Decarbonization

GRI 201-2

Kao has set the ambitious targets of achieving carbon zero by 2040 and carbon negative by 2050 and is working to fulfill its responsibility to pass on a sustainable future to the next generation by developing innovative technologies and reducing CO_2 emissions throughout the value chain in collaboration with stakeholders.

Risks

- Increased costs due to compliance with regulations such as a carbon tax
- Increased costs due to restrictions on the use of plastics
- Increased costs due to rising energy prices
- Increased costs due to rising palm oil prices
- Increased damage from flooding
- Deterioration of reputation in the event of an insufficient response to climate change

Opportunities

- Cost reduction through more efficient use of resources
- Increased sales of products addressing climate change
- Increased corporate value through activities that solve social issues and improve the lives of consumers

Strategy

		Metrics	Targets	2024 results	Initiatives
Overall	(1) Promote innovative initiatives toward carbon zero by 2040 and carbon negative by 2050	% reduction in absolute full lifecycle CO_2 emissions* (Base year: 2017) (2) * Total of Scope 1, Scope 2, and Categories 1, 4, 11, and 12 of Scope 3	22% in 2030	15%	Strengthen collaboration with suppliers Companies with high activity levels: 53%* * Of the 1-5+ categories, the percentage of companies in the 5 and 5+ categories
	(2) Reduce CO_2 throughout the product lifecycle	Avoided emissions contribution to emissions reduction through products (2) (6) (7)	10,000 thousand tons	4,347 thousand tons	
	(3) Collaborate with stakeholders in the procurement, distribution, use, disposal and recycling of raw materials				
	(4) Promote decarbonization through internal carbon pricing				
Sites	(5) Promote renewable energy and energy conservation	% reduction in absolute scope 1 + 2 CO_2 emissions (Base year: 2017) (4) (5)	55% in 2030	42%	Scope 3 emissions 10,170 thousand tons-CO_2
					Avoided emissions in CP products 1,813 thousand tons-CO_2
		% of renewable energy in electricity consumption (5)	100% in 2030	69%	Avoided emissions in chemical products 2,534 thousand tons-CO_2
Products	(6) Develop and expand water-saving and energy-saving products				Scope 1+2 emissions 615 thousand tons-CO_2
	(7) Develop and deploy climate change adaptation products				Promotion of electricity procurement from renewable energy sources Purchase 87%, use 69%
	(8) Provide products and services that contribute to reducing CO_2 emissions in society				Introduction of high-efficiency equipment, energy-saving manufacturing processes

Financial impact

- Increased sales of water-saving products
- Increased sales of chemical products that contribute to CO_2 reduction
- Cost reduction through energy saving: 170 million yen
- Increased sales of products for adapting to climate change
- Investment and costs for eco-conscious R&D: 947 million yen

Environmental and social impact

- Contribution to emissions reduction in CP products: 1,813 thousand tons-CO_2
- Contribution to emissions reduction in chemical products: 2,534 thousand tons-CO_2

* The numbers at the end of the metrics, targets, and initiatives indicate the strategy identifiers.

Strategy

To reduce risks and create opportunities for decarbonization, we are implementing strategies that are characteristic of Kao, effective, and contribute to business growth and the resolution of social issues.

Social issues

For Kao to remain a sustainable and competitive entity, it is essential to have an accurate understanding of social issues. An understanding of social issues will not only mitigate business risks for Kao but will also be an important starting point for identifying new business opportunities that will drive growth. Kao recognizes the following social issues related to this theme.

- Deterioration of the hygiene environment due to climate change
- Loss of biodiversity due to climate change
- Resource depletion and energy problems due to dependence on fossil fuels

Risks and opportunities

We recognize that it is important to make a meaningful contribution to the global goal of limiting the rise in average temperatures to 1.5°C, as a 4°C rise in average temperatures due to climate change would have a significant impact on society.

We assess financial impacts under scenarios based on 1.5°C and 4°C temperature increases. The financial impact is calculated as the amount of loss if no action is taken, such as price pass-on. The financial impact of transition risks in 2050 is projected to be up to 79.1 billion yen from the palm oil price increase, up to 25.4 billion yen from a carbon tax, and up to 7.9 billion yen from plastic packaging containers if no action is taken. In both scenarios, the risk of palm oil procurement includes higher costs due to supply shortages relative to demand. In response to this risk, the Company is developing raw materials for high-performance agents such as bio-IOS and alternative raw materials. By strategically taking the initiative to differentiate our company through innovation, we can not only reduce risks but also create new business opportunities.

The financial impact of physical risks is projected to be approximately 0.4 to 4.6 billion yen due to flooding and other factors. Opportunities to contribute to mitigation include increased demand for water- and energy-saving products and products that reduce plastic waste in Consumer Products business, and for products that help customers reduce climate change risks in Chemical Business. Opportunities for adaptation include increased demand for UV care, self-tanning, and other skin protection products that comply with global warming, as well as for products that reduce the risk of infectious diseases, such as disinfectants, detergents, and repellents. We will mitigate risks and create business opportunities by promoting product development in line with the Kao Sustainable Product Development Policy.

