YANMAR

Corporate Social Responsibility Report

2024

CONTENTS

President’s Message

In recent years, the political, economic and social situations surrounding us, as well as trends related to sustainability, have changed significantly. Rising raw material and energy prices due to prolonged conflicts, sudden exchange rate fluctuations, and rising inflation risks are having a serious impact on society and corporate management.
We also feel that we are being called upon to respond to many social issues that are inseparable from our corporate activities and daily lives, such as food shortages caused by climate change and increasing energy demand due to technological advances and population growth.

At Yanmar Group, we aim to create "A SUSTAINABLE FUTURE - New Value through Technology –" by realizing the four prosperous societies set forth in our FUTURE VISION. At Yanmar, we hold the belief that a new form of prosperity emerges when both nature and humanity thrive together. For this reason, we are committed to providing solutions that help our customers overcome challenges and contribute to the creation of a more prosperous society. To realize “A SUSTAINABLE FUTURE”, YANMAR Group is working on the YANMAR GREEN CHALLENGE 2050 (YGC 2050) and HANASAKA.

"YGC 2050" is a new environmental vision that declares that by 2050, we will become a GHG-free company whose operations have no negative impact on the environment. In addition to carbon neutrality, we will also promote reductions in waste and water resource usage through recycling.

“HANASAKA” is a value of Yanmar nurturing people and the future, by believing in people's potential and supporting them to take on challenges. Based on these values, we have established a system to encourage those who take on challenges without fear of failure, as well as those who support people taking on challenges, and have begun efforts to foster this in our corporate culture. Through initiatives like this, we aim to pass down infinite possibility from generation to generation in a variety of fields, fostering opportunities to shape the future.

To foster prosperity, our focus must be on creating new value by overcoming the challenges that our customers and society face. In addition to "YGC2050" and "HANASAKA", we will continue to work together as one group, creating new value, in an effort to fulfill our mission of solving issues faced in society.

Chief Operating Officer’s Message

Social issues we need to solve

110 years ago, founder Magokichi Yamaoka, was the first in the world to succeed in making the first practical, small size diesel engine, driven by a desire to reduce the heavy labor burden on farmers. Based on the philosophy of “To Conserve Fuel Is to Serve Mankind,” Yanmar’s diesel engines were able to reduce labor thereby enriching rural areas. These values remain a central theme in our brand statement "A SUSTAINABLE FUTURE - New Value through Technology," which we declared on our 100th anniversary. Our purpose is to solve issues in society, leading to a sustainable future.

The business areas that we should focus on are the fields of food production and energy conversion as stated in our mission statement. It is estimated that the world's population will reach 9.7 billion people in 2050. With the decline in the agricultural workforce and shrinking arable land, it is essential to enhance efficiency and sophistication in agriculture to meet the growing food demand. Additionally, energy demand continues to rise, particularly in urban areas. The risks of climate change are increasing annually, and there is a growing expectation for the use of next-generation fuels such as ammonia, methane, and hydrogen, as well as a shift towards electrification.

These are critical areas where Yanmar can make significant contributions. We remain committed to adapting flexibly to societal trends and environmental changes, striving to solve our customers' challenges.

Challenges in the food and energy fields

In modern society, where information is spread globally, the commoditization of all products and services is accelerating. At Yanmar, it is becoming difficult to differentiate ourselves from other companies by simply manufacturing products, and we believe it is important to listen carefully to what our customers are having trouble with on the ground. We are returning to our roots in creating customer value and are working to create a win-win relationship between our customers and ourselves, working together to solve problems .

In relation to food, Yanmar is involved not only in the production of agricultural products, but also in the processing, distribution, and sales of agricultural products. We are working on activities to develop a "food and agriculture industry” by supporting the entire food cycle, adding to the sector’s appeal. For example, we are working to return compost made from food waste to farmland. Also, to minimize waste Yanmar purchases food from farmers that would otherwise be difficult to sell and makes use of them in our employee cafeteria.

We have also proposed a variety of smart agriculture solutions, such as SMARTASSIST and robotic/autonomous tractors. We are currently developing small agricultural machinery with an electric powertrain, and plan to launch it on the market by 2025. Small agricultural machines are sometimes used in garden greenhouses, and electrification can reduce the impact that emissions have on crops and the health hazards of farmers. Additionally, we are conducting trials of SMARTASSIST, a telematics service that provides machines diagnostics, in collaboration with governments and our distributors in Asian countries.

In the energy field, we are working to achieve carbon neutrality as part of the YANMAR GREEN CHALLENGE 2050 activities. Our strength in diesel engines is our efficient engine technology based on combustion and reciprocation. The problem with achieving carbon neutrality is not the engine itself, but the fact that it burns fuels that contain carbon. Hydrogen is considered to be a promising alternative.

