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Our business is made possible throughout the entire product lifecycle by the various ecosystems that exist on the earth and the abundant natural bounty created from biodiversity. Kao vigorously undertakes sustainable raw material procurement and development of new technologies for the effective use of limited resources to prevent the degradation of biodiversity, one of the most pressing issues shared by the entire world. We will also strive to minimize the impacts of our business on biodiversity and to promote social activities that lead to biodiversity improvements in regions where we have business sites.
In addition, we support the recovery of already polluted ecological environments by tackling issues such as ocean plastic pollution. Kao will contribute to the conservation and restoration of biodiversity and the regeneration of the natural environment by promoting engagement with consumers, suppliers and other stakeholders and by providing products and solutions.

Kao's creating value to address social issues

Social issues we are aware of

Global Biodiversity Outlook 5 (GBO5) was published by the Secretariat of the Convention on Biological Diversity on September 15, 2020 to analyze whether the Strategic Plan for Biodiversity 2011–2020 and Aichi Biodiversity Targets are being met. Although significant progress was seen for most of the Aichi Biodiversity Targets, it showed that none of the 20 individual targets were fully realized.

An aspect of current economic activities is that they rely on the consumption of precious natural resources. In addition, humanity's destruction of nature and the loss of biodiversity are leading people to come into contact with species that they never had before, which manifests the risk of new communicable diseases. Businesses are required to solve these issues.

In light of these circumstances and a review of the past, the post-2020 biodiversity framework is expected to be adopted at the 15th meeting of the Conference of the Parties (COP15) to the United Nations Convention on Biological Diversity in 2022. As a member of international society, we are keenly aware of the need to take action for the conservation and restoration of biodiversity and the regeneration of the natural environment with a strong sense of crisis, acknowledging that the targets set here must be met.

At the 26th session of the Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change held in 2021, the issue of biodiversity was also discussed even though it was an international conference whose main topic was climate change, and a statement was issued emphasizing the importance of protecting, preserving and restoring nature and ecosystems. In this way, a universal recognition that biodiversity and climate change are closely related issues that must be resolved simultaneously is developing.

Our businesses operations benefit from many biological resources ranging from the procurement of raw materials, such as palm oil, to R&D, manufacturing, use and post-use disposal. The degradation of biodiversity worldwide will significantly impact the development and sustainability of our business. In R&D, there are technologies that were developed by using the wisdom of nature and living things as hints, and we consider this to be a benefit of biodiversity as well. Moreover, many of the products that we manufacture and sell are discharged into the environment along with water after use and are eventually purified by natural forces, and packaging containers, typically plastic, are sometimes disposed of improperly, polluting the environment. Accordingly, we are well aware that biodiversity needs to be taken into consideration throughout the product lifecycle.

Establishing a process for sustainable raw material procurement is also of particular importance. However, in purchasing RSPO certified palm oil, we have been facing various issues over the last ten years in palm oil tree production regions, including deforestation and the loss of biodiversity as well as human rights violations of people and farmworkers who live in those areas. By taking full advantage of our knowledge and human networks acquired so far, we aim for a future that brings about a positive change for the entire natural environment and all stakeholders connected with our business.

Risks related to realization of What Kao Aims to Be by 2030

Key raw materials that we use include palm (kernel) oil, paper and pulp. Palm (kernel) oil is transformed into a surfactant and mixed into many cleansing agents that we manufacture and sell including shampoo and body soap. Also, pulp is a crucial raw material used in sanitary products (such as diapers and sanitary napkins), one of our leading product categories.

Future global scale population growth and economic development may increase demand for

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cleansing agents and sanitary products, resulting in even further growth in demand for palm oil, paper and pulp, our main necessary raw materials. Procurement of sustainable raw materials that take into consideration biodiversity, human rights violations and other issues may give rise to additional costs. However, if we do not give consideration to sustainability in procurement, the inability to procure raw materials over the long term or the substantial impairment of the company's reputation may call our business survival into question.

In addition, if we maintain a linear economy in which products including packaging are consumed without being recycled or reused, resources will be further depleted and flow into the environment, resulting in increased impacts on biodiversity. We need to make the transition to a resource circulating economy and to provide products with even more added value that use less resources.

Opportunities related to realization of What Kao Aims to Be by 2030

We established the Basic Policies on Conservation of Biodiversity in 2011 and have been developing new technologies that can contribute to sustainable procurement of raw materials and the conservation of biodiversity.

The ESG Promotion Activities with Suppliers, which were revised in June 2021, set targets for confirming zero deforestation in places of origin for palm oil, paper and pulp, and we are increasing the possibility of business continuity by taking specific initiatives with suppliers to achieve sustainable procurement of raw materials in the future.