Major business risks and opportunities

			Evaluation items	Evaluated financial impact	Financial Impact in 2050 (Unit: billion yen) * Amount of loss if no action is taken,such as price pass-on		Kao's response status
					1.5°C scenario	4°C scenario	
Risks	Transition	Policy and Legal	Introduction and/or raising of carbon tax	Higher operating costs due to the introduction and increase of carbon tax	-25.4	-9.3	• Set 2030 Scope 1+2 emissions reduction target and promote systematic capital investment
			Introduction of restrictions on plastics	Taxation of fossilderived packaging materials	-7.9	–	• Reduce innovation: Reduce plastic usage through innovative packaging • Reduce product waste: Enhance e-commerce, inventory refinement through AI forecasting • Recycling innovation: Develop Film-to-Film recycling technology that achieves both quality and cost, and establish a recycling system with stakeholders.
				Cost increases due to mandatory use of recycled plastic	-4.6	–	
		Markets	Energy price increase	Fluctuations in electricity retail prices	-1.1	-1.1	• Sourcing of renewable energy: Adopt corporate PPA to secure longterm stability at fixed prices, etc. • Promote introduction of photovoltaic power generation equipment
			Raw material price increase	Higher prices of fossil-based raw materials	–*1	–*1	• Continue to study reduction of fossil-based raw materials by deepening product design
				Higher procurement costs for palm oil*2	-79.1	-76.1	• Maximize utilization of palm oil, a limited resource: Develop raw materials for high-performance agents (bio IOS) • Promote research and development of usage of alternative raw materials (algae-derived oils, unused biomass, CO_2, etc.)
	Physical	Acute	Intensification of extreme weather	Increase in flood damages	-0.4	-4.6	• Establish a production system that takes BCP into account • Conduct risk surveys for suppliers
Opportunities	Product and Service	<Mitigation> • Consumer Products Business: Expand ethical products (water-saving, energy-saving, plastic waste reduction, third-party certified label products, etc.) business • Chemical Business: Develop and sell products that help customers reduce climate change risks • Common: Promote products utilizing CCUS (CO_2 utilization) technology <Adaptation> • Enhance products that contribute to clean and comfortable living even in higher temperatures (detergent, antibacterial, antiperspirants, repellents, etc.) • Enhance products that protect skin from strong sunlight (Skin Protection business) Sales target of Skin Protection business (UV care, selftanning, repellents, etc.) in 2030: 100 billion yen					• Promote product development in line with the Kao Sustainable Product Development Policy • Promote sales of Sustainable Chemical Products

*1 At the time of the survey, raw material prices had already spiked and remained high due to heightened geopolitical risks and did not appear as a financial impact.
*2 Future prices were estimated by introducing a multiple regression analysis method based on past palm oil/kernel oil price trends.

Strategy

Kao has formulated the following strategies to respond to the identified risks and opportunities. The realization of a decarbonized society is an initiative based on the basic policy of the Mid-term Plan K27, "Become an Essential Company in a Sustainable World," and will have a significant impact on building a *Global Sharp Top* business. Kao aims to achieve sustainable development for society and business by confronting the challenge of climate change through the following strategies.

(1) Promote innovative initiatives toward carbon zero by 2040 and carbon negative by 2050

Toward the realization of the ambitious goals of carbon zero by 2040 and carbon negative by 2050, which are 10 years ahead of the targets set by the Paris Agreement, we aim to reduce climate change risks through innovative technologies and solutions, while also creating new business opportunities.

Related initiatives: P124 Efforts during use (Mitigation), P125 Efforts in disposal and recycling (Mitigation)

(2) Reduce CO_2 throughout the product lifecycle

In addition to reducing CO_2 emissions in our own business activities, we strive to improve social value and competitiveness by minimizing CO_2 emissions throughout the entire value chain, from raw material procurement to disposal and recycling, and by achieving low-carbonization through our products.

Related initiatives: P123 Efforts in raw materials (Mitigation), P123 Efforts in manufacturing (plants, offices, logistics centers) (Mitigation), P124 Efforts in distribution (Mitigation), P124 Efforts during use (Mitigation), P125 Efforts in disposal and recycling (Mitigation), P125 Examples of major collaboration projects with stakeholders, P126 Communication with consumers

(3) Collaborate with stakeholders in the procurement, distribution, use, disposal and recycling of raw materials

We strengthen our partnerships with business partners, policy organizations and local governments in the areas of raw material procurement, distribution, use, disposal and recycling, and promote the decarbonization of society.

Related initiatives: P123 Efforts in raw materials (Mitigation), P123 Efforts in manufacturing (plants, offices, logistics centers) (Mitigation), P124 Efforts in distribution (Mitigation)

(4) Promote decarbonization through internal carbon pricing

By setting a carbon price within the company and promoting capital investment with a long-term perspective of over 10 years in the future, we will accelerate decarbonization and reduce future carbon cost risks.

Related initiative: P123 Efforts in manufacturing (plants, offices, logistics centers) (Mitigation)

(5) Promote renewable energy and energy conservation

We will promote the introduction of renewable energy and increase its share at all business sites. In addition, we will optimize energy efficiency through TCR action* that is deeply rooted in Kao.

* TCR action: Total Cost Reduction action. Activities that fundamentally review company-wide organizational management and work processes.

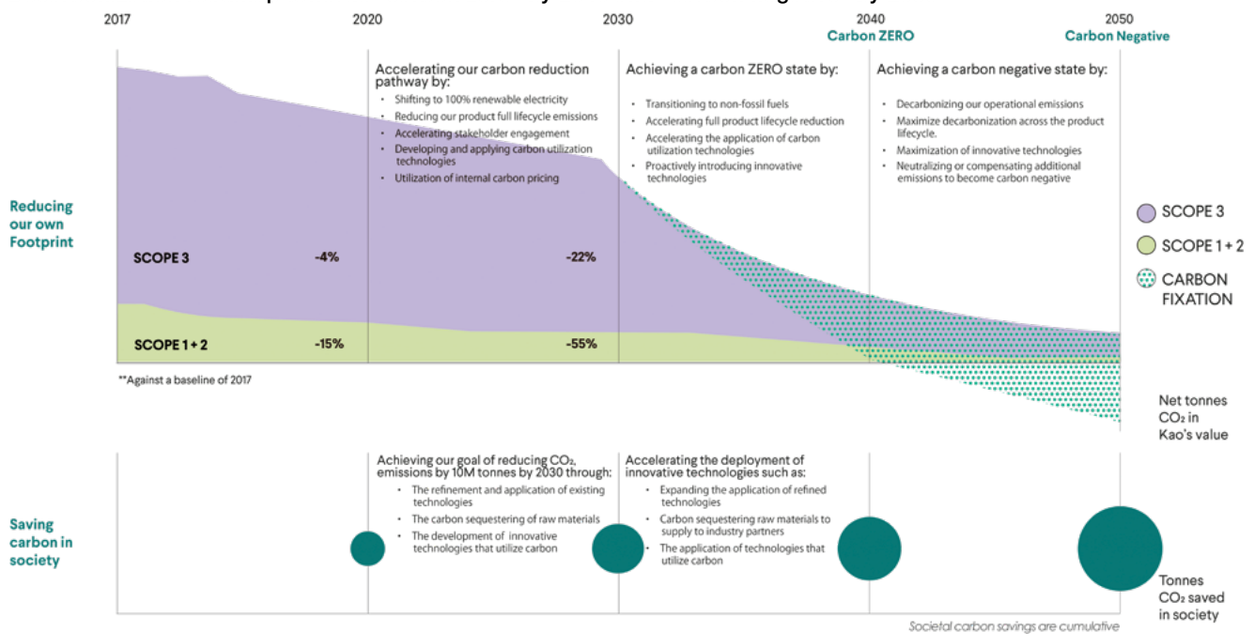
Related initiatives: P123 Efforts in manufacturing (plants, offices, logistics centers) (Mitigation), P124 Efforts in distribution (Mitigation)

