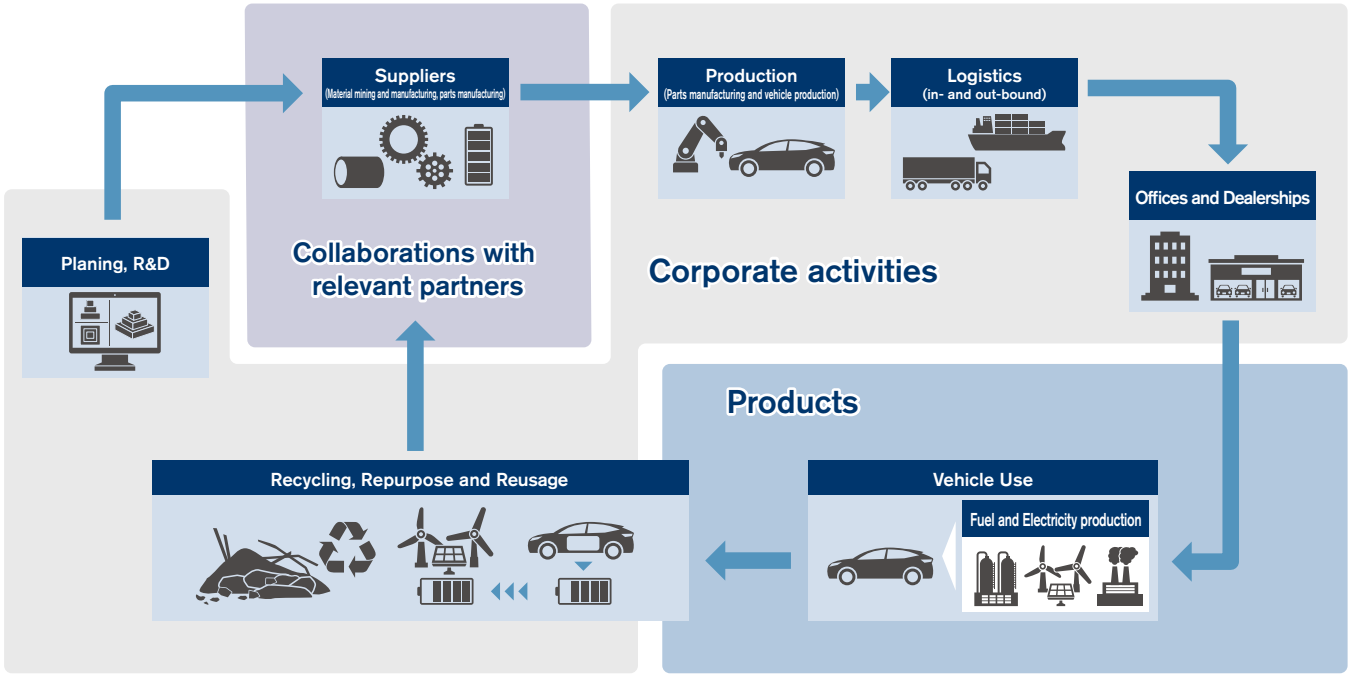
Strategic approach to environmental issues

To solidly contribute to resolving global environmental issues,*1 Nissan engages in direct discussions with environmental experts, investors, NGOs, NPOs, and other organizations throughout the world, analyzing*2 potential opportunities and risks. As a global automotive manufacturer, we consider not only corporate activities but also those upstream and downstream as part of our responsibility. Our scope of analysis covers the entire value chain from the procurement of raw materials for vehicles to transportation, disposal, recycling, and product use, including suppliers. Based on this analysis, we identified materialities*3 that we should address and have identified Climate change, Resource dependency, Air quality and Water as important areas to focus on as Nissan's mid-term to long-term environmental strategy. Specific action plans*4 were established through 2030 to target these key areas. Recognizing that the key areas identified are interconnected, and by addressing them comprehensively, Nissan will also contribute to addressing the challenges of nature-related issues, including biodiversity. We will also assess impacts associated with the transition to decarbonization and promote activities that focus on achieving a just transition without adverse impacts in order to achieve carbon neutrality.