A hydrogen pipeline is already in operation in Germany, and efforts to realize a hydrogen society are accelerating in Japan. We are developing gas cogeneration systems that can co-combust up to 30% hydrogen, and opened YANMAR CLEAN ENERGY SITE, in Okayama Prefecture, Japan. We provide the public with the opportunity to see the actual systems in action, including the hydrogen fuel cell power generation system that was released in September 2024, delivering optimized energy solutions to our customers.

We are also progressing with the development of electrification using batteries and motors. The challenge of electrification is to control the powertrain in a well-balanced manner, and here too we can make use of our powertrain optimization technology.

Diversity and Inclusion

The actions in these business areas are supported by none other than each and every employee. Developing a workforce that is able to work enthusiastically and has diverse values, regardless of nationality, culture, religion, gender, or age, is crucial for advancing our globalization strategy.

We have long been committed to localizing our subsidiaries, with many subsidiaries now led by local talent. In Japan, we established the Diversity & Inclusion Group in the Sustainability Promotion Division in July 2024 to promote diversity within the company. We will continue to strengthen initiatives such as promoting women's active participation and encouraging men to take childcare leave.

At Yanmar, we uphold values that recognize the potential within every individual and encourage them to take on challenges. These values, known as HANASAKA, are still the driving force behind our initiatives. We have increased opportunities for employees to embody HANASAKA through internal events like product idea contests and global awards. In December 2023, we launched the HANASAKA app, a smartphone app for Yanmar Group employees, as a new global communication platform. One of its features enables employees to declare challenges that they want to take on. It also allows other employees to provide support in achieving their goals. We will deepen employees' understanding of what HANASAKA means through these initiatives and workshops held worldwide.

To foster a deeper connection with Yanmar's internal culture and activities among more employees, dialogue is essential. It is crucial for management to engage in dialogue with employees to create an environment where everyone, regardless of their position or role, can understand and promote various initiatives. Through these dialogues, we can cultivate greater appreciation towards the company's policies and values, which I believe is vital for our daily operations.

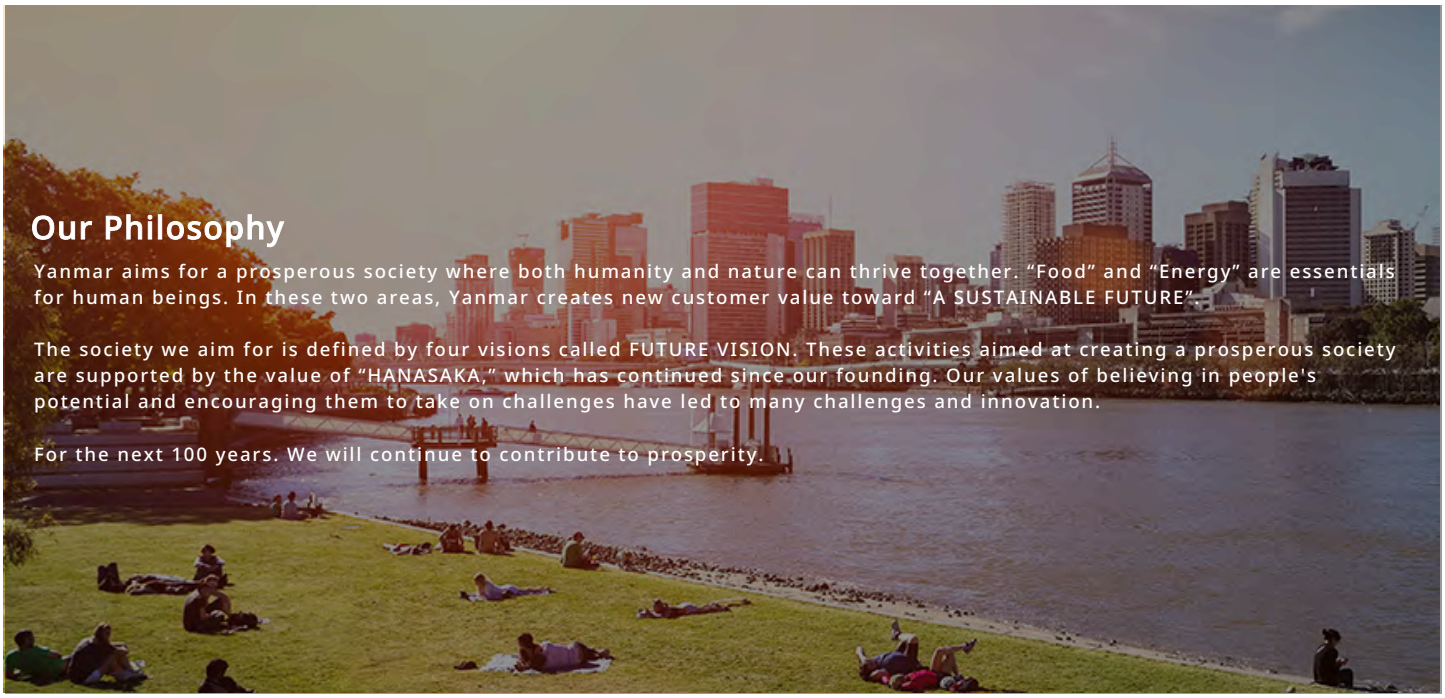
Sustainability

Yanmar aims to create a prosperous society where people and nature coexist harmoniously. However, it is also true that activities aimed at achieving sustainability do not always yield immediate results. Just like investing in product development, a medium- to long-term perspective and continuous pursuit are essential to truly realize a sustainable society.