(6) Develop and expand water-saving and energy-saving products

By leveraging the synergies between the Chemicals and Consumer Products businesses, we will develop water-saving and energy-saving products that are closely linked to the daily lives of consumers, as well as carbon recycling process technologies, to provide consumers with options that will help them contribute to a decarbonized society.

Related initiatives: P124 Efforts during use (Mitigation), P125 Efforts in disposal and recycling (Mitigation)

Decarbonization roadmap towards “carbon zero” by 2040 and “carbon negative” by 2050



(7) Develop and deploy climate change adaptation products

By utilizing our high technological superiority through essential research and a matrix research system of infrastructure and development, we will develop products that adapt to climate change and promote the improvement of the climate change adaptation capabilities of industry and society.

Related initiative: P125 Adaptation efforts

(8) Provide products and services that contribute to reducing CO_2 emissions in society

Through the provision of water- and electricity-saving products, we aim to make consumers more aware of the importance of resources, while also promoting the spread of sustainable lifestyles.

Related initiatives: P124 Efforts during use (Mitigation), P125 Efforts in disposal and recycling (Mitigation), P125 Examples of major collaboration projects with stakeholders, P126 Communication with consumers

Impact generated by implementing the strategies

We believe that the aforementioned strategies will have the following financial, environmental and social impacts.

Financial impact

- Increased sales of water-saving products
- Increased sales of chemical products that contribute to CO_2 reduction
- Cost reduction through energy saving: 170 million yen
- Increased sales of products for adapting to climate change
- Investment and costs for eco-conscious R&D: 947 million yen

Environmental and social impact

- Contribution to emissions reduction in CP products: 1,813 thousand tons-CO_2
- Contribution to emissions reduction in chemical products: 2,534 thousand tons-CO_2

Strategic resilience

Kao performs scenario analysis of climate change risks and opportunities based on the TCFD recommendations to assess and enhance long-term business resilience. This analysis confirms that our strategies for addressing physical and transition risks are appropriate, and we are preparing a system that will ensure business sustainability under a variety of climate change scenarios.

Metrics and targets

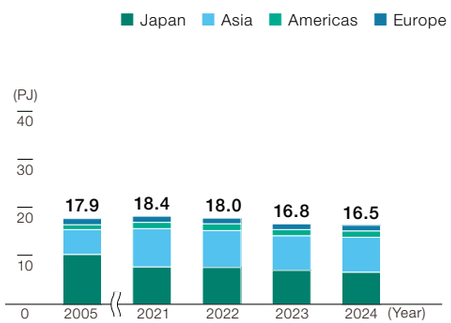
To improve the effectiveness of our strategies, we have established performance metrics related to risks and opportunities, and we regularly monitor progress. We have set targets for the metrics related to particularly important risks and opportunities, and we are steadily promoting initiatives by utilizing the PDCA cycle to track progress toward achieving these targets.

Targets and progress

Strategy	Metrics	Results					Mid- to long-term targets	
		2017	2021	2022	2023	2024	Target value	Year
(2)	% reduction in absolute full lifecycle CO_2 emissions (Base year: 2017)	0%	-4%	-6%	-12%*	-15%	-22%	2030
(4) (5)	% reduction in absolute scope 1 + 2 CO_2 emissions (Base year: 2017)	0%	-20%	-26%	-35%	-42%	-55%	2030
(5)	% of renewable energy in electricity consumption	–	39.5%	48.6%	57%	69%	100%	2030

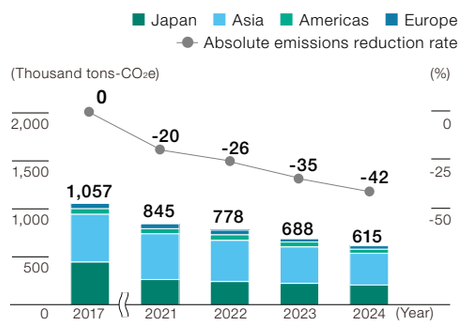
* The 2023 value has been revised due to an adjustment to Scope 3 Category 11 in Japan. As a result, % reduction in absolute full lifecycle CO_2 emissions showed 3 percentage point less reduction compared to the previously disclosed value in last year.

