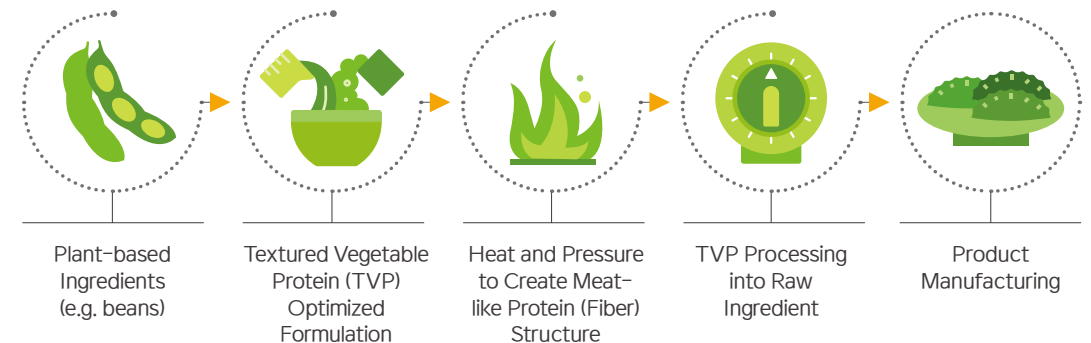


Upcycled food use side-streams that occur throughout food manufacturing processes. Instead of disposing side-streams as waste, CJ CheilJedang has found the value in them to be transformed into new, higher value-add products. As the very first contestants of CJ CheilJedang's in-house venture program, a team of employees who share passion about reducing the environmental impact of food waste has successfully turn this idea into a business. The first product is set to debut in the first quarter of 2022. CJ CheilJedang's new upcycled food offering will be a healthier option for consumers with enriched nutritional value while it helps reduce food loss and waste.

### PLANT-BASED MANDU (KOREAN DUMPLING)



Plant-based mandu(Korean dumpling) contains the Textured Vegetable Protein (TVP), which uses plant-based ingredients, CJ CheilJedang's proprietary natural seasoning (TasteNrich) and plant-based oils to reproduce the succulent feature and distinctive flavor of animal meat. More plant-based products differentiated by taste quality will become available in Korea and other markets globally. Going beyond the alternative meat space, CJ CheilJedang plans to push the boundary to a broader plant-based market to present offerings made with 100% plant-based ingredients. We expect this to help not only promote the health of consumers, but also curb the GHG emissions and environmental impact caused by livestock businesses.



