

Contributing to MSV with a sustainability strategy that has stronger links to business activities

Sustainability strategy linked to materiality [▶ For more information about "Materiality" see page 41.](#)

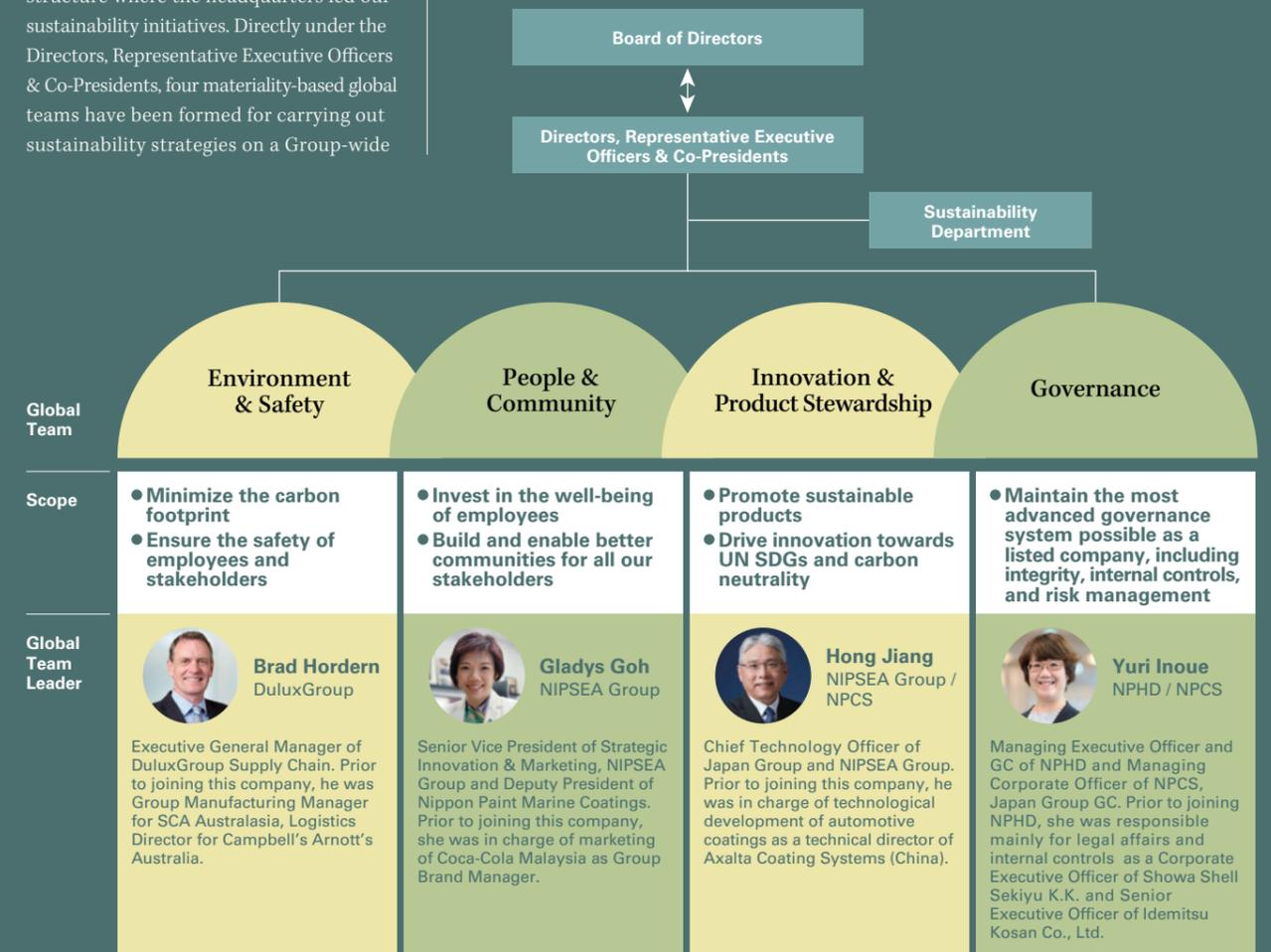
	Materiality (Related SDGs)	ESG agenda	ESG action examples	Contribution to MSV
Environment & Safety	Climate change 	<ul style="list-style-type: none"> Reduction of greenhouse gas (GHG) emissions Identification of risks and opportunities 	<ul style="list-style-type: none"> CO₂ reduction (Scope 1&2) Calculation of Scope 3 emissions Disclosure based on TCFD Utilization of renewable energy 	<ul style="list-style-type: none"> Expansion of revenue/earnings from products with a low carbon footprint Sustained growth through investment in human capital Reinforce branding through investment in communities Risk reduction through safety education and use of technology Revenue growth through acceleration of innovation (Example) Provision of education programs by job level Conducting the international AYDA Awards competition for architectural and interior design students Launch of the anti-viral and anti-bacterial brand PROTECTON Launch of FASTAR next-generation antifouling paint for ship hulls
	Resources and environment 	<ul style="list-style-type: none"> Waste/water resource consumption/pollution management 	<ul style="list-style-type: none"> Establishment of global policy statements for waste materials and water Establishment of KPIs for each partner company based on policy 	
	Safe people and operations 	<ul style="list-style-type: none"> Disaster (fire accident) prevention and process safety Fatality and injury prevention 	<ul style="list-style-type: none"> Establishment of a global policy statement for safety for our people and operations Establishment of KPIs for each partner company based on the global policy 	
People & Community	Diversity & Inclusion 	<ul style="list-style-type: none"> Increase the percentage of women in management posts Improvement of employee engagement 	<ul style="list-style-type: none"> Gender diversification for directors/managers Visualization of human capital Implementation of human rights risk assessment 	
	Growth with communities 	<ul style="list-style-type: none"> Strategic implementation of social contribution activities 	<ul style="list-style-type: none"> Establishment of the NIPPON PAINT Group Global Outreach Program to enhance social contribution activities Establishment of 3E (Education/Empowerment/Engagement) action policy through business activities as a priority area 	
Innovation & Product Stewardship	Innovation for a sustainable future 	<ul style="list-style-type: none"> Promotion of cross-industrial collaboration Development of products that benefit society Stricter management of chemical substances 	<ul style="list-style-type: none"> Establishment of the definition of sustainable products and data collection Stricter management of chemical substances and development of alternative products for harmful substances Development of products that benefit society and are environmental friendly Promotion of open innovation 	

Autonomous sustainability structure

Based on Asset Assembler model, we updated the sustainability structure in 2022 by shifting to an autonomous structure with a stronger link with business operations, away from the structure where the headquarters led our sustainability initiatives. Directly under the Directors, Representative Executive Officers & Co-Presidents, four materiality-based global teams have been formed for carrying out sustainability strategies on a Group-wide

basis. By having team leaders directly report progress and proposals to the Co-Presidents, and the Co-Presidents, who further submit

reports to the Board of Directors whenever necessary, sustainability activities are overseen by the Board of Directors.



ESG Statement

At Nippon Paint Holdings Group we aim to conduct our business activities to support and enable sustainable development everywhere we operate. We aim to include the three elements – economic, social and environmental– in a balanced and integrated manner. Creating paints and coatings to add color, comfort, and safety to people everywhere has been our mission since the company was founded. Finding solutions to global sustainability challenges is our responsibility to future generations and is a driving force for our continued growth and success. To achieve this, we will:

- Pursue technologies across the value chain to create sustainability benefits through innovative products and services, and new business opportunities.
- Engage and work with our stakeholders to meet their expectations and together deliver on our shared sustainability commitments, responsibilities, and challenges.
- Establish effective governance frameworks to ensure the transparency, objectivity, and fairness of the management of our company and earn society's trust everywhere we operate.
- Respect, support, and enable our diverse employees and company associates to achieve their full potential and create innovative, sustainable value for all.
- Support the 2030 Agenda for Sustainable Development Goals (SDGs) through delivery of sustainability improvement plans that create new business opportunities and maximize shareholder value (MSV*).

* MSV is defined as maximizing shareholder value that remains after fulfilling our obligations to customers, suppliers, employees, and society.

Activities to determine KPIs

In addition to the risks and opportunities identified for each materiality, our Group formulates sustainability policies and strategies based on the characteristics of every region and market in which it operates as well as on the demands of stakeholders. KPIs are also selected as necessary in line with policies and strategies. Progress toward reaching the KPI targets is monitored.

With regard to climate change initiatives, KPIs are reviewed and established for each country and region to achieve the medium-to-long-term net zero target. At the same time, best practices are shared with partner companies in Japan and overseas to formulate and implement action plans.