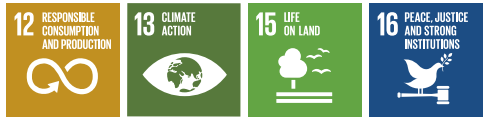
Bio IOS, a surfactant that we developed, is a completely new surfactant developed by utilizing solid fats and oils that are unsuitable for food and avoids the issue of competition with food, a concern in conjunction with the global scale population increase. Applications are expected to expand as a technology that solves various problems such as the shortage of raw materials.

Kao's creating value

IPBES* believes that transformative change in economies, society, politics, and science and technology will be necessary in order to achieve the biodiversity targets. We set targets based on visions and policies specified by ESG management and push forward toward the prevention and restoration of the degradation of biodiversity and the development of a sustainable society in the future through our innovative technologies, products and daily initiatives to solve social problems.

* IPBES
Intergovernmental science-policy platform on biodiversity and ecosystem services

Contributions to the SDGs



Policies

Efforts are now being made around the world to reduce negative impacts on nature and biodiversity, increase behavior that has positive impacts, and reverse biodiversity loss to achieve recovery.

In 2021, our activities in this area were mainly conducted in line with our previously formulated Basic Policies on Conservation of Biodiversity.

With the revision of international targets on biodiversity at COP15 in 2022, we have revised our Basic Policies on Conservation of Biodiversity looking ahead to the next ten years.

The revised Basic Policy on Biodiversity contain a total of eight policies. They are: (1) Identify the relationship between our business activities and biodiversity throughout the value chain, (2) Minimize the impacts of our business activities on biodiversity, (3) Promote and implement the development of innovative technologies, (4) Comply with relevant international agreements, (5) Do not damage local ecosystems in the vicinity of our business activities, (6) Maximize the outcomes of collaboration by sharing information and raising awareness among stakeholders inside and outside our group, and (7) Pursue cooperation with external stakeholders and take action leading to conservation and restoration of biodiversity and regeneration of the natural environment, as well as the newly-added (8) Aim to achieve a harmonious relationship between people, nature and chemicals. Taking advantage of the opportunity provided by the revision of the Basic Policy on Biodiversity, we will raise the level of activities we have been conducting and add new activities to them.

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Web
Basic Policy on Biodiversity
www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/biodiversity-basic-policy.pdf

Action Policies on Conservation of Biodiversity
www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/biodiversity-action-policy.pdf

Introductions of Biodiversity Conservation Activities
www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/eco_activities_03_04_02_001.pdf

Education and promotion

After formulating the Basic Policies on Conservation of Biodiversity in 2011, we took other initiatives to provide basic knowledge about biodiversity to employees by such means as e-learning courses for all employees of the Kao Group in Japan and annual environmental training for new employees. In 2021, we created opportunities to learn about the latest global trends regarding biodiversity and how they relate to our business activities, primarily through training sessions for front-line leaders in the SCM Division (with participants from within and outside Japan) and follow-up training sessions for new employees. Additionally, in the section dealing with ESG topics posted on the intranet, we provide tips on studying and considering how our lifestyles relate to biodiversity as the themes for SDG Targets 14 and 15 so that our employees can put this into action. For employees outside of Japan, we are conducting information sharing and awareness-raising activities through such venues as the annual Global RC Meeting.

Since COP15 was originally scheduled for October 2021 (postponed until 2022 due to the COVID-19 pandemic), there had been considerable action relating to biodiversity within and outside Japan. In June 2021, we held a lecture given by an external expert, investigated the latest international trends relating to biodiversity, and discussed the actions that we should take. The lecture was archived in both Japanese and English for distribution to employees within and outside Japan. Afterward, we held a dialogue between the divisions responsible for biodiversity and the lecturer, and in October, we held a lecture and conducted an exchange of opinions for management. The content of the recently revised Basic Policy on Biodiversity reflects both the latest international trends and the results of the dialogue with the external lecturer.

Collaboration and engagement with stakeholders

Promote sustainable raw materials procurement

We take into consideration the conservation of biodiversity and support zero deforestation in our procurement of raw materials including palm oil, palm kernel oil, paper and pulp. We continue to procure palm oil and palm kernel oil, all of which can be traced back to their production area, and to only purchase pulp for which its wood material can be traced back to its production area.

We seek to create a sustainable supply chain for palm oil and improve and sustain the productivity of small oil palm farms in Indonesia. We launched the Smallholder Inclusion for Better Livelihood & Empowerment program, which seeks to obtain certification for sustainable palm oil.

In August 2021, we released the Supply Chain ESG Promotion Guidelines. We collaborate with suppliers to contribute to ensuring traceability throughout the entire supply chain and solving social issues such as resource and environmental protection, safety and human rights issues. In addition to complying with laws and regulations, we require our suppliers to consider social responsibility and the environment, and we prioritize procurement from suppliers who comply. Consideration for social responsibility and the environment includes issues that are deeply related to biodiversity, such as forest and water conservation.