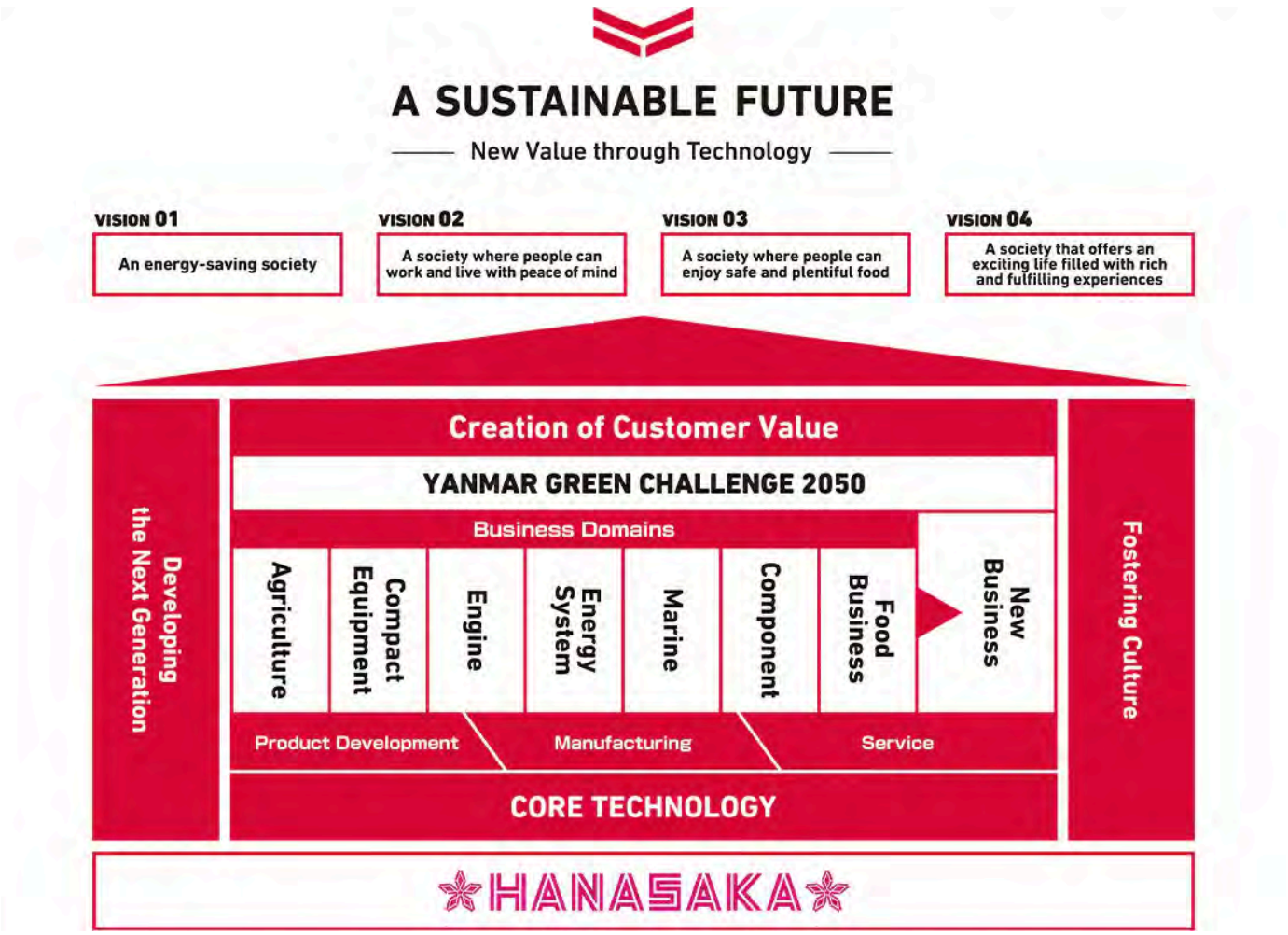
We will continue to listen to the challenges faced by our customers and society and create new customer value. By combining the technology and know-how we have cultivated so far with the new innovations born from HANASAKA, we aim to generate prosperity and become a leading company in sustainability management.