Energy consumption ☑ (all sites)



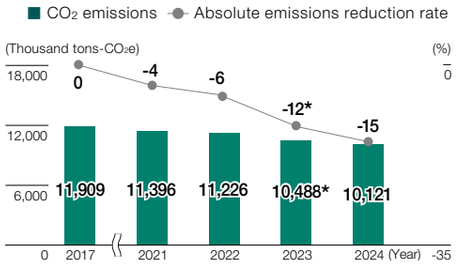
* Boundary: All Kao Group sites, including company cars in Japan
* Assurance provided for energy consumption figures

GHG emissions ☑ (all sites)



* Boundary: All Kao Group sites, including company cars in Japan
* Gases included: The seven GHGs specified by the Kyoto Protocol (only CO_2 for sites outside Japan)
* Assurance provided for GHG emissions figures

CO_2 emissions across the entire product lifecycle ☑ (Kao Group)



* "CO_2 emissions over the entire product lifecycle" is calculated by multiplying the CO_2 emissions over the product lifecycle per unit volume of products sold both within and outside Japan (excluding the Group's production and logistics processes) by the annual sales volume of the product in question and adding up the actual amount of CO_2 emissions over the Group's production and logistics processes. However, this amount does not include emissions related to the use and disposal of Chemical products.
* Assurance provided for CO_2 emissions figures and absolute emissions reduction rate
* The value for 2023 was revised in accordance with the revision of Scope 3 Category 11 in Japan. As a result, CO_2 emissions for the entire product life cycle increased by 394 thousand tons-CO_2e and the absolute emissions reduction rate showed 3 percentage point less reduction compared to the previously disclosed value in last year.

Metrics and results

Strategy	Metrics		Results 2017	2021	2022	2023	2024	Unit
(1)	GHG emissions (all sites) ☑ *1		1,057	845	778	688	615	Thousand tons-CO_2e
(1)	Scope 1 GHG emissions ☑ *2	Japan	271	244	240	223	206	
		Asia	290	264	256	237	221	
		Americas	43	45	51	46	41	
		Europe	49	50	48	34	35	
		Total	653	605	595	539	503	
(1)	Scope 2 GHG emissions ☑ *2	Japan	173	19	3	0	0	
		Asia	208	213	173	143	109	
		Americas	14	8	7	5	2	
		Europe	8	1	1	0	1	
		Total	404	240	183	149	112	
(2)	CO_2 emissions across the entire product lifecycle ☑ *3		11,909	11,396	11,226	10,488*	10,121	
(2)	Scope 3 GHG emissions	1. Purchased goods and services ☑	4,496	4,228	4,109	3,892	3,893	
		2. Construction and building of capital goods	239	264	285	281	281	
		3. Fuel- and energy-related activities (not included in scope 1 or scope 2)	29	60	58	57	56	
		4. Upstream transportation and distribution ☑	253	245	241	234	238	
		5. Waste generated in operations	58	68	66	58	58	
		6. Business travel	4	4	5	4	4	
		7. Employee commuting	18	18	18	18	17	
		8. Upstream leased assets	0	0	0	0	0	
		9. Downstream transportation and distribution	97	108	109	104	100	
		10. Processing of sold products	119	131	131	128	140	
		11. Use of sold products ☑	4,687	4,647	4,680	4,349*	4,107	
		12. End-of-life treatment of sold products ☑	1,415	1,432	1,417	1,324	1,268	
		13. Downstream leased assets	0	0	0	0	0	
		14. Franchises	0	0	0	0	0	
		15. Investments	8	5	5	8	8	
		Total	11,423	11,210	11,125	10,457	10,170	

* The value for 2023 was revised in accordance with the revision of Scope 3 Category 11 in Japan. As a result, CO_2 emissions for the entire product life cycle increased by 394 thousand tons-CO_2e from 2023.

*1 Boundary: All Kao Group sites, including company cars in Japan
Gases included: The seven GHGs specified by the Kyoto Protocol (only CO_2 for sites outside Japan)
*2 Emissions by scope conform to the Greenhouse Gas Protocol initiative
Scope 1: GHG emissions emitted directly by the company/organization
Scope 2: Indirect GHG emissions from purchased electricity, heat, etc.
*2 Emission factors
Scope 1: In principle, uses factors defined in the Law Concerning the Promotion of Measures to Cope with Global Warming
Scope 2: In principle, uses the specific factors of the country's laws or regulations. When the specific factor cannot be obtained, the country-based factor released by the IEA is used.
*3 "CO_2 emissions over the entire product lifecycle" is calculated by multiplying the CO_2 emissions over the product lifecycle per unit volume of products sold both within and outside Japan (excluding the Group's production and logistics processes) by the annual sales volume of the product in question and adding up the actual amount of CO_2 emissions over the Group's production and logistics processes. However, this amount does not include emissions related to the use and disposal of chemical products.

Category 1: Purchased goods and services
This value is calculated by multiplying CO_2 emissions associated with raw materials per unit of product sold (both within and outside Japan) by the total annual sales volume of the product in question.
CO_2 emissions associated with raw materials are calculated by multiplying the weight of raw materials purchased by inventory data (using supplier surveys, documentary data, commercially available databases, etc.).

Category 4: Upstream transportation and distribution
CO_2 emissions associated with transporting products (both within and outside Japan) while Kao Group acts as consignor.
For Japan, the calculation is made using the criteria specified by the Energy Conservation Act.
For areas outside Japan, the calculation is made by Kao based on data for Japan.

Category 11: Use of sold products
This value is calculated by multiplying CO_2 emissions associated with product use per unit of product sold (both within and outside Japan) by the total annual sales volume of the product in question.
Industrial-use products are excluded.
CO_2 emissions associated with product use are calculated by multiplying the amount of water, hot water and electric power consumed during product use by inventory data (using documentary data, commercially available databases, etc.)

Category 12: End-of-life treatment of sold products
This value is calculated by multiplying CO_2 emissions associated with the disposal or recycling of sold products (both within and outside Japan) by the total annual sales volume of the product in question.
CO_2 emissions associated with the disposal or recycling of industrial-use products are excluded.
CO_2 emissions associated with disposal or recycling are the sum of CO_2 emissions associated with the disposal or recycling of product content and product packaging. Emissions from product content are calculated by converting all content that consists of fossil-derived carbon into CO_2. Emissions from product packaging are calculated by multiplying packaging material weight broken down by the appropriate percentage of disposal by incineration, landfill or recycling for each category of material in line with each country's performance in this regard by inventory data (using documentary data, commercially available databases, etc.)

