TAKASAGO

Sustainability Report

2020-2021



1. **Royal Crown Worcester Potpourri receptacle with openwork and overglaze enamels and gold,** 19th century
2. **Incense chest with landscape and pavilion design in maki-e,** Meiji period, 19th century
3. **Marc Lalique Coeur Joie (Nina Ricci),** 1942
4. **Fragrant oil jar with zigzag decoration,** 4-6th century
5. **Wedgwood Perfume bottle with goddess and angel motif,** Latter half of 18th century
6. **Raku Ko'nyu Dragon and tiger incense burner with green glaze,** Meiji-Taisho period, 19th 21th century
7. **Daum Brothers Perfume bottle with cornflower motif,** ca.1900
8. **Red-figure Aryballos fragrant oil jar,** 7th century BCE Greece
9. **René Lalique Fleur de pommier,** 1919
10. **Incense pillow with crane motif in maki-e,** Edo period, 18th century
11. **Incense burner with human figures in overglaze enamels,** Latter half of Edo period
12. **Émile Gallé Perfume bottle with botanical motifs,** ca. 1900
13. **Samson "Horseback Riding" perfume bottle in overglaze enamels,** 19th century
14. **Overlay glass perfume bottle with botanical motifs in gold,** 19th century

CORPORATE COMMUNICATION TOOLS



Social and Environmental Report (Japanese Edition)



Sustainability Report 2020-2021



Corporate website



LinkedIn Takasago site

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Satoshi Masumura
President and Chief Executive Officer

Message from President and CEO

Q. Looking back on fiscal 2020, could you provide an overview of the company's business situation?

The global economy in fiscal 2020 greatly stagnated under the novel coronavirus pandemic. Amid these circumstances, the Takasago group's sales declined by 1.4% from the previous year. Looking at specific divisions, sales of products for air care and hand soaps were strong in the Fragrance Division, while sales of products for beverages were poor in the Flavor Division. Sales of mainstay menthol and other products were sluggish in the Aroma Ingredients Division, as were Pharmaceutical Intermediates in the Fine Chemicals Division.

Looking at profits, operating income increased by 36% from the previous year; ordinary profit and net profit increased as well. These increases were due to declines in raw material prices from the previous year, solid performance in the Fragrance Divisions of overseas subsidiaries, and declines in some expenses related to the pandemic.

In fiscal 2021, as we seek a balance between combating the spread of contagion and engaging in economic activities, we believe we will trace a modest path of improvement. At the same time, we foresee the continuation of highly uncertain circumstances. We expect sales of the Takasago group to be nearly flat, with a 0.4% increase from the previous year. We anticipate a decline in profits due to the return of some expenses that decreased during the current fiscal year because of contagion prevention measures, and due to increases in SG&A expenses and R&D expenses aimed at future growth.

Q. Could you talk about the company's founding spirit, corporate philosophy, and Vision 2040?

The phrase "Contributing to Society through Technology" expresses a universal principle of the Takasago group, and has served as a corporate philosophy that has supported us for a hundred years since our founding. In celebration of our 100th anniversary, we incorporated "Takasago uniqueness" into our corporate philosophy of "Continuing to create new value through innovative technology that begins with *kaori*," and set the previous corporate philosophy as our founding spirit.

The Takasago group's aforementioned ideal for itself 20 years ahead in 2040, an ideal based on our founding spirit and corporate philosophy and which all employees can agree with and aim for, is expressed in our Vision 2040.

We've made "Care for People, Respect the Environment" our slogan for Vision 2040. It expresses as "kindness" the act of taking the standpoint of others to consider things together, in order to achieve a prosperous company in which every individual can shine. We want to be a company that creates a future in which people can maintain a good state physically, mentally, and socially. Naturally, we cannot engage in product creation without considering human health and the global environment.

The four items that follow the slogan are concrete representations that indicate the attitude of the company and of our employees.



Q. Could you discuss the three-year medium-term Management Plan that began in fiscal 2021?

New Global Plan (NGP-1) is the name of our three-year Mid-term Management Plan that begins in 2021, the 101st year of the company since its founding. NGP-1 is composed of Three Basic Directions, Five Pillars, and Seven Priority Issues.
The Three Basic Directions are “Growth expansion overseas,” “Profit improvement in Japan,” and “Sustainability promotion.” Our profit structure had been one in which Japan generated stable profits while overseas profits were unstable. In recent years, however, our overseas offices have grown steadily in terms of both sales and operating profit, and are supporting performance across the group. During the period of NGP-1, too, we will seek growth in overseas markets. In Japan, a difficult situation in terms of profits has continued in recent years, and significant market expansion is not expected. However, while overseas growth is remarkable, the market in Japan still accounts for over 40% of our total sales. Accordingly, we will work to improve our profit to make Japan a region that serves as a base for generating a stable profit. From the standpoint of achieving Vision 2040 and with the aim of long-term business growth, we have made “Sustainability promotion” one of our Basic Directions.

Our Five Pillars are unchanged from our previous Mid-term Management Plan. During the three years of that plan, however, we were greatly impacted by the soaring prices of raw materials in the second year and were hit by the COVID-19 pandemic in the third year, circumstances that left us unable to adequately respond and resolve the issues. Under NGP-1, we will continue efforts to address these, centered on these pillars.
As our Seven Priority Issues, we selected items we should newly advance to achieve Vision 2040 on the basis of the Three Basic Directions and the Five Pillars, and, continuing from the One-T previous Mid-term Management Plan, items that should be deepened in NGP-1.
Based on our new corporate philosophy and guided by Vision2040, the Takasago group will continue to grow.

Q. You’ve set “Sustainability promotion” as a Basic Direction. What sort of issues are you tackling?

The Takasago group’s sustainability vision sets out a trinity of economy, environment, and sociality. This expresses the group’s basic stance of fulfilling our responsibility as a member of society, in terms of the environment and society, as our business grows.
We laid a foundation with One-T of the previous Mid-term Management Plan, and compiled our action plans for the next 10 years in the form of Sustainability 2030. Under NGP-1, we will advance efforts according to that plan.
Issues involving sustainability include addressing the issue of global climate change. Last year, we announced group policies (governance, risk management, strategy, and indicators and goals) in line with TCFD recommendations. In the area of risk management, in recent years Japan has experienced many disasters caused by heavy rains thought to originate in climate change. With a strong sense of urgency, our group as a whole is advancing safety measures and BCP measures to deal with this. Such heavy rains often damage regional social infrastructures, resulting in stoppage of water supply, disruption of logistics, and other problems. In raw material procurement, the increasing severity of damage caused from hurricanes, cyclones, cold waves, and other disasters impacts agricultural products, creating shortages of aroma ingredients and price inflation. We view these as major risks directly connected to our business. Mitigation measures include the strengthening of activities to reduce CO_2 emissions. For 2030, we have set CO_2 emissions reduction targets of 27.5% for Scope 1 + Scope 2 and 13.5% for Scope 3, compared to the results of 2019. (We acquired SBTi certification in May of this year.) To address Scope1 + Scope2, we will advance emission reduction activities through the introduction

of renewable energy, as well as through means such as energy saving programs and appropriate maintenance of equipment. With regard to Scope 3, which accounts for the greatest proportion of our group's emissions, we will work with business partners not only in raw materials procurement but also in areas such as logistics to reduce emissions. While green chemistry is our key strategy for carbon reduction, we hope to create new business opportunities through means including the development of new materials that leverage biotechnology as well as synthesis using consecutive flow processes. We will engage in innovative product development through open innovation and our own technologies.

Another major global issue is human rights. During the period of One-T, we formulated our group human rights policy and established guidelines for conducting human rights due diligence, a process for preventing violations of human rights. Conducting this due diligence for two years, we have affirmed the absence of human rights violations in our group. Regulations concerning human rights are being strengthened in Western countries. While closely watching global movements, we will work to prevent human rights violations by sharing our values with our business partners not only within our group but also in the supply chains all of our business activities.

Cooperation in supply chains is an indispensable element both in the strengthening of CO_2 emission reductions and in the prevention of human rights violations. In developing business activities that contribute to sustainable growth and to the resolution of social issues, our group will strive for responsible procurement based on our Corporate Procurement Policy when we procure raw materials, services necessary for business, and so on. Last year, we reorganized our requirements and revised our Supplier Code of Conduct to shore up mutual understanding and cooperation with our business partners. We will also act on our business partners to ensure that our Group Code of Conduct is properly shared in their supply chains.

In addition to the environmental and social aspects that I have discussed, the improvement of IT security can be noted in relation to governance. Amid frequently occurring cyber attacks, our group is strengthening its IT security across the globe. In terms of physical measures, we have introduced tools and device authentication aimed at preventing intrusion by attackers. On the non-physical side, we are continually raising employees' awareness through diverse training. Facing these and other issues, we will promote sustainability across the group under NGP-1.

Q. Could you discuss the current progress and future development of the global SAP project that began in the final year of One-T?

As a part of our measures aimed at One-Takasago, from the start of last year we began developing a global template aimed at the global integration of ERP systems. Immediately after the start, however, the COVID-19 pandemic prevented project members from coming together to work, so we switched to remote work. I think the members faced difficulties as they worked through trial and error, with daily meetings among members in different time zones and the frustrations of being unable to meet and talk in person. At the same time, I am pleased that the remote work conversely allowed an expansion of project members as more people were able to participate in discussions, including persons who had given up on taking part in the project due to various circumstances. We are trying to make full use of remote work tools to make up for time zone differences, such as recording meetings on video for viewing by people unable to attend. I believe the project is going well so far.

Around the middle of the year, we will complete development work on the global template and will then transition to the work of introducing it to our major overseas offices. Through the project, we will unify our workflows globally in the form of best practices. The introduction of the global template will unify cost accounting and other accounting standards, which will allow us to obtain management data under identical standards and in timely fashion. I also believe that unifying business processes will allow people to work in the same way at any office, expanding the global scope of our human resource utilization and leading to stronger BCP systems as well.

Q. As a final item, could you describe the earnings forecast for the first year of NGP-1?

Our consolidated earnings forecasts for the fiscal year are net sales of 151,000 million yen (an increase of 0.4% from the previous year), operating profit of 5,000 million yen (a decrease of 20.5% from the previous year), and ordinary profit of 5,300 million yen (a decrease of 27.2% from the previous year). While this includes a slight increase in sales, we expect SG&A expenses, which had been constrained by the pandemic in the previous year, to increase and expect operating profit to decline by 1.3 billion yen from the previous year.

We also expect R&D expenses to increase (ratio to net sales: 8.1%) as we actively undertake product development (strengthening development of highly biodegradable aroma ingredients, etc., and development of alternative technologies for separation processes that emit large amounts of CO_2) with an awareness of contribution to the SDGs, one of our Seven Priority Issues.

Addressing sustainability issues is essential to continued sustainable growth. We want to address every issue with sincerity, expand our market presence in line with business growth, and fulfill our responsibilities as a member of society in both environmental and societal terms.

I ask for the continued understanding and support of our stakeholders.

CORPORATE VISION

Corporate Philosophy

Contributing to Society through Technology

Corporate Mission

Our mission is to create new value through innovation rooted in ***kaori***
(kaori: aroma in Japanese)

Vision 2040

Care for People, Respect the Environment
Our vision is to be:
1. proud of our culture of respect, diversity and inclusion
2. in harmony with nature, enriching and bringing well-being to daily life
3. full of hope and ambition, confidently taking on new challenges
4. eager to keep innovating, remaining an indispensable company

New Global Plan-1 (NGP-1)

To get closer to our vision stated in Vision 2040, we will implement our Mid-Term Management Plan, New Global Plan-1 (NGP-1), from FY2021 to FY2023.
In NGP-1, three basic directions are described: (1) Achieving higher growth in overseas markets, particularly emerging markets, which are growing remarkably, (2) seeking to improve profitability in Japan, and (3) developing sustainability globally.
We position the five policies of the preceding Mid-Term Management Plan, One-T, as the five pillars in NGP-1 and have set seven priority issues that the entire Group should strive to achieve in line with the basic directions and pillars.
To achieve the seven priority issues, we will strengthen cooperation among overseas bases, increase production capacity, accelerate rationalization, and enhance the research and development function primarily in Japan. For the entire Group to share goals and pursue them as "One Takasago," we will have leaders provide stronger leadership and enhance global communication and will thereby boost employees' motivation.

【Three Basic Directions】

Growth expansion overseas
Profit improvement in Japan
Sustainability promotion

【Five Pillars】

- Customer Satisfaction
- Business Growth Strategies
- Technological Innovation
- Improvement of Profitability
- Human Resources Development

【Seven Priority Issues】

- Aligning and strengthening of global management backbone
- Making system and structure for reinforcement of business divisions at overseas affiliates
- Creating a future vision of chemical business, and restructuring of chemical production system accordingly
- Striving after effectiveness of flavor and fragrance manufacture
- Developing human resources to bridge between Japan and Overseas
- Generating competitive technologies leveraged by state-of-the-art science
- SDGs conscious developing of new products and materials

Featured Topics 1

Caring for People

Takasago strives to create a good working environment as we believe it helps improve our productivity as well as make life more fulfilling for our employees. Enormous efforts have been made at each site but we will continue to care for the employees working in different situations. We put "improvement of work-life balance" as one of the targets in our new mid- to long-term CSR plan, Sustainability 2030.

The Singapore government provides grants to employers to partially support the increase in cost while they promote pro-creation support to Singapore citizen only with more leave benefits. Takasago Singapore supported by providing equal benefits to all employees regardless of nationality, too supporting pro-creation. That means, we will have to cover the cost of benefits for our non-Singapore employees which we are unable to avail grants from the government. All employees enjoy equal longer maternity leave, childcare leave, paternity leave, etc. Eventually, we provided family care leave to staff who also needed to care for their ailing parents, spouse and other immediate family members. (Takasago International (Singapore) Pte. Ltd.)
Company agreement on Quality of Work Life (QWL): by the end of 2021, Takasago France management and workers council will discuss and sign an agreement on quality of work life. This agreement will cover items such as the content of work, occupational health, skill and career paths, equal opportunity, management engagement and relationships at work (Takasago Europe Perfumery Laboratory S.A.R.L.).

Takasago Japan received HATARAKU-Yell 2021 award, which recognize companies that make significant efforts in their welfare system. Our variety of welfare initiatives as well as high rate to use was highly evaluated. (Takasago International Corporation)

We subscribe to E-learning software platform to give greater flexibility to employees to learn anytime that is convenient to them. The platform is kept up to date with relevant courses on how to manage your time and life, balancing work and life, and time management when working from home. (Takasago International (Singapore) Pte. Ltd., Takasago International Corp. (U.S.A.))

To ease the planning for holidays by the employees, annual calendar for the next year is provided and always with at least three months in advance. (Takasago International Chemicals (Europe), S.A.)



Meeting among Human Resource regarding work-life balance

Due to the COVID-19 pandemic, many of the employees have increased need to tend to their children being schooled from home. In addition, being isolated from co-workers and difficulties in collaboration has caused burnouts among the employees. The Takasago group has made adjustments to the style of work. We implemented several initiatives to mitigate the negative effects and support our employees regain a healthy work-life balance.

It is important that home office is not seen as an exceptional case or due to employer's request, but as a completely normal form of work. As such, it is necessary, as we have done at Takasago Europe GmbH, to offer home office as a selectable standard working style. We asked all employees who are able to work in a home office due to the nature of their work whether they would like to use this work style. All those who said yes were given a contractual agreement for working in a home office, which regulates the terms and conditions and thus creates clarity and commitment for everyone. Takasago Europe GmbH not only pays attention to the necessary technical equipment but also offers support for the ergonomics of the home office. (Takasago Europe G.m.b.H.)

After several months of trial and eventual roll out of working from home scheme, the COVID-19 pandemic hit the world. All those months of preparations, setting up the policies, gathering feedback from trial runs, communication, switching from desktop computers to laptops and eventual roll out, turned out to be preparation for the unfortunate COVID-19 pandemic, those who were able to work from home worked from home in order to contain the spread infection, especially during the lockdown period. (Takasago International (Singapore) Pte. Ltd.)