Environment & Safety KPI

	CO ₂ emission reduction (long-term target)	CO ₂ emission reduction (interim target)	Reduction of waste	Reduction of accidents at factories
Japan	Net zero 2050	37% reduction by 2030 (compared to the 2019 level)	Waste discharge less than base year level (base years vary from partner companies)	Zero serious incidents
Asia	Net zero 2060	5% reduction every year through 2030	5% hazardous waste reduction (per ton) every year	<ul style="list-style-type: none"> Zero fire/smoke incidents in 2021-2023 Zero occupational illness in 2022
Oceania	Net zero 2050	<ul style="list-style-type: none"> 50% reduction by 2030 (compared to the 2020 level) 50% renewable electricity by 2030 	50% landfill waste reduction (per ton) by 2030 (compared to the 2020 level)	<ul style="list-style-type: none"> Serious near misses < the FY2021 level Serious injuries < the FY2021 level
Americas (Dunn-Edwards)	Net zero 2050	Under consideration for setting targets	Under consideration for setting targets	To be identified once lead indicators identified

Environment & Safety

Strengthening climate action through our global team



Brad Hordern
DuluxGroup

Addressing Nippon Paint Group's most material sustainability impacts is a key imperative and priority for the organization to ensure Maximization of Shareholder Value (MSV). Within the sustainability aspects of environment and safety, the identified priority material impacts are climate change, resources and environment (especially waste and water), and safe people and operations.

During 2021 each Partner Company Group (PCG: Nippon Paint Group companies grouped by region or business) has continued to make progress on their individual ambition, targets, and priorities within each of these impact areas. This report includes a small number of newly consolidated Nippon Paint Group metrics for these impacts and while it is pleasing to observe that there was improvement on prior years for most of them, safety performance provided a sobering reminder of the need for improved management of significant risks. Comparing 2021 performance with the prior year, this progress includes:

«Global metrics»

- Climate Change: 8% reduction in Scope 1 and 2 greenhouse gas emissions and 14% reduction in energy consumption
- Resources and Environment: 6% increase in waste generation, 4% increase in waste recovered (recycled, reused), and 4% reduction in water withdrawal
- Safe People and Operations: Three fatalities (versus none in 2020) and 10% reduction in lost workday case injuries

While many of these results are encouraging and provide a strong foundation for further improvement progress in the coming year, the occurrence of three fatalities (one employee, two contractors) in NIPSEA Group reinforces the increased importance of effectively managing safety to protect everyone who works for us. Our sincere thoughts are with their families and work colleagues. Further details and highlights of individual Partner Company Group progress in these impact areas are highlighted in the following pages.

Our priority in 2022 is to work more closely together via a newly established working group comprising senior environment and safety leaders from each PCG. The focus will be on identifying the top risks, opportunities, and improvement priorities across the broader Nippon Paint Group and facilitating sharing of best practice, benchmarking, learning, and action plan implementation to drive meaningful long term improvement in the identified material impacts. This will include determining where group-wide approaches or standards may be appropriate, together with development of additional performance metrics to enhance our understanding of progress and improve disclosure to the organization's stakeholders.

Climate change



Climate change is beginning to have a serious impact on our lives every year. To mitigate the impact of climate change, we will work to reduce greenhouse gas (GHG) emissions and minimize business risks caused by climate change.

Climate change is causing serious impacts to our lives in recent years. Recognizing that climate change is a critical social issue that must be addressed sincerely, Nippon Paint Group has established a global policy on climate change and energy in order for the entire Group to mitigate and adapt to its impacts. Our global policy states that we proactively reduce the intensity of energy consumption and increase renewable energy to meet global Net Zero carbon requirements.

Pursuant to this global policy, the Group is now working to rein in its greenhouse gas (GHG) emissions and minimize business risks caused by the progression of climate change. The reduction of energy used in the paint manufacturing process and proactive use of renewable energy will not only help to combat climate change by controlling GHG emissions, but also make a difference in the issue of energy resource depletion.

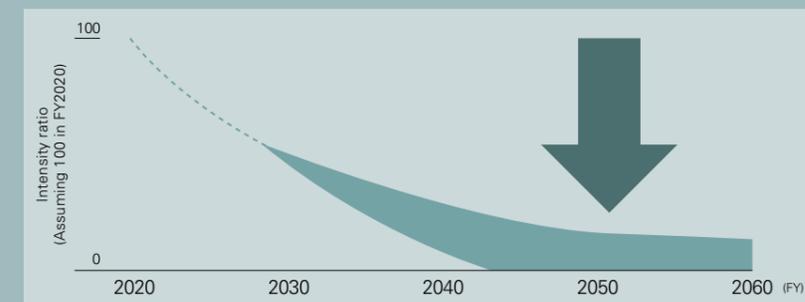
Report based on the TCFD recommendations

In September 2021, Nippon Paint Group expressed its support for the final report of the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. With the goal of achieving MSV, we are working to enhance climate change-related measures and information disclosure.

Governance

Nippon Paint Group has shifted to an autonomous management structure based on Asset Assembler model with a new sustainability structure launched in 2022 designed to enhance sustainability initiatives with business activities, rather than initiatives led by the headquarters. We have set up four Global Teams based on Materiality including climate change directly under the Directors, Representative Executive Officers & Co-Presidents, in order to implement sustainability strategy aligned across the Group globally. The Global Teams will directly report to the Co-Presidents their progress and make suggestions on actions related to climate change. Then the Co-Presidents will report the information obtained from the Global Teams to the Board of Directors as necessary. In this manner, the Board of Directors oversees the Group's sustainability actions.

Nippon Paint Group's CO₂ emissions reduction target (Scope 1 and 2)



Strategy

We have identified climate-related risks and opportunities that are critical to the Group's strategies and are working to assess their financial impacts.

In light of the increasing interest in climate change countermeasures in recent years, there are concerns that global warming taxes will be hiked, resulting in higher energy costs and additional costs related to capital investment and technology development for decarbonization.

In addition, in the event of the greater severity and frequency of floods and other events caused by extreme weather, there is a risk that sales could decline due to damages to our plants that result in the suspension of production.

In the meantime, we are considering taking actions that lead directly to businesses, such as entering new markets by developing products that contribute to reducing CO₂ emissions using the Group's technologies

We are incorporating our analysis of these climate-related risks and opportunities in formulating the medium- and long-term growth strategy of the Group.

Although our energy intensity is not significant compared to many other manufacturing businesses, our group scale means we still collectively consume a considerable amount of energy and therefore seek to actively reduce our energy consumption. This includes cooling water required in the process of dispersing and stabilizing pigments and other raw materials. We have identified carbon taxes as the greatest risk that could directly affect our operations and anticipate cost increases due to higher carbon prices. Therefore, we have started considering the sourcing of renewable energy as a workaround. Carbon taxes have already been introduced in some countries and it is expected that the tax rates will be hiked gradually to achieve the net zero targets of each country.

In terms of climate-related scenarios, the Group has conducted reviews on the 2-degree and 4-degree scenarios. According to a report by the International Energy Agency (IEA), we will continue to incur certain costs both in a scenario where we will shift to a decarbonization process worldwide (the 2-degree scenario) and a scenario where the current policies for decarbonization go unchanged globally (the 4-degree scenario), unless we make progress with lowering our CO₂ emissions assuming our CO₂ emissions remain unchanged from

2020 levels. There are concerns that carbon prices will have an even greater impact on operating costs, given the potential increase in emissions associated with the Group's future business expansion.

Global warming is of interest to society as a whole, including the Group's major customers. While it entails physical and regulatory risks, global warming can be linked to opportunities to expand our business by addressing its impacts strategically. Specifically, such opportunities include expanding sales of products that improve ship fuel efficiency, help reduce CO₂ emissions at automobile manufacturing plants, and mitigate the rise of road surface temperature.

For instance, ATTSU-9 ROAD*, which produces a highly reflective asphalt pavement, is expected to contribute to reducing CO₂ emissions by counteracting the heat island effect. We have estimated the financial impacts of road pavement coatings, including degree of contribution to earnings, based on the market growth forecast for these coatings.

Risk management

The Global Team that works directly under the Co-Presidents identifies and assesses risks, including their importance, based on the criteria of factors directly related to our operations (the amount of raw materials used, energy, water, and CO₂ in the manufacturing processes) and external factors (users' application-based needs and product feature needs).

Once identified and assessed, the Global Team proposes risks and opportunities and their action plans to the Co-Presidents. The Co-Presidents set targets and propose the targets to the Board of Directors. These targets, after approval by the Board of Directors, are set as group-level targets. Group partner companies formulate business plans in line with these group-level targets and action plans.