* Kao focuses on the categories of 1, 3, 4, 5, 11 and 12 related to site activities to save energy and reduce waste materials, as well as on the product lifecycle.

At Kao, we calculate Scope 3 Categories 1, 11, and 12 based on the Life Cycle Assessment (LCA) approach.
Detailed LCA
Calculated by multiplying the CO_2 emissions per unit of each SKU sold in Japan by the annual sales volume of the corresponding SKU.
Simplified LCA
Calculated by multiplying the CO_2 emissions per unit of product groups sold in Asia, the Americas, and EMEA (Europe, the Middle East and Africa) by the annual sales volume of the respective product groups.

GHG emissions quantification is subject to uncertainty when measuring activity data, determining emission factors, and considering scientific uncertainty inherent in the Global Warming Potentials. Hence, the selection by management of a different but acceptable measurement method, activity data, emission factors, and relevant assumptions or parameters could have resulted in materially different amounts being reported.

Strategy	Metrics	Results						
		2005	2020	2021	2022	2023	2024	Unit
(5)	Energy consumption (all sites) ☑*4	17.9	18.5	18.5	18.1	16.7	16.5	PJ

*4 Boundary: All Kao Group sites, including company cars in Japan

Strategy	Metrics		Results				
			2021	2022	2023	2024	Unit
(5)	Purchased electricity, steam, etc.*5	Electricity	7,934	7,634	7,062	6,836	Terajoules
		Heat	0	0	0	0	
		Steam	232	210	201	192	
		Cooling	0	0	0	0	
(5)	Fuel consumption by fuel type	Natural gas	8,723	8,553	7,847	8,071	Terajoules
		Diesel oil	1,095	1,077	938	851	
		Gasoline	104	110	109	103	
		Other	126	123	116	105	
		Waste vegetable oil (heat recovery)	304	346	252	299	

*5 Electricity is calculated as the calorific value of the primary energy (at the receiving end in Japan, generating end outside Japan).

Strategy	Metrics		Results					
			2017	2021	2022	2023	2024	Unit
(2)	CO_2 emissions from transportation (Japan) ☑*6 *7		98	100	102	99	99	Thousand tons-CO_2
		Absolute reduction rate	0	1.7	5.8	1.4	0.7	%

*6 Boundary: Kao Corporation and Kanebo Cosmetics Inc.
*7 Assurance provided for CO_2 emissions

Strategy	Metrics		Results					
			2020	2021	2022	2023	2024	Unit
(5)	Renewable energy-derived power	% of renewable energy in purchased electricity	37.2	51.8	63.4	72.1	86.9	%
		% of renewable energy in electricity used	28.8	39.5	48.6	57.1	69.4	

Strategy	Metrics		Results					
			2020	2021	2022	2023	2024	Unit
Overall	CDP evaluation	Climate change	A	A	A	A	A	–
		Forest (palm oil/timber)	A / A-	A / A	A / A	A / A	A	
		Water conservation	A	A	A	A	A	
		Supplier engagement	A	A	A	A	TBA*8	

*8 To be announced: the information will be updated following the publication of the CDP evaluation.

Governance

Risk management in relation to climate change issues is carried out by the Internal Control Committee, while opportunity management is carried out by the ESG Managing Committee, under the supervision of the Board of Directors. These committees are both headed by the President & CEO.

Furthermore, in order to promote the management of progress and strategies for decarbonization targets in an integrated manner, the Decarbonization Steering Committee, led by the ESG and Corporate Strategy, has been established as a subordinate organization of the ESG Managing Committee.

This committee meets five times a year, with its activities reported to the Board of Directors at least once a year, and is supervised by the Board of Directors.

We launched an e-learning program for employees in 2020 to promote the Kirei Lifestyle Plan, educating them on essential knowledge and encouraging efficient energy use.

P34 Our ESG Vision and Strategy > Governance

Risk and opportunity management

Policies

In implementing decarbonization, Kao has formulated the following policies as guidelines for daily operations and decision-making. For details, please see the website.

- Basic Principle and Basic Policies on Environment and Safety
  https://www.kao.com/global/en/sustainability/klp/policy/environment-safety-policy/
- Kao Group Responsible Care Policy
  https://www.kao.com/global/en/sustainability/klp/policy/responsible-care-policy/
- Kao Environmental Statement
  https://www.kao.com/global/en/sustainability/klp/policy/environmental-statement/
- Kao Sustainable Product Development Policy
  https://www.kao.com/global/en/sustainability/klp/policy/product-development-policy/
- Action Policy on “High-Risk Supply Chain Management and Sourcing”
  https://www.kao.com/global/en/sustainability/we/procurement/procurement-supply-chain/

Management process

The status of our efforts to address the risks and opportunities involved in achieving a decarbonized society is managed through the following processes: planning, implementation, evaluation of results, and correction, and we are working to make steady improvements. In addition, throughout the year, the Decarbonization Steering Committee examines issues in the PDCA cycle and works to improve activities.

P (Planning)

Design of activities for the following year (November-December), approval of targets (February)

D (Implementation)

Improvement and promotion activities (from February)

C (Evaluation of results)

Activity results (from April), activity results reported in the Sustainability Report (June) and report on the activity results at CDP (October)

A (Corrective action)

Review and identification of areas for improvement (October)

Initiatives

Kao is taking various initiatives to help realize a decarbonized society. These initiatives are based on the aforementioned strategies and are being promoted in coordination to achieve our goals. Here, we would like to introduce some of the important initiatives from among the many we are undertaking.

