"MARKET"

THE ENVIRONMENT AND BUSINESS

Human activities are increasingly exceeding the Earth's biocapacity, threatening the stability of the environment and natural capital, and confronting us with the triple global crisis of climate change, biodiversity loss and pollution. Economic and social activities are based on the foundation of natural capital (the environment), and overcoming these crises is one of the most critical issues. Achieving a sustainable society requires an integrated approach to shift economic and social systems into ones that are net-zero (decarbonized), circular, and nature-positive. The Sixth Basic Environment Plan, approved upon a cabinet decision in May 2024, sets out the building of a "circulation and symbiosis based society" as the type of society that environmental policy should aim for, and aims to achieve "new avenues for growth" that will bring about "Well-being/quality of life" not only in the present but also in the future.

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Chapter 1 introduces economic activities that will lead to "new avenues for growth," including initiatives to build a green economic system that realizes sustainable production and consumption, and to encourage appropriate evaluation of environmental value and long-term investment in natural capital and capital systems that maintain, restore, and enhance natural capital.

1 THE DIRECTION OF JAPAN'S GLOBAL WARMING COUNTERMEASURES

Climate change is an urgent challenge for all humanity, and advancing global action is crucial to achieving the 1.5°C goal.

Based on the Plan for Global Warming Countermeasures approved upon a cabinet decision on October 2021, Japan has implemented countermeasures and measures to achieve its FY2030 greenhouse gas reduction target (46% reduction from its FY2013 levels, and continuing strenuous efforts in its challenge to meet the lofty goal of cutting its emission by 50%). Furthermore, in February 2025, the Cabinet approved a new Plan for Global Warming Countermeasures that includes greenhouse gas reduction targets beyond 2030 and the countermeasures and measures to achieve them.

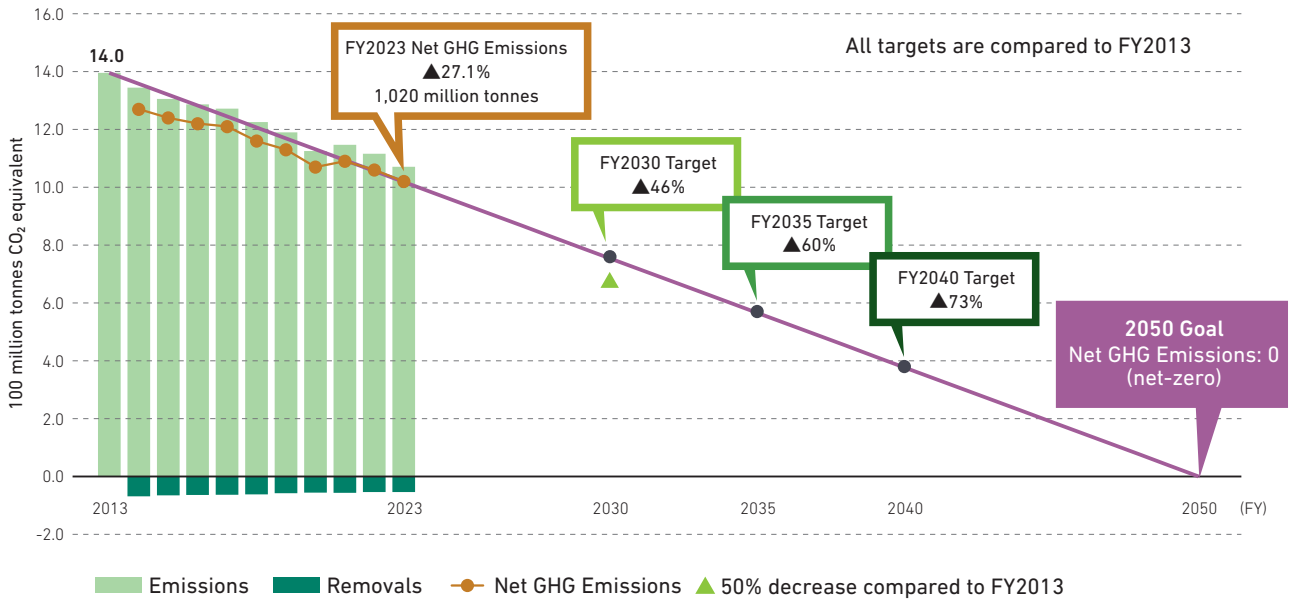
In formulating this plan, the Ministry of the Environment and the Ministry of Economy, Trade and Industry held nine deliberations in a Joint Council from June 2024, and the plan was considered in conjunction with the "Strategic Energy Plan," which outlines the future direction of energy policy, and the "GX2040 Vision," which presents the direction of the GX industrial structure and GX industrial location policy to be aimed for around 2040 in order to encourage decarbonization investment.