The Audit Committee has identified the effectiveness of responses to ESG and SDGs initiatives as an issue to be addressed based on the effectiveness evaluation, and is deliberating on this agenda from the perspective of MSV.

Metrics and targets

We will accelerate our response to climate change by conducting activities to reduce CO₂ emissions based on the net zero targets and the carbon neutral policies of the government of each country and contributing to net zero in our operating regions around the world. As concrete measures, we will focus on reducing emissions intensity in emerging countries, where markets are expanding, by introducing renewable energy and replacing equipment with energy-saving and electrified models.

By taking these actions, our Japan Group, DuluxGroup in Australia, and Dunn-Edwards in the U.S. will aim to achieve Net Zero by 2050 and NIPSEA Group by 2060.

We currently calculate Scope 3 emissions from our operations in Japan and DuluxGroup in Australia, and have taken steps to expand the coverage to our global operations.

Interim targets and actions for net zero emissions

NIPSEA Group

- Formulated NIPSEA Green Plan 1.0, the movement to advance the agenda on sustainable development –Profit, People, Environment
- Aim to reduce energy intensity by 8% by 2025 against a 2021 baseline, with a yearly reduction target of 2%. Also aim to reduce emissions intensity (Scope 1 and 2) by 15% by 2025, with a yearly reduction target of 4%
- Use a combination of renewable (hydro turbines and solar panels) and non-renewable (petrol and diesel) sources of electric energy to power both operations-related and non-production related activities
- Introduced battery-operated forklifts

DuluxGroup

- Agreed DuluxGroup targets of 50% renewable energy consumption and 50% CO₂ emissions reduction by 2030, plus net zero carbon by 2050
- Commenced development of detailed action plans to achieve the 2030 targets in the first half of 2022
- Commenced pilot program of specialist energy efficiency studies at two factories to identify reduction opportunities
- Achieved a 5% reduction in energy consumption intensity in 2021
- Reduced the CO₂ emissions intensity (Scope 1 and 2) by 5% in 2021, achieving the minimum value

Case studies

Introducing hybrid fleet at DuluxGroup

DuluxGroup has more than 970 fleet vehicles primarily used by our customer facing employees across Australia and New Zealand, and collectively they account for 34% of our total energy consumption. Adoption of hybrid vehicles is one opportunity available now on the transition pathway to our 2030 and 2050 targets, until electric vehicles and the required infrastructure are readily available. The selected vehicles are estimated to save around 700 liters of petrol and 1.6 tonnes of CO₂ per 100,000km travelled, which will make a substantive difference across our large fleet. The transition commenced in 2021 and to date 8% of our Australian fleet and 68% of our New Zealand fleet are hybrid vehicles, which equates to 18% of the total fleet.



Hybrid fleet

Dunn-Edwards

- Adopted software in 1H 2022 to track company-wide Scope 1, 2 and 3 emissions in order to achieve true metrics for net zero carbon (Scope 1 and 2) by 2050
- Discussed operating new corporate office on generated renewable energy
- Committed to reducing energy usage through efficient lighting and EnergyStar™ equipment
- Committed to providing electric vehicle charging resources
- Used renewable energy supplied in each state (at least 34% of energy supplied in California was renewable energy)

Japan Group

- Agreed Japan targets of 37% CO₂ emissions reduction (Scope 1 and 2) by 2030 from 2019 levels, plus net zero carbon from our domestic operations by 2050
- Purchase renewable energy in Japan. 100% renewable energy at Osaka headquarters in FY2021, about 7% of electricity used in Japan in FY2022. Afterwards, increase gradually
- Consider energy-saving and use of renewable energy to reduce the impact of carbon taxes

- Implement energy saving (e.g., from heavy oil to LNG to start operation at Okayama Plant in January 2022)

Global CO₂ emissions and energy consumption from operations

Total energy consumption (gigajoules per tonne of production) across the Group decreased 14% during 2021, despite a significant increase in production associated with inclusion of recent acquisitions and business sales growth. This improvement was primarily driven by a 2% reduction in NIPSEA Group, who accounts for 57% of the Group consumption, and a 7% reduction in DuluxGroup, who accounts for 8% of the Group consumption. Consumption in other areas of the business was steady. Consistent with the decrease in energy consumption, Scope 1 and 2 greenhouse gas emissions (kilograms per tonne of production) across the Group decreased 8% during 2021. This excludes Dunn-Edwards where emissions data is not currently available; however this is not significant as they account for 1% of the Group energy consumption. All partner company groups have now established Scope 1 and 2 emissions reduction targets which will drive further improvement in coming years. For Scope 3 greenhouse gas emissions, DuluxGroup and the Japan Group continue to determine their annual footprint, while other partner company groups plan to do this in the near future. This will enable consolidated group reporting of these emissions in future, together with an improved understanding of risks, opportunities, and reduction plans across the partner company groups

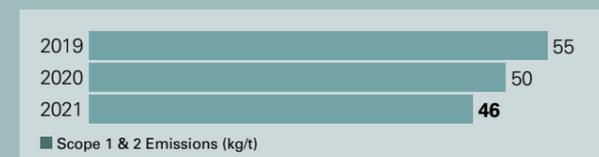
CO₂ emissions and energy consumption from operations in Japan (results)

We continued with production adjustment and working from home arrangements due to the pandemic in FY2021.

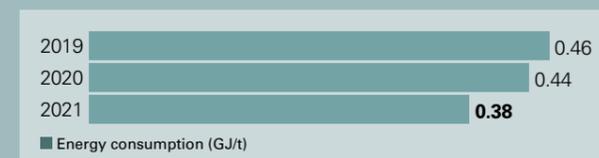
Compared to the previous year, energy consumption increased slightly following the slight recovery of production volume but CO₂ emissions remained roughly unchanged.

Scope 3 is becoming more important in understanding business risks and opportunities, so we are refining the calculation method. Processing of sold products (Category 10) and Use of sold products (Category 11) are outside the scope of calculation in accordance with WBCSD's Chemical Sector Guidance.

Greenhouse gas emissions - scope 1 & 2 (Global)

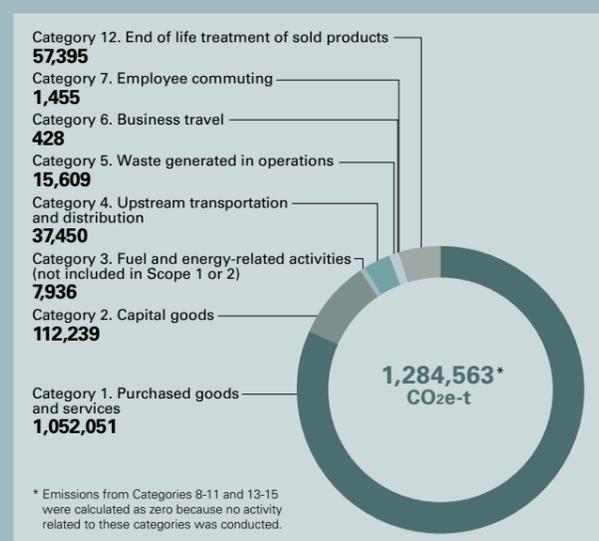


Energy consumption (Global)



* Coverage of Global data: NIPSEA Group, DuluxGroup, Japan Group, and Dunn-Edwards. Scope 1 and 2 (Global) exclude Dunn-Edwards. The same applies to pages 83, 84 and 86.

Scope 3 category 1-12 (Japan Group)



* Emissions from Categories 8-11 and 13-15 were calculated as zero because no activity related to these categories was conducted.

Resources and environment



Effective use of resources such as water, energy, and raw materials, and prevention of environmental pollution are important matters for sustainable business. We will advance these efforts throughout life cycle of products.

The Group has identified "Resources and Environment" as one of its materiality items. In the paint manufacturing process, we not only comply with all relevant laws and regulations, but also take a proactive approach to preventing pollution.

In 2021, we established (1) a policy on waste and effective use of resources, (2) a global policy for the prevention of environmental pollution, and (3) a global policy for the effective use of water with the Global Working Team (currently, the Global Team) under the then ESG Committee.

Global policy on waste and effective use of resources

We proactively reduce waste through a "Reduce, Reuse, Recycle" philosophy and comply with laws and regulations in each country/area including managing hazardous waste responsibly.

Actions to reduce waste

We believe reducing waste and effectively using resources are important for sustainable business operations, and are taking steps to properly manage waste and effectively use resources.

For instance, NIPSEA Group accounts for a significant proportion of the Group's

total waste generated. To manage this effectively, NIPSEA Group has introduced an information management system that enables them to carry out environmental performance assessments and pollutant emission index forecasting to identify areas for improvement. This system also keeps them up to date with annual pollutant discharge statistics, coupled with an automated function to calculate environmental taxes, in accordance with the latest guidelines and information released by the Chinese government.