	Strategy	Initiatives		
Overall	(1) Promote innovative initiatives toward carbon zero by 2040 and carbon negative by 2050	Strategic discussion at the Decarbonization Steering Committee		
Overall	(2) Reduce CO_2 throughout the product lifecycle	Low-carbon raw materials	Consumer Products Business	Chemical Business
Overall			Expansion of water-saving products	Expansion of water-saving products
Overall		Low-carbon production and distribution		
Overall	(3) Collaborate with stakeholders in the procurement, distribution, use, disposal and recycling of raw materials	Collaboration with suppliers (Vendor Summit, CDP Supply Chain)	Collaboration with governments and NGOs	Collaboration with distribution
Overall	(4) Promote decarbonization through internal carbon pricing	Setting appropriate internal carbon pricing and using it for capital investment		
Sites	(5) Promote renewable energy and energy conservation	Switching to renewable energy for purchased electricity (increasing procurement in Asia)	Reduction of energy use	Use of cleaner energy
Products	(6) Develop and expand water-saving and energy-saving products	Expansion of products that require only one rinse in laundry detergents	Expansion of sales of detergents with good foam rinsing properties	Use of biomass-derived plastics and raw materials
Products	(7) Develop and deploy climate change adaptation products	Expansion of sales of skin protection products such as UV care products	Expansion of sales of infection control products such as disinfectants	Expansion of sales of summer products such as antiperspirants
Products	(8) Provide products and services that contribute to reducing CO_2 emissions in society	Communicating the company's attitude through the company slogan "Wastefulness—Mottainai. Never today, nor tomorrow."		

Efforts in raw materials (Mitigation)

Region: Global
Corresponding strategies: (2) (3)

Vendor Summit

We hold the Vendor Summit, inviting key suppliers to explain our ESG initiatives, including our decarbonization efforts, while also requesting their cooperation. We are working to strengthen our cooperative relationship with suppliers in order to enhance sustainable procurement (including joining Sedex, participation in the CDP Supply Chain initiative, etc.) and stable procurement (traceability of raw materials, responding to BCP requirements, etc.).

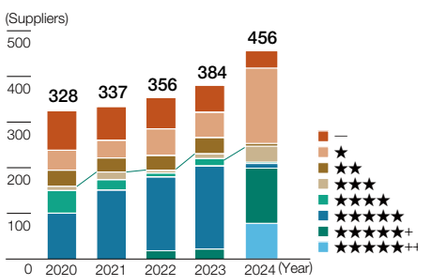
CDP Supply Chain Program (Climate Change, Forests, Water)

In 2009, we became the first Japanese company to participate in the CDP Supply Chain Program (Climate Change, Forests, Water). Through this program, we encourage suppliers to actively promote CO_2 reduction activities, while we evaluate their efforts and provide feedback. This helps us deepen our collaboration with suppliers and promote decarbonization throughout the supply chain.

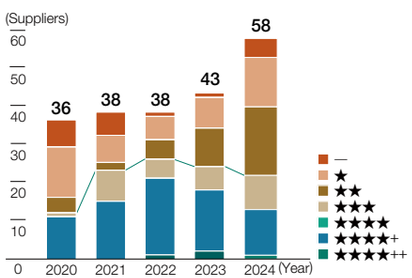
In recognition of these initiatives, Kao was awarded the Supplier Engagement Leader, the highest rating for CDP Supplier Engagement Assessment, for the seventh consecutive year.

The results of Kao's own supplier survey using the CDP Supply Chain Program in 2024 are as follows.

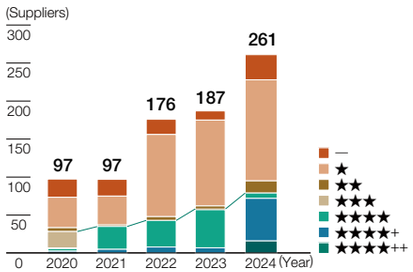
Supplier activity level (Climate Change)



Supplier activity level (Forests)



Supplier activity level (Water)



Efforts in manufacturing (plants, offices, logistics centers) (Mitigation)

Region: Global
Corresponding strategies: (6)

As part of our efforts to reduce energy use, we have introduced high-efficiency equipment, such as BPT (Best Practice Technologies) equipment and LED lighting, and we are also working to reduce unnecessary energy use through efficient equipment operation and energy-saving activities. In 2024, we carried out 175 energy-saving activities, resulting in an annual CO_2 reduction of 13.8 thousand tons and cost savings of approximately 175 million yen.

We are also promoting the use of renewable energy as an initiative to use cleaner energy. In 2024, a photovoltaic power generation system that had been added to Kao Corporation Shanghai began operation. In addition, new photovoltaic power generation systems for self-consumption were installed at the Kashima Plant and at the Karawang Plant of Kao Indonesia.

In addition, we are promoting the purchasing of electric power that is generated using renewable energy. In Japan, we achieved 100% renewable energy for purchased electricity in 2023. Outside Japan, we continued shifting to renewable electricity. In 2024, 87% of purchased electricity and 69% of total electricity used globally came from renewable sources. The use of this renewable electricity reduced CO_2 emissions by 159 thousand tons.

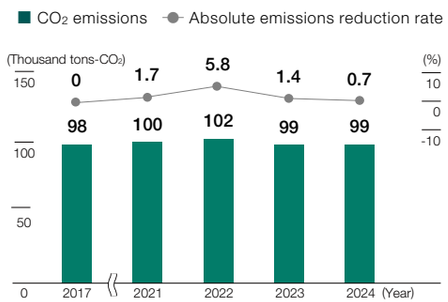
Since the introduction of our internal carbon price system in 2006, we have been promoting the adoption of energy-efficient equipment, low-CO_2 equipment, and renewable energy procurement. Our internal carbon pricing system is primarily applied to promote the reduction of Scope 1 and 2 emissions. We currently set our internal carbon price at USD 168 per ton of CO_2. Under this framework, we have approved projects such as the hot water heat pump at the Wakayama Plant (operational in 2024) and the photovoltaic power generation system at Kao Industrial Thailand (operation in January 2025). These initiatives are driving the proactive implementation of energy-efficient production equipment, decarbonization technologies, and the transition to renewable electricity. At our chemical plant in Spain, the installation of a new facility that uses biomass for thermal energy has made it possible to reduce CO_2 emissions from the plant by 95%.