Taking into account the discussions at the Joint Council and the results of public comments, the "Plan for Global Warming Countermeasures" was approved upon a cabinet decision on February 18, 2025, simultaneously with the "Strategic Energy Plan" and the "GX2040 Vision."

This plan aims to reduce greenhouse gas emissions by 60% in FY2035 and by 73% in FY 2040, respectively, from its FY2013 levels, as ambitious targets aligned with the global 1.5°C goal and on a straight pathway towards net-zero by 2050. Furthermore, on the same day, this target was submitted to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) as "Japan's NDC (Nationally Determined Contribution)."

Going forward, it will be critically important that the government, local governments, companies, and citizens share this target and take action to achieve it. In order to make steady advance toward these targets, it is necessary to promote measures in cooperation with relevant ministries and agencies, and to review and strengthen existing measures flexibly through review processes.

Japan's new GHG emission reduction target (NDC)



Source: Ministry of the Environment

2 GREEN CONSUMPTION FOR A SUSTAINABLE SOCIETY

Contributing to economic growth by high value-added strategy across the economy through the use of environmental value that brings about "new avenues for growth"

The Sixth Basic Environment Plan, approved upon a cabinet decision in May 2024, proposes a shift from a "linear/standard mass production type socio-economic system" focused on material affluence to a "Circular/High value-added type socio-economic system" that also prioritizes intangible values and spiritual well-being.

If "environmental value," which has not necessarily been valued in the market until now, is valued in the market and consumers begin to choose products and services with high environmental value, it is expected that this will lead to economic growth through the high value-added strategy of such products and services (internalization of non-market value). For companies, too, products and services that have acquired environmental value through environmental investments will be valued by consumers in the market, enabling them to engage in a sustainable cycle of improving natural capital. In order to promote "high value-added strategy across the economy through the use of environmental value," it is necessary for the government to visualize and provide information on environmental value, change consumer awareness and behavior, create demand through green purchasing, and, when necessary, take policy measures such as carbon pricing, support, and regulation to correct the inconveniences (market failures) that arise when left to the market alone, thereby promoting investment that improves natural capital.

Through these actions, we aim to improve natural capital and maintain, restore, and enhance natural capital (the environment)—including a climate conducive to achieving the 1.5°C target, healthy water and atmospheric environments, and rich ecosystems.

Environmental states

Environmental states refer to environmental claims of products or services conveyed through descriptions, symbols, or diagrams, and include environmental labels and declarations. ISO has established some types of international standards concerning environmental states, aiming to stimulate market-driven continuous environmental improvement.

Environmental states by third-party certification are called "eco-label (formerly Type I: ISO14024)" and formulates product categories based on indicators that take the entire life cycle of products and services into account. Eco Mark is the only eco-label in Japan. As of March 31, 2025, there are 76 product categories covered by the Eco Mark, and 53,990 certified products.

Regarding self-declared environmental claims (formerly Type II: ISO14021), which are environmental claims made by business operators themselves, and environmental labels issued by private associations, the "Environmental Label Database" continues to be operated, which provides organized and classified information on each labeling system. In this context, the Ministry of Agriculture, Forestry and Fisheries has launched full-scale operation of the "ChoiSTAR (the English nickname for "Mieru Label")" action starting in March 2024, which evaluates efforts to reduce environmental load during the production stage of agricultural products and displays the results in an easy-to-understand manner.

There are some methods for declaring environmental states that quantitatively indicate a product's environmental load. The SuMPO EPD is the only Environmental Product Declaration (EPD) in Japan (formerly Type III: ISO14025) that indicates multiple impact areas. The Carbon Footprint of Product (ISO/TS14067) is an environmental states method that indicates a single impact area of global warming.