Recognizing that managers set the example for their teams, Takasago provided management training on supportive and effective leadership skills, which focused on setting reasonable limits for work schedules and expectations. Managers were taught to limit communication, such as emails, calls and messages, to hours within the work day and allow time for employees to "shut down." Managers were also taught to monitor the number of hours their employees are working to encourage a healthy work-life balance. They were encouraged to have regular meetings to prioritize employee workloads, reassign projects, or move project deadline to facilitate a better work environment and a culture that encourages employees to "shut down" during the off hours. Line managers need to model these boundaries and behaviors, so employees believe it is acceptable to do the same.
Incentives for walking and running via a weekly challenge are also provided to encourage exercise. Employees find it enjoyable, competitive and a way to bond with other employees. Employees with the most steps at the end of each quarter receive an incentive. (Takasago International Corp. (U.S.A.))



Meeting among Human Resource regarding foreign staff during the lockdown period.

Featured Topics 2

Respect the Environment

Climate Action

The Takasago group has diligently considered the reduction of CO_2 emissions as an important global issue and has been trying to reduce the emissions in many ways over the years. As a result of our continuous energy-saving activities and switching to energy with a low CO_2 emission factor and electricity derived from renewable energy, we achieved 32.6% reduction per tonnage compared to 2010 in 2019. To further promote our activities, we have set a goal of 35% reduction per tonnage compared to 2010 in 2020.

The Board of Directors actively discussed this issue over the past few years and approved Takasago Group's strategy and plan that are in line with the TCFD recommendations, which was published on the website from April 2020.

Governance

Strategy

Strategy

<Specified the risks and opportunities in a mid- to long-term>

Physical risks: influences from heavy rains, floods, etc. on supply chain including operations at our factories

– Implement business continuity plan (BCP) and ensure the ability to continue business at key manufacturing sites.

Opportunities: improvement of energy efficiency, new products and technologies through innovation, etc.

– Develop low carbon products and technologies diligently.

– Promote Green Chemistry through the development of catalysts and continuous flow processing, which contribute to reducing energy use and waste.

Risk Management

Metrics and Targets

Metrics and Targets

We set CO_2 emissions targets according to SBTi criteria and our targets were approved by SBTi in May 2021. To achieve this target, we will develop concrete plans to reduce direct and indirect CO_2 emissions in every aspect of our supply chain system.

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Our Targets on CO_2 Emissions (ton)

	2019	2030(Target)	Reduction Rate (compared to 2019)
Our Operations CO_2 Emissions (Scope1+2)	67,089	48,639	27.5%
Our Supply Chain CO_2 Emissions(Scope3)	781,321	675,842	13.5%

Full disclosure of TCFD recommendations is available on our website:
https://www.takasago.com/en/sustainability/tcfd.html



Protecting our Precious Environment

The Takasago group recognizes the roles that forests have played and will continue to play in global warming and biodiversity. We will aim to develop in harmony with forest resources while taking into consideration the legality, transparency, and sustainability of our procurement of materials.

As one of our activities, we have intensively exchanged our thoughts and ideas with a NPO and a forest union located near the Iwata Factory to discuss utilizing thinned cedar and cypress wood from the Tenryu Forest*1.
These conversations enabled us to acquire the knowledge of utilizing thinned woods as well as learn about a recycling-oriented supply chain model. Approaching our environment from multiple ways, we will make every possible effort for helping protect the environment.

*1: The Tenryu Forest is a man-made forest located in the mountain area of Hamamatsu City, Japan. Meizen Kinpara started the afforestation of the area in the Meiji period (1868-1912).







CORPORATE PROFILE

Takasago International Corporation, headquartered in Tokyo, Japan, develops, manufactures and supplies flavors, fragrances, aroma ingredients and fine chemicals. Our products are in foods, cosmetics, household products and pharmaceutical intermediates for the life science industry, and functional materials for the electronics industry.

Corporate Profile

Name	TAKASAGO INTERNATIONAL CORPORATION
Headquarters	5-37-1, Kamata, Ota-ku, Tokyo, 144-8721, Japan
Founded	February 9, 1920
Capital	9.2 billion JPY
Employees worldwide	3,719

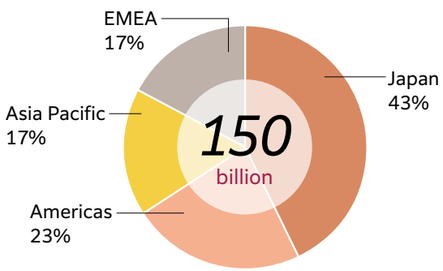
Financial Highlights (billion JPY)

EMEA*
Sales 25

* Europe, the Middle East, and Africa

Asia Pacific
Sales 25

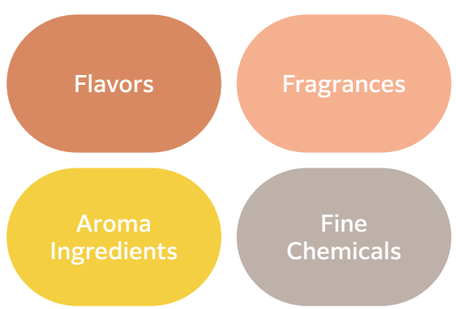
2020 Sales Turnover by Region



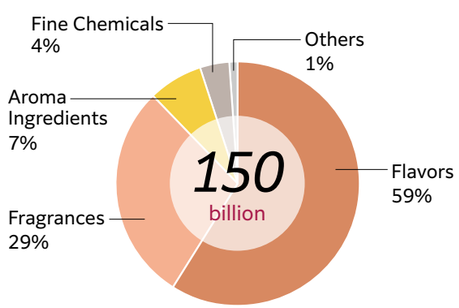
Japan
Sales 65

Americas
Sales 35

4 Core Businesses



2020 Sales Turnover by Category



Sales Turnover

2018	150
2019	152
2020	*150*

Operating Income

2018	5.8
2019	2.6
2020	*6.2*

Ordinary Income

2018	6.7
2019	2.8
2020	*7.2*

Net Income

2018	4.7
2019	3.4
2020	*7.1*

ROE* %

2018	4.9
2019	3.6
2020	*7.4*

*Return on Equity

ROA* %

2018	3.6
2019	1.5
2020	*4.0*

*Return on Assets

Equity Ratio %

2018	51.5
2019	51.1
2020	*54.2*

Capital Investment

2018	4.5
2019	7.8
2020	*7.3*

Depreciation Expense

2018	6.1
2019	6.4
2020	*6.5*

R&D Expense to Sales Turnover %

2018	8.1
2019	7.9
2020	*7.8*

Global Network

We have now business operation in 28 counties and regions around the world. We will continue our efforts to understand our customer's perspective, strengthening sales & marketing forces, enhance R&D capabilities, conduct thorough quality control on all our product, and provide flexible services with agility to ensure a corporate focus on delivering customer satisfaction.

Office Headquarters / Sales Office / Representative Office
Laboratory Flavors / Fragrances / R&D
Factory Flavors / Fragrances / Aroma Ingredients / Fine Chemicals / Food / Natural Resources


Zülpich / Germany


Tokyo / Japan


Rockleigh / U.S.A.

Paris / France
St.Ouen / France
Moscow / Russia
Berkshire / U.K.
Zülpich / Germany
Milano / Italy
Barcelona / Spain
Istanbul / Turkey
Murcia / Spain
Agadir / Morocco
Seoul / Korea
Shanghai / China
Guangzhou / China
Lahore / Pakistan
New Delhi / India
Dubai / UAE
Hongkong / China
Xiamen / China
Taipei / Taiwan
Mumbai / India
Bangalore / India
Chennai / India
Yangon / Myanmar
Bangkok / Thailand
Ho Chi Minh City / Vietnam
Selangor / Malaysia
Singapore / Singapore
Purwokerto / Indonesia
Tangerang / Indonesia
Cikarang / Indonesia
Antananarivo / Madagascar
Midrand / South Africa
Sydney / Australia
Japan
Tokyo
Osaka
Nagoya
Fukuoka
Hiratsuka
Iwata
Kashima
Mihara
Crystal Lake / U.S.A.
New York / U.S.A.
Rockleigh
Harriman
Rockingham / U.S.A.
Teterboro
Bartow / U.S.A.
Mexico City / Mexico
Vinhedo / Brazil


St.Ouen / France


Murcia / Spain


Cikarang / Indonesia


Singapore / Singapore


Shanghai / China


Mexico City / Mexico


Vinhedo / Brazil

Business Outline

Takasago has been developing innovative flavors, fragrances, aroma ingredients and fine chemicals to enrich people's daily lives.

FLAVORS

We design to taste…





FRAGRANCES

Creativity, inspired by nature and powered by science





AROMA INGREDIENTS

Endless Possibility





FINE CHEMICALS

Green Chemistry





SUSTAINABILITY AT TAKASAGO

Sustainability Vision

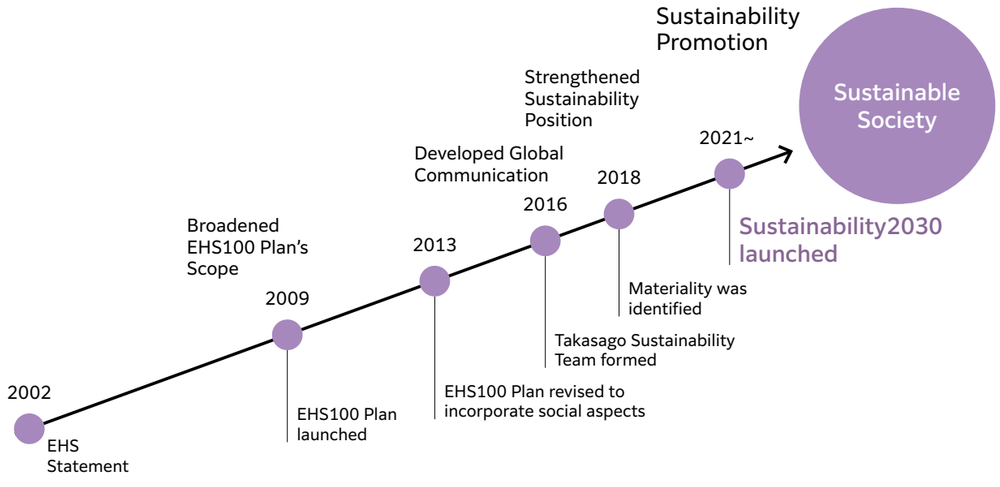
As a company that recognizes its corporate responsibility to the global environment and aspires to be a society's most trusted partner, we position sustainability as one of the key cornerstones of our business to ensure a prosperous society for future generations.

Furthermore, as a responsible corporate citizen, we fulfill our economic, environmental and social commitment in a well-balanced manner. Specifically, we make utmost efforts to reduce our environmental impact through diverse initiatives for reduced waste and improved energy efficiency, to conserve bio-derived materials, and to actively embrace diversity in our workforce through a sound diversity management.



History

Takasago has been actively developing environmental initiatives into the business activities since the environment statement was first published in 2002. Throughout midium-term business plans, Takasago has been expanding its scope to social aspects, such as human rights and diversity and to all sustainability-related issues.





Message from Senior Vice President

Tatsuya Yamagata
Senior Vice President,
Global Integration Headquarters,
and EHS Executive

The last phase of Takasago Global Plan, called One-T, ended in March 2021 and the first mid-term management plan of Vision 2040, NGP-1, has started in April 2021. Encompassed by the message, "Care for People, Respect the Environment" of Vision 2040, we are committed to strengthening the position of Takasago Group's sustainability. To do this, we developed a 10-year plan with the following eight categories. This will help us address our material issues.

Categories

1. Climate Change
2. Reduction of Environmental Impact
3. Occupational Health and Safety
4. Local Communities
5. Green Chemistry **6.** Responsible Procurement
7. Human Rights **8.** Transparency

During the initial three years, we will deepen the activities built up on what we have done during the One-T period. The following are examples of the activities.

With regard to climate change, we published Takasago Group's plan in compliance with the TCFD recommendations (Governance, Strategy, Risk Management, and Metrics and Targets) on our website last April, which shows the group's strategy and plans to challenge the issue. To transform to a decarbonized society and seize the opportunity, we will pursue green chemistry and focus more on development of eco-friendly products and processes. To mitigate climate risks, we will investigate ways to introduce more renewable energy in addition to day to day efforts at all sites. CO_2 emissions reduction target for the entire group has been set in accordance with the SBTi criteria, for Scope1 and 2, 27.5% and for Scope3, 13.5% reduction with 2019 as the base year. To accelerate the reduction, it is important not only to focus on Scope 1 and 2 but also on Scope 3 (Supply Chain), which accounts for the majority of our CO_2 emissions. Working closely with our business partners is a key to achieving the target.

Human rights due diligence, based on the group's Human Rights Policy, has been conducted since 2019. We conducted human rights due diligence in 2020 for the second time and did not identify any significant risks. This is a process to identify and prevent relevant risks in all the business activities including the supply chain. Through this process, we look into all important vulnerabilities and take immediate action to improve the vulnerability if found. To learn more about the global trend on the issue, we became a member of a related NGO last year. We will continue to make human rights due diligence more effective and fulfilling.

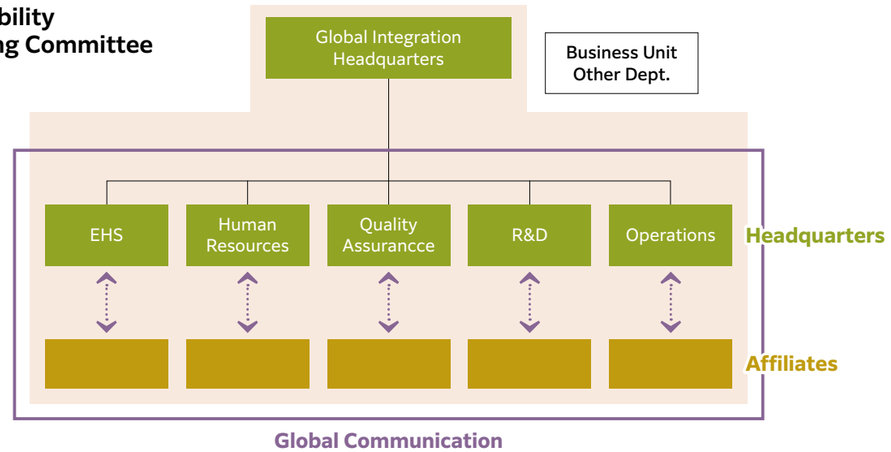
Responsible Sourcing is another very important issue to tackle. Supplier Code of Conduct was revised last year to broaden its coverage not only to raw material sourcing activity but also to other sourcing activities for the group such as logistics and IT devices. To fulfill our mission for CO_2 emissions reduction as well as human rights protection, cooperation in supply chain is inevitable. We will work closely together with all our business partners to incorporate the code of conduct in their value chain including the upstream.

Takasago's sustainability envisions achieving economic, environmental, and social goals simultaneously. The status of COVID-19 seems unlikely to make dramatic improvement in a short term. We, however, will make every possible effort to expand the market presence in all regions and grow the business while strengthening engagement with all stakeholders. Takasago is committed to working extra hard and contributing to a sustainable, recycling society.

Takasago Sustainability Team

Takasago Sustainability Team was formed in 2016 to ensure that all our activities are globally aligned with the vision and strategy and action plans are executed in a timely and appropriate manner. The team consists of five key corporate functions: EHS, Human Resources, Quality Assurance, Operations, and R&D. General manager of Global Integration Headquarters is leading the team and communicates key sustainability issues at the Board of Directors. Sustainability Promoting Committee, in which representatives from each function participate, takes place regularly at Headquarters to exchange information and concerns and monitors the progress of our activities. Respective teams are responsible for communicating in their functional areas across the globe and developing their own action plans following the corporate strategy. A global meeting is held regularly to build mutual communication and discuss issues and concerns as well as monitor the progress. Through this global communication system, Takasago is strengthening sustainability across the globe.