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Biodiversity

Ecosystem and biodiversity conservation activities in individual countries and regions

We have business sites around the world. Basic policies on biodiversity conservation are formulated by the Head Office in Japan, but the status of and approaches to biodiversity vary in different countries and regions. We believe that creating opportunities for the active exchange of opinions with various relevant stakeholders in each country and region including governmental agencies, NGOs, NPOs and experts can facilitate the effective implementation of biodiversity conservation activities, and we make recommendations to the responsible personnel in each country and region.

Awareness-raising

We undertake green space conservation activities at each business site in consideration of biodiversity and arrange events in which employees can participate. We also encourage employees to volunteer for outside biodiversity conservation programs. We aspire to deepen understanding of biodiversity among all employees through their active participation in these activities.

At the Eco-Lab Museum in our Wakayama Plant where the global environment and Kao's eco technologies are on display, we conduct community-based awareness-raising activities for elementary students who will build the future. At the combined greenhouse facilities, the hot and humid climate of southern countries where palm trees grow is recreated and approximately 60 species of plants can be seen.

Framework

The loss of biodiversity is one of the major social problems surrounding our company. Among the 19 actions established in the Kirei Lifestyle Plan, measures such as responsibly sourced raw materials, decarbonization, zero waste (plastic reduction etc.), air & water pollution prevention and responsible chemicals management are closely related to biodiversity.

Forests are a source of key raw materials for Kao, and are of course important in terms of sustainable raw material procurement (related to the KLP action responsibly sourced raw materials). Forests are also habitats for diverse organisms, places to store water, and sinks for carbon dioxide, which is a cause of global warming. Not destroying peatlands as sites for storing carbon along with forests is extremely important not only from the viewpoint of business continuity, but also the viewpoints of biodiversity and global warming control (related to the KLP action decarbonization).

Moreover, we will take action to prevent air and water pollution from exhaust and wastewater emissions during manufacturing processes, to minimize the environmental impact of constituent materials and other substances discharged into the environment along with water after product use (related to KLP actions air & water pollution prevention and responsible chemicals management) and the biological and ecological impact of residual plastic packaging in the environment resulting from improper processing.

Biodiversity involves complex factors that are intertwined, and it is not desirable for any of these activities to be missing or for one activity to have a negative impact on another. For this reason, it is necessary to organize these activities in an integrated manner from the perspective of biodiversity. From September to November 2021, we conducted discussions within the ESG Managing Committee, ESG Promotion Meeting, ESG External Advisory Board and other organizations. The ESG Managing Committee manages, reviews and approves annual progress, according to the respective KLP action KPIs, and ensures that the results of this process are reflected in actions taken in and after the following year. The ESG Managing Committee also reviewed and approved the revision of the Basic Policy on Biodiversity.

We define conservation of biodiversity as one element of environmental conservation, which is a part of the Responsible Care (RC) activities. We establish policies, targets and plans relating to biodiversity and manage them along with the progress of measures under the RC promotion framework. Appropriate information sharing on the progress of measures is conducted at the annual RC Promotion Committee meeting, Japan RC Meeting and Global RC Meeting (the responsible executive officers participate in each of these meetings; in 2021, these meetings or exchanges of information were held online).

→ P16 Kirei Lifestyle Plan—Kao's ESG Strategy > ESG governance structure

Biodiversity

Mid- to long-term targets and performance

Mid- to long-term targets 2025–2030

The Kao Way, our corporate philosophy, states that our mission is to create a Kirei life for all—providing care and enrichment for the life of all people and the planet. From the perspective of biodiversity, we believe that caring for all people and the planet means maximizing the value to people, society and the planet by minimizing reliance and impacts on nature without exceeding the capacity of natural production and regeneration.

Development of a society that can continue to enjoy the benefits of biodiversity

With regard to palm oil, paper and pulp, which are our main raw materials, we set targets for confirming that there is no deforestation in the places of origin and ensuring traceability and are implementing specific measures to achieve those targets such as mapping deforestation risks and investigating plants determined to pose high risks. In 2020, we completed the confirmation of traceability back to large plantations, and our object by 2025 is to complete traceability to small oil palm farms.

We believe that expanding sustainable production of raw materials and establishing procurement systems that do not involve deforestation or human rights violations will contribute to the formation of a sustainable society that permanently maintains the benefits of biodiversity for all stakeholders.

Minimizing the impact of products on biodiversity

We seek to minimize the impacts on biodiversity in all processes of our business activities including the impact on the environment from the procurement and use of raw materials, product development and disposal.

Palm oil is used in many of our products, and it is predicted that future demand will increase steadily as a result of population increases on a global scale, making deforestation and shortages of raw materials issues of concern. We continue to develop technologies that use natural, non-edible oil sources as alternatives to palm oil. We are developing Bio IOS, which is made from an oil raw material that in the past posed a challenge in use as a surfactant, as well as microalgae, which can produce oil and fat raw materials with high efficiency.