Nissan Value Chain



*1 Click here for more information on Nissan's understanding of global environmental issues. >>> P016
*2 Click here for more information on potential risks facing the company, ecosystem assessments, and climate change scenario analyses. >>> P018
*3 Click here for more information on sustainability materiality, including the environment. >>> P004
*4 Click here for more information on Nissan's medium-term environmental action plan (NGP2030) >>> P024

Initiatives to identify impacts and dependencies on nature, including biodiversity

Global trends

At the 15th United Nations Biodiversity Conference (COP15) held in 2021 and 2022, it was discussed that we are on the verge of an unprecedentedly multifaceted crisis, including significant loss of biodiversity and degradation and pollution of both land and sea.

That same year, University of Cambridge Emeritus Professor Sir Partha Dasgupta published The Economics of Biodiversity: The Dasgupta Review espousing the idea of introducing natural capital into the economy, which was referenced at the G7 Summit and contributed to influencing international politics.

These international discussions are backed by scientific evidence acquired from the world's first Millennium Ecosystem Assessment conducted by the United Nations from 2001–2005. Along with climate change mitigation, maintaining rich ecosystems and biodiversity are important environmental issues for Nissan.

The assessment identified two key trends:

1. Deterioration of global ecosystems, which is progressing at an unprecedented rate and scale.
2. Ecosystems that create many ecosystem services, such as food, freshwater supplies, climate control, and protection from natural disasters, all of which substantially benefit humanity.

Analyses of impact and dependency on ecosystem services

In light of global trends, Nissan rapidly launched assessments of its overall value chain, from the mining of material resources to the production and operation of its vehicles. Together with the United Nations University, Nissan utilized the Corporate Ecosystem Services Review*1 methodology in conducting research to ascertain the impact and dependency its own corporate activities have on ecosystems. The findings of that research were published in the 2010 report entitled Ecosystem Services and the Automotive Sector*2.

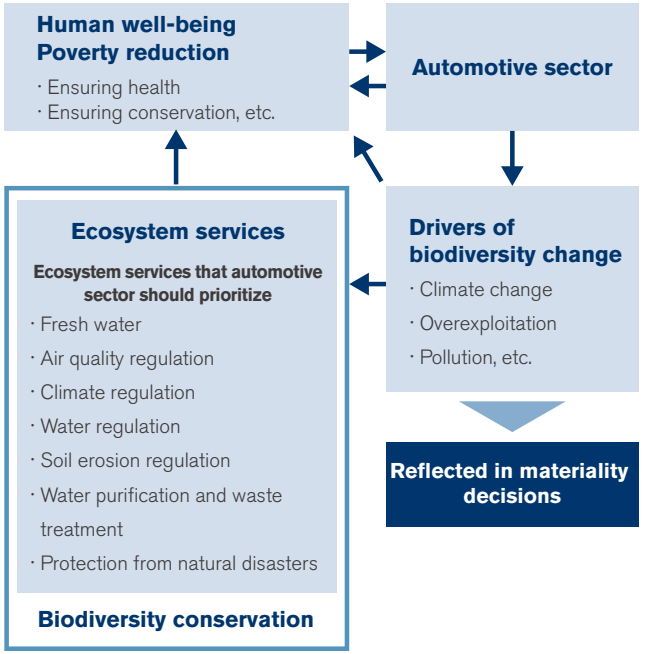
Through this assessment, seven ecosystem services were identified as priorities for Nissan and the automotive industry as a whole: Fresh water, air quality regulation, climate regulation, water regulation, erosion regulation, water purification and treatment, and natural hazard regulation.

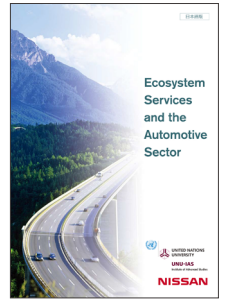
In order to understand the relation of these with the automotive industry, Nissan has identified: Energy sourcing, mineral and material sourcing, and water usage as priority areas and conducted assessments to determine the dependencies on and impacts on these ecosystem services. A detailed analysis was conducted to assess impacts and dependencies with regard to each of these ecosystem services. Also in 2013, we estimated that the use of water resources in the upstream resource procurement process was more than 20 times the amount of water used by Nissan, and we also conducted analyses related to air quality.

Ecosystem and biodiversity assessments are reflected in materiality decisions and incorporated into specific actions as Nissan Green Program policies and strategies.