Sustainability and SDGs

Yanmar’s policy towards contributing to a sustainable society



› Details of “Our Philosophy”



Realizing A SUSTAINABLE FUTURE and Contributing to SDGs

Yanmar Group is committed to solving customers' problems using the world' s most advanced technology in the fields of food production and harnessing power. Our Mission Statement declares these elements to be essential to human life. The realization of our Mission Statement is at the core of Yanmar Group's CSR and is indispensable in realizing the four visions of our brand statement, A SUSTAINABLE FUTURE – New Value through Technology. We will contribute to the SDGs by working on Yanmar Green Challenge 2050 and other initiatives in order to put our Mission Statement into practice and realize the four visions for the future depicted in our brand statement

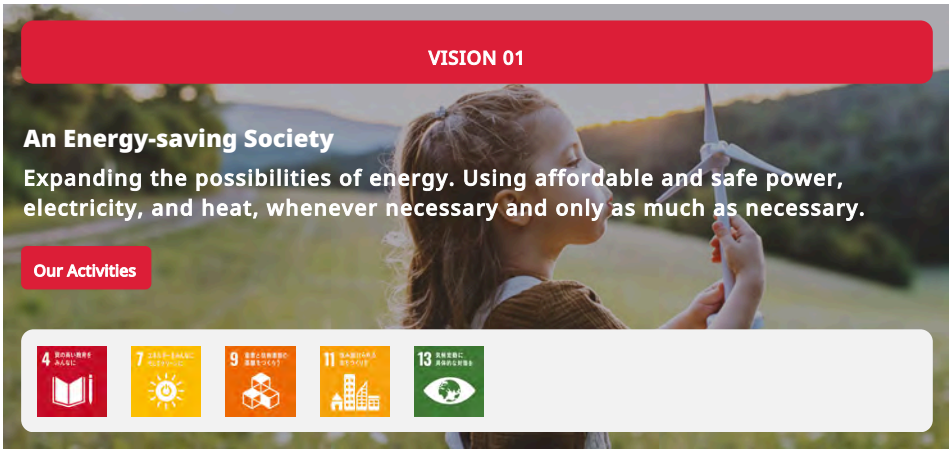
Our Brand Statement

Areas that Yanmar can contribute to

Energy Issues
Climate Change

- Reducing GHG emissions
- Promoting renewable energy
- Energy efficiency initiatives
- Utilizing untapped energy

VISION 01



Areas that Yanmar can contribute to

Work Environment
Natural Disasters

- Work free from unsafe conditions
- Labor saving and higher productivity
- Stable income through new value creation
- Building disaster-resistant communities

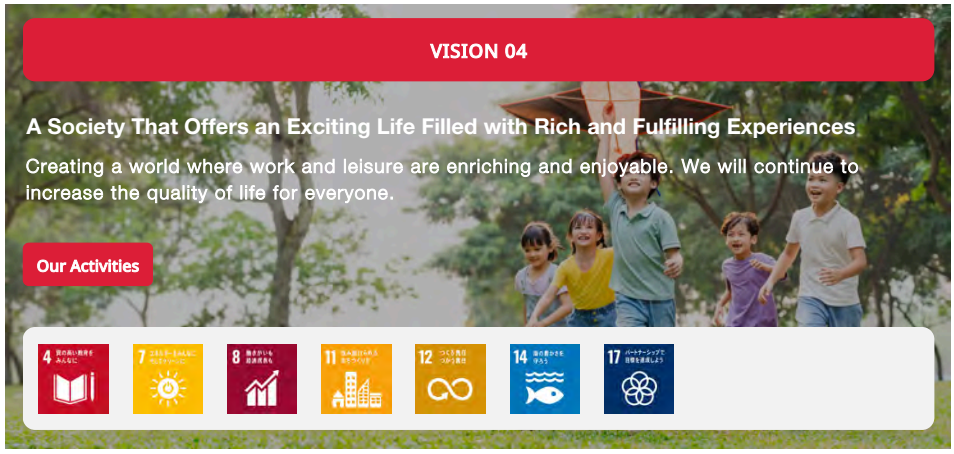
Areas that Yanmar can contribute to

Food Issues
Chronic Shortage of Labor Force

- Compatibility with large-scale agriculture
- Enhancing productivity with an efficient workforce
- Minimizing impacts on produce caused by natural disasters
- Number of farmers in decline with each passing generation

Areas that Yanmar can contribute to

Contributing beyond our business scope by fostering the next-generation and promoting culture-building activities



› Featured Articles from Previous Years

Related Information

YANMAR GREEN CHALLENGE 2050 >

HANASAKA >

Sustainability and SDGs

VISION 01 An Energy-saving Society

What we aim for

Expanding the possibilities of energy. Using affordable and safe power, electricity, and heat, whenever necessary and only as much as necessary.

Areas that Yanmar can contribute to

- Reducing GHG emissions
- Promoting renewable energy
- Energy efficiency initiatives
- Utilizing untapped energy

SDGs Goals related to VISIONs

KeyInitiatives

YANMAR POWER TECHNOLOGY CO., LTD.