In addition, we are working to minimize the quantitative and qualitative impacts of components discharged into the environment along with water after product use and to solve the problems of plastic packaging that have already been discarded and ocean plastic pollution.

Assessing impact on biodiversity throughout the value chain

We used Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE), a risk assessment tool released under the guidance of the Natural Capital Finance Alliance (NCFA), an international financial industry organization active in the field of natural capital, to identify dependencies on natural capital and impact factors within the company. Among the identified factors were items for which uniform international assessment methods have not been established, and it will take a little more time to perform an overall evaluation with a certain degree of quantitativeness. However, the qualitative indication of notable natural capital and hotspots in our value chain has made it easier to prioritize our activities. In the future, we will reliably catch up on the development status of quantification methods and improve evaluation accuracy.

Mainstreaming biodiversity

Promoting the procurement and consumption of sustainable palm oil through Japan Sustainable Palm Oil Network to collaborate with other companies and various other measures such as encouraging employees to participate in business site green space conservation activities and outside biodiversity conservation activities contribute to mainstreaming biodiversity.

We also participate in the Japan Business Initiative for Biodiversity (JBIB) and the Keidanren (Japan Business Federation) working group for the post-2020 biodiversity framework to understand the latest international trends and coordinate and share information with other companies. The knowledge that we acquire is shared among relevant divisions within our company and used in activities.

Biodiversity

Anticipated benefits from achieving mid- to long-term targets

Business impacts

Considerable costs are involved in procuring sustainable raw materials, but we consider these activities an indispensable investment to make our business sustainable and a part of our social responsibility.

As the trend toward ethical consumption is gaining traction in the European and American markets mainly driven by Millennials and Generation Z, products using sustainable raw materials with consideration for biodiversity are growing in demand. Our presence on the rapidly expanding ethical consumption market is enhanced through the incorporation of a biodiversity approach in the products we offer from the procurement of raw materials to the product's design, usage and disposal.

We expect the results of these activities not only to boost our reputation substantially, but also to be of financial and non-financial benefit.

Social impacts

These various processes intended to achieve the 2025 targets relating to sustainable raw material procurement will restore and recover forest environments at raw material procurement sites and lead to improved respect for the human rights of local communities that use those environments.

Forests stabilize global temperatures and climate, and play the role of breakwater systems to prevent disasters since they retain water. Various resources and bounties essential for our everyday lives, such as food, medicine, clean water and air, come from ecosystems and are estimated to have an economic value worth thousands of trillions of yen.

Companies developing and selling products that take into consideration biodiversity from the procurement of raw materials to after the product is used and consumers choosing such products will bring about a society that better understands the biodiversity within many peoples' daily lives and can contribute directly and indirectly to biodiversity restoration and regeneration of the natural environment. If we could use resources at a sustainable level considering the productivity of bio organisms, we can keep using nature's bounty and sustain a comfortable lifestyle.

Biodiversity

Performance in 2021

Performance

A new attempt

Identification of Kao material issues relating to biodiversity

In 2021, we used ENCORE, a risk assessment tool, to identify dependencies on natural capital and impact factors within our company.

In our business activities, we use palm (kernel) oil and pulp as raw materials, and surfactants derived from palm oil are formulated into cleansing products. Also, after products are used, they are discharged into the environment along with used water, and some packaging is improperly disposed of and also released into the environment. As a result of this, ENCORE identified factors arising from the use of palm and pulp, the impact on ecosystems after products are discarded, greenhouse gases, waste and so on. We are also estimating the impacts on biodiversity based on climate change scenarios, performing risk / opportunity analysis, and estimating the financial impacts on our business activities.

ENCORE is a tool that enables companies to assess the risks of the business activities that they directly conduct according to their business sectors and is not for assessing the entire supply chain. At this time, we sought to gain a broad understanding of the effects that we have on the natural environment throughout the supply chain. We assumed supply chains for representative products (assuming products with high sales including megabrands) in all of our business fields by appropriate sector assignment, covering not only operations performed directly by Kao, but also the upstream side, which receives supplies of raw materials, and the downstream side, up to use processes and post-disposal, and then we performed the evaluation. Since the results obtained from ENCORE are general for each sector, we selected results and examined them in light of our circumstances. For risk and opportunity analysis, we selected 2°C climate change scenarios (IEA's 2DS scenario, IPCC's RCP 2.6, etc.) and 4°C scenarios (IEA's Current Policy Scenario, IPCC's RCP 8.5, etc.). We conducted scenario analysis using climate change first to understand the impact of climate change on natural capital when performing various analyses and studies of biodiversity in the future and because climate change can be organized by a simple parameter, i.e., CO_2, whereas natural capital involves complex factors and cannot be organized by simple parameters. It is also because numerous research examples and parameters have been proposed for climate change scenarios.