Sustainability Promoting Committee



Materiality Assessment

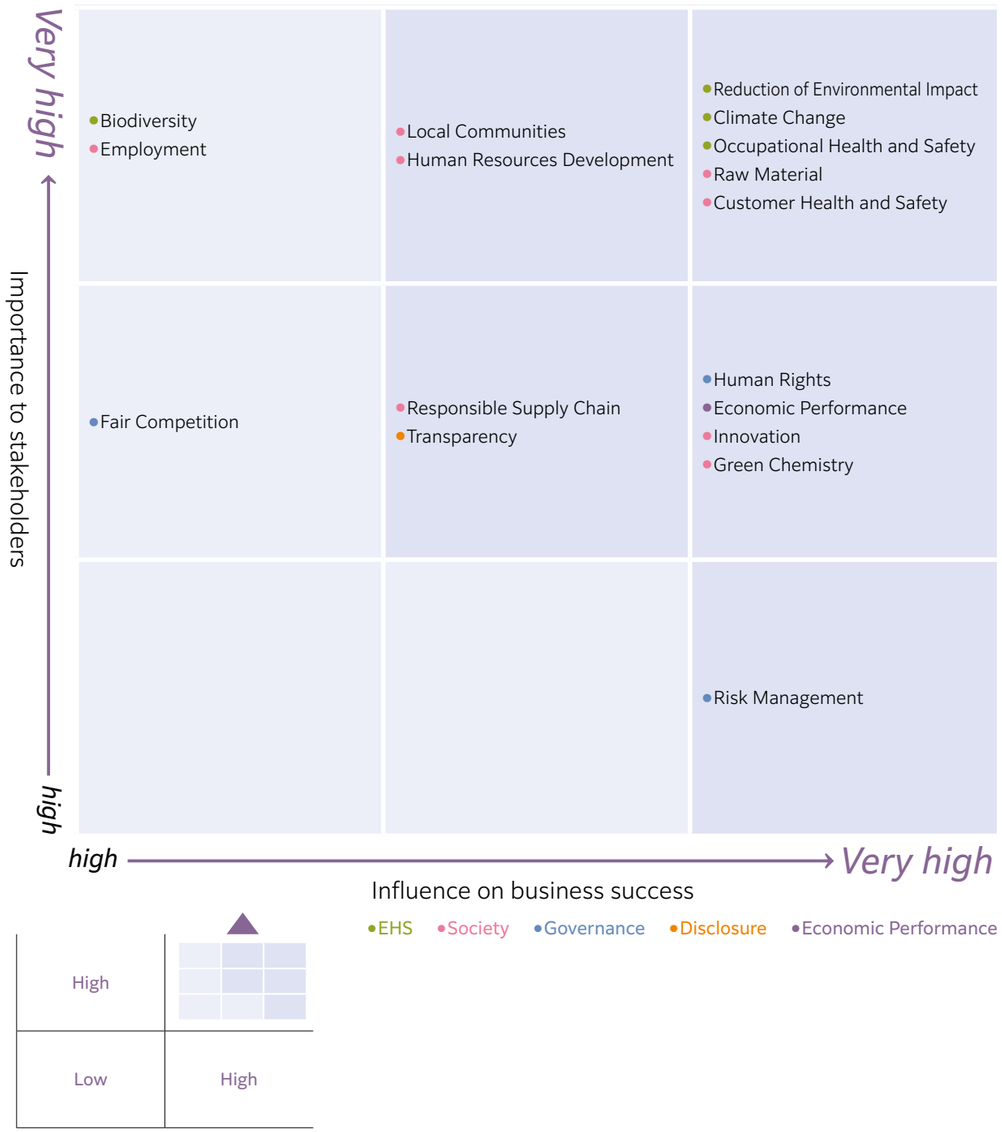
Takasago conducts materiality assessment, taking external opinions into consideration, and reviews its material items every year. In our materiality matrix, Y-axis represents “importance to stakeholders”. Its items are identified based on global sustainability indexes and standards, such as Global Reporting Initiative (GRI), Dow Jones Sustainability Index (DJSI), and Sustainability Accounting Standards Board (SASB). Identified items are discussed and fine-tuned by the Sustainability Team, taking account standpoint of diverse stakeholders. X-axis represents “influence on group’s business success”. The team also discusses this aspect for each item and plots them on the materiality matrix. It is then brought up to the corporate officers and the Board of Directors for further discussion and decision-making. Through taking these actions, we tackle global issues and fulfill our corporate responsibility as a member of the society. This also helps enhance the corporate value in the long term. The content and boundaries of this report are defined based on the following process.

Process for Defining Materiality

Assess importance to stakeholders through global sustainability indexes → Discuss “Importance to stakeholders” and “Influence on the group’s business success” at Sustainability Promoting Committee → Discuss at Board of Corporate Officers and then discuss / approve at Board of Directors

Materiality 2020-2021

*We use the term of ‘Materiality’ as defined by the GRI Sustainability Reporting Standards: “relevant topics that may reasonably be considered important for reflecting the organization’s economic, environmental and social impacts, or influencing the decisions of stakeholders.”



Initiatives Related to the SDGs

Our business operations closely related with the SDGs.
We have plans and initiatives in place to contribute in achieving the SDGs.



	Materiality Items	SDGs	Initiatives
EHS	Reduction of Environmental Impact	3 6 7 8 9 11 14	• Sustainability2030 • Takasago group's strategy and plan that are in line with TCFD recommendations
	Climate Change	6 7 11 13 15	
	Occupational Health and Safety	3 6 8 10 11	• Acquisition of ISO45001
Society	Raw Material	12 17	• Sustainable Procurement Programs (TAKASOURCE, TaSuKI)
	Customer Health and Safety	3 12 15	• Corporate QC Policy
	Innovation	2 3 9 13 15	• R&D Strategy
	Green Chemistry	6 7 12 13	
	Local Communities	8 15	• Annual Local Community Activity Program
	Human Resources Development	5 8	• Training Program Guidelines
	Responsible Supply Chain	12 17	• Takasago Supplier Code of Conduct
Governance	Human Rights	5 8 10 16 17	• Human Rights Policy
	Economic Performance	8	• Medium-term Management Plan "NGP-1"
	Risk Management	8	• Risk Management Committee
Disclosure	Transparency	12 17	• Annual Sustainability Report in accordance with the GRI Guidelines

Sustainable Society



Our Commitment to SDGs



The SDGs provide an opportunity for companies
to create value for both their business and society.
We have considered how our business operations contribute
to achieving the 17 goals of the SDGs.
There are a variety of ways to work toward the goals.
In additon to the initiatives of One-Takasago mentioned in the previous page,
we fully utilize our strength of each site to address social issues
from multiple angles as well as ensure our steady growth.

France





Motonobu Sekine

Germany





Akihiko Kawano

Spain





Hiroyuki Matsuda

Shanghai





Sumio Sakai

Guangzhou





Yuichi Tobe

Singapore

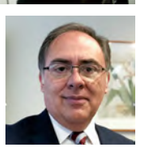




Andy Arguelles

USA

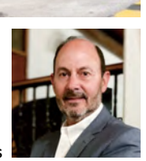




Luis Pinedo

Mexico

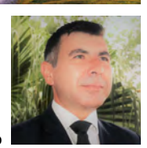




Humberto Campos

Brazil





Adilson Azevedo

France



Motonobu Sekine

Responsible Sourcing



The COVID-19 pandemic has brought out the reality in an unexpected way: the world is facing global environmental emergencies such as climate change and biodiversity loss that threaten to wreak economic and social havoc. As such, it is now essential to review our supply chain to make it more transparent, resilient and inclusive, thus creating long-term value for the company and all its stakeholders.
In light to this situation, a more responsible sourcing strategy has been materialized through the "Responsible Sourcing Policy". TEPL actively participates in the deployment of these commitments and strategy and works for the preservation of the resources and the well-being of the society, by associating itself with new partners throughout the world.

This is notably the case in Sri Lanka, where we have made a commitment to a young supplier. We quickly transformed it into a business success story.
Thanks to this partnership and to the income it generates, we ensure their families a stable salary, access to education and the preservation of their environment. Moreover, our proximity to this supplier allows us to identify the current and future needs of their families and offers us the possibility to support them in their daily life.
By producing fragrances from more responsible sources, we participate in the creation of a more virtuous circle where all the actors will be able to take advantage of this partnership and answer the ecological and social matters.

Spain



Hiroyuki Matsuda

Promotion of Health Habits at Work

The epidemiological report elaborated after the annual medical checkup of Takasago Spain (TICSA), employees showed general information about some health aspects such as mean body mass index, overweight, smoking habit, sleeping habit, etc. With the goal to improve health indicators and quality of life of our employees, TICSA has prepared number of training activities. TICSA strives to improve the health habits and the wellness of the employees through education and training courses and follow the physical index through the years.
The Training Week 2021 was held during the 7th, 8th and 9th of April at TICSA, coincided with the World Health Day, as the first course of Health Habits.
In this activity, attended by most of our employees, it was treated the need to create healthy lifestyle habits that allow a full healthy life and prevent health problems. It was taught to assess the negative repercussions of certain behaviors on health and quality of life and the benefits of physical exercise habits, hygiene, balanced diet, and everything that in general contributes to leading a healthy life.
This training aims to be a chance for the employees to change their lifestyle to be more healthy and improve their quality of life. The company will continue working toward this goal and hold activities and workshops to encourage employees to set their own health related goals, taking account advices from experts in the field.





Germany



Akihiko Kawano

Vapor Heat Recovery

We extend the factory's heating network at the Zülpich site to integrate as much diffuse heat sources as possible into this system. By using these heat sources, stress on the heating system can be relieved and the primary energy demand for heating can be reduced. Condensate collection tanks in the plant's steam network are an essential heat source. Steam condensates are collected and returned to the boiler house via pumps. These collection tanks are atmospherically ventilated and considerable amounts of steam are produced during expansion. These vapours are lost through the roof. This residual steam is to be used energetically. As a result, more condensate can be recovered, the heating system is relieved and less steam is needed to degas the already hot feedwater in the boiler house. By relieving the reverse osmosis system, less fresh water is needed and the amount of waste water is reduced.
Since the heating system is nearing its limit due to the continuous expansion of the plant, these measures can postpone major replacement investments or even make them unneccessary.
A condensate collection unit was selected for initial trial. After analyzing the flow volume, a suitable location for shell-and-tube heat exchanger was calculated and installed accordingly. In order to record the savings, a suitable measuring system was also installed. During planning, an ROI of 8 months was forecasted. After the delivery of the components, the system was installed and commissioned in three weeks.
The forecast of the planning could be fully confirmed by the measurement. An identical system will also be installed in TEG's new naturals area and additionally we plan to install a system directly in the boiler house. Here, the vapours from the degassing of the steam plant will also be fed into the heating network.



Singapore



Andy Arguelles

Solar Power Generation, Clean Renewable Energy

Solar energy is the most viable clean renewable energy source for Singapore as Singapore receives an average of 5.5 hours of sunshine a day, or an average annual solar irradiance of 1,600kWh/m2. Solar PV (Photovoltaic) system generates less CO_2 emissions than fossil fuels, contributing to environmental sustainability.

As part of Takasago Singapore's (TIS) commitment to environmental sustainability, TIS has partnered with Sunseap, a local clean energy solutions company, for the installation of solar PV panels on the rooftops of the factory and administrative building at Sunview Road when we relocated from the old production site in fiscal 2014. We have signed a 20-year solar power purchase agreement (PPA) with Sunseap where Sunseap installed the solar geneartion system without requiring any upfront investment cost for TIS. TIS is only charged for the solar energy consumed monthly at a competitive electricity tariff rate. The solar geneartion system started power generation in fiscal 2015 and supplied about 3% of the annual electricity consumption at TIS.

To continue this initiative, TIS management decided to proceed with second phase of solar generation system and installed additional solar PV panels over the air-conditioning condensers on both buildings in fiscal 2017. The total generating capacity of the solar PV panels installed at TIS is now 275kW and supplies about 3.3% of the annual electricity consumption at TIS (10% increase compared to Phase 1), thereby reducing carbon footprint at TIS by 122 tCO_2/annum. TIS has engaged Sunseap for annual cleaning of panels' surfaces and maintenance service of the solar generation system to ensure that the solar PV panels are in good working conditions and generating electricity efficiently.



Roof of the Factory Building



Roof of the Administrative Building

Shanghai



Sumio Sakai

Developing Environment-friendly Flavors

In accordance with Takasago's strategy, we are proactively using l-Menthol, one of the main raw materials produced from bio-based materials, to promote the development of flavors for oral care and confectionery. This enables us to propose flavors with a lower environmental impact that incorporate "green chemistry," which uses renewable raw materials, into the formulation of raw materials as well.

In terms of natural raw materials such as citrus oil, we are promoting the effective use of natural resources by consolidating oil raw materials used locally and also by studying harmonization on a global scale.

In addition, in order to resolve concerns about the supply of citrus oil as a raw material in the future, we are studying the possibility of introducing chemical-based oil alternatives into some of our formulations to reduce the amount of natural oil used. This will further promote the effective use of natural resources and contribute to the development of flavors with more stable quality.



Guangzhou



Yuichi Tobe

Water Resources Protection

Water resources protection is an indispensable part of environment protection and one of the priorities of TIG throughout its business process, which is in line with the Sustainable Development Goals related to clean water and sanitation.

In terms of water saving, TIG has been collecting condensate generated from steam in workshops and reusing them for heating boilers for many years, which helps to improve the cyclic utilization rate of water. In addition, TIG places importance on clean production and has been awarded with the title of Excellent Enterprise on Clean Production of Guangdong Province in China. On this basis, TIG continues to promote clean production and take various measures, such as introducing new spray headers with higher efficiency for CIP in the new factory to save water and replacing the RO water machines to improve the water production rate.

Regarding prevention of water pollution, TIG conducts diversion of stormwater and wastewater and carries out sampling test of stormwater twice a year for effective monitoring. In addition, TIG has changed all closed pipelines and conduits designed many years ago into exposed ones so that they ares more convenient for the staff to observe any unusal situation or potential leakage and prevent pollution. Furthermore, TIG is one of the companies that have obtained the Plaque of Up-to-Standard Drainage Company at the earliest time according to the latest requirement of local authority.

TIG aspires to fulfill its corporate responsibility and contribute to society through business activities. TIG will spare no efforts to pursue sustainable development together with the Takasago Group.





Left: Excellent Enterprise on Clean Production of Guangdong Province in China
Right: Plaque of Up-to-Standard Drainage Company

Mexico



Humberto Campos

Zero Waste to Landfill

In June 2020, Takasago de México (TDM) developed and implemented the "Zero Waste to Landfill" initiative, this is based on the premise that the waste produced in the industrial field is recoverable and reusable if treated properly, transforming waste into valuable resources.
The "Zero Waste to Landfill" initiative has a single goal: to divert 100 percent of industrial waste to local landfills for reuse, recycling, composting and incineration of waste for power generation. To achieve this objective, TDM made a strategic alliance with GSCP Servicios Sustentables.
At TDM the packaging materials such as metal and plastic drums of different capacities are reused in other processes; scrap metal, low-density plastic, paper and cardboard are sent to recycling; organic waste such as powder of the process, food and garden waste are processed to become soil improvers and finally those wastes that cannot be recycled, reused or remanufactured are used for power generation.
This initiative has enabled TDM to indirectly reduce water and energy consumption and CO_2 emissions by avoiding the manufacture of raw materials right from the start as well as conservation of natural resources that would have been required for their manufacture.
Other benefits include: lower materials disposal costs, additional income from the sale of industry by-products and improved relationship with local governments.
With the "Zero Waste to Landfill" initiative, TDM favors the optimization in the use of energy, raw materials and natural resources, contributing to the circular economy and sustainability.





USA



Luis Pinedo

Gender Equality



Although the situation is improving, women continue to be impeded in the compensation area because they are often required to take time off from work to be the primary care-giver of their children as well as manage other family obligations. The break in service has a negative effect on a steady work history, which in turn, results in the discrepancy in pay, for similar jobs. It is estimated that women who left the workforce due to caregiving responsibilities and return to work will receive an offer that is 7-10 percent less than an employee who is currently working, perpetuating the pay disparity.
In recognition of this long-standing pay differential, Takasago USA, consistently and regularly reviews the compensation rates for employees to ensure there is equitable pay. Specifically, regular compensation and pay equity audits are conducted to analyze the compensation rates by gender to determine if there are any gaps or areas of concern in what the female employees are earning compared to their male counterparts. If imbalances are found, immediate steps are taken to remedy the situation and make appropriate adjustments. In addition to performing regular pay audits to root out inequities, regular salary analysis are conducted regarding compensation in the Fragrance and Flavor industry to ensure our rates remain competitive.
Another initiative taken at Takasago USA to eliminate disparity between pay is to cease requiring salary history information during the recruitment process. As outlined earlier, women have historically earned less than men for the same or similar positions. Using past salary information to gauge offers of employment serves to perpetuate this pay disparity. Instead, Takasago sets fair and equitable market rates for positions and candid discussions are provided with candidates on those pay ranges. Job offers and employee salary adjustments are based on the position, skill, experience, and merit of the individual, not on the personal or historical compensation.
Another area that has been an historical obstacle to achieve gender equality affecting mostly, although not exclusively, to women in the workplace is harassment. While the "#MeToo" movement has brought more focus onto the problem, mistreatment remains and can be a hinderance to gender equality. Takasago does not tolerate any type of discrimination. In an effort to educate and train employees, mandatory training is provided to all employees on anti-harassment and acceptable workplace behaviours. The training includes obvious as well as subtle ways harassment can occur. Managers, in particular, are also trained to understand the impact of gender bias on decision-making and personnel actions. Performance evaluations are carefully reviewed to ensure managers have not systematically rated higher based on gender and clear and consistent criteria is applied to make personnel decisions unbiased.