Column

About EPD (Environmental Product Declaration)

EPD (Environmental Product Declaration) is an international program that complies with standards in environmental areas set by the ISO (International Organization for Standardization) and focuses on calculating quantitative environmental information for each product, verifying it by a third party, and disclosing it for visualization.

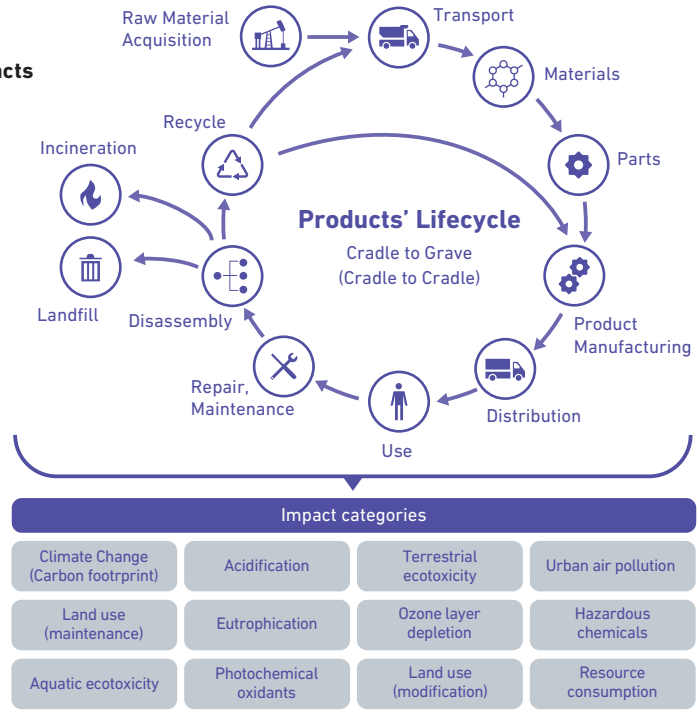
A distinctive feature of EPD is that companies conduct environmental impact assessments of each product at each stage of its life cycle (raw material procurement, manufacturing, use, disposal/recycling, etc.) and receive and pass on this information along the supply chain. One of the distinctive features of EPD is its assessment across multiple areas (LCA: Life Cycle Assessment), which considers not only Carbon Footprint of Product but also the impact on the atmosphere and water bodies, the amount of hazardous chemicals, and other factors. By complying with the ISO standard for formulating calculation rules for each product categories, a unified calculation process has been clarified for each product, and EPD programs being rolled out in each country are being developed with an emphasis on common calculation rules, and in Japan there is the SuMPO EPD.

As of January 2024, EPDs number over 23,000, primarily in the field of architecture, and many Japanese companies are also engaging in business that adopts EPDs in overseas markets.

LCA and Carbon Footprint of Product

Methodology for quantifying environmental impacts throughout the full product life cycle

- LCA methodology based on ISO14040 and ISO14044
- Scientific quantification across the full life cycle (Cradle to Grave)
- CFP (Carbon footprint) is a part of the indicators from LCA focusing on climate change



Example of EPD certified products

Source: General Incorporated Association Sustainable Management Promotion Organization (SuMPO)