Dunn-Edwards participates in the PaintCare program which receives and recycles left over paint. This program is operated in the PaintCare states including California and Oregon based on fees collected based on paint container size designated by each PaintCare state.

Global waste generation (results)

Total waste generation (kilograms per tonne of production) across the Group increased 6% during 2021, which was primarily driven by improved data capture in NIPSEA Group's China businesses, together with a 3% generation increase in the Japan Group. NIPSEA Group and the Japan Group account for 80% of waste generation across the Group, while performance across the other partner company groups was steady. Consistent with this generation increase,

total waste recovered for recycling and reuse (kilograms per tonne of production) decreased 4%, while DuluxGroup improved waste recovery by 5%.

Case studies

Recovery of waste solvent at DuluxGroup

The DuluxGroup Rocklea manufacturing site historically created more than 500 kiloliters of waste solvent each year as a by-product of process equipment cleaning, before being disposed of via an external waste processing company for incineration. A new solvent recovery plant successfully constructed and commissioned at the site now enables 80% of the waste solvent to be reused, with the purchase of new cleaning solvent reduced by 86%.

Waste solvent from the factory process cleaning is transferred to the recovery plant's distillation vessel which separates the solvent from paint process residues before it is transferred back to the factory for use as fresh cleaning solvent. Vapor emissions from the distillation process are also fed through a bio-filter, minimizing emissions to the environment.



Recovery of waste solvent

Actions for reducing waste and effectively using resources in Japan

In Japan, the Group uses an integrated waste material management system compatible with the electronic manifest system based on the idea that waste reduction and effective use of resources are important for sustainable business operations. We make Group-wide efforts to reduce waste such as management

of waste generation and proper disposal and effective use of waste generated.

Waste materials generated increased in FY2021 due to the increase in production volume from FY2020.

The recycling ratio increased from FY2020, and we will continue to promote recycling. The Plastic Resource Circulation Act took effect in April 2022. The Group falls under plastic-emitting business operators, and therefore will step up actions for reducing emissions and recycling.

While the number of leakages decreased, there were two accidents involving leaks outside of the premises. In both cases, prompt response prevented impacts to water and soil. Following the change in the classification of accidents from FY2020, the data on accidents have been updated.

In FY2021, Nippon Paint Group was not subject to any fines or other forms of punishment due to violations of environmental laws or regulations.

Prevention of air and water pollution

Nippon Paint Group has been carrying out initiatives that prevent environmental pollution as it serves as the foundation of business development and management. In order to address the changing social situation as well as further meet the expectations and demands of stakeholders, the Group is promoting initiatives on a global scale and established a global policy on the prevention of environmental solution. Based on this policy, the Group will strive to prevent pollution of the air, soil, and hydrosphere.

At NIPSEA Group, to reduce the amount of Volatile Organic Compounds (VOC) as compared to our current oxidation methods, we are collaborating with research centers to develop non-burn technology through electrolysis. In parallel, to reduce VOC

volatilization, we continue to optimize our product composition towards water-based and solvent-free paint products. This involves investing in treatment facilities to improve our technological capabilities in recycling and reusing unavoidable VOC.

Group policy on the prevention of environmental pollution

We care for the environment to avoid polluting the air, soil, and water*
 * Refers to oceans, lakes, groundwater, etc.

Water risk

Water resources affect not only the water used in the production process but also the procurement of raw materials. Droughts, floods, and water quality deterioration might also affect our production activities. We will implement specific initiatives, including thorough management and effective use of water consumption and wastewater discharge, reuse of water and water conservation following this policy.

Group policy on water

We strive to use water efficiently and manage wastewater responsibly.

Global water withdrawn (results)

Total water withdrawn (kilolitres per tonne of production) across the Group decreased 4%, driven by a 24% reduction in DuluxGroup and a 9% reduction in the Japan Group.

Actions on air and water conservation in Japan

The Japan Group complies with all laws and regulations pertaining to air and water pollution by establishing its own voluntary reference values and conducting periodic pollution load measurements.

In FY2021, there was no significant change in the pollution loads of air and

water compared to FY2020 levels, while the amount of water used and wastewater discharged declined. We will continue our efforts to reduce environmental loads.

Water stress is defined as facing persistent difficulties in water intake. Each plant of the top seven locations of water consumption within the Japan Group locations (Chiba, Takahama, Osaka, Hirakata, Okayama, Tochigi, and Toyoake) has been assessed for water stress level using the Aqueduct tool provided by World Resources Institute (WRI), and the results confirmed a low water stress level in terms of water intake.

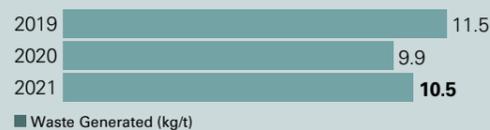
Water intensity can be roughly divided into two categories: 1) water intensity used in the production process and 2) water intensity for raw materials.

In order to reduce water intensity in the production process, we are managing and assessing the specific amount of water usage in cleaning equipment at some plants, as well as have begun initiatives to reduce water intake by recycling coolant water. Moreover, we have included checks on water saving efforts as part of the safety patrol (checks for leakage and overflow) and started to effectively utilize rainwater and treated water from wastewater treatment plants.

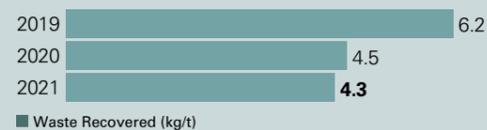
As for the reduction of water intensity for raw materials, while the amount of water used (water intake) for raw materials will unavoidably increase as paint becomes water-based, we are considering the development of replacement with nonvolatile materials in the paint to reduce water content.

Powder paint is one example of a product with reduced water intensity in raw materials. Powder paint, which does not contain water as a raw material, does not use any organic solvent and is recyclable and reusable as an uncoated paint; thus, generates zero water. In addition, powder paints are conducive to labor-saving and automation. As such, the powder paint market is expected to grow. In 2019, the Japan Group newly launched operations of the Chiba Plant, which is primarily involved in the manufacturing of powder paint. Moreover, we are considering a recovery system for paint that does not use water and chemicals for products other than powder paint.

Waste generated (Global)



Waste recovered (recycled, reused) (Global)



Water withdrawal (Global)



Safe people and operations



As a chemical manufacturer, we still believe that accidents and health damage caused by handling chemical substances are major risks. We will ensure the safety of employees and everyone involved in our business, and will educate and make investments to minimize risks.

The Group has designated Safe People and Operations (occupational safety and health) as one of our materialities. Workplace safety and protecting and promoting the health of all employees is a fundamental part of our corporate management, and all Group companies implement occupational safety and health initiatives.

In FY2021, the Global Working Team (currently the Global Team) set up under the then ESG Committee established a global policy on occupational safety and health.

NIPSEA Group ensures that its health, safety, and environmental (HSE) efforts cover the following areas: 1) Raising employee awareness on the importance of health and safety measures, 2) Objective and target setting on key HSE performance indicators (KPIs), 3) Regular reviewing of HSE performance, 4) Resource planning for HSE implementation, maintenance, and improvement, and 5) Availing grievance mechanisms. As actions covering the area 1), NIPSEA Group utilizes a variety of communication tools to raise employee awareness of health and safety measures, as well as the roles and responsibilities of top Management, the HSE committee, Heads of Departments, and employees themselves. We also ensure that employees are well-informed on the relevant HSE precautions through workshops and briefings held on subject matters like chemical and PPE safety, machine use, and lifesaving and occupation first-aid techniques that are taught by internal or external professionals.

The Dunn-Edwards approach to safety is to assess, analyze, implement, and evaluate. Assess the workplace, analyze the data/observations, implement corrective actions, and evaluate the corrective actions. For FY2022, Dunn-Edwards is focusing on three main areas: Vehicle Safety, Facility Safety, and Lifting Safety. For instance, they

are focusing efforts to reduce lifting injuries due to the frequency/severity of injuries related to lifting. Efforts include training, mechanical assist devices, and exercises.

Manual handling is the most significant non-fatal injury risk at DuluxGroup, including Dulux Trade Centers where employees who serve customers lift and carry paint cans every day. Significant investment to reduce these risks has been undertaken over recent years, such as installation of pneumatically operated hook lifts at tinting stations. As part of Dulux Trade Australia's "Fit for Life" program, new wearable technology was utilized in conjunction with Curtin University during 2021 to analyze manual handling stresses experienced by employees whilst doing their normal daily duties. This data provided a range of evidence-based insights, such as identifying specific high-risk tasks, showing the impact of distraction on risk levels.