Brazil



Adilson Azevedo

Energy Consumption is 100% from Renewable Sources!

In July 2020, Takasago Brazil (TBR) migrated from the Captive Energy Market to the Free Energy Market (competitive environment for negotiating the value of electric energy). The energy used comes from small hydroelectric plants, biomass, wind and solar power, which have the characteristic of generating clean energy.
The free energy market allows consumers to buy energy directly from generators or traders by negotiating deadlines, price and volume, and only the physical supply of energy is continued with the distribution concessionaire. The regulated tariff is only for the distribution service and energy becomes fixed value, while the payment involves the distribution and generation of energy in the captive energy market, based on tariffs regulated by the Government.
The migration to the Free Energy Market enabled TBR to reach the global goal of using 100% renewable energy, in addition to contributing to the reduction of CO_2 emissions and fostering the production of clean energy.
In addition, it has led to other benefits, such as: more flexibility (free choice of energy supplier and upstream of consumption), less costs (direct negotiation of the price of energy), more savings (discount in the distribution tariff), more profitability (enabling the "sales" of residual energy) and more certainty, avoiding envrironmental impact with the variation of regulated tariffs.



OUR ACTIVITY

Governance

- RISK MANAGEMENT
- CRISIS MANAGEMENT
- COMPLIANCE
- HUMAN RIGHTS

EHS

- ENVIRONMENT
- OCCUPATIONAL HEALTH & SAFETY(OHS)
- Takasago Safety Day 2021

Society

- STAKEHOLDER ENGAGEMENTS

OUR PEOPLE

OUR SUPPLY CHAIN

- Production
- Logistics

RESEARCH & DEVELOPMENT

QUALITY ASSURANCE

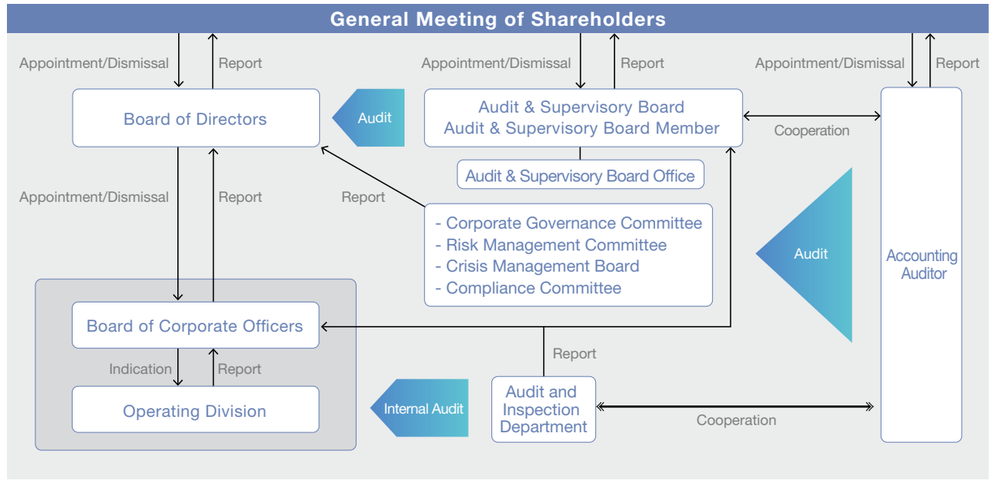
SHAREHOLDERS AND INVESTORS

SOCIETY

- Community
- "Forms for Fragrance
  –Treasures from the Takasago Collection"

Governance

The Takasago group continues to further strengthen its corporate governance by ensuring that decisions are made according to the corporate guidelines and the process is properly monitored by the Board of Directors. Transparency in corporate activities is further enhanced through appropriate information disclosure. In addition to establishing a basic policy on internal control, a corporate officer system was introduced to clearly separate the Board of Directors' supervisory and policy making functions from Corporate Officers' execution and implementation roles in the business operations. This is to ensure that both the Directors and Corporate Officers remain focused on their primary roles and decisions made and directions set by the Board of Directors are dutifully executed in a timely manner. Improvements of the governance structure have been made continuously.



RISK MANAGEMENT

The Takasago group does not only value the environment and society, but also the sustainability of its business. In order to fulfill our responsibility to every stakeholder, we regularly monitor and identify risks that could potentially affect our business stability while striving to maximize stakeholder value. Our Risk Management Committee, consisting of general managers, identifies potential risks that may hinder business continuity as well as formulates and reviews preventive measures against those risks. The identified risks are reported at the Board of Directors Meeting for further review. We will continually develop and implement measures to mitigate each of the risks listed below in the best possible way.



Cyber Security during Home Working

As one of safety measures for our employees against the pandemic, many employees started working from home. Our IT team quickly organized the following necessary digital tools and connection to the company systems in place:

- Secure connection through a cloud system when accessing the company systems from home via the Internet.
- Security patches and automatic updates to anti-virus system that covers working from home.
- Updated detail rules for using applications and digital tools that takes in consideration of working from home.

The above IT environment allows us to keep the business activities seamless while ensuring cyber security.

Identified Risks

Climate Change

The Takasago group's financial performance could be significantly impacted by climate change, such as unexpected climate variability or extreme weather events due to global warming caused by greenhouse gas emissions, or unseasonable weather that occurs irregularly. For example, as the group sources and uses a variety of natural raw materials, shortage and price hike of natural raw materials, caused by climate change, could restrict the operations. Also, unseasonable weather in summer could affect the sales of our flavor products in the beverage market, which is one of our main categories.

Exchange Rate

The Takasago group develops, manufactures, and supplies products in a global scale, taking advantage of having 11 overseas consolidated subsidiaries. Due to fluctuation of the exchange rate, the non-consolidated financial statements, when exchanged into Japanese yen, could potentially affect the financial condition of the consolidated financial statements. In foreign currency transactions, significant fluctuations of the exchange rate could impact the group's business results and financial condition.

Globalization

The Takasago group conducts business globally. Confusion of politics, economy, society, and many other aspects caused by emergent situations such as terrorism, war, pandemic, and so on, could significantly affect the business performance and financial condition.

Procurement/Sales

The Takasago group sources raw materials and supplies its products around the world. Natural disasters, changes in consumer preference, changes in international and local regulations, and other significant changes are factors that influence procurement and sales activities, and thereby significantly affect our business performance and financial condition.

Accidents/Disaster

Natural disasters or accidents that occur in areas where our production sites are situated could damage production facilities and disrupt procurement, distribution, and sales. Consequently, these difficult situations could negatively affect Takasago's business performance and financial condition.

New Products Research and Development

The Takasago group continues to make efforts to research and development of new products well ahead of potential needs of the market. However, delay of developments or unforeseen changes in consumer's preference could negatively affect the results of investments in research and development.

Information Security

The Takasago group handles confidential information related to research and development, production, marketing and sales as well as personal information of numerous customers. The Takasago group's business performance and financial condition could be affected by leak of confidential or personal information held by the group caused by attacks on its server, illegal access, computer virus invasion, or other factors that are out of our control.

Economic Conditions

Future recession or economic downturn in main markets, both in and outside Japan, could affect our sales performance. It could also lead to a change in consumer demand that holds off on buying household products, foods, and other products under the stagnating economic situation. Decline in consumer demand in main markets could impact Takasago group's business performance and financial condition.

Compliance

To conduct our business globally, the group complies with laws, regulations, and relevant standards on product quality and safety, environment, and chemical substances as well as on accounting, tax, labor, and transactions in each country and region. When new laws, regulations, or relevant standards are put into effect, they could significantly impact our business performance, hindering the group's business activities and forcing additional investments to cope with the situation.

Human Resources

The Takasago group is expanding its business all over the world. There could be a risk that the group fails to sufficiently secure and develop human resources, which could affect its business performance and financial condition.

Product Quality

The Takasago group is expanding its business all over the world. As we manufacture and sell a variety of products, there could be risks of financial loss caused by customer complaints and recalls as well as losing trust from our stakeholders due to contamination on purpose, products being damaged during transportation, and internal rejection by human errors.

CRISIS MANAGEMENT

Takasago has established its crisis management system, including business continuity plan (BCP), which enables the group to take necessary precautions against possible disasters and emergency situations. All the procedures are to help effectively minimize the impact of a contingency, and immediately restore normal operation. The Crisis Management Board is set up at the Corporate Headquarters in Tokyo. In the event of a crisis, no matter where it arises, the Crisis Management Board organizes a meeting to manage the situation and give directions.

COMPLIANCE

The Takasago group considers compliance to be one of its top priority management issues and strives to continuously improve its compliance system while ensuring fair and proper business activities and effective corporate governance. The Takasago group has a compliance hot line that enables all employees and other stakeholders such as suppliers, customers to report any compliance issues through the channel and all information submitted will be treated in the strictest confidence. The channel has been displayed at offices and factories so that our stakeholders are able to find where to report. During the reporting period, we did not have any issues brought up through the system. Nor was there any incompliance with any laws or regulations in social as well as economic areas.

HUMAN RIGHTS

The Takasago group fully recognizes respect for human rights as its corporate responsibility. To take actions on this commitment, "Takasago Group Human Rights Policy" was developed based on the Universal Declaration of Human Rights, International Labor Organization Declaration on Fundamental Principles and Rights at Work, Ten Principles of the United Nations Global Compact, and other concepts. Embodying the policy, we established a system for human rights due diligence which identify, prevent, mitigate, and review relevant risks.

Activities in 2020-2021

We revised the Human Rights Policy recognizing that there is variety of human rights issues. The purpose of the revision is to define our focus on matters in this aspect as the Annex, and appropriately implement them including engagement with our suppliers. Additionally, we participated in the Global Alliance for Sustainable Supply Chain (ASSC), an initiative to support companies in this aspect. We will continue to learn more about human rights issues through conversations with ASSC. Moreover, a new approach was implemented in the human rights due diligence in this year. Besides conducting a survey using a questionnaire at all sites, we conducted video conferences with several sites. To cover various human rights issues, it is important to review from different angles. We will continue to put our utmost efforts to prevent and mitigate relevant risks in our business activities.



Process of Human Rights Due Diligence

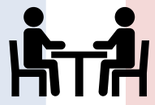


Process	Contents
1 Identify scope and develop due diligence scheme	We identified five stakeholders: Shareholders, society, suppliers, customers, and employees as areas where risks might be present in our business processes. We developed a questionnaire referring to the Human Rights Due Diligence Implementation Guideline issued by Japan Federation of Bar Associations to identify risks.
2 Identify risks	Conduct a survey using questionnaire at all sites. After the survey, all sites submit the questionnaire with answers and a confirmation letter to Global Integration HQ.
3 Make an action plan	Make an action plan for identified risks
4 Implement action plan and report results	Implement the action plan made in 3. Report the results to the Board of Directors.

Identify risks

A Conduct a survey with each department following a questionnaire.

HR Manager



- HR
- EHS
- Operations
- IT
- QC
- R&D

Etc..

*At Headquarters, the scope of observing is business processes in Japan as well as global functions.

*the above departments are an example.

B Report the results to your affiliate manager and ask their signature on the confirmation letter.



C Send the check list with results and the confirmation letter to GIHQ



Make an action plan

- Review the results of the survey, and conduct additional survey if necessary.
- Make an action plan to identified risks



Implement action plan and report results

- Review the results of the survey, and conduct additional survey if necessary.
- Make an action plan to identified risks



- Report the results of this Due Diligence and actions to be taken (if any) to Board of Directors.



Environment, Occupational Health & Safety

Global EHS Management

EHS headquarters (“EHS HQ”) defines the Takasago Group (“Takasago”) EHS Mission as follows:

“EHS Mission”

To build a sustainable EHS culture, Takasago will:

- Fulfill the legal, stakeholders, and other requirements applicable to our operations.
- Identify and control the risks inherent to our activities, to avoid incidents, illnesses and negative environmental impacts.
- Imagine and realize initiatives for the conservation of natural resources, prevention of pollution and reduction of our carbon footprint.
- Incorporate environmental protection, safety and occupational health in our business plan and decision-making.



Global EHS Committee Meeting was held in April, 2021

“Sustainability 2030”, a 10 year plan for sustainability promotion activities from FY2021 to FY2030, has also been launched along with the “EHS Mission”.
In the “Sustainability 2030”, EHS HQ set the goals related to EHS activities, including, but not limited to, climate change (reduction of Greenhouse Gas (“GHG”) emissions), reduction of environmental impact (sustainable use of resources and prevention of pollution), occupational health and safety (promotion of occupational safety and health).

To promote the standardization of EHS activities and implement the plan globally by operating above mentioned management system, Takasago has organized the Global EHS Committee (“GEC”). GEC, chaired by the EHS Executive, Tatsuya Yamagata, consists from officers in charge of the EHS activities at global production sites.

EHS Statement

Takasago has established the EHS Statement as one of the basis of the entire group management.
This EHS Statement is written in 11 languages to share the vision and values of EHS activities with all employees from 28 countries Takasago operates in.
The EHS Statement states that EHS has the highest priority in all business activities.



ENVIRONMENT

Energy and Emissions

At Takasago, most of the energy used is electricity purchased for use in production sites and offices.

Takasago has been working through various methods to reduce use of energy related to CO_2 emissions, such as by adopting energy-saving and resource-saving equipment and processes and by controlling air conditioning temperature settings properly. To further reduce CO_2 emissions, Takasago is proactively considering switching to energy sources with lower CO_2 emissions such as renewable energy through analyzing the condition and situation of each site as well as business and stakeholder needs.

New Target

EHS HQ set a target in accordance with SBTi (Science Based Targets Initiative) for 1) reduction of direct emissions for Scope 1 and Scope 2 to 27.5% by 2030 compared to 2019, and 2) reduction of supply chain emissions for Scope 3 to 13.5 by 2030 compared to 2019.

2020 Result Scope 1 and 2 emissions

In 2020, due to steady growth of business activities, Takasago’s total amount of energy consumption decreased by 6.3% compared to the previous year. Despite such situation, the amount of CO_2 emissions in 2020 decreased by 4.1% compared to 2019 due to the efforts to increase the use of renewable energy.

Scope 3 emissions

GHG emissions were verified by third party based on the result of the activities in 2019. As a result of this verification, EHS HQ was able to identify that the largest amount of emission was from Category 1 (procurement activities). EHS HQ has immediately set a target to reduce such emission.

Energy Consumption within the Organization

	2019(Restated)	2020	Changes in %
Direct Energy (GJ)			
Town Gas	204,547.66	357,765.68	74.9%
LP Gas	3,779.43	5,429.54	43.7%
LNG	264,773.41	134,924.46	-49.0%
Natural gas	27,763.62	19,149.18	-31.0%
Residual Fuel Oil	43,315.75	34,481.51	-20.4%
Gas/Diesel Oil	7,451.89	6,565.43	-11.9%
Kerosene	170.76	225.74	32.2%
Gasoline	10,557.16	7,896.03	-25.2%
Waste Oil	40,490.79	48,475.43	19.7%
Total Direct Energy	602,850.47	614,913.00	2.0%
Indirect Energy (GJ)			
Electricity purchased	729,309.47	660,194.48	-9.5%
Steam purchased	28,631.59	28,834.00	0.7%
Total Indirect Energy	757,941.06	689,028.49	-9.1%
Renewable Energy (GJ)			
Biomass incinerated	38,305.67	37,272.45	-2.7%
Electricity purchased	225,335.94	181,459.36	-19.5%
Total Renewable Energy	263,641.61	218,731.81	-17.0%
Total Energy	**1,624,433.14**	**1,522,673.29**	**-6.3%**

Energy Intensity

	2019(Restated)	2020
Energy intensity (GJ per tonne production)	24.84	22.86

Greenhouse gas (GHG) Emissions (scope 1 + 2)

	2019(Restated)	2020	Changes in %
GHG emissions (tonnes)			
Scope 1	32,537.53	31,191.08	-4.1%
Scope 2	34,152.72	32,796.04	-4.0%
Total (Scope 1 + 2)	**66,690.25**	**63,987.13**	**-4.1%**

GHG Emissions Intensity (scope 1 + 2)

	2019(Restated)	2020	Changes in %
GHG emissions (tonne)per tonne production			
Scope 1	0.50	0.47	-5.9%
Scope 2	0.52	0.49	-5.7%
Total (Scope 1 + 2)	**1.02**	**0.96**	**-5.8%**

Other Indirect Greenhouse Gas (GHG) Emissions (scope 3)

		CO_2 emission (MT)	Ratio to GHG total Ratio to the gross volumes
cat 1	Purchased goods and services	728,202.48	84.97%
cat 2	Capital goods	20,805.00	2.43%
cat 3	Fuel- and-energy-related activities	12,477.86	1.46%
cat 4	Upstream transportation and distribution	19,795.26	2.31%
cat 5	Waste generated in operations	5,367.07	0.63%
cat 6	Business travel	6.50	0.00%
cat 7	Employee commuting	5,440.42	0.63%
cat 8	Upstream leased assets		
cat 9	Downstream transportation and distribution		
cat 10	Processing of sold products		
cat 11	Use of sold products		
cat 12	End-of-life treatment of sold products	814.67	0.10%
cat 13	Downstream leased assets	66.98	0.01%
cat 14	Franchies		
cat 15	Investments		
Scope 3		792,976.23	92.53%
Scope 1		31,191.08	3.64%
Scope 2		32,796.04	3.83%
GHG total amount		**856,963.36**	

*Amount of GHG emissions has verified by a third-party. There is a possibility for the figures would be restated.