The material issues relating to biodiversity include items for which uniform international assessment methods have not been established, and this is a topic that cannot be evaluated as a whole with a certain degree of quantitativeness. If the Science Based Targets for Nature and Taskforce on Nature-related Financial Disclosures frameworks are solidified in the future, we anticipate that it will be possible to perform more quantitative and comparable evaluations. We are working to carefully gather information.

Results of ongoing activities

1. Promote sustainable raw materials procurement

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2. Promote business and social contribution activities with consideration for local biodiversity

While activities were unavoidably limited due to the spread of COVID-19, as was the case in 2020, we conducted many activities that were possible within these constraints.

3. Reduce use of copy paper

The number of sheets printed per person has been reduced by 9.8% compared to the previous year, and thus, the target of reducing printing to below the previous year's level was achieved.

Biodiversity

4. Green procurement
Our green procurement rate in Japan was 93.7%.

Reviews of performance

There are several cases in which our business and social activities with consideration for local biodiversity were forced to be suspended due to the ongoing spread of COVID-19 in 2021, as in 2020. However, in some instances, these activities could be implemented while ensuring everyone's safety thanks to the enthusiasm of the responsible personnel and participants, and we came to understand that the biodiversity conservation initiatives at each site are steadily taking root.

The significant reduction in the use of copy paper in a short amount of time was made possible by a higher rate of employees working from home as well as active implementation by users. In 2021 and later, we will expand and undertake these initiatives globally.

The promotion of green procurement has not achieved 100% of its target yet. We will work to raise the environmental awareness of purchasers and consider reviewing structures for purchasing goods compliant with the Act on Promoting Green Procurement.

Targets for 2022

We seek to become a company that is essential for achieving harmony with nature. It is expected that an international agreement will be reached at COP15 and also that Japan's national strategy will be formulated based on that agreement. Taking into consideration these global developments as well as the material issues, ongoing scenario analysis and financial impact analysis relating to biodiversity that we identified in 2021, we will formulate a company-wide policy and more specific action plan.

Also, annual targets relating to biodiversity are set and managed each year within the RC targets managed through PDCA on a one-year activity unit basis. The 2022 targets are as follows.

1. Promote sustainable raw materials procurement

→ P83 Making thoughtful choices for society > Responsibly sourced raw materials

2. Promote business and social contribution activities with consideration for local biodiversity
Based on the results of the biodiversity surveys of all Kao Group production sites conducted in 2018 and 2019, each site plans feasible biodiversity conservation activities and implements them.

3. Reduce use of copy paper
As an activity that all employees can participate in, we have started reducing the use of copy paper at the Kao Group in Japan. From 2021 onwards, our objectives are to promote this activity globally and print less pages per person than the previous year.

4. Green procurement
We are promoting green procurement, which places priority on purchasing products with the least possible environmental impact. We have been taking action in this area based on Act on Promoting Green Procurement. We have set our 2022 target green purchasing rate in Japan at 100%.

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Our initiatives

Understanding relationships between business and biodiversity

The ecological footprint assessment completed in 2013 found that the majority of the environmental impact from our business activities resulted from carbon sinks, land on which oilseed crops were grown, cattle pastures, forests grown for pulp and paper, and fishing grounds affected by surfactants.

Web Ecological Footprint of Corporate Activities
www.jstage.jst.go.jp/article/ilcaj/2011/0/2011_0_164/_pdf (Japanese)

We use LIME2 (the second version of the Japanese version of the life-cycle impact assessment method based on endpoint modeling), which enables quantification of comprehensive environmental impact, to comprehensively assess the impacts of our products on various aspects of the environment. We conduct environmental impact assessments for 35 major product categories and gain an understanding of the balance of environmental aspects to benefit product development. Going forward, we will make an evaluation with LIME3 (an environmental impact assessment method to attain global scale LCA).

This year, we used ENCORE to identify dependencies on natural capital and impact factors within the company. ENCORE is a tool for evaluating that portion of the supply chain that a company directly conducts, and to evaluate the impact on natural capital throughout the supply chain, we allocated each process in the supply chain to nearby sectors and implemented the evaluation.

As a result, we identified five dependent factors and nine impact factors. Each of these factors was found to derive from palm and pulp, impacts on ecosystems after products are discarded, greenhouse gases, waste and so on. We are currently conducting risk / opportunity analysis and scenario analysis for each of these factors and estimating the financial impacts on our business activities.

Reducing the impact of business on biodiversity

To reduce the various impacts on biodiversity of our business activities, we are continually implementing the following measures. These measures are critical for Kao's ESG Strategy, and they are listed in detail in this report.

- Reduce the use of raw materials and switch to raw materials that can be sustainably procured and have lower environmental impact

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- Reducing CO_2 emissions associated with business activities

→ P94 Making the world healthier & cleaner > Decarbonization

- Reduce the use of and impact on water resources

→ P131 Making the world healthier & cleaner > Water conservation

- Promote responsible chemicals management

Through appropriate chemicals management throughout the entire life cycle of chemicals and based on risk assessments with a scientific basis, we continue to create products to minimize the burden of chemicals on the environment and ecosystem.