# WITH OUR PRODUCT & SOLUTION

## EXAMPLES OF CJ CHEILJEDANG'S SUSTAINABLE PRODUCT DEVELOPMENT

### AMINO ACID: SUSTAINABLE FERMENTATION



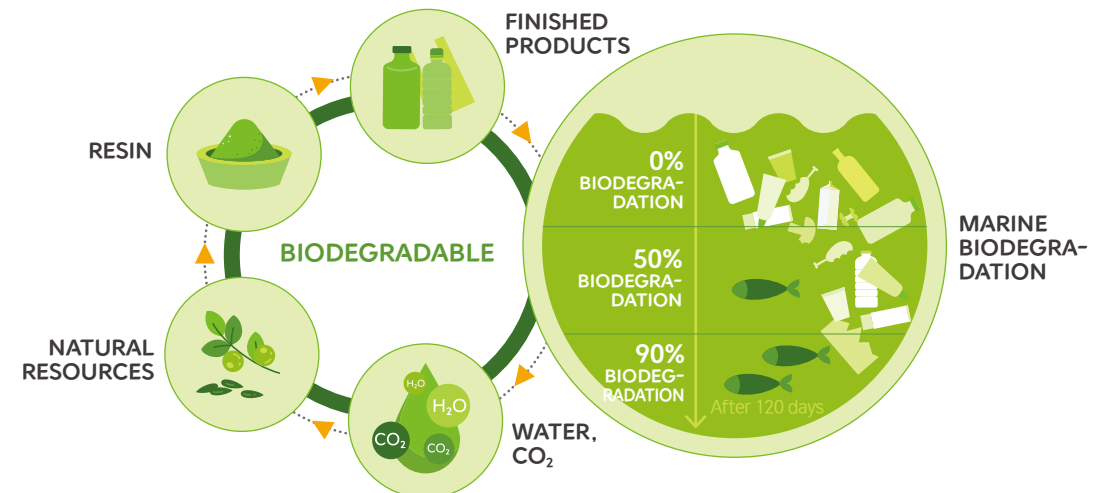
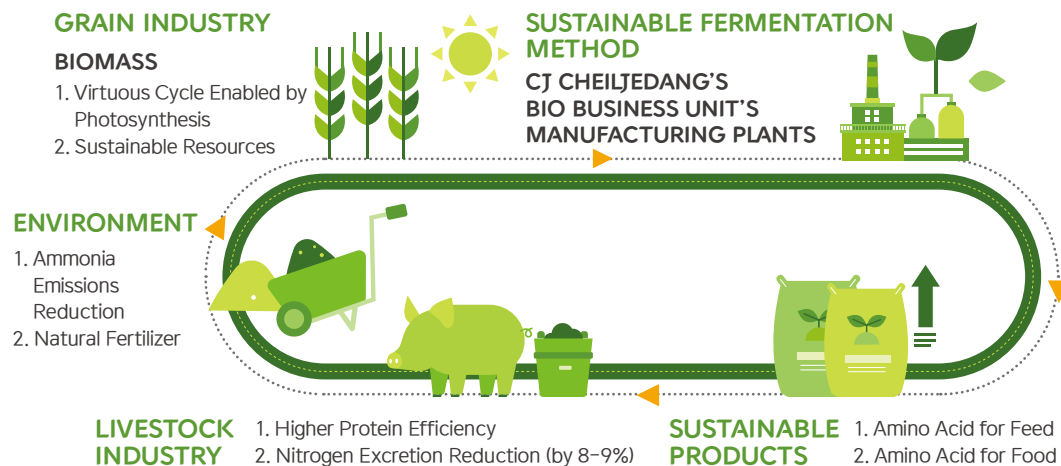
Amino acids are essential for both protein formation and animal growth. CJ CheilJedang offers amino acids as feed additives that use *Corynebacteria* and grains as raw ingredients. The manufacturing process employs a differentiated fermentation method designed to help reduce a considerable amount of waste water and gases and increase the digestion rate of animals. The fermentation method allows farms to use and cause less amount of feed and nitrogen excretion, which contributes to GHG emissions reduction. CJ CheilJedang will continue to create a healthy cycle of livestock to food and to consumers.

### PHA: BIODEGRADABLE PLASTIC



\* Polyhydroxyalkanoate

CJ CheilJedang has developed PHA (polyhydroxyalkanoates) using only biomaterials (e.g. corn, sugar cane) as ingredients with a microbial fermentation technology. PHA is a sustainable material that will bring innovation to mitigate exacerbating environmental contamination caused by plastic waste. Petroleum-based plastics last five centuries until degradation, but 90% of PHA is naturally degraded within a year in soil and seas. PHA is highly useful in application as it is suitable for food containers, plastic wrapper and paper lamination. CJ CheilJedang has for the past six decades accumulated technical expertise in mass-scale fermentation and purification processes with recent progress highlighted by the newly built PHA-dedicated production line in Pasuruan, Indonesia for commercial PHA production.