Water and Effluents

As a chemical products manufacturer, Takasago requires sufficient quantity and quality of water. Therefore, EHS HQ recognizes that it is important to secure sufficient quantity and quality of water for the group's operations.

Though Takasago production sites have secured sufficient quantity and quality of water at the moment, Takasago has to anticipate decrease in available quantity and quality of water due to change in situation such as climate. Takasago manages water resources appropriately and is promoting reduction of water usage throughout the entire group.

EHS HQ continuously collects and monitors the data of total water withdrawal of the entire group by T-ReCS®, a data management system.

Total Water Withdrawal by Source

water withdrawal (ML)	2019(Restated)	2020
Third Party		
Municipal Water	619.49	609.09
Industrial Water	455.47	446.09
Surface Water	0.05	0.04
Ground Water	2,172.15	2,110.02
Total Water Withdrawal	**3,247.16**	**3,165.23**

Some production sites located in abundant resources area withdraw licensed amount of groundwater for production purpose and EHS HQ monitors the impact to the environment.

Water Discharge by Destination

water discharge (ML)	2019(Restated)	2020
Surface Water	2,709.99	2,616.55
Ground Water	0.18	0.02
Third Party	389.12	379.99
Total Water Discharge	**3,065.55**	**2,996.56**

Takasago discharges wastewater to a river after treated biologically.

Water Consumption

	2019(Restated)	2020
Total Water Consumption (ML)	148	169

Waste

Takasago continually challenges to reduce total amount of waste generated ("Waste") by promoting proper sorting of Waste by entire group to recover valuable resources, recycling some Waste to avoid disposal to landfill, and improving product design and production process. In addition, Takasago properly manages contracted Waste disposal companies to prevent inappropriate Waste disposal such as illegal dumping.

Waste by Type and Disposal Method

Hazardous waste (tonnes)	2019(Restated)	2020
Recycling	1,229.33	1,202.37
Incineration	174.90	107.60
Landfill	71.34	52.97
Total hazardous waste	**1,475.93**	**1,363.30**

Non-hazardous waste (tonnes)	2019(Restated)	2020
Recycling	12,747.75	11,442.56
Incineration	3,720.93	3,375.55
Landfill	868.53	493.23
Total non-hazardous waste	**17,334.64**	**15,311.34**

In 2020, 3.3% of the Waste in the entire group was disposed to landfill.

Environmental Compliance

Compliance is one of the most important management issues.

Environmental compliance is managed based on the processes of the ISO 14001 environmental management system ("EMS"), which clearly defines the applicable items, applicable standards, measurement standards, and application requirements.

Takasago puts in place a process to obtain latest information on EHS, safety, disaster response, legal and regulatory requirements, social needs, and other trends.

OCCUPATIONAL HEALTH & SAFETY(OHS)

Takasago is globally advancing with the acquisition of ISO45001 certification, an occupational health and safety management system ("OHSMS"), in addition to the ISO14001 certification. In 2020, Takasago production sites in Japan acquired the ISO45001 certification and Corporate Research & Development Division in Japan and 8 overseas production sites are aiming to acquire the certification in 2021.

Incident Reporting Rule, and Incident Investigation

EHS HQ established the reporting rule for incidents (including occupational accidents) in 2020. Therefore, the entire groups are able to receive and share such information on a timely manner in accordance with this rule.
Investigating the cause of incidents is very important from the point of preventing same and similar incidents. Once EHS HQ receives such report from a site an incident occurred, EHS HQ reviews the incident's description, cause and corrective actions to ensure accuracy of the investigation conducted at the site.

Hazard Identification, Risk Assessment

In Takasago, the Occupational Health and Safety Risk Assessment ("OHS RA") Rules are applied to all production sites, except if there are more strict relevant local legal requirements. Takasago evaluates occupational health and safety risks of all employees from workplace hazards base on this rule. The EHS HQ is currently working on building supplementary procedures of OHS Rules to globally enhance the OHS RA.

OHS Communication & Inspection

The Global EHS Meeting is held at least four times a year to share the information related to EHS.

EHS HQ conducts EHS inspection at several production sites every year. In 2019, EHS HQ enforced such inspection at the site in the US, India and Singapore. At these inspections, EHS HQ introduced details of the EHS requirements, checked their progress, discussed EHS issues and shared best practices. Due to COVID-19, these site inspections have been suspended from early 2020 but instead, EHS HQ has developed a remote EHS inspection method and performed inspections of production sites in Mexico successfully. EHS HQ will continue to perform EHS inspections remotely until this situation is resolved and ensure EHS activities at global sites.



Employee Training on Occupational Health and Safety

EHS HQ analyzed the results of the third party verification of all Takasago sites and reported the analyzed results at GEC.
In addition, EHS HQ shared the results of the third party verification of ISO 45001 for Takasago sites in Japan that acquired ISO 45001 certification in 2020 with Corporate Research & Development Division in Japan and 8 overseas production sites that are aiming to acquire ISO 45001 certification in 2021.

Occupational Injury (Work-related Injury)

EHS HQ is preparing to aggregate the OHS data, such as occupational injuries and illness by T-ReCS®, and furthermore, EHS HQ plans to build a more efficient system to aggregate data globally.
In 2020, the number of work-related injuries were 14 in Japan, 12 in EMEA, 7 in Asia-Pacific, and 9 in Americas for all employees. The main type of work-related injury was "Contact with chemical substances". There were no fatalities due to work-related injury during the same period.

Takasago Safety Day 2020

We designate April 10 as Takasago Safety Day. This is a day to reflect on the fire accident in 2013, with the pledge to "never let such accidents happen again" and to raise the safety awareness of the employees.

Approximately 3,500 employees across 28 counties and regions around the world are currently working for the Takasago group. There are employees that just recently joined as well. For the idea of "safety takes first priority" to take root into every employee, it is important to share the values through top management messages and conducting safety activities. While building an OHS management system through acquiring ISO45001 certification, we will continue to raise the awareness of safety among our employees and increase knowledge about the safety through Takasago Safety Day.

Excerpts from top messages:
Response to predictable risks: Offered by S. Masumura, CEO
I would like everyone to put their heads together and try to answer the following: "What are the potential hazards around us that may lead to an accident or injury?", "What degree of damage could they cause?" and "How can accidents be avoided?"
With the firm resolve to never allow such an accident to occur again, let us always remember the accident, curve the regret and lessons learned deeply into our hearts, maintain a determination to prioritizing safety above all else and put into everything we have learned to practice.

Getting rid of loopholes in the management system, eliminate incidents and work-related injuries: Offered by T. Yamagata, SVP
80% of the cause of incidents and work-related injuries are assumed to root from lack of a management system. When an accident occurs, we tend to focus on the person who caused the mistake. However, we need to review the management system. By considering what was lacking in the management system, it helps the organization to prevent future accidents and work-related injuries.

The theme of Takasago Safety Day 2020 was "identifying workplace hazards and predictable risks". After watching training videos, each site conducted individual training while conducting proper precaution for the COVID-19 outbreak.

Activities Report from Each Site



Kashima Factory (Ibaraki, Japan)
- Fire drill
- Risk assessment



Madagascar
- Identifying potential risks
- COVID-19 precaution



Mihara Factory (Hiroshima, Japan)
- Earthquake drill
- Risk assessment



Shanghai, China
- Evacuation drill
- Training for prevention leakages



Nankaikako (Wakayama, Japan)
- EMSMS analysis



Morocco
- Discussion on the Safety Day

Society

STAKEHOLDER ENGAGEMENTS

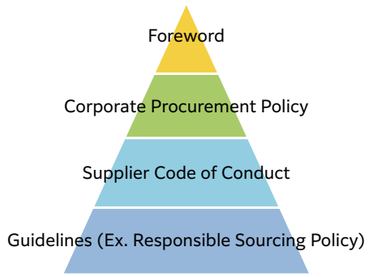


Takasago identified shareholders, society, suppliers, customers and employees as our key stakeholders. We believe seeking mutually beneficial solutions and continuous engagement will develop good relationships with the stakeholders.

Actions in 2020-2021

To clarify the responsibility in all procurement activities involving the Takasago group, we have revised our Corporate Procurement Policy in 2020. Takasago aims to conduct "responsible sourcing" following the Corporate Procurement Policy, and by sharing values with business partners and their business partners, not only in raw materials' supply chain, but also in the procurement of all goods and services necessary for business.

Structure of Corporate Procurement Policy



Foreword
Corporate Procurement Policy is established in alignment with Takasago's core values and corporate philosophies and is openly shared with our suppliers. With this, we strive to realize responsible procurement in sourcing raw materials, products and services in the conduct of our business. As business partners, we expect our suppliers and their suppliers to respect and abide by our Corporate Procurement Policy.

Corporate Procurement Policy
- Pursue the three key basic elements of quality, cost, and stable supply
- Observe and abide by all relevant laws, respect human rights, remain fair, open and impartial in all our dealings and always have sustainability and preserving environment
- Recognizing and valuing regional cultures in building partnerships with the suppliers

To promote this approach by sharing values with suppliers and their cooperating businesses, we revised the Takasago Group Supplier Code of Conduct in early 2021, stipulating matters our suppliers are expected to follow into writing. We request suppliers to understand the purpose of the Code of Conduct and actively comply with it.
The Takasago group aims to ensure stable supply chains that consider social responsibility and to continue working for a sustainable society.

We believe that stakeholder engagement is a driving force to promote sustainability.

OUR PEOPLE

Takasago respects individuals and emphasizes importance on Human Resources Development.



-Reform of Work Practices and Enhancement of Workplace Environments- Realize work practices that improve the capability of employees and that respect their diversity, character, and background. Also, provide safe and healthy working environments.
Establish a human resources development program in which individuals can fully exercise their capabilities.
Promote equal employment opportunities within the workplace and prohibit any discrimination due to nationality, religion, sex, age, race, creed and/or other related social status as it relates to employment decisions.
Promote reform of work practices including breaks and leaves, ensuring work-life balance.
Respect each employee's individuality and support his or her effort to develop skills and a career.
Develop and maintain an appropriate working environment to realize the employees' safety and health maintenance and enhancement

*Extracted from Takasago Group Charter of Corporate Behavior and Code of Conduct

Human Resources Development Statement

Takasago recognizes that our employees are a critical component for success. The organization supports an environment that empowers and challenges employees to reach their full potential. We focus on combining employee aspirations for career growth, with opportunities to enhance skills, by offering on-the-job and external training opportunities. Trust from customers is earned from providing pioneering technology and exceptional service resulting from solid teamwork of the Takasago group's employees. To maintain this trust, we continually invest in educational, development and enrichment opportunities, resulting in confident employees that embrace challenges, learn from failures as an avenue for growth and successful innovative improvements. Lastly, the organization inspires teamwork by engaging a diversified group of professional competencies, fully equipped to meet a range of challenges. Roles and responsibilities are aligned across affiliates, ensuring skills sets and requirements are comprehensive, utilizing local talents in a global manner.

Employment Status

Takasago has its workforce in 28 countries and regions around the world with a variety of contracts and types of work. In 2020, 40.5% of employees joins the collective bargaining agreement.

Employees including temporary staff

Region	Employees	Male	Female	%Male	%Female
Japan	1,827	1,443	384	79%	21%
Asia Pacific	870	449	421	52%	48%
Europe	837	461	376	55%	45%
Americas	743	410	333	55%	45%
Total	**4,277**	**2,763**	**1,514**	**60%**	**40%**

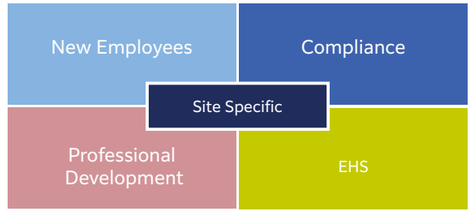
Permanent employees by age group

Region	<30		30-50		>50		Total
	Male	Female	Male	Female	Male	Female	
Japan	232	55	795	216	382	101	1,781
Asia Pacific	87	75	295	284	57	39	837
Europe	60	69	275	177	110	61	752
Americas	33	57	201	175	150	93	709
Total	**412**	**256**	**1,566**	**852**	**699**	**294**	**4,079**

Training and Education

Takasago engages in ongoing training activities to promote continuous learning, and has been showing positive results. These include providing comprehensive education on anti-harassment and diversity to ensure employees and managers understand the importance of cultural differences and inclusion, support for human rights, and respect for different beliefs and practices. Safety procedures are prioritized to increase awareness of dangerous activities and hazardous materials with the goal of eliminating injuries and illnesses of all personnel. Anti-corruption, anti-trust, and other related trainings are also provided across all regions to educate and reinforce commitment to regulatory excellence and fair competition. The culture of Takasago supports employee growth and development from on-boarding, ongoing training, and on-the-job experiences. Building on employee expertise allows Takasago to continuously enhance the products and services provided for the consumer.

Educational Programs



Takasago Educational Program consists of above 5 pillars

Career Development

Takasago is highly committed to career development and career path of its employees. We understand what knowledge, skills, personal characteristics, and experience are required for an employee to progress in their career. We identify talents, support employee development beyond borders, share best practices and knowledge, broaden perspective and network, and expand global capabilities. Takasago offers a variety of tools, trainings, and opportunities to develop laterally, through promotion, or by departmental and overseas transfer. Employees actively participate in their development plans and discuss career aspirations. Working collaboratively with managers, employees build and identify training needs and resources in order to enhance performance expectations, aligned with company objectives. To enable employees to fully understand the operations of the group, performance metrics are established, development plans are created, and opportunities to embark on new projects are provided in collaboration with the management.

Promoting Diversity

Takasago continually strives to create a work environment that welcomes and respects diversity and empowers individuals to realize their full potential. As part of this, we support efforts to increase female managers and foreign national employees while promoting the benefits of diversity and inclusion. Takasago values the contributions of all employees and believe that the broad perspective provided by a diverse workforce adds value to all our products and operations on a global scale.

Communication

Takasago Japan has been seeking to develop its own way of team building among the affiliated companies in Japan. A sport event called “Takasago-Cup” is one of its efforts in Japan. The event is held every year, in which employees of group companies also participate. The matches of various sports such as volley ball, basketball, tennis, and baseball are organized and participants enjoy playing matches with other sites. We aim to build solid team at each business site and across the companies and develop an appropriate work environment through these opportunities.

OUR SUPPLY CHAIN



Our Supply Chain and Procurement Model at a Glance

Takasago values sustainability in its business activities. It is essential for us to source raw materials used by our business units in a responsible way and in alignment with the need and aspirations of customers and society. We use approximately 14,000 different raw materials sourced from more than 1,000 suppliers all over the world. Of these, about 5,000 raw materials are natural ingredients derived from natural sources such as fruits, vegetables, plant roots, leaves, and flowers. The other 9,000 raw materials are aroma ingredients produced by sophisticated chemical technologies. Some of them are derived from natural gas or naphtha while others are derived from natural sources such as pine tree. They can provide a unique sensory profile that does not exist in nature, and can be alternatives to precious ingredients that derive from animals such as musk, ambergris, etc.

To supply high-quality raw materials with appropriate prices to our facilities around the world on time, our global procurement team communicates through our global network to enhance procurement activities.