Efforts in distribution (Mitigation)

Region: Global
Corresponding strategies: (2) (3) (5)

CO_2 emissions during distribution in Japan were 99 thousand tons-CO_2 in 2024, a 0.7% increase (compared to 2017). We are promoting modal shifts to increase the amount shipped at one time, shorten transport distances and switch to cleaner modes of transport. We are participating in the Cross-ministerial Strategic Innovation Promotion Program promoted by Japan's Cabinet Office. We have partnered with Lion Corporation to launch a smart logistics initiative, with scheduled deliveries having started in 2020. Kao and Costco Wholesale Japan have worked together to introduce reusable folding containers and have launched an effort to collect and reuse them.

CO_2 emissions from transportation ☑ (Japan)



* Boundary: Kao Corporation and Kanebo Cosmetics Inc.
* Assurance provided for CO_2 emissions

Efforts during use (Mitigation)

Region: Global
Corresponding strategies: (1) (2) (6) (8)

We offer a wide selection of products that contribute to the reduction of CO_2 emissions during the use stage. Important examples include ultra-concentrated laundry detergents that only require one rinse cycle, and shampoo, body wash and dishwashing detergent that reduce the amount of hot water required for rinsing.

In the laundry detergent segment, we launched *Attack Neo* in 2009, which reduces the lifecycle CO_2 emissions per wash by approximately 22%. In 2019, we introduced *Attack ZERO*, a concentrated liquid clothing detergent that uses Bio IOS, our most advanced detergent base, as its main ingredient. Within Japan, the way consumers do their laundry has begun to change, with washing machines that come equipped with a button allowing the user to select a single rinse cycle as a standard feature becoming the norm.

Furthermore, we offer *Bioré-u the Body Foaming Type*, a body wash, which can be expected to reduce the amount of water used by washing by hand, and as a result, cut CO_2 emissions by approximately 10%.

We also offer a wide selection of products for industry that allow customers to reduce their CO_2 emissions during the use stage. These include a toner with low-temperature fixing, which reduces the photocopier's power consumption, washing and rinsing agents that can wash and rinse steel plates at low temperatures to reduce CO_2 emissions from fuel consumption, a semiconductor wafer cleanser that contributes toward CO_2 emissions reduction by reducing the amount of ultra-pure water and chemical agents used during the cleaning process, an additive for coating material that helps improve fuel economy by reducing the coating weight of wire harnesses for automobiles, and an additive essential to improving the dispersion of a material required for fuel-efficient tires to demonstrate their performance.

Efforts in disposal and recycling (Mitigation)

Region: Global
Corresponding strategies: (1) (2) (6) (8)

Used diapers are carbonized using carbonization equipment, and the resulting material is then utilized for environmental purification and plant cultivation. We are also undertaking R&D aimed at conversion to new types of carbon material.

Furthermore, we are advancing the use of biomass plastic and other raw materials that are carbon neutral in terms of the amount of CO_2 emitted during disposal. As a new initiative, we have started research on a manufacturing model to utilize cassava residue as biomass as a commissioned project by the New Energy and Industrial Technology Development Organization (NEDO), a national research and development corporation.

Examples of major collaboration projects with stakeholders

Region: Global
Corresponding strategies: (2) (8)

Kao is deepening its dialogue and collaboration with diverse stakeholders. By sharing its knowledge with stakeholders and co-creating new value, it is helping to decarbonize society.

[Case study]

- Participation in the Green Value Chain Platform and 2°C Target Network Corporate Edition administered by Japan's Ministry of the Environment, offering Kao's scope 3 efforts as an example and contributing to the calculation of scope 3 emissions by corporations.
- DECOKATSU awareness, promoted by the Ministry of the Environment, and its contribution to lifestyle changes among consumers toward decarbonization.
- Participation in the Japan Climate Initiative and the spread of information and exchange of opinions on climate change measures promoted by various constituents beyond the national government.
- Participation as a member of the LCA Working Group organized by the Japan Chemical Industry Association. We have disclosed case studies of our carbon lifecycle analysis efforts and disseminated information to society about the contribution that chemical products can make toward reducing CO_2 emissions.
- Participation in the Supply Chain Program run by the CDP for 15 consecutive years. We are contributing to the enhancement of suppliers' awareness and promoting a transformation of the types of action taken by suppliers.
- As a member of the steering committee of the TCFD Consortium of Japan, we are contributing to the disclosure of climate change-related information and promoting dialogue.

Adaptation efforts

Region: Japan
Corresponding strategy: (7)

Amid ongoing climate change, Kao is strengthening its efforts to adapt by developing products and providing services that reflect the effects of global warming.

Specifically, we are promoting the development of products that protect the skin from the environment, such as UV care products, self-tanning products, repellents, and antiperspirants which are expected to see increased demand as the summer season becomes longer due to rising temperatures. These products support comfort and health in everyday life, while also responding to diversifying needs.

In addition, in preparation for natural disasters, Kao operates the website Sonaeru, which provides information on products and everyday items that can be used to maintain hygiene during evacuation. This website introduces not only products that are essential for hygiene management, but also practical knowledge and ideas that are useful in times of disaster, providing support for living with peace of mind even in difficult situations.

Sonaeru
https://www.kao.co.jp/hisaiji/

Communication with consumers

Region: Global

Corresponding strategies: (2) (8)

As an initiative to communicate the company's attitude of contributing to the realization of a sustainable society, we have been developing the corporate advertising series "Wastefulness—Mottainai. Never today, nor tomorrow." since 2022.

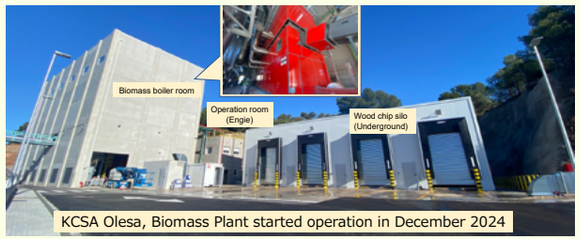
This series of advertisements conveys this message to communicate the innovations and corporate stance rooted in Kao's "ESG-driven *Yoki-Monozukuri*," which contributes to a recycling-oriented society. By focusing on the concept of "waste" in our daily lives and calling for people to be mindful of "Wastefulness—Mottainai. Never today, nor tomorrow," we aim to encourage people to become aware of the smaller types of "waste" in their lives and take action to address them, as well as to spread this movement throughout society.