An offshore wind turbine equipped with Yanmar's marine hydrogen fuel cell system successfully sailed with zero emissions for the first time in the world

Customer challenges

In order to achieve carbon neutrality by 2050, the Japanese government has formulated the “Green Growth Strategy Through Achieving Carbon Neutrality in 2050” and the shipping industry is positioned as one of the 14 fields that are expected to grow. The plan expected the promotion of hydrogen fuel cell systems for short-range and small-sized ships, and the launch of a zero-emission ship demonstration project by 2025. Regarding these backgrounds, to reduce CO_2 emissions from domestic shipping, which accounts for 5% of CO_2 emissions from the transportation sector in Japan, to zero, the Nippon Foundation focused on the development of hydrogen-fueled zero-emission ships and provided support to a consortium engaged in the technological development of hydrogen fuel cell offshore wind-turbine workboats.
The powertrain of the workboat is powered by an electric propulsion system, and the consortium was looking for a provider who could oversee the entire system. Yanmar Power Technology has the most proven track record in the field of marine fuel cells and electric propulsion systems in Japan, and has responded to the request for technical cooperation from the consortium.

Solutions

A demonstration experiment* of zero-emission operation using the hydrogen fuel cell offshore wind turbine "HANARIA" was conducted at Kokura Port in Kitakyushu City from March to April 2024. The marine hydrogen fuel cell system installed on the vessel was developed by Yanmar Power Technology using the fuel cell unit used in the Toyota fuel cell vehicle (FCEV) “MIRAI”.

HANARIA

The HANARIA is 33 meters long, 238 tons gross, and has a capacity of 100 passengers. It is equipped with an electric propulsion system integrated by Yanmar Power Technology, including two hydrogen fuel cells, storage batteries, biodiesel power generation engines, power control, propulsion equipment, and remote monitoring. The adoption of Yanmar's electric propulsion system enables optimal energy management on board the ship, including a zero-emission mode in which only hydrogen fuel cells and storage batteries are used, and a hybrid mode in which five hydrogen fuel cells, storage batteries and biodiesel power generation engines are operated in parallel. In particular, the vessel is operated only with a hydrogen fuel cell system and storage batteries which achieves zero emissions, significantly reducing vibration and noise from the power source, and provides a comfortable onboard environment without the smell of exhaust gas.

In the demonstration experiment conducted between Kokura Port and the Shiroshima offshore wind power plant, the vessel operated in zero-emission mode using hydrogen fuel for a distance of 30 km round trip from departure to arrival, and carried out a zero-emission cruise that emits no CO2 for approximately 3 hours and 45 minutes. In order to spread the use of hydrogen fuel cell vessels, it is necessary to establish international standards for marine hydrogen fuel cell systems and build a hydrogen supply system at ports. We continue to work to achieve carbon neutrality in cooperation with necessary fields.

※ Consortium for field Trials: MOTENA-Sea Co., Ltd. (overall management), MOL Techno-Trade, Ltd. (project feasibility study), HONGAWARA SHIP YARD CO., LTD. (design and construction of hydrogen-fueled vessels), Kanmon-Kisen Co., Ltd. (operation), TAIYO NIPPON SANSO CORPORATION (hydrogen supply and procurement)

Providing value to society

- Through the use of hydrogen, which emits only water when fuel is used, the company aims to reduce CO_2 emissions from coastal ships to zero and contribute to the realization of carbon neutrality by 2050.
- It is expected to be used not only as an offshore wind turbine (CTV*), but also in a variety of ship types, including coastal freighters and passenger ships in Japan.

※ Stands for Crew Transfer Vessel

Related information

› First shipment of marine hydrogen fuel cell systems for the first time in Japan for hybrid passenger ships of hydrogen and biofuels

YANMAR ENERGY SYSTEM CO., LTD.

Solve the issues of rice husk processing and decarbonization Started demonstration tests of rice husk biochar production system

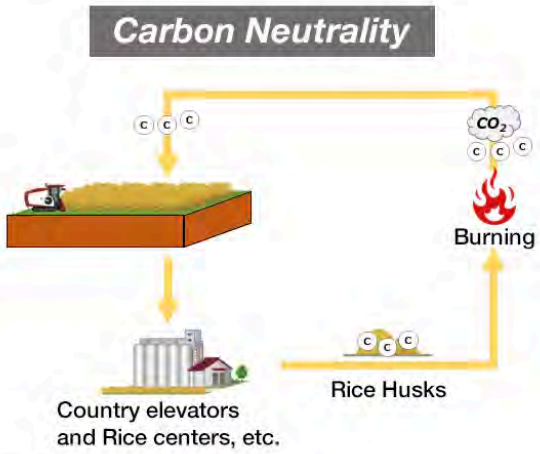
Customer challenges

In rice production, the processing of rice husks that are generated in large quantities every year during the rice threshing process after harvesting has become an issue. The field burning of rice husks, which used to be common in Japan, is now prohibited, and the approximately 2 million tons of rice husks generated annually in Japan are partially burned or used for compost, but they are not fully utilized. In order to realize a decarbonized society, it is also being considered to contribute to the carbon negative, and there is a need for solutions in both the effective utilization of rice husks and decarbonization.