Global policy on occupational safety and health

We care for the health, safety and well-being of everyone.

Global occupational safety and health

Sadly, there were three fatalities in 2021 compared with none in the prior two years, reinforcing the imperative of ensuring effective identification and management of high consequence risks in all of our workplaces. The separate incidents occurred in NIPSEA Group and involved one employee and two contractors. Injuries to employees and contractors that resulted in lost workdays (number of cases per 200,000 hours) across the Group decreased 10%. This was driven by a 13% reduction in DuluxGroup and a 9% reduction in NIPSEA Group, with both

businesses accounting for 53% of injuries across the group. Dunn-Edwards accounted for 43% and has experienced a significant increase in cases over the last two years, which has been driven by COVID infections in the workplace.

Results of actions for occupational safety and health in Japan

Based on the idea that a business is not viable if it is not safe, the Japan Group puts safety first and foremost and implements measures to prevent injury accidents before they occur. The number of injury accidents decreased in FY2021 compared to FY2020 levels, but the number of accidents that resulted in lost time increased by four.

Following the occurrence of one heat stroke case requiring long lost time, the Japan Group has taken actions such as reconfirming the risk of heat stroke and reviewing preventive measures throughout the production locations within the Group in order to prevent the recurrence of accident.

Based on risk assessment, which is the basis of occupational safety and health activities, we took steps to prevent disasters and accidents involving getting pinched or caught, contact with hazardous materials, which increased in number in FY2020, as priority targets. In addition disasters and accidents that occurred in Group production locations in Japan and overseas were shared within the Group in order to strengthen accident controls by reviewing production site rules and safety measures and providing education of production site workers.

Supply chain management

Approach to the procurement of raw materials

The Group's businesses depend on supply of raw materials, equipment, supplies, information services and various other products and services. Maintaining healthy cooperative relationship with suppliers is therefore essential to our sustainable growth. The Group has established and disclosed the procurement policy that is aligned with its basic approach to business transactions. The Group also aims to ensure that all Group employees and its suppliers understand and follow this approach and policy.

To ensure that procurement activities are performed responsibly, the Group

established procurement guidelines based on a policy that further clarifies the definition of the items that must be observed by suppliers and members of the Group. Procurement activities of the Group place priority on quality, cost, and delivery time (QCD) as well as the environment, society and governance (ESG) aspects, with the goal of further emphasizing the sustainability of our supply chains.

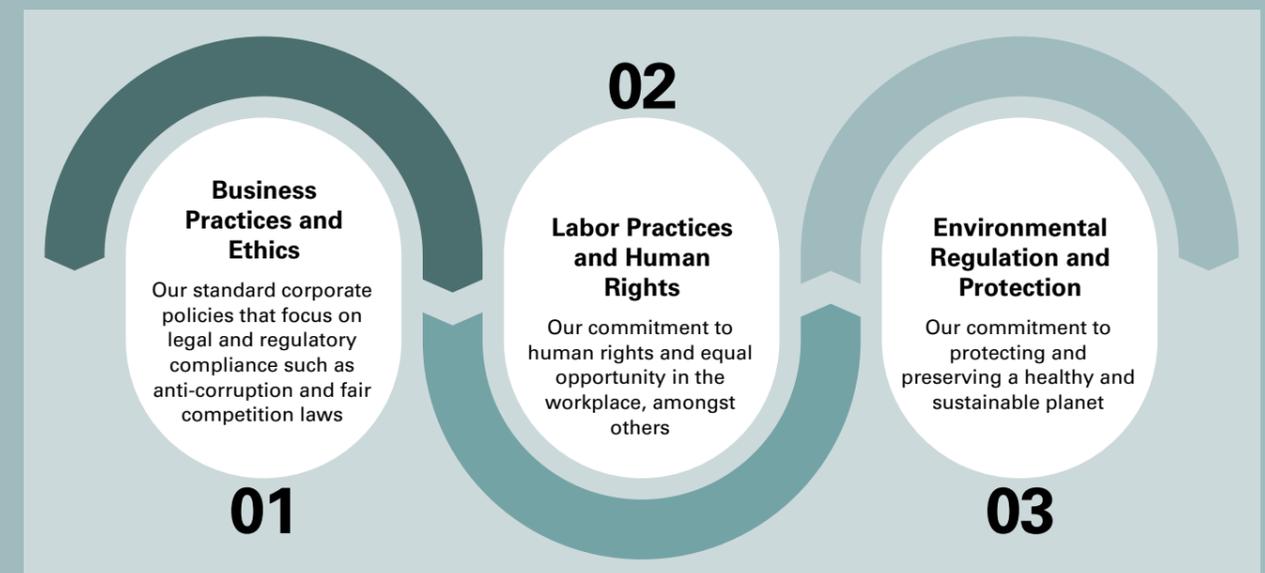
NIPSEA Group remains committed to operating as a responsible business that is held to high standards and strives to create a

positive impact on sustainable development. Our Supplier Code of Conduct, which outlines clear business conduct expectations for new and existing suppliers, ensures that our business partners uphold the same high standards that we do. The Supplier Code of Conduct covers three main areas (See the chart below).

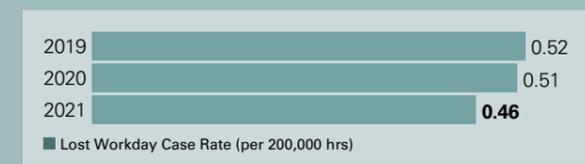
At NIPSEA Group, the Procurement department evaluates its suppliers on an annual basis. This supplier evaluation exercise includes an environmental assessment to ensure that they meet its required Standard

Operating Procedures ("SOPs") in managing environmental matters. In the event that suppliers fall short of the expectations NIPSEA Group has of them, the group provides solutions and guidance to help them improve their processes.

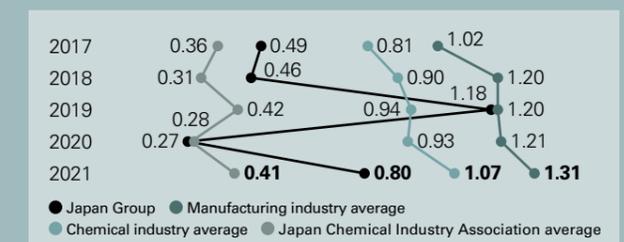
NIPSEA Group Supplier Code of Conduct



Lost workday case rate - employees & contractors (Global)



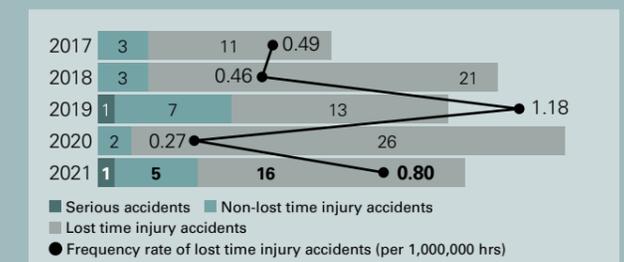
Frequency rate of lost time injury accidents (Japan Group)



Number of accidents by employment type (Japan Group)



Number of workplace accidents (Japan Group)



People & Community

We will pursue MSV on the strength of our human capital



Gladys Goh
NIPSEA Group

As a Japan-origin global corporate group operating in 30 countries and regions worldwide, including in China and other parts of Asia, Nippon Paint Group is committed to contributing to Maximization of Shareholder Value (MSV) by leveraging the diversity and strengths of its human capital, as well as fulfilling its obligations to its stakeholders, which is the premise of MSV.

The People & Community Team conducts activities around two items of Materiality: Diversity & Inclusion as well as Growth with Communities. Our activities are conducted in each country and region with focus on the three pillars of (1) Increasing the ratio of women in managerial positions, (2) Celebrating diversity, and (3) Building and enabling local communities.

The outcomes of these activities are reflected in our benchmarks such as the ratio of female managers in Group companies, as well as in employee satisfaction level which the Group regards as one of the key benchmarks. Employee satisfaction level affects the cost of hiring and retaining human resources and the productivity as it relates to maintaining and increasing employee motivations. Considering these, the Group partner companies are taking autonomous actions according to their own situations.

Diversity & Inclusion



Respect for the people around us and active acceptance of diverse values are important for our sustainable growth. We place great importance on the diversity of employees and other people involved in the business and respect human rights.

Human capital for sustained growth

For Nippon Paint Group to grow in a sustainable manner, it is essential that we secure skilled human resources and offer a corporate culture and working environment in which it is comfortable and rewarding to work, thus allowing people to leverage their individuality and capabilities to the fullest. The Group promoted the enhancement of human resources by investing in human capital through the intensification of training programs developed autonomously by each partner company according to the challenges

faced. Expanding training programs can expect to lead to improving competitive advantage in hiring new college graduates and mid-career people and reducing the turnover ratio. Accordingly, it is a key initiative for enhancing the human resource portfolio.