→ P244 Walking the right path > Responsible chemicals management

Biodiversity

Developing technology to minimize materials used and maximize utilization while cherishing the benefits of biodiversity

For many years, we have produced high-grade industrial alcohols using oil and fat raw materials with carbon numbers of 12 to 14 that can be collected from the fruit of oil palm trees and other sources for use in a variety of household products. Fats and oils with carbon numbers of 12 to 14 only account for 5% of the world's production of fats and oils. The remaining 95% are oils and fats with carbon numbers of 16 to 18 (Oil World Annual 2016). Fats and oils with carbon numbers of 16 to 18 contain solid parts unsuitable to use for human consumption, and as such the usage of these solid parts has been limited until now. Accordingly, we are generating Bio IOS, a high-quality surfactant, by applying materials science and synthesis technologies for surfactants. Bio IOS has already been put into practical use in *Attack ZERO*, a concentrated liquid laundry detergent, since 2019.

In addition, we are conducting research to use oils and fats produced by algae as an alternative to palm oil, which has low environmental impact and will not result in competition by raw materials with food applications.

We believe that the ability to use materials that previously had been of limited use as new ingredients in surfactant and the expansion of possibilities to use oils that do not compete with food applications will contribute to the sustainable use of biodiversity.

Additionally, for over 30 years, we have conducted R&D on proteins, such as enzymes, and have continued to develop technologies to efficiently produce proteins using microbes such as bacteria. One of these technologies is protein production technology using Bacillus subtilis. This technology contributes to obtaining VHH antibodies that neutralize novel coronavirus, through joint research with Kitasato University and Epsilon Molecular Engineering, as announced in May 2020. Subsequent research results indicated that nasal delivery of the obtained VHH antibodies can inhibit replication of the novel coronavirus in infected lungs of hamster models. Furthermore, the binding pattern between the SARS-CoV-2 spike proteins and VHH antibodies was elucidated. These results indicate not only that the VHH antibodies are a potential therapeutic agent for COVID-19, but also that there is potential to expand treatment options using a new administration route in the form of nasal delivery.

We also conducted research on the RNA of organisms found in the environment (environmental RNA) to establish high-precision ecological survey methods for preserving biodiversity. By comprehensively analyzing the RNA of fish that are abundant in rivers, we clarified that highly accurate ecological surveys are possible. DNA is more stable than RNA, and therefore, investigations using environmental DNA as an index will detect fish that do not live in the area, and since RNA degrades more easily than DNA, it can solve the problem of false positives for organisms that are no longer present and could be an effective way of visualizing the true state of an ecosystem.

By leveraging the strength of our protein production technology with Bacillus subtilis, we will continue to contribute widely to solving social problems such as communicable disease measures. We will continue our research on environmental RNA, and in the future, we seek to contribute to the sustainability of society and the environment by minimizing biodiversity loss caused by human activities through the use of this technology.

P76 Making thoughtful choices for society > Transformative innovation

Web Successful Treatment for Coronavirus Disease 2019 in Hamster Models: A Significant Advancement for Clinical Use of VHH Antibodies Administered Nasally
www.kao.com/global/en/news/rd/2022/20220117-001/

Fish RNA, Abundant in River Water, Found to Be Useful for Ecological Research
www.kao.com/jp/corporate/news/rd/2021/20210817-001/ (Japanese)

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Compliance with international agreements

We undertake business activities in accordance with international agreements and related national and regional laws on biodiversity determined by the Convention on Biological Diversity and its contracting parties, the Conference of the Parties.

In addition, we were one of the first in Japan to announce support for zero deforestation in the procurement targets set in the Guidelines for Sustainable Procurement of Raw Materials in 2014. We also signed the New York Declaration on Forests announced at the United Nations Climate Summit held in New York in September of that year. Details of our activities contributing to the Aichi Biodiversity Targets are reported below. Going forward, we will contribute to achieving the targets set in the post-2020 global biodiversity framework, which is expected to be agreed on in 2022.

Web Introductions of Biodiversity Conservation Activities
www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/eco_activities_03_04_02_001.pdf

Business activities with consideration for the local ecosystem

We have been active in our own green spaces and have engaged in local contribution activities that consider regional biodiversity. There are multiple certification systems in Japan for corporate green spaces that pursue consideration for biodiversity, and we have received certification for the following plants and worksites.