Solutions

Conventionally

No change in atmospheric CO_2. Even if the carbon contained in rice husks is released into the atmosphere through combustion, the same amount of carbon is absorbed through photosynthesis in new rice plants.



Our solution

CO_2 in the atmosphere reduces. Processing 400 tons of rice husks per year per unit can fix the equivalent of 117 tons of CO_2 (fixing approximately 20% of the carbon contained in rice husks). Country elevators (a type of grain storage facility), rice centers, etc.

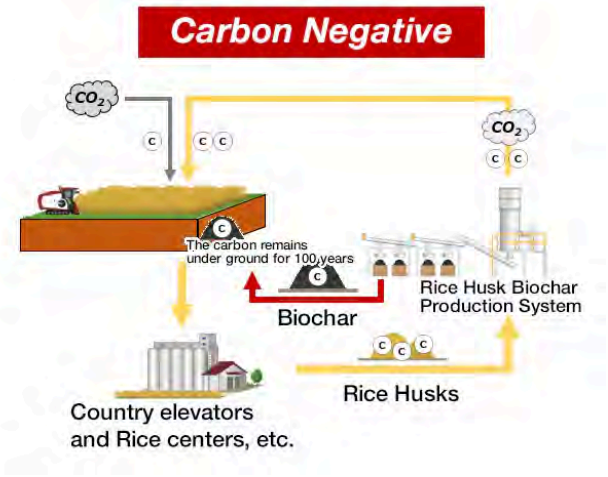


Image of the decarbonization cycle

Rice husks: The amount of rice husks processed per day (approx. 2.4 tons)

Biochar

Since 2019, Yanmar Energy System has been developing a rice husk biochar production system focusing on the biochar production area, which had been demonstrated with a rice husk gasification power generation system. In order to achieve full-scale commercialization, Yanmar Energy System began a demonstration test of this system in October 2023. With the cooperation of Nishisaka Agricultural Machinery Co., Ltd. Imazu Sales Office in Takashima City, Shiga Prefecture, the two companies will conduct demonstration tests with the aim of commercializing the product by the end of fiscal 2024.
This system achieves clean exhaust emissions without odors or smoke through high-temperature combustion, and the produced biochar is more porous than ordinary biochar and can adsorb various substances through high-temperature treatment. When 400 tons of rice husks are processed per year, biochar can be produced that can fix 117 tons of carbon (CO2 equivalent). By applying this to agricultural land, it can contribute to achieving carbon negativity. In addition, after the rice husk is set on fire by an electric heater without using any fossil fuels, the fuel inside of the furnace can be maintained at a high temperature of 800 to 1000°C using only the energy of the rice husk.

This demonstration test aims to establish technologies for decarbonization in the agricultural sector through recycling-oriented agriculture utilizing unused resources (rice husks) and carbon fixation by soil application of biochar. We will also study the use of waste heat generated during the combustion of rice husks. We aim to establish environmental and economic benefits for customers through the introduction of the equipment, such as reducing rice husk processing costs, expanding the use of generated biochar, and monetizing using carbon credits.

In addition, in order to pursue the future potential of biochar, we are participating in the Green Innovation Fund project of the New Energy and Industrial Technology Development Organization (NEDO), a National Research and Development Agency, and are working with consortium companies on the research and development of a manufacturing technology for "high-performance biochar" with the function of useful microorganisms that show effects such as suppressing soil disease bacteria.

- **Processing capacity:**
  Rice husks processed 400 tons/year (4,000 h/year)
  Rice husk biochar produced 100 tons/year (Carbon fixed amount *117t - CO_2/year)

※ CO_2 equivalent value. In practice, CO_2 emissions during production and fertilization must be subtracted separately.

Providing value to society

- We will contribute to the establishment of recycling-oriented agriculture by soil application of biochar, and to carbon neutrality in the agricultural sector through carbon fixation.
- The use of waste heat from rice husk combustion contributes to the effective use of energy.

Management

› YANMAR GREEN CHALLENGE 2050

Sustainability and SDGs

VISION 02 A Society Where People Can Work and Live with Peace of Mind

What we aim for

Transforming harsh labor into comfortable work. Everyone can work comfortably and earn a steady income while living a rich life in harmony with nature.

Areas that Yanmar can contribute to

- Work free from unsafe conditions
- Labor saving and higher productivity
- Stable income through new value creation
- Building disaster-resistant communities

SDGs Goals related to VISIONs

KeyInitiatives

YANMAR VINEYARD SOLUTIONS S.A.S

Started sales of the fully autonomous robot YV01, which reduces risks to workers' safety and health in vineyards

Customer challenges

Wine makers are constantly exposed to safety and health risks associated with labor-intensive tasks such as chemical spraying and weeding performed in vineyards. In France, the standards for application of pesticide are becoming stricter due to the effects on the human body. In addition, the use of herbicides between rows is prohibited except in cases where mechanical herbicides are not possible, such as on steep slopes. ANSES (the French Agency for Food, Environmental and Occupational Health & Safety) aims to completely ban herbicides. In addition, there is a shortage of labor in Europe, so securing human resources is also a challenge.