DuluxGroup offers a comprehensive learning program for everyone from those who are newly appointed to senior leaders to develop the skills they need to operate as global leaders and to foster ongoing learning, building capability along their career journey. They encourage employees to “Own their Growth” and to take the initiative to access the learning that they need to improve their skills and specialist knowledge. DuluxGroup

continually revises and improves the curriculum to ensure it remains relevant, effective and aligned to DuluxGroup’s growth ambitions. The Group currently offers programs such as “Leading in Complexity,” “Commercial Acumen” in partnership with Harvard, and a full Sales Capability and Marketing curriculum.

The NIPSEA Group adopts a group-level learning framework that ensures the holistic development of our employees through upskilling their capabilities and competencies required at differing job levels. Training and educational programs are uniquely tailored at the country level depending on the needs identified from our annual training needs analysis. NIPSEA Group’s provision of diverse training and educational programs ranges from technical to leadership upskilling to better equip our employees with the necessary skills in today’s ever-evolving business landscape. In FY2021, we clocked a total of 387,243 hours for our employees, with an average of 15.0 hours per employee.

In Japan Group, we offer training (training for prospective hires, new employee induction training, follow-up training, training for newly appointed managers, and annual training, etc.) to all employees as appropriate to their current career stages and the roles it is hoped they will play. In FY2021, total training hours for selection training and group training by job level at Group companies in Japan reached 32,000 hours. The increase in training hours was the result of expanding and enhancing the target of training programs and training schedules by improving the on-boarding training we offer to new mid-career hires and opening a business college with the goal of strengthening the business literacy of our executives.

Ensuring and enhancing diversity

Assembly of human capital with diversity is one of the primary basis of Asset Assembler model. Nippon Paint Group Global Code of Conduct established in January 2022 states that the Group embraces diversity. In addition, the Group partner companies worldwide implement human resource management with the goal of ensuring and enhancing diversity.

The NIPSEA Group is continuously working in Asian countries to improve gender representation in its management team and the Board of Directors. Hiring

local talent in countries and regions where we operate businesses not only leads to strengthening the competitiveness for acquiring market share but also contributes to the creation of employment opportunities in local communities. The percentage of people hired from local communities to senior manager positions has reached 57.1%.

DuluxGroup has doubled the number of women in the senior leadership team of all business divisions in the last five years, implementing programs for increasing the ratio of women in each position level, focusing on improving the gender balance in particular among senior managers.

Dunn-Edwards has increased female representation among its leadership ranks from 20% to 30% over the past five years and successfully mirrors the ethnic demographics of each of the diverse communities they operate in.

In Japan Group, we are conducting activities for promoting female employees to managerial positions by taking reference from success cases of the Group partner companies overseas. Specifically, we have been sending female employees selected through internal entry system to external training programs for cross-industrial exchanges. We are working to develop executives by fostering a leadership through collaboration with members in other industries, and by encouraging autonomous career development by providing opportunities to meet a variety of role models. We are also actively promoting the appointment of management and executive personnel with

Percentage of women

	Employees	Management post
NIPSEA Group	24.9%	25.1%
Dunn-Edwards	29.6%	30.1%
DuluxGroup	34.7%	32.9%
Japan Group	22.0%	6.1%

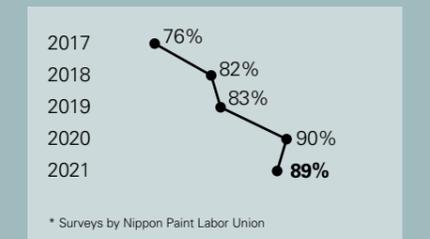
high expertise from outside the company. As of 30 June 2022, two female Director of the Board, one female Executive Officer, and one female Corporate Officers were appointed to Nippon Paint Holdings.

Improvement of employee engagement

Improving employee engagement can lead to excellent human resources to continuously perform at their fullest potential. We regularly monitor and review the employee satisfaction levels of partner companies which newly joined the Group based on Asset Assembler model (cf. success cases at DuluxGroup).

Dunn-Edwards uses employee feedback to drive initiatives targeted at attracting, developing and retaining a workforce that will provide a competitive advantage. Historically, data shows that the first 2 years of employment, as well as advancement during that time, are the most critical to create a connection with the company. Based on this information, salary, retirement plan (401(k)), and leadership from front line managers are the most important factors. As a result, we have structured compensation, healthcare benefits, tuition assistance, vacation, and retirement plan policies to ensure attractive and competitive offerings in these areas, and we continue to adapt and develop training for career advancement at all levels.

Employee satisfaction level (Japan Group)



Number of employees

	2019	2020	2021
Japan	3,373	3,510	3,294
Asia	14,303	15,354	18,253
Oceania	3,735	3,826	3,927
Americas	2,640	2,581	2,576
Other	1,919	2,047	1,793
Consolidated total*	—	—	404
Total	25,970	27,318	30,247

* The number of employees of NPHD, which was previously included in the Japan segment, has been included in the Consolidated total (common) since FY2021.

The Group companies in Japan are encouraging men to take childcare leave to support men actively participating in childcare. In addition, these companies have established flexible working systems in step with the life events of their employees, including work-from-home systems and systems allowing paid leave to be taken in hourly increments, shortened working hours, and childcare and nursing care. We have introduced a working from home system in order to respect and assist the work motivation of employees by developing a working environment that allows employees to bring out their full potential without being constrained by working hours and geographic location of employees. As measures to prevent COVID-19 infections, we apply the working from home system to employees without limiting the employees who are allowed to work from home and the frequency of usage. The questionnaire survey of employees of the Group companies in Japan conducted in February 2022 had positive responses, such as working from home system improves work efficiency by making it easier to schedule a meeting with overseas attendants; and the use of web conferencing system facilitates smooth information sharing and decision making.

Case studies

Employee engagement scores at DuluxGroup

DuluxGroup's engagement score reached 80% in 2021, which was 8 percentage points higher than the score in the previous survey, which was conducted prior to joining Nippon Paint Group, and is well above industry and high performing norms.

The high engagement score reflects the passion that DuluxGroup people have for their brands, with 97% of employees recommending DuluxGroup products to their family and friends. DuluxGroup employees understand their part in the bigger picture and understand how their job contributes to the business strategic priorities. Their continued high scores are driven by leaders at a local level, who are empowered to work with their teams to drive high performance. DuluxGroup enables this by investing heavily in leadership development.

Basic policy for respecting human rights

The Nippon Paint Group has clearly stated in the Nippon Paint Group Global Code of Conduct that we respect the human rights of employees and stakeholders.

Due diligence in human rights

For the past two years, DuluxGroup has published its Modern Slavery Statement in compliance with Australian legislation. DuluxGroup is committed to identifying, assessing and addressing modern slavery risks within its operations and throughout its supply chain. Modern slavery is a serious violation of a person's basic human rights. DuluxGroup opposes modern slavery in all its forms, and respects and supports the human rights and freedoms of workers within our operations and throughout our supply chain.

The Group companies in Japan utilize self-diagnosis (the UN Global Compact SAQ Survey) provided by UN Global Compact Network Japan to facilitate awareness of supply chain risks, in an effort to survey and understand the status of various ESG-related supplier activities. This survey assesses the level of an organization's initiatives with regard to corporate governance, human rights, labor, the environment, fair corporate activities, quality/safety, information security, supply chains, and coexistence with local communities.

Growth with communities

We will invest in communities through our value chain and to achieve sustainable business growth based on market growth, brand strengthening and good relationships with local communities.



Our mission from the Company's very beginning has been to create innovative paint and coating solutions that bring colors and joy to people's everyday lives. The Group will contribute to supporting and promoting sustainable development of communities through its business activities. We have set three priority areas, which we call the "Three Es," under Nippon Paint Group's global CSR umbrella, "Coloring Lives," for conducting activities to promote the Growth with Communities: Education, to foster our stakeholders of the future; Empowerment, to develop our industry through activities to support and provide vocational training to socially vulnerable people and to discover talent among younger generations; Engagement, to work together with local

communities and stakeholders.

Potential opportunities from the Group investing in society are increased business opportunities in flourishing local communities generating economic growth, increased employee engagement and commitment to our Group companies, and strong connections with local communities, which contributes to MSV. On the other hand, we have identified potential risks from the Group neglecting its obligations to stakeholders, which include a loss of trust from local communities leading to decreased ability to attract and retain talented employees and favorable business partners, lower consumer and customer loyalty – and ultimately – loss of shareholder confidence and reduced opportunity to deliver on our promise of MSV.