3 SCIENCE AND TECHNOLOGY, INNOVATION, AND STARTUP SUPPORT NECESSARY FOR TRANSITIONING TO A SUSTAINABLE SOCIETY

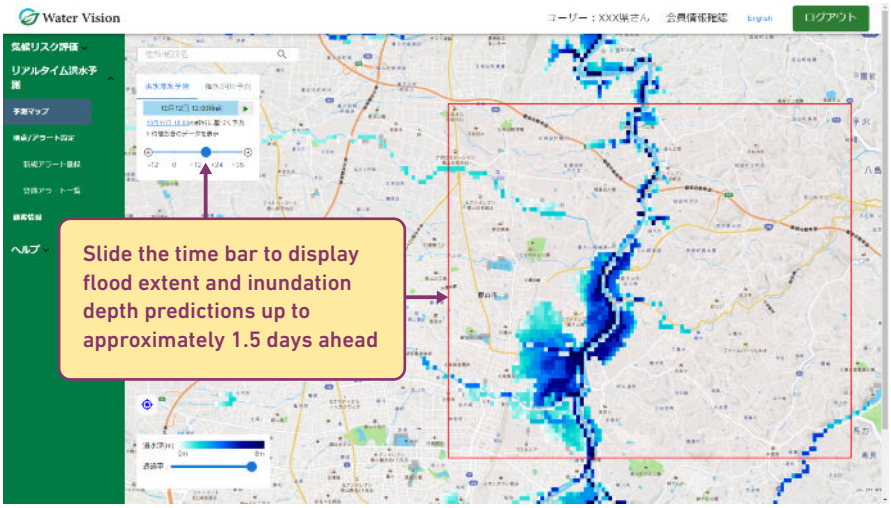
To realize a sustainable society, it is important to support startups that create innovations and implement them in society to resolve various technical issues in the fields of nature-positive, net-zero GHG emissions, and circular economy, as well as in the integrated promotion of these fields. The Ministry of the Environment provides seamless support for environmental startups according to their growth stage, including support for research and development and commercialization, awards to outstanding environmental startups, granting credit at the commercialization stage, and investment and financing through Japan Green Investment Corp. for Carbon Neutrality. Here are some example cases.

Example case

Environment Minister's Award at the Environmental Startup Award (Gaia Vision)

The Ministry of the Environment has been conducting the Environmental Startup Award since FY2020, with the aim of supporting the creation of new role models and the expansion of business opportunities by awarding promising environmental startups. Gaia Vision, recipient of the FY2023 Environment Minister's Award, provides the climate change risk analysis platform "Climate Vision" and the real-time flood forecasting solution "Water Vision," both leveraging flood simulation technology and climate data analysis technology. They are widely used in industries such as manufacturing, logistics, and finance for managing risks at operational sites and addressing global sustainability disclosure requirements, and were recognized for their advanced technological capabilities and social impact in climate change adaptation.

Water Vision



Source: Gaia Vision

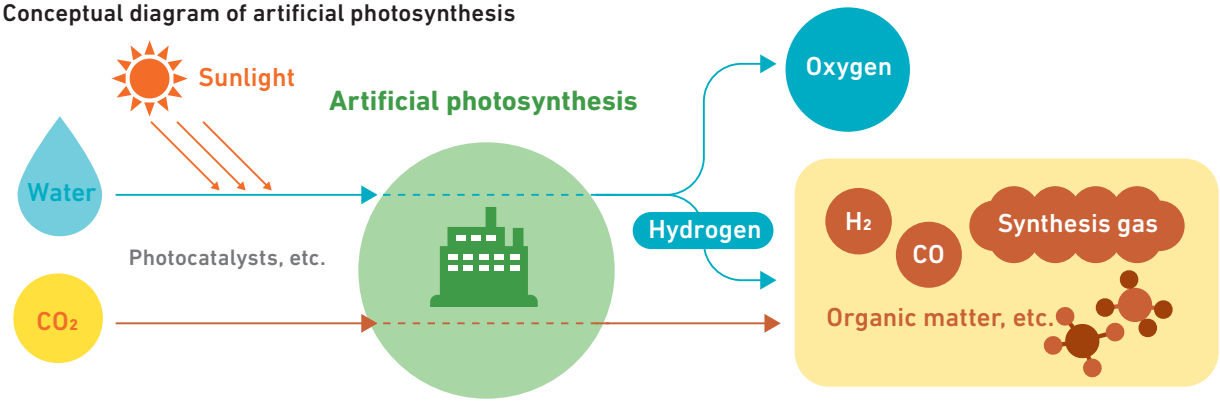
Example case

Artificial photosynthesis

Artificial photosynthesis is attracting attention as one of the CCU (Carbon dioxide Capture and Utilization) technologies. It utilizes sunlight and water to synthesize energy carriers including hydrogen as well as useful compounds such as useful compounds such as olefins, derived from CO_2, through energy storage reactions with no CO_2 emissions. Research and development in this field is also progressing in Japan.

Various approaches are being explored, including water splitting driven by electrical energy generated when sunlight strikes photocatalysts or solar cells, and the use of microorganisms capable of producing specific substances directly from sunlight. The Ministry of the Environment is currently advancing the development and demonstration of CO_2 electrolysis technology utilizing artificial photosynthesis.

Conceptual diagram of artificial photosynthesis



Source: Ministry of the Environment