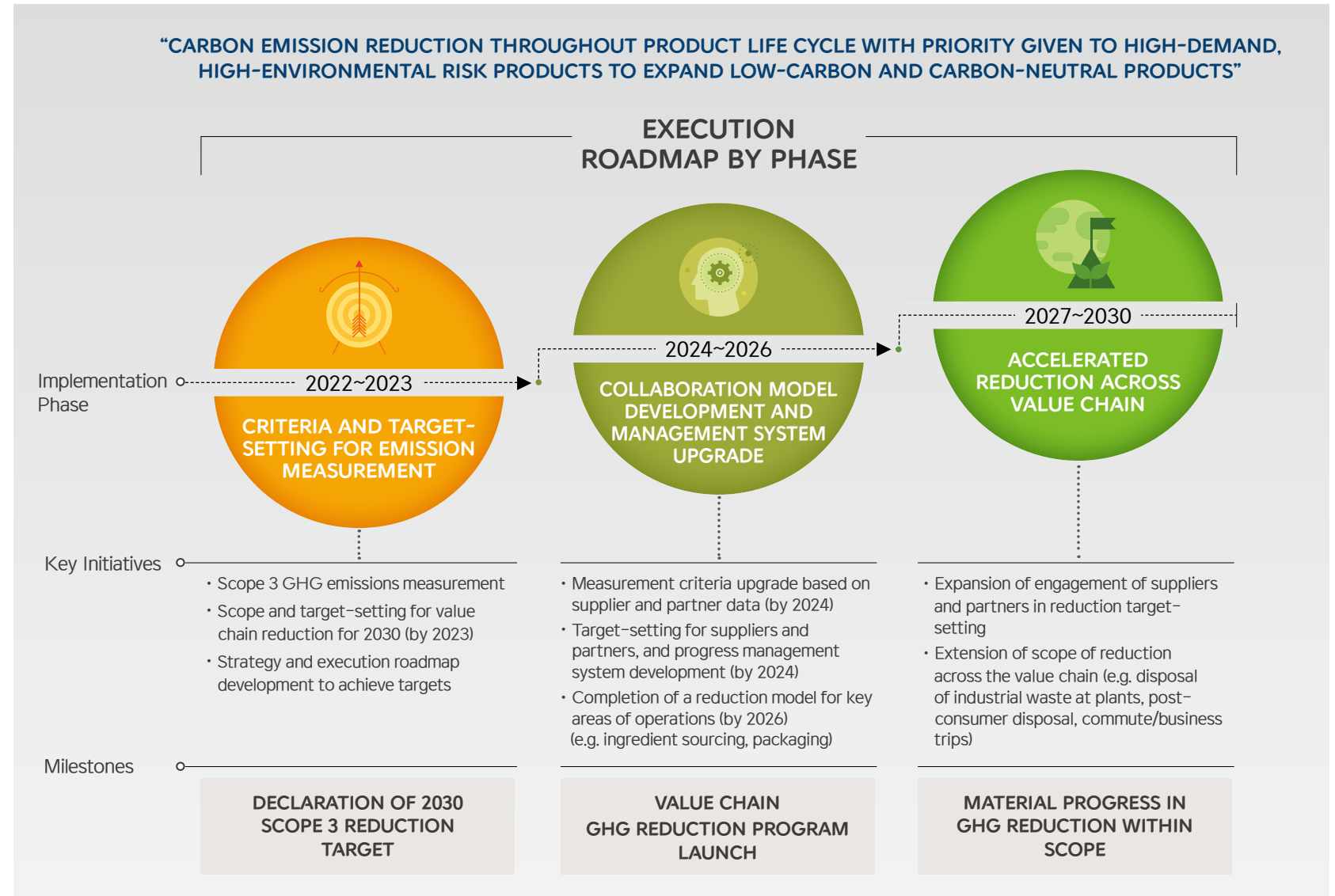


# THROUGH OUR VALUE CHAIN

According to Climate Action 100+, a climate change initiative signed by 500 investment institutions with \$47 trillion in asset under management, the food supply system accounts for about 25 to 35% of the total global GHG emissions.

CJ CheilJedang aims at creating a “Nature to Nature” cycle to bring the farm to the table and back to the nature. In pursuit of this philosophy, carbon footprint reduction will be set as our primary goal in collaboration with our partners in every part of our operations from sourcing, transportation and logistics management, sales and to waste disposal.

To this end, we will establish a system to measure Scope 3 emissions by 2023, and define long-term reduction targets and strategies. New collaboration programs will help accelerate implementation of our strategies with our suppliers and business partners. Carbon reduction programs will be designed to reduce emissions throughout product life cycle, and priority for such programs will be first given to products with a relatively greater need and a higher level of environmental risk. More products will be included to programs for CJ CheilJedang to become a highly competitive, carbon-neutral company in a changing business landscape.