Global promotion system

In FY2020, we launched a global conference to create closer links among Group companies for closer information sharing and mutual consultation. The conference is the centerpiece of the NIPPON PAINT Group Global Outreach Program designed to enhance social contribution efforts throughout the Group. Based on this program, we have implemented outreach programs in 20 countries across Asia and Europe as well as in Australia, New Zealand, the United States, and Japan. Progress is shared globally to upgrade our initiatives across the Group.

The resources used, results, and impact of our activities are briefly summarized in the following table. In FY2021, the Group used funds amounting to over US\$7.08 million for roughly 204 activities that positively affected the lives of some 290,000 people worldwide. In Japan Group, the Group used over ¥269 million for social contribution activities, including some ¥5.22 million in donations to NPOs and other organizations.

Pillars (focus areas) and examples of social contribution activities

Pillar	Description	Example of activities
Education	Activities for children and students who are our potential future customers or employees	Industry-University Collaboration Activities with the University of Tokyo (Japan Group); AYDA Awards conducted annually (NIPSEA Group: International competition and awards platform for architectural and interior design students who are our future customers); Smiling Mind (DuluxGroup: program using color to create mindful spaces at elementary schools); Off the wall Graffiti (Dunn-Edwards: art education program for urban artists through after school programs, events and in-school curriculum)
Empowerment	Support activities and vocational training for socially vulnerable people, and activities to find talented individuals	Nippe Fun Farm (Japan Group: support for employment of persons with physical disabilities); Rural Revitalization for Chengde County (NIPSEA Group: repainting village external walls); Pet Refuge NZ (DuluxGroup: Helping to build refuge shelters for pets of people who are escaping domestic violence situations.); Tradeswoman (Dunn-Edwards: program aims to increase the number of women in construction and related trades)
Engagement	Collaborations with local communities and stakeholders, cooperation with NGOs, and disaster relief	Color Way of Life - ART+(NIPSEA Group: Raising students' awareness of art and color as well as their culture through painting); Department of Conservation Trail Huts (DuluxGroup: protecting historical buildings and local community assets); Martin Auto Museum (Dunn-Edwards: donation for painting a new machine school for teenagers)

Investment in social contribution activities and its results and impacts

	FY2021	Data collected	Results	
Global	Country/region		20	
	Number of projects		> 204	
	Resources input	Money spent on the activities		> 7.08 million USD
		Time spent on the activities		> 61,000 hours
		Employees and volunteers who participated in the activities		> 2,100 participants
		Paint used in the activities		> 0.64 million liters
	Results and impacts	People impacted		> 0.29 million people



DuluxGroup office in Melbourne

Innovation & Product Stewardship

Promote the development of sustainable products while pursuing innovation



Hong Jiang
NIPSEA Group / NPCCS

The purpose of Nippon Paint Group is enriching our living world through the power of Science + Imagination. It describes our commitment to creating innovations that bring benefits to our society, by using our technical strengths and intellectual assets, including intellectual property, organizational capability, and technology networks, across Nippon Paint Group. One recent example is that, since the outbreak of COVID-19 pandemic in 2020, the Group has significantly increased investment in anti-viral technology, and developed a range of paint products to address this social challenge.

Our technology mission is to drive and sustain growth and market share in Japan and globally through striving to be a leading technology organization for coatings and its adjacent markets. There are three pillars in our innovation strategy: 1) build adaptive organization; 2) develop core enabling technology competency, and 3) grow into adjacent and emerging markets. It is the implementation of our Group vision for Maximizing Shareholder Value from a technology perspective. We believe that our technology organization's culture of being customer centric, socially responsible and collaborative is the key driver to success.

Importantly, the technology collaboration and intellectual property sharing among our partner companies around the globe is under the principle of Asset Assembler model, which Nippon Paint Group strategically employs to manage the business of partner companies. The technology teams of partner companies possess high autonomy to effectively address the needs from their respective markets and customers. On the other hand, in order to drive technology sharing and capability leveraging among partner companies, the Global Technology Council (GTC) was established, to promote technology exchange platforms and cross-PC projects. We have built up adaptive ways to enhance global technology collaborations to enhance added value of intellectual property. The technology teams in decorative paints have formed the global technical community to share best practices and leverage research capability in joint technology development projects, helping address the needs from local consumers in each respective country. Our major automotive customers are global accounts, and our technical staff in automotive coatings around the globe were unified and became ONE team in 2021 under Nippon Paint Automotive Coatings (NPAC).

Innovation for a sustainable future



In today's society, problems that are difficult to solve with past methods are becoming more and more apparent. We will strengthen our innovation output with active utilization of partnerships.

Significance of R&D activities in our paint and paint related businesses in utilizing and adding value to intellectual property

Worldwide there are 3,887 technical staff working in Nippon Paint Group, with 1,171 in Japan. They are our strong innovation power and core competitiveness for achieving sustainable business growth in the marketplace. Our technical staff are working in 50 R&D and technical centers to serve our domestic and global customers and consumers, including our major R&D centers in Tokyo and Osaka in Japan, Shanghai in China, Singapore, Melbourne in Australia, Los Angeles and Cleveland in the US, and France in Europe. In 2021, the total technology related expense in Nippon Paint Group is above 24.3 bn yen. In 2021, Nippon Paint Group has filed 200 new patents, and by end 2021 owned 1,000 granted patent rights.

Nippon Paint Group has classified its core technologies related to paint and coatings and manages its intellectual property portfolio in 10 categories, which are polymer chemistry, color science, formulation, curing technology, dispersion technology, application technology, process technology, rheology, weathering and corrosion, and measurement science. Subject matter experts are working in core R&D teams in the R&D centers, and collaborating with scientists from the global network of technical centers to support product development across the group.

Nippon Paint Group possesses a broad open innovation network with universities and academic research institutions worldwide. In 2020, the strategic research partnership with The University of Tokyo was initiated, with the University of Tokyo & Nippon Paint joint laboratory established. The partnership aims to create innovative coating technologies in three fields, infectious disease risk reduction,

social cost and environment burden control, and contribution to smart society. In Singapore, NIPSEA Group has been collaborating with the research institutes of A*STAR (Agency for Science, Technology and Research) for decades. Recently, NIPSEA Group has strategically joined hands with A*STAR to develop disruptive technologies in the fields of smart surface enabling autonomous driving, and applying artificial intelligence in coating research.

Innovation initiatives and programs

New Product Sales Index (NPSI)

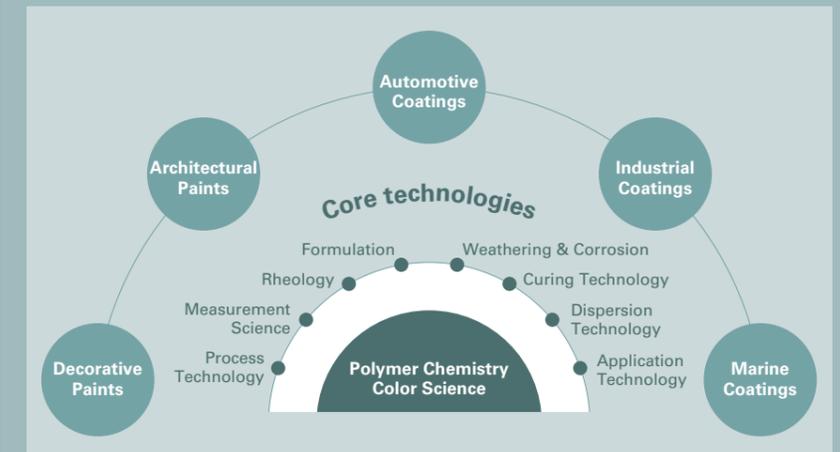
New Product Sales Index (NPSI) is one of the indicators for measuring technology output. In Nippon Paint, we have established well-designed NPSI system with tools, to track the sales revenues generated from new products commercialized in the past three years. New products are categorized ranging from products upgrade by incremental improvement, to new-to-market products by disruptive innovation. NPSI is achieved with joint efforts of technical teams with business and supply chain operation teams, where strong collaboration brings together our commitment to Maximization of Shareholder Value.

NIPSEA Group started to implement NPSI in 2018. In 2021, Japan Group and NIPSEA Group together have achieved NPSI of 21.1%, and launched 18,000 new products in the same year.

R&D organization



Core technologies



2021 New Product Sales Index (NPSI) of Japan Group and NIPSEA Group (%)



Sustainability of our products

In Nippon Paint, we regard that sustainable features are essential factors for our products to benefit human society and thus achieve long-term business success. We define the product sustainable advantages in the principle of product life cycle and according to the framework of The United Nation's Sustainable Development Goals (UN SDGs). It is a systematic approach, covering the three main stages of product life cycle, eg.