In order to build fair and trustful relationship with worldwide business partners for responsible sourcing, we have established Corporate Procurement Policy, Corporate Procurement Guidelines, and Takasago Supplier Code of Conduct.

Corporate Procurement Policy

Takasago is working towards improving “responsible procurement” of raw materials and services for sustainable economic growth and mitigation of social issues. As part of the activity, we revised our corporate procurement policy in 2020 to clarify the scope of responsible procurement. Full statement is available in https://www.takasago.com/en/sustainability/society/visitor.html

Corporate Procurement Guidelines

Corporate Procurement Guidelines embodies the Corporate Procurement Policy. The Guidelines include fundamental subjects such as compliance, fair trade, anti-corruption, human rights and environmental protection that must be aligned with the concept of responsible sourcing. In the Takasago group, all staff in charge of procurement activities, including day-to-day purchasing at each local site, follows the Guidelines. To ensure its implementation, Global Procurement Training includes sessions on Corporate Procurement Guidelines as well as other basic corporate policies.

Takasago Group Supplier Code of Conduct

To maintain a high-level of social trust, we respect and value business partners who focus on environmental and social responsibility. We established Takasago Group Supplier Code of Conduct to encourage our business partners to understand our policy and expectations.

As stated previously, we revised Takasago Group Supplier Code of Conduct to clearly state what we hope to share with our business partners. This was followed by our Responsible Sourcing Policy which states our ambition, objectives, and commitment for responsible sourcing. Takasago Responsible Sourcing Policy has been verified and recognized by Ecocert Expert Consulting (ECOCERT Group) to be in line with global standards and practices of ISO26000 and SMETA (Sedex Members Ethical Trade Audit)*1 principles.

*1 An auditing methodology, providing a compilation of best practice ethical audit techniques

Vision for Corporate Procurement

Last year, taking opportunity of the 100 year anniversary of Takasago, we reviewed the future model of the company and confirmed corporate procurement vision. It states our ultimate goal is to promote “connection” while contributing to a better society through procurement activities. Particularly, given today’s VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) situation, we more than ever need to unite globally as One Takasago to reinforce BCP (Business Continuity Plan) and Resilience.

Since our raw materials come from diverse suppliers from all over the world, it is crucial for each of our affiliates to manage relationship with the suppliers in their region and ensure long-term, stable, and sustainable supply of raw materials as an international procurement office of the Takasago group.

Global Procurement Team

Teamwork is one of the most important value at Takasago along with technology and trust. This is particularly the case in procurement . We organized Global Procurement Team with the delegates from 11 global production sites to align with the concept described in the Corporate Procurement Policy and to optimize operational process. We schedule an annual meeting at the headquarters, various workshops, regional meetings, on-site visits, and training via a matrix-like structure by region, global ingredient category management, and other global strategic corporate initiatives. To adapt to the COVID-19 pandemic, we have been conducting regular and ad hoc online meetings as well.



Training Session

Until 2019, Global Procurement Team members had the opportunity to attend a training session at the headquarters in Japan twice a year in person. Even under current challenges due to COVID-19, we have provided sessions for trainees through e-training program by having the participants pre-read the class courses and then holding Q and A session. The aim is to deepen the Team’s understanding of corporate medium-term management plan, corporate procurement policy and guidelines as well as intergroup networking and building teamwork.

VOICE

Amy Li, Takasago International Corporation (USA)



When I joined Takasago in the midst of the pandemic, I was enthusiastic of the fresh start but also a bit anxious of the uncertainty. Thanks to the Global Procurement e-training program, I was able to learn about the company and various procurement areas despite the challenges. COVID-19 has intensified the need for flexibility, resilience, adaptability, and self-reflection. I am grateful for the opportunity, training and support I received from the global teams and business partners during these unprecedented times. I am also glad that I was able to translate the learning into actions to help fuel our business growth.

VOICE

Karthik Kumar, Takasago International India Pvt. Ltd. (India)



Japanese are well-known for their culture and systems, which I came across in the past year. I had a wonderful opportunity to share and learn the process and policies from the global team. The e-training provided me an immense knowledge, professional training and expanded benefits like improving company's reputation, increasing employee's loyalty and confidence, and improving relationship with regulatory bodies. Working with all turned out to be a very positive experience! I look forward to continue working together globally.

Responsible Sourcing

In June 2017, Takasago signed the UN Global Compact (UNGC) and we continue our efforts to align with the UN Global Compact's Ten Principles in the areas of human rights, labor, the environment, and anti-corruption. We are also striving for sustainable procurement as much as possible, while also focusing on compliance with laws in each country, respect for human rights, environmental conservation, fair business practices, involvement in and development in local communities.

As mentioned in the Supplier Code of Conduct section, at the end of 2019, our Responsible Sourcing Policy was verified and confirmed to be in line with global standards, practices and the UN 17 SDGs. Our Responsible Sourcing Policy reinforces the principles outlined in the Supplier Code of Conduct and focuses on suppliers of raw materials and packaging. Based on the Policy, we are investigating the risks and potential impact of our procurement activities in the fields of human rights, labor, the environment, and anti-corruption. If a possibility of negative impact is confirmed, we will promptly plan for improvement and take measures in cooperation with suppliers and other stakeholders for their implementation.
In 2020, we finalized a plan to share Takasago Responsible Sourcing Policy with our suppliers. The main objective is to ensure they understand and are aligned with the policy. If needed, we will support them with a Self-Assessment Questionnaire and will encourage them to become member of Sedex. This strategy aims at further assessing sourcing and ESG risks and taking required mitigation actions.

1) Supplier Relationship Management

The Takasago group conducts international procurement activities utilizing the global procurement organization with Procurement Department in the headquarters at the center. Through global procurement activities, we will continue to contribute not only to our customers successes but also to all stakeholders through ensuring stable supply of high-quality, safe, and secure products. For this purpose, we utilize dialogue with suppliers in person and online, supplier questionnaires, Sedex[*2] SAQ, Responsible Sourcing Questionnaires, and RFQ (Request For Quotation) to manage relationship with suppliers as stated below.

- Build strong, mutually beneficial, and transparent partnerships with suppliers
- Maintain and strengthen a system that can stably and reliably procure high-quality raw materials
- Mutually understand shared goals through dialogue and RFQ with suppliers
- Thorough implementation of Takasago Group Supplier Code of Conduct and sharing of Takasago Responsible Sourcing Policy, which emphasizes corporate social responsibility such as sustainability and respect for basic human rights, through periodic supplier surveys utilizing questionnaires
- Ensure that no forced labor or child labor exists through periodic supplier questionnaires, Sedex SAQ, and Responsible Sourcing Questionnaires.

(According to the supplier questionnaire results in 2020, we confirmed that all our business partners acknowledged as Takasago global suppliers met the social and environmental standards.)

*2 An online platform for sharing information on ethical and responsible practices.

2) Collaboration with 3rd Party Organization

In order to further align on responsible sourcing aspirations, the Takasago group has joined social organizations promoting sustainable and ethical sourcing. In December 2020, Takasago became a member of The Global Alliance for Sustainable Supply Chain to enhance our action for human rights. We will conduct human rights due diligence in the supply chain to proactively manage potential and actual adverse human rights impacts. We also became a member of RSPO (Roundtable on Sustainable Palm Oil)[*3] and JaSPON (Japan Sustainable Palm Oil Network)[*4] to promote sustainable palm supply chain. Following that, our affiliate in France received RSPO certificate for Mass Balance and provides certified products to our customers since 2019. Our affiliate in the U.S., Harriman NY for fragrance, was certified RSPO-MB in January 2021. We communicate with customers, suppliers and internally to secure sustainable palm derivatives such as glycerin, MCT (Medium-Chain Triglycerides) for flavor products.

In early 2016, we joined Sedex (AB membership) enabling assessment of suppliers in the areas of work environment, health and safety, environmental management, and ethical business practices. Using the world's largest collaborative platform for sharing supply chain data globally, along with a separate supplier questionnaire, we ensure an ethical supply chain. In 2020, we could not increase the number of relationships in Sedex due to COVID-19, resulting in approximately 180. With regards to our responsible sourcing policy activities, we utilize Sedex SAQ and SMETA audit to confirm suppliers' ESG's status. We will continue to encourage new business partners to become Sedex members when starting transactions and promote activities for prioritized existing suppliers to attend Sedex for sustainable relationship.

*3 A social organization trying to transform the palm oil industry into a sustainable industry with less impact on the environment.
*4 A platform for sustainable procurement and consumption of palm oil in Japan.

3) Sustainability: Evolution of Our Sourcing

Sustainability has become an integral part of Takasago's corporate strategy and consumers expect manufacturers to demonstrate this commitment in the products they procure.
To meet this expectation, Takasago considers and designs its fragrances more responsibly through the identification and traceability of the sources of natural raw materials. This allows to highlight exceptional raw materials and suppliers who share our environmental and social values.
Moreover, if our priority remains on enhancing the responsible sourcing of natural ingredients, new solutions can be created to minimize our impact on the environment. We can therefore find renewable and sustainably managed alternative sources, for instance materials upcycled from the pine industry which are further used for the manufacturing of Takasago's menthol. This is the reason why in March 2020 Takasago acquired a stake in Lawter B.V., a specialist in pine ingredients. As such, technology plays a central role in this sustainability approach to help us find more sustainable alternatives without depleting our natural resources.

As a responsible flavor and fragrance company, Takasago complies with all the criteria for green beauty and servicing creation through a range of sustainable ingredients:

- This palette is made up of natural raw materials, ranging from essential oils to natural ingredients

certified as "organic", materials that promote preservation of biodiversity, ingredients certified as For Life, Fair For Life, which ensure responsible manufacturing, and materials that guarantee a fair and equitable compensation while preserving biodiversity.

- So-called upcycled natural ingredients to reuse ingredients (from wood, paper, fruit juice industries, etc.) and give them a second life.
- A wide range of "bio-based" synthetic ingredients made from sustainable natural resources and consists of at least 50% natural carbons such as pine derivatives.
- "Biotech" ingredients which are raw materials made by micro-biosynthesis. These are micro-organisms that synthesize fragrant raw materials from abundant natural raw materials such as sugar cane.
- Synthesized ingredients of exceptional quality, resulting from chiral science which was recognized for a Nobel Prize in 2001. These chiral materials are made by clean production that generate almost no waste, a reduced consumption of resources and an olfactory impact much greater than the non-chiral equivalents.
- "Bioswitch" ingredients with reduced carbon footprints compared to raw materials from fossil resources that minimize the impact on the environment.

This range of sustainable ingredients allows us to create more responsible formulas that are in line with consumer expectations.

4) "*TaSuKI*" update

1. Overall

Despite unprecedented unfavourable headwinds and worldwide lockdowns, we nevertheless managed to progress our *TaSuKI* journey in 2020/2021.

We made progress in existing *TaSuKI* initiatives in several countries but also managed to implement a transformational supply chain project for an iconic raw material: Lavandin Grosso from Provence, France.

France Lavandin Grosso

TaSuKI Settles in Provence for a Pioneering 10 Years «Farm to Fragrance» Lavandin Supply Agreement



In July 2020, Takasago unveiled the signing of a pioneering agreement with the Cooperative Corporation of Perfume Plants of Provence (SCA3P) for the purchase of Lavandin Grosso essential oil.

This long-term contract is a first because of its timespan based on the entire life cycle of the lavandin plant and because of the model whereby Takasago commits to purchase Lavandin Grosso essential oil from SCA3P over the next decade at a stable and balanced price. Such an agreement is a unique and unprecedented commitment in the flavor and fragrance industry for the iconic Lavandin Grosso.

Protecting Producers and Clients by Limiting Market Volatility





"A symbol of Provence and one of the most widely used ingredient in fine fragrance, cosmetics, body care and home care, Lavandin Grosso is almost exclusively grown in France and there is no exact substitute for it", explains Stéphane Zwaans, the head of Strategic Procurement Initiatives for Takasago. "In the past few years, it has been an extremely volatile market, with continuous imbalance between supply and demand. Our aim was to support the sector by reducing unfavourable and extreme volatility in supply and price".

By establishing a direct long-term connection between the supplier and buyer, the agreement improves revenues for producers, as well as ensuring a stable, guaranteed income. "The members of our Cooperative will be able to plan on the long-term, invest in new equipment, expand their activity, renew their plantations and work on developing higher-yield, more resistant cultivars", says Michel Krausz, the Director of the SCA3P. "It contributes to the sustainability of the Cooperative, a structure that regroups 230 producers, mainly in the Alpes de Haute Provence and in the Vaucluse regions from where Lavandin Grosso has historically been grown".

In supporting suppliers such as the Cooperative Corporation of Perfume Plants of Provence, Takasago secures a steady source of lavandin essential oil at a price which is fair for both producers and users. Close cooperation over such a long period also ensures a steady quality and quantity of natural ingredients in a volatile context subject to speculation and climate changes. This initiative meets clients' and consumers' demands for more traceability, transparency, and ethical sourcing, as well as the implementation of best commercial and environmental practices.





2. Ongoing Projects

Florida Grapefruit

- Sustainable Grapefruit: New Groves Plantation – "*TaSuKI* Originals, Care and Comply"

Our ambitious long-term Grapefruit Agreement was signed back in 2019. Takasago confirms, once again, a strong commitment with the Citrus Industry supporting growers directly.
The full value chain is integrated and aligned in same direction. At the moment, following planting schedule, about 40% of new trees have been planted. The remaining 60% will be planted in the next 5 years. Trees already planted will start producing grapefruit within the next 3 years. We are anticipating the resulting sustainable grapefruit oil and have already developed unique grapefruit oil grades for both our Flavours and Fragrances Creation Teams.







Madagascar Vanilla

- News from Takasago Madagascar - "*TaSuKI* Originals, Care and Comply"

As anticipated, the vanilla market in Madagascar is in turmoil and prices are collapsing from their past year's record peaks.
This extreme volatility and steep price reduction are difficult for many farmers who did not take advantage of the past few years of sustained elevated prices.
Takasago, despite COVID-19 constraints, decided to support them and is accelerating the Fair trade / Organic certification plans and associated benefits.

In February 2020, Takasago Madagascar and Malagasy Associate Ramanandraibe Export organized several meetings with groups of vanilla producers in the Mananara region.
It was decided to initially focus on Mananara because most vanilla plantations are isolated in this area,

lacking basic infrastructure and contacts to operate effectively.
This project was well received by local vanilla producers who welcomed Takasago initiative. Early objectives of this project are: detailed mapping of vanilla farmers and their plantations, diagnosis of current situation, improvement opportunities and fair trade / organic trainings ahead of certification.

Four farmers' cooperatives with a total of 487 vanilla producers were integrated in the early phase of the project:

1. Training and information sharing with representatives of the cooperatives on sustainability
2. Mapping and geo-localization of the four cooperatives and their 487 vanilla producers
3. Communication on expectations and obligations of the producers to obtain the certification.
4. Setting future plans once certification is obtained.

Completion of this preparatory step with vanilla producers was required to identify agronomical, technical, environmental and social issues with their likely mitigation strategies. Takasago Madagascar, Malagasy Associate Ramanandraibe Export and the four cooperatives are now aligned and ready for certification.



Training with vanilla producers' cooperative on fair trade / organic at Ramanandraibe Export in Mananara



On-site training (fair trade / organic) with four cooperatives



Takasago Madagascar team and producers on their way to a plantation

Production

Our Production Model at a Glance

The main objectives for Production are: (1) to manufacture products with a singular "Takasago Quality" at all affiliates around the world with zero incompatibilities, (2) to globally align CSR activities to actively contribute to the creation of a sustainable society, and (3) to cooperate with QA/QC and EHS in order to establish Takasago's best practices.

Development of Standardization Based on Corporate Production Policy

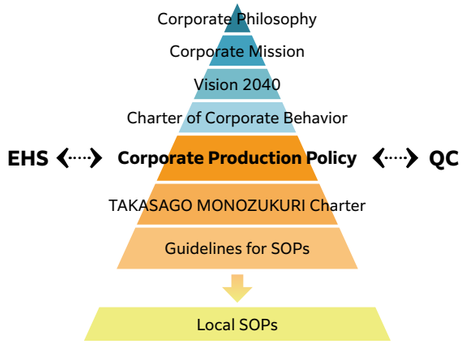
The Takasago group developed a Corporate Production Policy (below) to implement activities for production and sustainability with a coherent purpose in the global function area. By utilizing the characteristics of each affiliate and promoting a sense of unity in global production practices, Takasago aims to create a product supply system trusted by customers around the globe.