Solutions

Vineyard robot YV01

Yanmar Vineyard Solutions SAS (France), a Yanmar group company, has started selling the YV01, a fully autonomous smart vineyard robot for French champagne and wine producers, as well as supporting customers.

Thanks to its advanced spraying technology, YV01 is able to accurately apply pesticide to the vines, minimizing the impact on human health and the effects of air pollution. In addition, it is easy to navigate the narrow alleys and steep slopes of the vineyard in any weather conditions. The compact, lightweight enclosure allows you to climb up to 45% of slopes, reducing soil compression even in muddy conditions.

The operator can remotely monitor the YV01 via a simple remote control and monitor the YV01 safely from outside the spray range without the risk of falling. In addition, mechanical weeding work on steep slopes is also possible for soil cultivation, and the use of herbicides can be suppressed. Moreover, the YV01 can be easily transported by light trucks or trailers. This frees the operator from labor-intensive work in the vineyard.

YV01 was developed in close cooperation with CIVC, an organization that manages the production, distribution and promotion of premium wine and champagne makers. A demonstration test by a pilot customer in the Champagne region confirmed that it would improve both the profitability of the wine maker and the safety of the operator. In the future, we will establish a sales and service system in France with a view to developing services in other countries.

Providing value to society

- Reducing the effects of chemicals on producers and neighboring residents, as well as air pollution.
- Reducing the workers' workload on vineyards and protect their safety and health.
- Contributing to resolving the labor shortage on vineyards in Europe.

Sustainability and SDGs

VISION 03 A Society Where People Can Enjoy Safe and Plentiful Food

What we aim for

Ensuring delicious, safe, and nutritious food, anywhere in the world, at any time. Everyone can live a healthier life.

Areas that Yanmar can contribute to

- Compatibility with large-scale agriculture
- Enhancing productivity with an efficient workforce Minimizing
- impacts on produce caused by natural disasters
- Number of farmers in decline with each passing generation

SDGs Goals related to VISIONs

KeyInitiatives

YANMAR MARCHÉ CO., LTD.

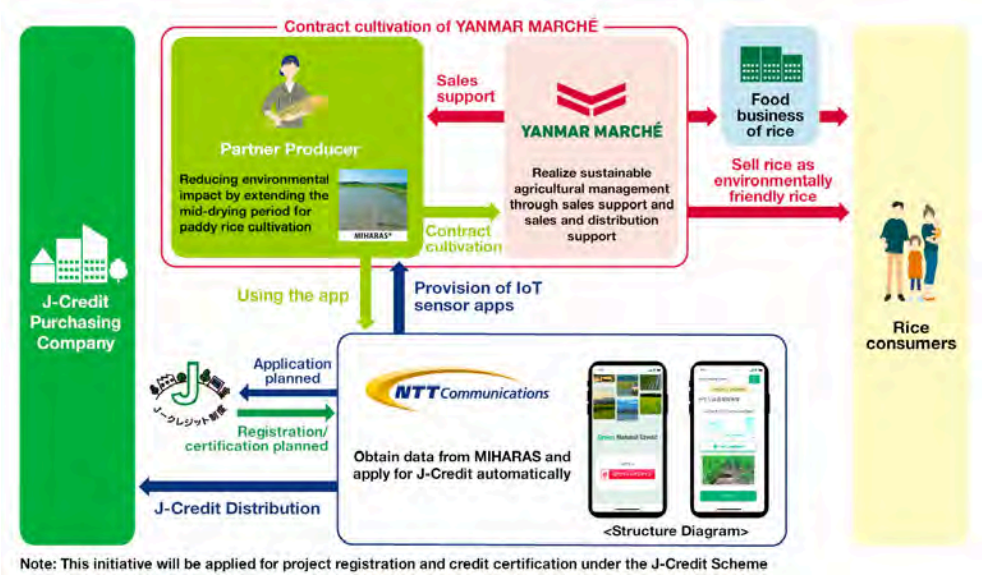
Supports farmers through branding and farming using new methods utilizing J-Credit

Customer challenges

Agriculture, forestry and fisheries are sensitive to climate change. The average annual temperature in Japan has increased by 1.3° C over the past 100 years, and the summer of 2023 is the hottest since the start of the statistics, causing quality drop of agricultural products. In addition, increase in rainfall due to the intensifying weather is causing flooding damage, affecting agricultural facilities.
In order to deliver safe and secure agricultural products to consumers, every farmer is required to take urgent measures on climate change issue. However, the introduction of energy-saving equipment and the use of renewable energy are costly, and the delay in solutions has been an issue.