1. product production,
2. products in application, and
3. products in service.

Furthermore, in each stage, the advantages over the mainstream products in the market are assessed by translating UN SDGs to the attributes of paint and coating products. In the stage of product production, manufacturing efficiency, raw materials, logistic and packaging, are the key aspects for assessment. In the stage of products in application, the advantages are helping customers and consumers when using the products, by reducing energy and material consumptions, chemical emissions, and chemical hazards. In the stage of products in service, the products are assessed in product service life, used in clean technologies, contribution to health and well-beings, as well as end-of-life treatment.

Under those sustainability principles, Sustainability Scoreboard for new product assessment has been developed and started implementation in NPSI systems of partner companies, Japan and China Group. In 2021, of new product sales of Japan Group and China Group together, 38% were contributed from newly developed sustainable advantaged products.

Meanwhile, Green Design Review has been developed and started implementation into R&D project management systems of Japan Group and NIPSEA. From our project portfolios of Japan Group and NIPSEA, 40% of R&D projects are in the focus areas of creating sustainable benefits according to the Green Design Review principles.

Management of chemical substances

In 2021, Japan Group launched the chemical substance management system named "Green 30," in order to minimize the impact on environment and human health. The system is developed to manage chemical substances not only from Japanese chemical regulations, but also chemical substances of global concern from international treaties such as REACH regulations. We classify the chemical risks in three categories according to the laws and regulations in the countries where our business operates: prohibited, restricted for new introduction, and avoided for new introduction. The system started in operation in Japan in 2021, and the practice is being introduced to our partner companies outside Japan.

Alkylphenol ethoxylates (APEO) are surfactants and include a subcategory of nonylphenol ethoxylates (NPEO/NPE). These types of nonylphenols (NPs) are being regulated by the EPA and REACH. Nippon Paint has been steadily phasing out APEO-containing surfactants. In 2021, we eliminated the use of the nonylphenol compounds in our products in Europe. Dunn-Edwards continues to phase out APEO-containing surfactants through product improvement and ensures that no new APEO-containing raw materials are allowed in the newly developed products.

In addition, we have been substituting the UV absorbers that are being considered as persistent organic pollutants (POPs). Our next plan is to completely phase them out in all products for Europe by the end of 2023.

In DuluxGroup, managing the risks associated with hazardous chemicals used in the formulation of the products is an important priority for our businesses. We have developed a management approach to ensure that substances with potential for long term health or environmental effects (chemicals of concern) are identified, with their risk evaluated. Improvement actions, such as formulation changes or improved packaging and labelling, are put in place to reduce or eliminate the risk of harm. Chemicals of concern are identified from information on supplier safety data sheets, regulatory lists such as the European "Substances of Very High Concern" and stakeholder sustainability program listings (e.g. Living Building Challenge Red List).

Whenever a new ingredient is proposed for introduction, it is reviewed against the Chemicals of Concern criteria and existing

listing. If identified as a chemical of concern, a risk assessment is undertaken to determine if the chemical can be safely used in the specific product and by the intended end-user or if additional controls or an alternative formulation is needed.

Scientific knowledge, regulations and community concern related to chemicals are constantly evolving. To keep our knowledge up to date, DuluxGroup has also established a process for monitoring and reviewing stakeholder and regulatory reviews of chemical classification so that emerging concerns can be picked up and acted on pro-actively.

The effectiveness of our program is measured by tracking the usage of priority chemicals of concern (in kilograms per \$000 sales) and the proportion of chemicals that have had a risk management plan developed. Since 2018, DuluxGroup has had a 17% reduction in the usage of priority chemicals of concern, despite the addition of some new substances to our chemicals of concern listing. Some examples of our chemicals of concern initiatives in 2021 include:

- Dulux Protective Coatings: Congard product is now Cobalt and Meko free.
- Dulux Protective Coatings: Formulation of a new toluene-free epoxy primer, Durepon 66.
- Dulux Porter's: Reformulation away from crystalline silica in its product range.

Case studies Innovation cases

While we are facing major challenges nowadays, such as uncertainty in economic growth, high industry dynamics, and increasingly stringent environment regulations, we firmly believe there are also huge opportunities for innovative products that offer sustainability advantages to tackle those challenges, especially contributing to a carbon neutral society and in line with UN SDGs. Thus, our innovation directions are toward environmental friendly, energy efficient and economically viable paint products.

Innovations in anti-viral paints

In the Japan market, Nippon Paint launched PROTECTON® brand in September 2020, named after the function to "PROTECT" people's lives from threats of viruses and bacteria + to turn the function "ON" to the surfaces of all things. Since then, we have combined all of Nippon Paint Group's paints, coatings and surface treatment technologies to offer a lineup of products for industrial, DIY and household use.

In February 2022, Nippon Paint (NPTU) released "PROTECTON Interior Wall VK Coat" and "PROTECTON Floor VK Clear" and Nippon Paint Automotive Coatings released "PROTECTON Car Interior VK Coat." Three of these new products have been added to PROTECTON brand. In addition to the "Interior Wall series" for interior walls, "Floor VK Clear," a water-based clear paint for floors, is expected to be effective when droplets containing viruses adhere to floor surfaces. "Car Interior VK Coat" is expected to have sustained anti-viral function with excellent appearance due to its uniform application property to the car interior and its high adhesion to the substrate.

In addition, our group and the University of Tokyo have jointly conducted research activities on coatings technologies with anti-viral and anti-bacterial functions to reduce the risk of infection. This is one of the joint research themes under the

industry-academia co-creation agreement concluded in May, 2020.

It is a joint effort across the globe in Nippon Paint Group to fight against viruses. Nippon Paint China launched "ClearShield" antimicrobial technology, which means "Virus Clear, Health Shield," in October 2021. The innovative coating products and film using this technology have color change resistance and good anti-viral performance in accordance with Chinese anti-viral coating code. In January 2021, Nippon Paint China released antimicrobial Kid's Paint, which can reduce the bacteria (S. Aureus, E. Coli, etc.) and virus (H3N2, EV71, Human-corona virus 229E, etc) pollution on the coating surface, with added functions of HCHO abatement, low VOC and low odor performance.

In Nippon Paint Malaysia, "VirusGuard" was developed with silver ion technology to persistently inhibit the growth of viruses and bacteria on the coated surface, decreasing the spread of contagious illnesses including, Hand, Foot and Mouth Disease (HFMD), H1N1 as well as COVID-19. Nippon Paint Singapore has also launched "VirusGuard" and "VirusGuard+" coating products, based on the silver and cuprous technologies, respectively.

Dulux UltraAir®

In response to broader societal concern about indoor air quality, DuluxGroup Australia has launched the UltraAir® interior wall paint range. The products have ultra low odor and ultra low chemical emissions. Going beyond low VOC, UltraAir® has achieved GreenGuard Gold certification. This is a third party certification that tests for over 10,000 chemicals and volatile organic compounds (VOC) and demonstrates that UltraAir® helps reduce indoor air pollution. These new advanced formulations have also achieved Global GreenTag GreenRate Level A and Platinum Health certification and can contribute to the achievement of green

building project certifications such as WELL and Green Star. UltraAir® has a verified Environmental Product Declaration (EPD) that quantifies the environmental footprint of the product. The availability of EPDs along with GreenTag certification is well regarded in the commercial sector in Australia while reducing odor and fumes is important to both trade and household consumers, meaning the UltraAir® product has significant appeal across all market sectors.

Chromium (Cr) free primer for construction industry

With the recent issuance of different regulations regarding pollution control for VOCs and heavy metals, environmental protection has been gaining more focus in the construction industry. Nippon Paint has developed chromium (Cr) free primer for coil coatings, which has now become an important element in industrial applications. This environmentally friendly coating can be widely applied to large areas of metal for decoration and protection.

Occupational Safety and Health Administration (OSHA) studies have determined that hexavalent chromium poses significant medical risks to users. Not only is it considered a potential lung carcinogen, but it can also cause nose, throat and lung irritation, with prolonged exposure resulting in ulcers and perforation of the septum. The new Cr free coil coating primer can help to eliminate the medical risks to users and meet the regulatory requirements. This new technology also exhibits excellent corrosion resistance and mechanical properties compared to those obtained in industrial oil-based primers.

The new Cr free primer products have been introduced to our customers in China as the largest coil coating market. Nippon Paint has completely phased out Cr containing primer products for coil coatings in China.



Innovations in anti-viral paints

Dulux UltraAir®