Wakayama Plant: SEGES Excellent Stage 1 certification (2005), Superlative Stage certification (2017)

Web SEGES green certification website: Wakayama Plant, Kao Corporation
seges.jp/site/A0509.html (Japanese)

Kashima Plant: ABINC certification (acquired in 2015 and renewed in 2018 and 2021)
Kawasaki Plant: ABINC certification (acquired in 2018 and renewed in 2021)

Web ABINC Certification from the Association for Business Innovation in Harmony with Nature and Community (ABINC) Renewed
www3.abinc.or.jp/wp-content/uploads/2021/02/abinc_10th.pdf (Japanese)

Odawara Office: ABINC certification (acquired in 2020)

Web Kao's Odawara Office Is Awarded Business Location in Harmony with Nature Third-party Certification from ABINC for Its Biodiversity-friendly Initiatives
www.kao.com/global/en/news/sustainability/2020/20200512-001/

Even after acquiring certification, each plant has maintained and intensified green space conservation activities. The Wakayama Plant obtained SEGES*1 Superlative Stage certification, the highest level among five levels of certification, and has maintained that level. Also, the Kashima Plant renewed its ABINC*2 certification in 2018 and 2021, while the Kawasaki Plant renewed its certification in 2021. In all instances, scores are higher than at the time of the previous review were obtained.

*1 Social and Environmental Green Evaluation System
A system that evaluates high-quality green spaces created by companies as well as their day-to-day activities and efforts and certifies well-maintained green spaces that contribute to society and the environment

*2 Association for Business Innovation in Harmony with Nature and Community
An organization whose purpose is to create mechanisms that enable people to coexist with living organisms, scientifically and technically verify those mechanisms, and promote their commercialization

Implementing measures based on global biodiversity evaluation criteria

In contrast to this, to the best of our knowledge, there are no certification systems for corporate green spaces outside of Japan where we have production sites. To address this, biodiversity indicators were introduced in

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2017 to determine the extent to which local biodiversity-conscious activities are being carried out at each location where we conduct business around the world, and in 2018 and 2019 we completed biodiversity evaluations at all production sites including those sites that we recently acquired. By utilizing the indicators, we can clarify issues from a biodiversity perspective and improve their score by promoting these activities, which will make confirming their progress simpler.

The primary objective of introducing these criteria is to contribute to conservation of the biodiversity of the local ecosystems of which individual sites enjoy the benefits by determining current conditions and actively undertaking biodiversity conservation at individual sites or in nearby green spaces with a clear understanding of targets by employees.

We believe that our thinking is communicated to many involved persons including local residents in an expanding circle of activity, thereby contributing to the mainstreaming of biodiversity.

Kawasaki Plant

Biodiversity surveys conducted in green spaces

The plant has a green space that is extensive enough to contribute to biodiversity, with primarily evergreen trees on the plant grounds. It is one of the leading green spaces in the region and a healing place for employees. Since 2017, we have conducted surveys of the wildlife living in the green space (as of October 2020, there were 262 species of plants, 22 species of wild birds, and 130 species of insects) and educational activities relating to biodiversity. We regularly disseminate information to employees concerning the details of conservation activities including a breeding protection area for the Byasa alcinous. Due to the COVID-19 pandemic, it has been necessary to cancel biodiversity-related events since 2020, but in 2020 outside experts conducted a wildlife survey (conducted every three years), and in 2021 we conducted a field survey for the purpose of organizing and accumulating information on the natural environment in order to use the plant green space for information dissemination and education. Based on the results of surveys to date and the circumstances of the tidal flats at the mouth of the Tama River, which is rich in biodiversity, we plan to look into forest maintenance and the creation of a biotope in the future.

The Byasa alcinous lives in the green space at the plant.

Kashima Plant

Internal educational events taught by outside experts held

As a result of many years of efforts to create traditional forests with strong community ties since the start of operations more than 40 years ago, the plant has a forest with abundant biodiversity inhabited by 143 species of plants, 44 species of wild birds, and 77 species of insects (based on a 2021 survey). In-person events relating to biodiversity were again canceled in 2021 due to impacts from the COVID-19 pandemic, but the advantages of remote events were used and an educational event with the targets expanded from new employees and worksite environmental promotion staff to all plant employees was planned and conducted in May 2021. A representative of the Ibaraki Prefecture Environmental Management Association, which the plant asks to conduct the annual wildlife survey, was invited to act as a lecturer, and about 100 employees including remote participants attended. This event was a good opportunity for many employees to share information on the background of the Employees' Forest that they planted and nurtured themselves as well as an external evaluation, and we would like to continue this event on an annual basis. The Kashima Plant will continue to undertake internal and external biodiversity activities with the cooperation of all employees.

Shoji Kawashima of the Ibaraki Prefecture Environmental Management Association giving a lecture

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KSA

Plans to expand the area for planting native wild plants

Kao Specialties Americas LLC (KSA) is a company in High Point, North Carolina in the south of the United States. A mixed forest of various coniferous and broad-leaf trees spreads throughout the site. KSA conducted a biodiversity assessment in 2019, learning that highly varied wildlife including threatened species inhabit the area.