Solutions

Farming method that extend the period of "mid-drying" in which water is drained from the paddy field



YANMAR MARCHÉ CO., LTD., together with NTT Communications Corporation (hereinafter "NTT COM"), is supporting partner farmers in growing rice in accordance with "Extending the mid-drying period for paddy rice cultivation" methodology, reducing GHG emissions and building a new agricultural model through the distribution of J-Credit created.

"Mid-drying" refers to the state in which the water in a paddy field is drained during the cultivation of paddy rice (the period of overflowing water). Extending this period makes the surface of the paddy field to dry out and the function of methane-generating bacteria to weaken, thereby reducing the generation of methane gas. The Ministry of Agriculture, Forestry and Fisheries (MAFF) is promoting "Extending the mid-drying period for paddy rice cultivation" project using the J-credit system in order to popularize this methodology.

By using IoT sensors and applications provided by NTT COM, farmers will be able to reduce the administrative burden of applying for J-Credit, while Yanmar Marche will support farming operations and branding of harvested rice, contributing to the expansion of their business. In 2023, we extended the period of mid-drying of high-yielding, good-tasting rice "Niji no Kirameki" at five partner farmers in Fukui and Shiga prefectures, and conducted a survey on the creation of J-credits and quality. As a result, CO_2 emissions were reduced by 44 tons (equivalent to the amount of CO_2 emitted by approximately 5,000 cedar trees per year)*.

J-Credit is sold directly to companies engaged in carbon offset activities and through the Tokyo Stock Exchange, thereby contributing to the realization of a decarbonized society by revitalizing the carbon credit market.

In March 2024, in collaboration with StoryCrew Inc., a company that provides food services for offices mainly in Tokyo, sold Bento boxes made with the harvested rice for a limited time. A questionnaire was attached to the lunch box, and a survey on ethical consumption was conducted. Sales are also scheduled to begin in October 2024 through “d Shopping”, operated by NTT DoCoMo, Inc.

※ Global Warming potential: If CO_2 is 1, CH4 is multiplied by 25

Providing value to society

- We will contribute to reduce GHG emissions by applying the method of extending the mid-drying period for paddy rice cultivation to partner farmers nationwide. (In addition to Fukui and Shiga prefectures, Aomori, Niigata and Shimane prefectures will be introduced in the future.)
- By providing a new business model that turns GHG emissions reduction into benefits for farmers, it will contribute to the revitalization of agriculture as a whole.

Management

› YANMAR GREEN CHALLENGE 2050

Sustainability and SDGs

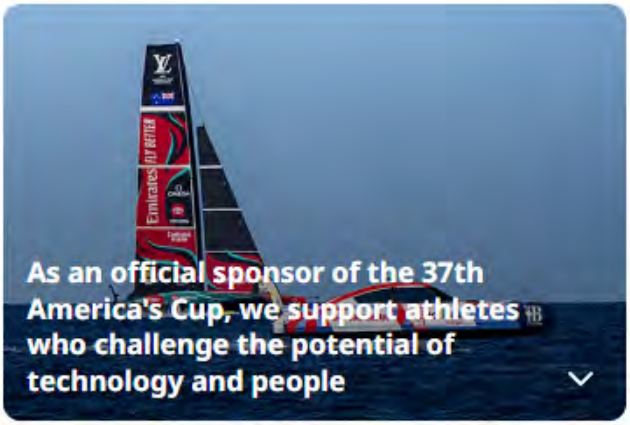
VISION 04 A Society That Offers an Exciting Life Filled with Rich and Fulfilling Experiences

What we aim for

Creating a world where work and leisure are enriching and enjoyable. We will continue to increase the quality of life for everyone.

SDGs Goals related to VISIONs

KeyInitiatives



As an official sponsor of the 37th America's Cup, we support athletes who challenge the potential of technology and people

Solutions

37th America's Cup Awards Ceremony (September 2023)

Yanmar Holdings Co., Ltd. will be an official sponsor of the 37th America's Cup, the pinnacle of international yacht racing, where the world's top sailors gather. We have been supporting since the 34th game. The final round of the 37th games will be held in Barcelona, Spain from August to October 2024.

The America's Cup began its history in 1851. The unyielding spirit, enthusiasm, and teamwork have continued to push the limits of human potential and technology.
Like them, Yanmar believes in the power of people to explore new possibilities and technologies, and to push the boundaries. We call this spirit HANASAKA. This is a set of values based on our founder's spirit, and it embodies our belief in the potential of people.
In the America's Cup, the pinnacle of sailing racing that uses the ultimate natural energy - "wind", we have found the ultimate form of coexistence between humans and nature. Through the Games, we share how great and fun the ocean is with many people and contribute to the realization of an exciting society.

We Yanmar Group will continue to work toward the realization of its brand statement, "a sustainable future," through its sponsorship activities for marine sports that we all enjoy around the world.

Value provided to society

- By believing in and supporting the potential of people who continue to take on challenges for a world in which people and nature coexist, we will prove that we can make the future better, and keep contributing to the realization of such future.

YANMAR