Nissan endorsed the TNFD*3's recommendations and joined the TNFD Forum to support its activities, believing that it is important to communicate more clearly and accurately these initiatives to investors and other stakeholders. We will consider further disclosure in line with the recommended framework.

Ecosystem services and automotive industry's involvement (impacts and dependencies)





Taskforce on Nature-related Financial Disclosures

*1 Developed by the World Resources Institute (WRI) in cooperation with the World Business Council for Sustainable Development (WBCSD) and the Meridian Institute based on the UN Millennium Ecosystem Assessment (MA).
*2 Click here to read "Ecosystem Services and the Automotive Sector". https://www.nissan-global.com/EN/DOCUMENT/PDF/ENVIRONMENT/SOCIAL/ecosystem_services_and_the_automotive_sector.pdf
*3 TNFD: Taskforce on Nature-related Financial Disclosures

Climate change scenario analysis to strengthen strategies for 2050 society

Nissan's efforts toward the environment have achieved continuous results by consistently reaching milestones backcasted from our long-term vision. However, compared with 2006 when we formulated the long-term vision based on the 2℃ scenario from the Intergovernmental Panel on Climate Change (IPCC) report, the threat of extreme weather due to climate change is increasing, and thus we believe it is necessary to enhance our strategy and make it more resilient amid growing uncertainties.

In 2015, the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) adopted a framework (the Paris Agreement) aimed at limiting global temperature increase to "well below" 2℃.

COP26 in 2021 announced its resolution "to continue efforts to limit temperature rise to 1.5℃" to emphasize 1.5℃ restriction, while adding the "reduction of global carbon dioxide emissions to virtually zero by mid-century." Similar to the Paris Agreement, the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 also called for concrete measures to address climate change.

The scenario analysis conducted for the purpose of strategic enhancements assumes societies based on the 4℃ and 2℃ scenarios presented in the International Energy Agency (IEA) time horizon up to 2050 and the 1.5℃ scenario in the IPCC special report. Furthermore, in consideration of factors including changes in customer and market acceptance, tightening automobile regulations and the transition toward clean energy, Nissan's business activities, products and services were examined in terms of strategic resilience to the opportunities and risks posed by climate change in the following four steps.

Four steps for review

- Evaluate past materiality, investigate risk factors with a decisive impact on the automotive sector due to climate change in documented studies and define main drivers in categories such as population, economy, geopolitics, climate change policy and technology.
- Categorizing main drivers into physical risks and transition risks, then considering the trade-off relationships of each, we examined the rise in the Earth's average temperature in three scenarios of 1.5℃, 2℃, and 4℃, and confirmed the range of risks for the 1.5℃ and 4℃ scenarios based on a 2℃ reference.
- Based on the degree to which the automobile sector was impacted and the timeline, items with a more substantial impact were screened from the main drivers.
- Changes, conditions, and effects were adjusted in each scenario to provide guidance based on qualitative evaluation of the elements necessary for enhancing strategies.

Policies and regulations, Technological changes, Market changes correspond to transition risks, while Extreme weather falls under physical risks.

Envisioned scenarios and associated opportunities and risks

Scenario assumption	Area of impact	Business activity opportunities and risks related to ongoing climate change
1.5℃	Policies and regulations	Complying with a further tightening of vehicle fuel efficiency and exhaust gas regulations may have an impact on the development of electric powertrain technologies and production costs and may influence production costs
		Increased burden of energy costs due to expansion of carbon taxes, expand investment in energy-saving equipment as policy
	Technological changes	Cost effects of utilizing next-generation vehicle technologies such as in-vehicle batteries and other EV-related technologies as well as expanding autonomous driving technologies
		Increased demand will affect supply chains for rare earth metals used for in-vehicle batterys materials and cause an increase in stabilization costs
	Market changes	Changes in consumer awareness leads to reduced new vehicle sales due to the selection of public transportation and bicycles and the transition to mobility services
	Opportunities	Expand the provision of power management opportunities with Vehicle to Everything (V2X), an EV energy charging/discharging technology, and redefine the value of EV, especially with Vehicle to Grid (V2G)
4℃	Extreme weather	The impact on the supply chain and the operation of production bases due to extreme weather such as heavy rain and drought will increase property insurance costs and air conditioning energy costs
	Opportunities	The need for securing emergency power sources using EV batteries is increasing as a disaster preparedness and mitigation measure

As a global automobile company, it will be more than 170 countries and markets where our production facilities operate and our products are provided, therefore we will get the impact from climate change all over the world. When taking a comprehensive perspective of this scenario analysis, even the market infrastructure, regulations and actual usage are different. Nissan's electrification and other related advanced technologies have the potential to create opportunities for effective capabilities in scenarios other than 2℃. Nissan has come to recognize once again the importance of further accelerating efforts toward this realization as well as the fact that activities integrated with the supply chain are essential for responding to risks.