In 2024, we sent out the message that conserving water and hot water leads to decarbonization through the corporate advertisement "Mottainai" Interview Drainage.

Employees' opinions

Challenge toward KCSA decarbonization: Biomass Plant

Torrence Marina
Engineering & Maintenance
Engineering
Kao Corporation S.A. (Spain) (KCSA)



KCSA Olesa, Biomass Plant started operation in December 2024

KAO Group has the goal (Scope1&2) to achieve the reduction of 55% of CO_2 emissions in 2030, becoming of Net zero CO_2 emissions in 2040 and achieving in 2050 negative emissions.

Within this context, from our engineering department, we started a study few years ago with the purpose to establish a road map with different actions to carry on in the three productive factories: Olesa, Mollet and Santiga, with a CO_2 reduction to contribute to the KAO goal.

Regarding Olesa plant, we had analyzed all the energy consumption of the factory and the sources of energy that we used to obtain a real scenario of our major consumption. As we also known, the electricity and natural gas are our major consumers. Since 2017 KAO has the green electricity certificate of guarantee of renewable sources origin. Thus, we are convinced that all our efforts must be focused in decarbonization of natural gas, that is used mainly for the steam production.

We have investigated the best technologies available on the market suitable for our necessities with help of various suppliers.

Then, after having discussions and analysis by several parties, we agreed biomass plant was the best solution right now to replace the natural gas to produce steam and to fulfill our sustainability goals. We immediately started working with an external partner who help us in construction design and operation of biomass plant.

Kao does not have previous experience in biomass boilers, Olesa biomass plant is the first boiler fueled by biomass (Wood chips) for the steam production of KAO group. For this reason, Kao has established an energy service provider agreement with ENGIE, during the following 15 year.

The biomass plant is used for self-consumption and as a thermal energy generation equipment whose primary source, forest biomass, is 100% renewable and neutral in CO_2 emissions by SURE certification.

The biomass plant constructed from September 2023 until November 2024, then started operation in December 2024 after commissioning. Many controls are built in to ensure complete combustion of biomass. And there are also several stages of after-treatment to produce clean exhaust gases.

The main goals achieved with the biomass plant project are:

- 95% Reduction of natural gas consumption of the factory, and thus the carbon footprint.
- Generation of a positive impact on the local environment by promoting sustainable forest management, including fire prevention, and improving the condition of forests, contributing to local social and economic development, and reducing external energy dependence, as it is a local fuel.
- Contribution to decarbonization objectives. CO_2 reduction 15,300 ton/y. it's good ESG Strategy.

It has been a real pleasure for me to be part of this project thus contribute significantly to the global decarbonization objectives of KCSA and of KAO group. I'm looking forward to continuing working together on this.

Stakeholder engagement

Comment on Kao Corporation's Initiatives [Decarbonization & Adaptation]

Norihiro Itsubo
Professor
Faculty of Science and Engineering
Waseda University

Nearly ten years have passed since the adoption of the Paris Agreement. As countries continue to update and submit their NDCs (nationally determined contributions), Japan has presented new medium-term targets: a 60% reduction in greenhouse gas emissions by 2035 and a 73% reduction by 2040, both in comparison to 2013 levels. While domestic emission reductions are progressing steadily, the global situation remains extremely severe. As of 2024, the global average temperature has risen by 1.47°C compared to pre-industrial levels, casting serious doubt on the attainment of the 1.5°C target. The impacts of climate change, such as forest fires, heatwaves, and floods, are already becoming apparent. In addition to mitigation measures, it is increasingly necessary to strengthen adaptation strategies that aim to minimize loss and damage. Against this backdrop, there is growing social demand for products and technologies that contribute to addressing climate challenges.

Kao has set ambitious long-term targets of carbon zero by 2040 and carbon negative by 2050, and has already achieved a 42% reduction in Scope 1 and 2 emissions compared to 2017. In particular, its initiatives across the entire value chain are noteworthy. Kao has made significant contributions to Scope 3 reductions through actions such as making its products more compact, the use of naturally derived ingredients, and the development of new packaging and distribution systems. These efforts are recognized as world-class innovations.

To further enhance its global reach, it is expected that the following areas will be examined:

1. Early implementation of negative emissions

While current plans call for implementation starting in 2030, achieving carbon neutrality by 2040 will require carbon removal on the scale of several million tons. There is a need to bring forward the launch of negative emissions initiatives and present concrete projects and technologies.

2. Strengthening the supply chain for raw material procurement

As raw material procurement accounts for roughly 40% of Scope 3 emissions, stronger measures are essential at this stage. In the case of palm oil in particular, there is further potential through collaboration with producers and suppliers in areas such as ensuring traceability, utilizing biomass from non-edible parts, and enhancing soil carbon storage.

3. Strategic communication of environmental value in coordination with policy in EMEA (Europe, the Middle East and Africa)

Under the EU Taxonomy, not only chemical manufacturing but also sectors that use Kao products, such as hotels and care facilities, are covered. Japan-originated environmental technologies like one-rinse cycle, compact products, and refillable packaging are expected to become clearly positioned as value-adding under international standards and environmental certifications. Active involvement in policy dialogue and rule-making in the EMEA market will be key to this effort.

4. Development and promotion of climate adaptation-oriented products and technologies

In the future, climate adaptation businesses in fields such as agriculture, food, construction and infrastructure, health, and water and hygiene will be increasingly important. Kao's capabilities in hygiene, materials, and formulation technologies can be applied in these areas. By adding an adaptation effectiveness axis to product LCAs, it will be possible to visualize environmental value in a more multifaceted way.