Since then, KSA has been promoting biodiversity conservation activities in earnest, and employees are also actively participating.

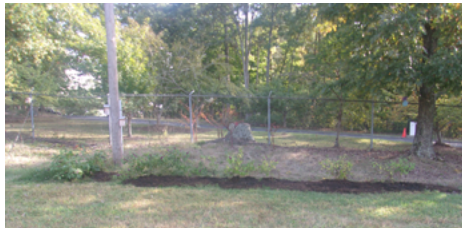
In 2021, in addition to existing biodiversity conservation initiatives, KSA set a target of planting 1,000m² (10,764ft²) with native wild flowers on the site by 2024 and started action to achieve this target. The main objectives of this program are as follows.

- Provide habitats for pollinators such as bees and butterflies
- Reduce lawn mowing and fuel requirements by converting traditional lawns to flowering grassland

In April, KSA employees sowed seeds of wild flowers that grow in North Carolina obtained from a local seed farm. By June, these plants were blooming colorfully, much to the pleasure of the employees.

In October, KSA employees again conducted their annual planting program to plant seedlings that are native to North Carolina and that they purchased themselves. A total of 44 employees participated and 14 saplings were planted.

Native wild flowers bloomed near a wastewater treatment facility at the KSA site



Callicarpa americana (beautyberry, a species native to North Carolina) planted by employees

Employees preparing beds for Rhus copallinum (winged sumac, a species native to North Carolina) saplings

KCSA

Internal education on biodiversity: Selecting the Species of the Year

At Kao Corporation S.A. (Spain) (KCSA), we recognize the importance of biodiversity in developing the future of the planet. In 2018, we formulated Biodiversity Policies that include a commitment to maintain and promote biodiversity to carry out the Sustainability and Risk Prevention Policy. Annual activities in line with the four commitments incorporated in the Biodiversity Policies (promotion of conservation programs, the provision of appropriate resources to those organizing activities, raising the awareness of employees and relevant parties, and designs with green space and maintenance plans that give consideration to ecology networks) include tree planting, birdhouse and insect hotel installation, expert-guided on-site biodiversity tours, and disclosure of activity information to employees.

In 2021, we launched a new initiative to select the Species of the Year from among the organisms that live on the KCSA sites and present detailed information on its ecology. Since there is an extremely large amount of information concerning biodiversity, we thought that it would be more effective to focus communication on explaining one species each year. We selected the sparrow as the 2021 species. The main reason for selecting the sparrow is that it is a wild bird commonly found at all three KCSA sites but is rapidly declining around the world, so we wanted to provide detailed information concerning its ecology. We created a system that makes it easy to learn about the Species of the Year by providing basic information and using a quiz format on

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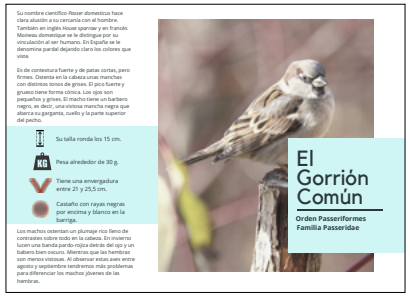
the company intranet. In addition, we installed panels in the reception rooms or other areas of each plant in succession to explain the ecology of sparrows and devised methods of sparking employee interest.

In the future, we hope to encourage more active participation by employees such as by having employees select the Species of the Year. This educational program currently targets employees, but when we resume factory tours, we will consider making the information available to factory tour visitors and other stakeholders as well.



Information posted on the company intranet explaining about sparrow ecology

Panels explaining sparrow ecology
(The panels were installed in the reception rooms and other sites at each plant in succession)

Collaboration with other organizations

We have been participating in the JBIB since its establishment in 2008. JBIB is an organization of companies from different industries that seriously consider biodiversity conservation efforts and implement specific initiatives. They are divided into multiple working groups on individual topics and discuss how companies can contribute to biodiversity conservation.

We also collaborate with stakeholders including the Organization for Landscape and Urban Green Infrastructure (Kao Creating Forest for Everyone program) and the Organization for Industrial, Spiritual and Cultural Advancement (OISCA) (FURUSATO Environment Conservation Project in Northern Thailand) to undertake initiatives that will lead to the conservation of biodiversity.

Corporate citizenship activities > FURUSATO Environment Conservation Project in Northern Thailand
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We also engage in conservation activities relating to the oceans, which are a treasure trove of biodiversity, and are currently working with Wakayama City and Osaka Prefecture University with the aim of conserving the marine environment.

In 2021, we launched a survey of marine plastic waste on Tomogashima in Wakayama City. We are conducting research on reusing the recovered marine plastic as equipment for beach facilities or as a road strengthening agent for cycling paths. We also participate in cleanup programs.

Web Progress Report of Kao and Wakayama City's Cooperation Agreement to Promote the SDGs
www.kao.com/global/en/news/sustainability/2021/20211206-001/