Corporate Production Policy

We practice the following in our production activities:

- Continuously striving to provide the highest level of customer service while maintaining safety in the workplace, stability of supply and quality assurance in all of our production activities.
- Constantly pursuing excellence in our production practices and manufacturing systems.
- Persisting in the observance of all relevant laws and regulations, respect for human rights, being fair, and considering environmental preservation.

Furthermore, with the aim of creating an effective document system, we are working on the "TAKASAGO MONOZUKURI Charter" and various guidelines for standard operating procedures (SOPs) to link the Corporate Production Policy with local SOPs.



Global Meetings

Takasago holds various international meetings such as Global Operations Directors Meeting, Global Supply Chain Management Committee Meeting, and Global Plant Managers Meeting on a regular basis.
Through these meetings, we promote effective global collaboration, ensuring that our goals are aligned and that we can move forward as a Takasago Group.



Left: Global Supply Chain Management Committee Meeting /
Right: Global Plant Managers Meeting

Environmental Risk Initiatives

Takasago understands how climate change and natural disasters can be a potential risk to production activities, and believes that the approach corresponding to environmental risks is integral to sustaining growth. As a result, Takasago has promoted water risk initiatives in parallel with reductions to environmental impacts. The Takasago group carried out a water risk evaluation using WWF-DEG's Water Risk Filter at each of our affiliates. In addition, headquarters delivered a report on the response to recent natural disasters in Japan at the Global Operations Directors Meeting.

Zero-Accident Activities

Zero-Accident Activities are programs where all employees practice precautionary measures relating to industrial safety and health with the philosophy of "Safety First". They are implemented at all of our Japanese affiliates. On top of the activities prescribed by EHS, Takasago aims to promote activities that encourage employees to take ownership of workplace safety, as well as ideas to handle situations that are not explicitly covered by rules, in addition to continuous improvement of safer production practices. Specifically, Japanese affiliates have held "hazard prediction" workshops, where employees examine potential real-life scenarios for ways to improve safety. Also, they have established "pointing and calling" exercises to build a culture of safe habits. These practices promote the development of leaders who support future health and safety initiatives and embody the spirit of "Safety First" when considering the safety of their colleagues.



Left: Hazard prediction workshops / Right: Pointing and calling

Logistics

Corporate Logistics Policy

The Takasago group has established the "Corporate Logistics Policy" as principles of logistics in accordance with the "Charter of Corporate Behavior" which includes consideration toward a sustainable society. We practice the following in our logistics activities:

- Continuously striving to provide the highest level of customer service while providing a safe and stable source of supply.
- Constantly pursuing excellence in our logistics operations, systems and processes.
- Persisting in the observance of all relevant laws and regulations, respect for human rights, being fair, and considering environmental preservation.

Reducing Environmental Impact in Logistics

We have set ambitious targets for GHG emissions reduction according to the SBTi (Science Based Targets Initiatives) criteria as a measure to mitigate climate change.

The third-party inspection has made it possible to improve the measurement of indirect emission data such as the amount of CO_2 generated from transportation and distribution (upstream).

Our logistics team is making efforts to reduce the number of trucks transporting between factories and the distribution center by improving load efficiency to reduce CO_2 emissions in Japan.

As our long-term sustainability commitment, we will continue to improve the efficiency of our logistics network to reduce environmental impact.

Recycled/Renewable Materials and Packages

For the Takasago group*1, the ratio of renewable raw materials*2 used in 2020 was about 44.7%. The ratio decreased 5.3% from previous year due to the definition of renewable raw materials has been changed. We do not use recycled materials for containers that come in contact with our products due to safety regulations. As such, only recycled pallets are used in some storages.

We use recycled materials (waste paper and steel materials) for cardboard packaging and steel drums. The ratio of waste paper used in cardboard varies according to the country. We are also reusing intermediate bulk containers (IBC), steel drums and pallets as long as there is no potential safety risk. Packaging materials unfit for reuse are collected, sorted and recycled by authorized recycle contractors.

*1 All subsidiaries and affiliates.
*2 Renewable raw material: A renewable resource is a natural resource which can replenish itself by an amount exceeding than human consumption through biological reproduction, naturally recurring processes or other positive actions. Based on the guideline in the GRI Standard Japanese version, we totaled the ratio of renewable raw material usage.

RESEARCH & DEVELOPMENT



Based on our corporate mission of " Create new value through innovation rooted in Kaori (kaori: aroma in Japanese)", R&D plays an important role in the improvement of QOL (Quality of Life) by developing unique and superior technologies and products through organically and functionally integrating three types of innovations ("concept innovation", "product innovation" and "processes innovation") and open innovation in collaboration with external partners.

In recent years, climate change caused by global warming has been becoming more pronounced. As part of our important efforts to solve those globally recognized issues, we promote environmentally friendly R&D with SDGs always in mind. To reduce environmental impact, we take green chemistry into consideration, such as utilizing our unique catalytic technology, white biotechnology and designing eco-friendly processes, so that we can facilitate efficient use of water and reduction of energy and greenhouse gas. In addition, to make efficient use of natural resources, we are also actively working to explore and utilize renewable raw materials, reduce the use of limited natural raw materials by developing and switching to alternative materials, and utilize unused resources.

Our R&D will focus on the following priority initiatives in the next three years (NGP-1 period) according to "Vision 2040".

- Expand open innovation and accelerate the creation of highly unique information assets
- Develop processes while keeping the reduction of the environmental impact and energy efficiency in mind
- Develop materials and products using renewable and unused resources

INNOVATION

We Design for Taste and QOL - Creating more stable citrus flavors to deliver deliciousness

We always keep in mind that our products need to contribute in improving people's quality of life.

For the holistic well-being of the environment, physical and mental health and individual comfortable life, we provide the most effective solutions that enable delicious meals even if the products are with reduced sugar, salt, fat, or made from plant based proteins such as alternative meat and dairy products. We offer our customers to meet the great taste experience and QOL through our flavor used in customer products.

Flavor is very important factor in enjoying a refreshing citrus drink. The flavor used in drinks consists of so many aroma components especially citral is one of the key components for citrus drinks. However citral is very unstable under certain conditions and will change into a phenolic note components that are recognized as unpleasant note (off-note) in citrus drinks.

In order to create stable citrus flavor, we applied latest advanced technology to maximize the level of the stabilities on flavor. To be specific, with using the advanced receptor assay technology, we sought out antagonists that block receptor responses to off-note, and formulated them as masking agents into citrus flavors. Even though off-note is generated in citrus drinks, the agents will mask the negative off-note and keep the original fresh note of citrus drinks.

Moreover, we are leveraging our innovative processing technologies to remove unstable components from the natural flavor materials and replace them with stable aroma compounds, so our flavor will be able to remain closer to its original profile over a longer period of time.

We succeeded in creating more stable citrus flavors, which enables to extend shelf life and will contribute to reducing food loss or waste.

We are challenging to deliver deliciousness and QOL through applying these emerging knowledge and technologies.

Novel Body Malodor Control Fragrances Utilizing Olfactory Receptor Technology - Supporting personal hygiene and human health. We Won the Best Poster Award at IFSCC* Congress 2020.

(* IFSCC: The International Federation of Societies of Cosmetic Chemists is a worldwide federation dedicated to international cooperation in cosmetic science and technology)

Various unpleasant odors such as body malodors are becoming a social problem, due in part to global warming and the diversification of lifestyles. Accordingly, market needs for various effective deodorant products are rapidly increasing. For their development, techniques for reducing malodor using chemical deodorizers and fragrances with masking effects have been commonly used. In the field of malodor masking technology, the olfactory receptor (OR) assay technique has attracted great attention as the latest technology. This technology does not only allow high-throughput screening for highly effective masking agents, but also selectively reduce the odor to be suppressed by blocking the ORs that respond to specific malodors with antagonists.
We focused on suppressing both aging and axillary malodors as body malodors based on this technology. Specific OR was found to respond to both the aging and the axillary key odor components, and potential antagonists of the OR were discovered with fragrance materials.
The antagonist fragrance materials clearly suppressed odor strength of the malodor materials in the sensory evaluation. Furthermore, the effect was clearly verified in experiments using fragrances that contain antagonists.
Novel body malodor control fragrances were successfully developed utilizing the OR technology. This methodology is believed to be efficient and rapid for the development of high-performance masking fragrance compositions. We expect that the products applied the technology solve the odor problems of people whose lifestyles have changed due to global warming and improve their quality of life. We believe that this approach will lead to the realization of a sustainable society.

BIOSWITCH® of Aroma Ingredients - Development of 100% bio-based aroma ingredients which will contribute to a sustainable society.

Takasago's aroma ingredients history began in 1920, 100 years ago.
At that time, we manufactured variety of 100% bio-based aroma ingredients from natural feedstock utilizing organic synthetic technology which was growing significantly. Bio-based is Takasago's DNA.
In 1983, we have established asymmetric synthetic method and applied to industrial production for *l*-menthol.
From 1990's, our main focus was to expand its asymmetric technology to manufacture optically active aroma ingredients by CHIRAL SWITCH for Takasago's CHIRAROMA®. Now we have variety of CHIRAROMA® ingredients palette.
Recently, we have been investigating R&D Utilizing renewable/bio-based materials displaces the need for non-renewable petroleum-based chemicals under BIOSWITCH® branding.
Actually, Takasago is the one of the first company to disclose the bio-based % of our aroma ingredients in 2014.
In 2020, our *l*-menthol, Biomuguet®, Biocyclamol® are certified as BioPreferred® products from United States Department of Agriculture (USDA).
By developing BIOSWITCH® R&D, Takasago truly brings the Contributing to "sustainable" Society through Technology.



Receptor Assay Technology - Active Use of Biotechnology to Flavor and Fragrance Creation

Humans receive sensory stimuli (smell, taste, temperature etc.) via receptors expressed in cells of the sensory organs (nose, tongue, skin etc.) and transmit this information to the brain. With the olfactory, taste, and thermal receptors artificially expressed in cultured cells via genetic engineering, we can evaluate the stimuli provided by aroma ingredients objectively and efficiently.
We are applying this technology to the development of Sensates®, which provide cooling and warming effects, and new aroma ingredients. Receptor assays allow us to evaluate synthetic candidates and unpurified samples safely. It can also be used to measure samples with long-lasting/accumulating sensations in sensory evaluation efficiently.
We are also using receptor assay technology for malodor, off-note and off-taste masking studies, as mentioned above. Receptor assay technology reduces the burden on perfumers/flavorists exposed to malodors/off-notes. And masking products developed by this way are attractive to consumers and customers because they are supported by scientific evidence and they do not disguise undesired feeling with an unnecessarily strong taste and odor. Through these technologies and products, we will contribute to people's comfortable lives.

The Crystalline Sponge Method Using SC-XRD -Introduction of Advanced Technology Supporting Aroma Ingredients Development

Scents originate from natural products. The progress of flavor and fragrance sciences including a technique of isolation and purification and that of chemical structure determination of isolated compounds have been made through detail investigations of the scent of natural products for long time. And even now, structure determination work takes an important part in development of flavor and fragrance ingredients. As methods of structure determination of natural and/or synthetic organic compounds, nuclear magnetic resonance (NMR), high resolution mass spectrometry (HRMS), infrared (IR) and other techniques have been usually utilized so far. Among them, the single crystal X-ray diffraction (SC-XRD) method which allows us to observe the analyte structure directly is known to be one of the most powerful and useful methods. However, it is sole and most disadvantage that the analyte is needed to be a single crystalline in the SC-XRD method. Because the most of flavor and fragrance ingredients are liquid oil and are not obtained as single crystalline, the SC-XRD method has be rarely applied to such chemicals for structure determination without any derivatizations.

In 2013 "SC-XRD method without making single crystallization", which is so-called as "Crystalline Sponge Method" was reported on an academic journal by a research group led by Prof. Dr. Makoto Fujita of The University of Tokyo. It was a very innovative method that overcomes the weak point of the conventional SC-XRD structure analysis, "crystallization", and can observe the organic structure with a very small amount (microgram or less) of sample. In 2017, Prof. Fujita and over 10 companies including TAKASAGO launched The University of Tokyo Social Cooperation Program, "Innovative Molecular Structure Analysis Laboratory" and started joint research to implement the Crystalline Sponge method into industry. In 2019, TAKASAGO newly introduced an SC-XRD instrument and started utilization of the Crystalline Sponge method. As a result, our analytical capability was able to be expanded more than before. Currently, TAKASAGO can not only directly observe the structures of asymmetric catalysts and ligands in single crystalline using the conventional SC-XRD method, but also be utilizing the Crystalline Sponge method for structure determination of unknown odor contributors isolated from natural products and of synthetic chemicals and their by-products.

GREEN CHEMISTRY

Process Innovation - Approach to promote energy savings and waste reduction

Our R&D activities and manufacturing are oriented toward Green Chemistry, based on the well-known 12 principles. Several continuous flow processes have been utilized to realize safer operation with less energy. Challenges in continuous flow process development also benefit conventional batch processes; for example, avoiding cryogenic condition by partially utilizing flow knowledge to batch mode. This was accomplished by close work between Hiratsuka R&D and Iwata process research laboratory teams functioned as one team. Synthetic route scouting at Hiratsuka and parameter optimization at process development department are synchronized to establish best-in-class process with environmentally benign fashion.

How it worked? Some of the viewpoints from chemical engineers include safety and energy saving, which are key components of green chemistry. At the process research laboratory, reaction data are collected by using special instruments, giving thermodynamic data for both safety assessment and energy control. These data with interpretation are promptly fed back to the Hiratsuka R&D team, helping them to optimize reaction conditions. Under this circumstance, the development period of the processes is reasonably shortened by considering green chemistry. To further facilitate these activities, Takasago has just established a new infrastructure at Iwata. Installing energy saving technology in new facility design will boost greener process development from the initial stage to launch environmentally friendly process.

The above mentioned approach coupled with introduction of new catalyst and natural aroma will further enhance Takasago's capability to contribute to realizing a greener world.



Development of Special Catalysts - Efforts toward reduce environmental impacts

Our challenge on green chemistry involves development of efficient catalysis to achieve safer and environmentally benign processes. One of the recent examples is catalytic activation of alcohols toward coupling reaction, where alcohols are used as alkylating agent. Although alkylation is one of the most fundamental transformations, its conventional protocol typically relies on use of potentially genotoxic alkyl halide, which is also accompanied by stoichiometric amount of salt wastes. We solved the safety and environmental issues by developing a new iridium catalyst which gives rise to direct substitution of alcohols. (*Org. Process Res. Dev.* **2020**, *24*, 2772–2779.) The new catalyst affords a variety of ketones with extended alkyl chains, some of which are used for aroma ingredients.

Aroma Ingredients R&D by White Biotechnology

White biotechnology refers to biotechnology in the chemical industry, which uses microorganisms and enzymes to produce useful substances. Generally, the technology contributes to reducing the consumption of fossil resources and is said to have a low environmental impact. With the growing demand for natural flavors, this technology is also very important in the development of natural aroma ingredients.

Extraction and isolation from a natural source is the first choice for obtaining natural aroma ingredients. However, the content of the desired aroma component in natural raw materials is often extremely low, and a large amount of waste is generated to obtain the required amount. In order to adopt the manufacturing method friendly to natural environment as well as protecting biodiversity, we are working to produce desired aroma ingredients from abundantly available natural feedstock and renewable resources using biotechnology.

Takasago has been studying the production of aroma by fermentation for more than 50 years, and we have built a Takasago microbial library consisting of about 2,000 useful microorganisms over the years. This library is greatly utilized in Takasago's White Biotechnology. Centre Ingredient Technology Inc., which joined the Takasago Group in 2016, manufactures natural aroma ingredients using a highly efficient fermentation process and heat-saving energy aroma recovery technology, and is a major manufacturing base that uses biotechnology in Takasago.

In addition, Takasago is enhancing its technology by participating in Japanese government projects, collaborating with universities, and utilizing the latest biotechnology. Through these efforts, we aim to contribute to a bio-economy society. At the Task Force on Climate-related Financial Disclosures (TCFD) Summit 2020, it was announced that Takasago International Corporation has been authorized as a "Zero-Emission Challenge" company by the Japanese Ministry of Economy, Trade and Industry (METI).

Our R&D is devoted to environmentally friendly oriented activity based on the Sustainable Developing Goals (SDGs) and Green Chemistry that are included in our current medium-term management plan "One-T". We recently celebrated our 100 year anniversary milestone. We will accelerate R&D through innovations to achieve the realization of a decarbonized society that contributes to a circular economy and sustainable bio-economy by introducing the slogan "Symbiosis with Nature".

