



# SUSTAINABILITY REPORT 2019

(IN-DEPTH VERSION)



Mazda will celebrate the 100th anniversary of its founding in 2020.

To ensure that Mazda continues to thrive and develop as an enterprise over the next 100 years, we must prize our uniqueness and co-create that uniqueness with others. With this in mind and as a milestone to mark the beginning of our next 100 years, we envisioned our ideal for the Mazda brand in the decade from 2030 to 2040. To realize that ideal, in May 2019, we prepared a Medium-Term Management Policy covering the next six years, during which time we will fully introduce the new-generation product lineup that has begun with the Mazda3 launched in 2019.

With vehicles sold in more than 130 countries and regions worldwide and manufacturing operations in seven, Mazda has a social responsibility to many stakeholders. Mazda Sustainability Report 2019 presents our Medium-Term Management Policy and other initiatives from the perspective of CSR. We very much hope that our stakeholders will find the report interesting and informative.

## CONTENTS

2	Preface	62	Efforts Regarding Product and Technology Development
3	Corporate Vision/ Editorial Policy	70	Efforts Regarding Manufacturing and Logistics
4	<b>Top Message</b>	77	Collection and Recycling of End-of-Life Vehicles (ELVs) and Used Parts
	Inspiring People through Cars	79	Biodiversity Conservation
	Sustainable with the Earth and Society	80	Environmental Communication
7	<b>Feature Story 1 Long-term Vision for Technology Development</b>	82	Mazda's Corporate Activities and Impact on the Environment
13	<b>Feature Story 2 Mazda's Unique Battery Electric Vehicles (BEVs)</b>	84	<b>Respect for People</b>
16	FY March 2019 Highlights	85	Initiatives with Employees
17	Major Product Lineup	96	Human Rights
18	Global Network	99	<b>Social Contributions</b>
20	<b>Mazda CSR</b>	100	Social Contributions
21	CSR Management	105	<b>Management</b>
26	Stakeholder Engagement	106	Management
28	<b>Customer Satisfaction</b>	117	Implementing CSR in the Supply Chain
29	Providing the Mazda Brand Experience to Customers	120	With Shareholders and Investors
34	<b>Quality</b>	121	<b>Innovation</b>
35	Commitment to Quality	130	History of Mazda
40	<b>Safety</b>	132	Third-Party Opinion
41	Safety Initiatives	133	Third-Party Verification
51	<b>Environment</b>	134	Third-Party Assurance
52	Basic Approach to Environmental Protection, and Environmental Promotion Framework and Plan	135	Table of Comparisons with Guidelines
58	Environmental Management	141	Corporate Profile

## Corporate Vision\*

We love cars and want people to enjoy fulfilling lives through cars.

We envision cars existing sustainably with the earth and society,  
and we will continue to tackle challenges with creative ideas.

1. Brighten people's lives through car ownership.
2. Offer cars that are sustainable with the earth and society to more people.
3. Embrace challenges and seek to master the Doh ("Way" or "Path") of creativity.

\* Mazda revised its Corporate Vision in April 2015, with the following objectives, aiming to be recognized as a corporate group gaining sincere trust of its stakeholders.

- Clarify the attributes of the Mazda brand, and make concerted efforts across the Mazda Group to realize the Corporate Vision.
- Promote the Group-wide dialogue process to share, understand and agree the goal of the Corporate Vision through the continuous thorough discussions.
- Closely link the Corporate Vision to our daily business activities.

## Editorial Policy

- This report presents Mazda's CSR initiatives in the six areas—Customer Satisfaction, Quality, Safety, Environment, Respect for People, and Social Contributions—primarily regarding the targets and results of these initiatives.
- Aiming to satisfy the needs of readers, Mazda studied the editorial policy and content of this report in reference to the third party opinion and stakeholders' ideas and views obtained through the questionnaire survey and engagements with stakeholders.

## Report Coverage

**Organizations Covered:** The entire Mazda Group, including Mazda Motor Corporation and its Group companies, is covered in this report. (Where the reporting item is not applicable to the entire Mazda Group, the organizations covered are specified.)

**Period Covered:** The report primarily covers the period from April 2018 through March 2019, although some activities after April 2019 are included.

**Scope of the Report:** Social, environmental, and economic data are included in this report.

\* For more details about economic data, see Mazda's website Investor Relations & Annual Report.

## Referenced Guidelines

This report has been prepared in accordance with the GRI Standards: Core option.

Other guidelines referenced: Japanese Ministry of the Environment's Environmental Reporting Guidelines (2018 Edition), Japanese Ministry of the Environment's Environmental Accounting Guidelines (2005 Edition), ISO26000

## Date of Publication (In-depth version)

Japanese version: October 2019 (The previous report was published in October 2018; the next report will be published in the summer of 2020).

\* The 2019 digest version (PDF / Booklet) was published in November 2019.

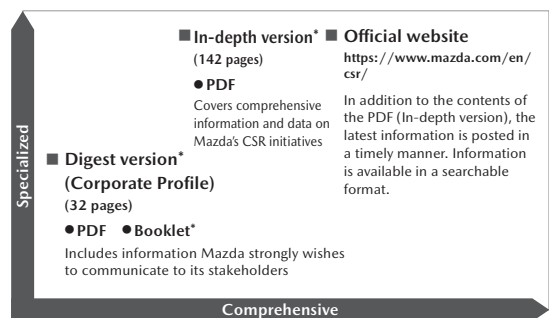
English version: November 2019 (The previous report was published in November 2018; the next report will be published in the autumn of 2020).

\* The 2019 digest version (PDF / Booklet) will be published in December 2019.

## Approach to Reporting Information

Mazda discloses information in the following formats.\*

\* If any content errors are found after publication, a list of errata will be posted on Mazda's official website.