In particular, the expansion of zero-emission vehicles is not only a major step towards the shift to a carbon-free society as an automobile sector, it is also a technology that contributes to the resilience of society in power management and disaster preparedness and mitigation. Nissan believes this will create value for society and business.
However, if the societal response to climate change is delayed, possible risks include additional transitional policies and regulations for a decarbonized society, increases in R&D efforts and changes in market demand or corporate reputation. Possible physical risks, such as an increase in extreme weather and rising sea levels, may lead to cost increases and declines in vehicle sales that have the potential to substantially influence on our financial situation.
To avoid risks such as these to the extent possible and create future opportunities, Nissan is leveraging knowledge gained from scenario analyses for use in actual activities and reviewing strategies for expanding resilience.
We believe it is important to more clearly and accurately communicate these impacts and the strategies considered to investors and other stakeholders. Nissan supports the Task Force on Climate-related Financial Disclosures (TCFD)'s recommendations and will strive to disclose information in line with its recommended framework.

Financial impact assessment of carbon tax effects

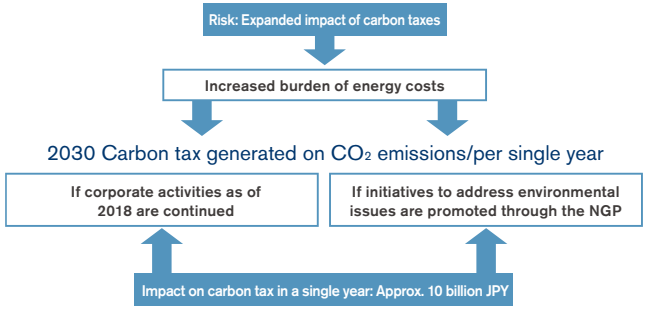
In fiscal 2021, we conducted a financial impact assessment, based on the scenario analysis that we had already disclosed. Below are the results of our assessment of the impact of carbon taxes.

Background to financial impact assessment scenario selection

Pricing for CO_2 emissions is progressing, and an increasing number of countries and regions are introducing carbon taxes. Although the level of taxation and the industries subject to the tax vary by country and region, this analysis will focus on the financial impact of the carbon taxes due to their significant impact on companies.

Evaluation of calculation methods and estimated taxes, assumptions

In our calculations, we referred to the IEA report and other reports on carbon taxes as the basis for our carbon tax projection.
The carbon tax on GHG emissions in 2030 was calculated by comparing cases where:
1) Corporate activities as of 2018 have been continued, and
2) The Nissan Green Program promotes environmental activities and the impact of annual carbon tax could be curbed



Impact on business outlook

We estimated that the carbon tax impact of Scope 1 and 2 could be kept to approximately 10 billion JPY if the environmental issues addressed in the Nissan Green Program were implemented, compared with the case where GHG emissions were not reduced.

Lifecycle assessment to reduce environmental impact

Nissan identifies potential risks by conducting life cycle assessment (LCA). The LCA method is used to quantitatively evaluate and comprehensively assess environmental impact, not only during vehicle use, but at all stages, including raw material extraction, manufacturing and transport, as well as reuse or end-of-life vehicle recycling.
Our LCA methods received certification from the Japan Environmental Management Association for Industry until 2012. Since 2013, they have been certified by the third-party organization TÜV Rheinland in Germany, with the certification being renewed in December 2023. The latter certification is based on ISO 14040 and ISO 14044 standards and validates the environmental impact calculations in our product LCA.
We have been expanding the application of the LCA method and enhancing our understanding of the environmental impact of our products especially of our best-selling models worldwide in quantitative terms. Coverage on a unit basis has reached approximately 80% of global models and approximately 90% in Europe.
Through the continuous implementation of LCA, we will promote the visualization and reduction of environmental impacts throughout the vehicle life cycle.