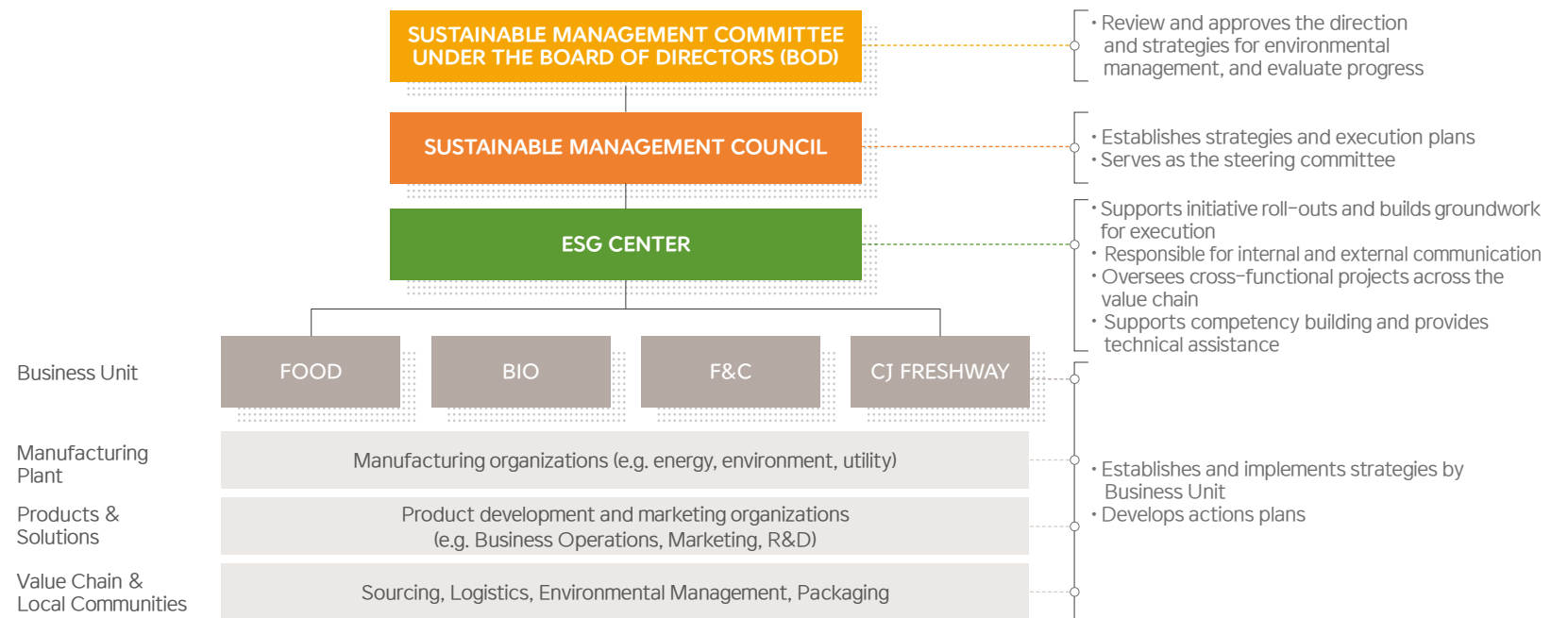
# GOVERNANCE AND MANAGEMENT



## GOVERNANCE FOR EFFECTIVE IMPLEMENTATION



To ensure proactive risk management and well-rounded execution, CJ CheilJedang's ESG practices encompass climate actions and environmental management under the companywide governance set for sustainable management. The Sustainable Management Committee was formed in April 2021 under the Board of Directors, the highest-level decision-making body, to oversee overall execution of sustainability performance and authorize strategies to ensure corporate management strategies reflect climate actions. For the Sustainable Management Council, CEO acts as the Chair and the members include the highest-ranking executives of each Business Unit and related managers. The Council is commissioned to define companywide strategies and execution plans to reinforce sustainable management as a steering committee to support robust implementation and effective resource allocation. The ESG Center supports the Sustainable Management Council in developing companywide ESG strategies and implementing initiatives in line with changes in internal and external environments. The Center coordinates collaborations and facilitates communication across relevant organizations and the Business Units.





## TOWARD SUSTAINABLE PLANET FOR EVERYONE

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