QUALITY ASSURANCE

Takasago is committed as a valuable partner with our customers to meet all their product quality and safety requirements.

Quality Assurance Organization

The mission of the Corporate Quality Assurance Headquarters (QAHQ) is to ensure that Takasago supplies safe, wholesome and reliable fragrances, flavors, aroma ingredients, and fine chemicals that comply with safety and regulatory requirements of governing bodies, customers and trade associations. In addition, Takasago QAHQ strives to ensure that Takasago consistently delivers high-quality products and services to satisfy our customers' needs. QAHQ is an independent organization within Takasago and consists of quality assurance departments around the world that operate under "One Takasago Quality Assurance Concept". QAHQ also includes four centers: Global Flavor Quality Control (QC) center, Global Fragrance QC center, Global Flavor and Fragrance safety and regulatory affairs centers which operate globally and closely with local affiliates. These four centers are responsible for the development and implementation of global policies and guidelines under a globally standardized operation process. Thus, we are able to provide the highest quality products to meet or exceed all of our customers' expectations worldwide.

QC Policy, SOP and Guideline

Takasago's Corporate QC Policy was developed based on our Corporate Philosophy, Basic Management Policy and Charter of Corporate Behavior. The policies allow us to have globally consistent quality mindset and systems that not only meet our customer's expectations, but also ensures appropriate and timely improvements. In line with the Corporate QC Policy, global QC Standard Operating Procedures (SOPs) and guidelines were established to standardize detailed QC procedures across all business units and affiliates. These guidelines are also incorporated in the local quality management procedures and practices to ensure global alignment of QC management.

Global Meetings

Global meetings are held on a regular basis led by QAHQ. These meetings are designed to update all affiliates on the latest regulations, global policies and guidelines and to discuss any relevant issues or concerns on a timely basis. This activity ensures that Takasago provides the same level of quality and service for our customers globally. QC Centers, for instance, coordinates at a minimum quarterly teleconferences and semi-annual meetings with all key QC leadership from all facilities to exchange information, to leverage and share best practices, to set and measure KPIs and to keep the teams aligned and informed.

Training Programs

To enhance and maintain the highest level of quality and service, all Takasago Flavor and Fragrance QC teams participate in global training sessions provided by the Global QC Centers on an annual basis. The Global QC Centers under the Takasago HQ as technical supporting groups build globally aligned QC systems and train local QC teams of all Takasago affiliates. The technical supervisors of the Global QC Centers coordinate these training at predetermined intervals. This globally coordinated and operated system is a key to ensuring that the same high quality service is being offered and that our products consistently meet or exceed all of our customer's requirements. Our flavor affiliates produce flavors distinct to their region. Recent flavor QC trainings conducted by the flavor technical supervisors included training on organoleptic, gas chromatography methodologies, maintenance procedure, technical laboratory best practices and quality systems designed to provide the same high-quality services to all customers around the world. These trainings are also designed to respond to local needs to improve and enhance specific analytical areas. Our proactive activities will help to align and streamline QC best practices, and in turn encourage to identify and improve the efficiency of procedures, resulting in less waste and consistency across all our affiliates. Additionally, we conduct proficiency testing globally, based on Takasago's accreditation of the ISO/IEC17025 schemes. This helps to confirm and standardize QC testing skills and maintain them at the highest level as well as motivating the QC staff members. As for Takasago fragrance affiliates, representatives of the QC teams attended olfactive intensive training in the Fragrance QC Center. The training consists of smelling natural raw ingredients and finished products to understand their complex nature and characteristics. The training also included discussions on sharing the level expected for the quality of raw material and finished product. After the training, attendees who were validated as Technical Referent support and teach daily olfactive training at their site and serve as sensory contact for the key site Global Fragrance QC center. All training results are shared with global and local management to ensure that the lessons and skills learned are effectively reflected and utilized as part of all local QC teams' daily activities as well as continuous improvement plans. This is a crucial part of Takasago's efforts to continuously supply the highest quality products to our customers anywhere in the world. These global trainings contribute not only to standardize the quality of Takasago products, but also serve to improve teamwork between all the QC teams as "One TAKASAGO."





Compliance

It is Takasago's global policy to comply with the latest laws and regulations. Takasago fully supports the objective of REACH in Europe to improve the safe and sustainable use of chemicals and the quality of life of all citizens in Europe as well as the environment. Few years ago was a key milestone for REACH. Takasago took an active role in its implementation and registered all the relevant substances by the deadline. REACH is a continuous process and we are ready to work with ECHA and the competent authorities to provide any required additional data that are needed to assess the safe and sustainable use of the chemicals we registered. In addition, Takasago continues to monitor all the other chemical control regulations around the world with a special focus on K-REACH and Turkey REACH in 2018 and beyond. Global Safety and Regulatory Affairs Centers continuously monitor ever changing global regulations, customer requirements, standards and guidelines from trade organizations such as FEMA, IFRA, RIFM, IOFI, ACI, PCPC and many other organizations. Information is shared promptly with each affiliate around the world, guaranteeing that Takasago provides safe and reliable products all over the world in a consistent manner.

Certifications

Takasago promotes the acquisition of management system certifications such as ISO9001, FSSC22000/ ISO22000, GFSI Scheme and other internationally recognized quality and safety standards that are appropriate for products we manufacture. A new flavor and fragrance facility was built in Indonesia and obtained ISO9001 certification and FSSC22000 food safety specifically for flavor facility in March 2020. Introducing such international standard system is one of the key elements for globalization rather than a part of localized activity in all Takasago. We are confident that these internal standards drive us to promote better quality service as well as boosting customer satisfaction. To keep moving forward, Takasago is in the process of implementing a program designed to integrate systems from the viewpoint of hazard analysis in FSSC22000.

Kosher, Halal

Takasago respects the local culture and customs, and are actively creating products to reflect our values. There are local cultures and customs which requires strict adherence to religious precepts, and we are working to expand products that comply with such precepts so they can be consumed with peace of mind. Well-known religious precepts are Jewish dietary regulations of kosher and Islamic regulations of halal. Both have the meaning of "forgiveness" and are strictly adhered to with the fundamental meaning of each religious person's life with peace of mind based on the religious discipline. In Takasago, our Kosher products are primarily supplied from factories in the United States. For Halal products, they are primarily supplied from our factories in Singapore and Malaysia. From our factories in Japan, we supply products and manufacture intermediate products to business establishments and customers in the United States and Southeast Asia, and have traditionally supplied synthetic flavors and food flavors compatible with kosher requirements. In addition, our flagship product, *l*-Menthol, is also halal compliant. Moving forward, Takasago will continue to increase the number of products that are compatible with kosher and halal requirements, and will further enhance the manufacture and supply of products that are friendly to the global environment and that are compatible with local cultures and customs.

On-Site Audit

To further strengthen the group's quality management, global QC centers routinely conduct on-site audits of all manufacturing sites to ensure their systems are consistently improving as well as meeting or exceeding all established requirements and standards, and that they are aligned with Takasago's business plan, objectives and quality control policy.

Customer Health and Safety

Takasago develops and manufactures a wide range of products across four business pillars: Fragrances, Flavors, Aroma Ingredients, and Fine Chemicals.

As an integral part of the creation and production processes, Takasago continually evaluates all products for their health and safety compliance. This approach is applied from the research and development stage up to the manufacturing and delivery stage of our products. During the reporting periods, Takasago has not identified any non-compliance with regulations or voluntary codes.

Marketing and Labeling

All of Takasago's sales are made through business-to business channels. None of the product is sold directly to end-consumers. Our fragrances and flavors are sold to companies manufacturing consumer goods, who incorporate them into their products that are sold to the general public. Our Aroma Ingredients are sold to other flavor and fragrance companies for use in the creation and manufacture of their own compounds. Takasago fine chemicals are generally used as intermediates for the manufacturing of pharmaceuticals and chemicals. When supplying our products to our customers, Takasago provides product information as required by regulations and/or the customer for all the products we manufacture. This typically includes one or more of the following:

Sourcing of the raw materials used in the manufacture of our products

- Composition of our products (dependent on disclosures)
- Safety data sheets (which highlight components that may have a health or environmental impact)
- Information on the safe use of our products

During the reporting period, Takasago has not identified any incident of non-compliance concerning product information or labeling.

Web Conference

Takasago has not wasted any time in introducing new ways of working in this era of coexisting with the novel coronavirus. Even before the pandemic, Takasago has utilized web conferences, and has further incorporated it into our daily operations. As a result. the digitization of our business has dramatically progressed worldwide at Takasago in response to the global crisis. Takasago's agile adaptation of web conferences on a global scale have demonstrated the flexibility and adaptiveness, so that our business could continue to operate and function at maximum capacity, while also addressing two major concerns of cost (cost and time) and safety of employees at the same time. As internal meetings shifted to web conferences, meetings became more objective-oriented and efficient.
The benefits of face-to-face meetings to facilitate communication were not lost by transitioning to web comference system but use of cameras during conferences is encouraged. In this manner, participants are able to benefit from the ease of setting up meetings with web comference system as well as being able to see each other. In addition, with web comference system, shorter meetings could be held more frequently to further foster relationship between participants. It is not to say that face-to-face meetings are no longer needed, but the successful adaptation of the web comference system enables Takasago to be more flexible and agile with this new option. As a result, web comference system has become integral part of the Takasago business style, a major paradigm shift in Takasago's 100-year history.

SHAREHOLDERS AND INVESTORS



We strive to offer an appropriate return of profits to shareholders by realizing sustainable growth through sound and transparent corporate management. At the same time, we work hard to further strengthen communication with shareholders and investors both in and outside Japan. Takasago discloses corporate information in a timely and adequate manner to shareholders and investors. As part of our efforts to improve our IR activities, we send Newsletter to Shareholders twice a year while also disclosing related documents and press releases on the IR site on our website to expand the investor community and enable shareholders and investors to deepen their understanding about our business activities.
In addition, we hold financial result briefings twice a year (May and November), and our president and officers in charge directly communicate with the investors and analysts. Due to the COVID-19 pandemic, meetings were held as web conferences in 2020. The details of the briefings are also disclosed on our IR site. Furthermore, Investor and Public Relations Department takes charge in handling reporting related to IR and visits investors.
When it comes to shareholder returns, Takasago embraces a shareholder-favoring business operation and aims to attain the corporate base which enables a higher level of profit and generates continuous and stable dividends taking into account the business performance at the same time.



SOCIETY

Community



As stated in the Takasago Group Charter of Corporate Behavior and Code of Conduct, Takasago group respects the global environment and local communities and considers relationship with local communities is fundamental. We have been taking various approaches such as holding cultural events, offering educational programs, offering donations and supporting community activities for a long time. We will continue these activities and strive to be a partner trusted by local communities.

Europe



Spain

We sponsored the World Women Day campaign through Adecco Foundation. We will continue to support gender equality activities.

ISIPCA
From senses to expertise
– PARIS –

France

Takasago Europe Perfumery Laboratory S.A.R.L. is an important player in the training of future creative teams in the world of perfumery. We train students from the great school of ISIPCA and other schools every year. In 2020, although during the pandemic, we continued to train students under appropriate precautions.

Asia Pacific

Singapore

Being a small city state and island, Singapore tourism industry was very badly affected by the COIVD-19 pandemic. Takasago International Singapore (TIS) Wellness at Work Committee came up with an idea of offering our staff a voucher package. Staff can organize their own family activities such as staycation, excursion, etc. and receive a limited budget from the Company. The program encourages staff to “rediscover Singapore” which many of us realize that there are many places of interest which they either have not visited since many years ago or have not been discovered. The program also helps to boost the local tourism industry.



Japan



Hiratsuka Factory

Hiratsuka Factory participated in a cleaning event held by the local environmental organization and donated 4,000 tulip bulbs.
Through such activity, we will continue to build relationship with the local community.



Takasago Chemical Kakegawa Factory

We conducted a cleaning activity at a river located near our factory as well as collecting trash around the factory. We believe this will help conserve biodiversity.



Mihara Factory

We donated 2,500 masks and oral rehydration solutions to a hospital near our factory. Social activities have been limited due to the pandemic, but we seek ways to promote the co-existence and co-prosperity with local communities.

Thailand

Takasago Import and Export (Thailand) Ltd. donated Covid-19 survival bags for The Mirror Foundation

Americas



USA

Takasago International Corp. (U.S.A.) is a proud partner of the National Young Farmers Coalition, a national advocacy network of young farmers fighting for the future of agriculture. They encourage farming practices that sustain healthy soil, water, and air, and that will protect the climate for the next generation of farmers and consumers.



Brazil

Takasago Brazil carried out a campaign to collect food and hygiene products among its employees. As a result of this action, they collected more than 500kg in products that were donated this month to the “Santa Dulce dos Pobres” .
During the donation period, all employees, regardless of their position, participated in the donation. Each one donated what was possible, they could participate the delivery to the NGO and it was a very nice gesture to see the whole company united for the common good. The Pandemic showed us that there are many more vulnerable people in Brazil and that we are very privileged to be employed and to be able to help those most in need. Solidarity is the fuel to change the world and it is in this spirit of cooperation that we are able to do our part for a better place.

“Forms for Fragrance –Treasures from the Takasago Collection”

In commemorating the 100th anniversary of our corporate foundation, Takasago International Corporation held an exhibition in Mie and Tokyo. The title was “Forms for Fragrance: Treasures from the Takasago Collection”. The exhibition was designed to showcase the history and the culture of fragrances from ancient through modern times. The displays ranged from aromatic oil bottles used in the Orient, Greece and other regions well before the birth of Christ, intricate lacquer artwork from the traditional Japanese incense-burning ceremony, fragrant wood and 17th century ceramicware esteemed by European nobilities, all the way through to 20th century perfume bottles.

The first exhibition was held in September 2020 in Mie Prefecture. We also held a lecture called “World of Perfume - A Time to Enjoy Fragrance” as part of the event. Those who wished to attend the lecture had to apply in advance. The number of applicants was ten times greater than the seating capacity of only 20.



Ms. Sachiko Okajima from the FR Laboratory delivered the lecture.

The second exhibition was held from January to March, 2021 at the Panasonic Shiodome Museum of Art in Tokyo. The superb onsite displays and lightings helped visitors to leisurely savor the stimulating examples of elegant formative art crafted to hold enchanting fragrances. The exhibition highlights and the charms of the artwork were also showcased online. For each separate section, informative lecture were offered by event supervisor Professor Akira Tomita (Tokyo Station Gallery Director), curator Ms. Mariko Miyauchi, and Mr. Takashi Suzuki from Takasago IR/Public Relations Office. This exhibition was featured on “Sunday Museum Art Scene” on NHK E TV. In that program, a selection of works from the collection and a glimpse of the history of fragrance were introduced with beautiful images from NHK archives.

As a flavor and fragrance company, we respect the culture of fragrance, and will continue to deliver related information as well as organize events.





External Partnerships and Initiatives

Takasago engages in several organizations, supports initiatives and responds to sustainable related platforms including below.

- American Chemical Society
- CDP
- EcoVadis
- European Flavour Association (Executive Board)
- Flavor and Extract Manufacturers Association (Board of Governors)
- International Fragrance Association (Board of Directors)
- International Organization of the Flavor Industry (Board of Directors)
- Japan Business Federation
- Japan Chemical Industry Association
- Japan Climate Initiative
- Japan Flavor & Fragrance Materials Association
- Japan Food Additives Association
- Japan Sustainable Palm Oil Network (JaSPON)
- Mint Industry Research Council
- Monell Chemical Senses Center
- Natural Renewable Stewardship Circle
- Rainforest Alliance
- Research Institute for Fragrance Materials (Board of Directors)
- Roundtable on Sustainable Palm Oil
- Science Based Targets Initiative (SBTi)
- Sedex
- Syndicat National des Fabricants de Produits Aromatiques
- The Global Alliance for Sustainable Supply Chain
- UN Global Compact

About This Report

Issue date
31st August, 2021

Scope and Boundaries
The scope of this report is the Takasago group. This includes consolidated subsidiaries as well as non-consolidated subsidiaries defined by the equity-method.

Period Covered
Fiscal 2020. In this report, the term of “Fiscal” is as follows;
From April 1, 2020 to March 31, 2021 for Japan
From January 1, 2020 to December 31, 2020 for the others

External Assurance
There is no external assurance for this report.

Guideline referenced
GRI Standard (core option)

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