\*Available on our website at <https://www.mazda.com/en/csr/report/download/>

Disclaimer: This report includes future projections for Mazda Motor Corporation and its Group companies' performance based on plans, forecasts, management plans, and strategies at the time of publication, in addition to actual past and present facts. Such forward-looking statements are predictions based on information or assumptions available at the time of edit, and may differ from future operational results due to changes in circumstances.



**Inspiring People through Cars**

**Sustainable with the Earth and Society**

**Akira Marumoto**

Representative Director,  
President and CEO  
Mazda Motor Corporation

*A. Marumoto*

## Contributing to the achievement of sustainable economic growth and solving social issues

In the automotive industry today many social issues surround us, such as global climate change and road traffic safety. For all of us to be able to live vibrantly and sustainably on earth, the responsibility of businesses is to provide products and services that benefit the earth and society through innovation to achieve sustainable economic growth and solve social issues.

As Mazda's Corporate Vision states, we wish to "brighten people's lives through car ownership," and "offer cars that are sustainable with the earth and society to more people." In keeping with this vision, in 2017 we announced "Sustainable Zoom-Zoom 2030" (see pp.7-12), to show our roadmap and vision leading up to the year 2030, for the development of technologies and infrastructure that will help resolve issues faced by the earth, society and people. I am confident that "Sustainable Zoom-Zoom 2030" will also contribute to achievement of the Sustainable Development Goals (SDGs) (see p.24).

## Formulating the Medium-Term Management Policy by envisioning our ideal for the Mazda Brand

Mazda will celebrate the 100th anniversary of its founding in 2020. I see it as my responsibility to lay the foundation for Mazda's sustained development over the next 100 years. To ensure that Mazda continues to thrive and develop, we must prize our uniqueness and co-create that uniqueness with others. I believe co-creating with others will sustain Mazda's uniqueness.

With this in mind and as a milestone to mark the beginning of our next 100 years, we envisioned our ideal for the Mazda brand in the decade from 2030 to 2040. To realize that ideal, we prepared a Medium-Term Management Policy covering the next six years, during which time we will fully introduce the new-generation product lineup that has begun with the Mazda3 launched in 2019. In formulating the Medium-Term Management Policy, we first reviewed the Structural Reform Plan and Structural Reform Stage 2, took a fresh look at our strengths and weaknesses as a company, and took into account the external environmental factors affecting the automotive industry as a whole. We then defined three priority areas in which we need to focus our business resources and efforts as well as the direction of the initiatives in each area.

### IDEAL FOR 2030-40

#### OUR DREAM

Mazda,  
together with  
our friends sharing the  
same dreams, through efforts  
to break through limitations, will enable all  
stakeholders to feel alive, proud of  
their connection with Mazda,  
and emotionally  
attached to  
the brand.



Making Dreams Come True Together

## Defining the three priority areas and the direction of initiatives in each area

The first of the three priority areas is "Investment in unique products and customer experience" to further enhance brand value. We will maintain and strengthen our investment in unique products and technologies, one of our key strengths, and in enhancing the customer experience. We will also strive to increase the number of customers who understand the value Mazda offers to support sales growth. The second is to "curb expenses that depreciate our brand value." We will drastically curb spending on incentives, quality-related issues and other outgoings that can depreciate brand value. The third is "investment in the areas in which we need to catch up." Specifically, we will invest in areas in which we have so far not made sufficient headway and where we need to catch up. These include (1) optimal production structure that support local production for local consumption (as with our new joint venture plant that is due to begin operations in 2021 in the United States), (2) infrastructure for connectivity and sharing services, (3) strengthening alliances with other OEMs to adapt to CASE\* trends in the future, (4) our employees and their working environments, (5) shareholder returns, and (6) SDGs & CSR-related initiatives. Moving forward, we will implement concrete measures guided by this policy. We will make continuous efforts to take up the challenge of attaining our targets for FY March 2025 and our longer-term "ideal" for the brand, seeking sustained growth and enhancement of corporate value over the medium and long term.

\* An acronym signifying new trends in the automotive industry, including connected technologies, autonomous driving, shared services, and electrification.

### Direction of Initiatives Based on the Medium-Term Management Policy

Effect of brand value improvement	■ Improve per-unit revenue by responding to customer and market diversification
<b>1</b> Investment for brand value improvement	■ Invest in new-generation products, sales networks, and customer experience
<b>2</b> Curb expenses that depreciate brand value	■ Trade cycle management and reduced incentives ■ Quality improvement to enhance customer satisfaction
<b>3</b> Investment in infrastructure	■ Build an optimum production structure that supports local production for local consumption ■ Invest in infrastructure for connectivity/sharing business, etc.
Investment in partnerships	■ Based on mutual trust, enhance alliances with partners to work together
Investment in employees / work environment	■ Improve the work environment to enhance employee motivation
Shareholder returns	■ Continue stable shareholder returns
SDGs & CSR-related investment	■ Co-exist with society and focus on our raison d'être ■ Increase investment in environment and safety technologies

## Promoting CSR to contribute to achievement of the SDGs

To address social issues and contribute to achieving the SDGs in the course of our daily business activities, we have included “SDGs & CSR-related investment” in the Medium-Term Management Policy. We will strengthen investment in safety and the environment, in order to combat climate change and enhance road traffic safety, priority issues for all automobile manufacturers. At the same time, we will promote activities to help enrich people’s lives by capitalizing on Mazda’s technologies and other resources.

One such initiatives is the testing of a shared mobility service utilizing connectivity technologies, which began in December 2018 in Miyoshi City, Hiroshima Prefecture. Recent years have witnessed the dilapidation of public transportation systems in depopulated areas in the mountainous regions of Japan, and this has made it harder for the elderly and disabled to get around. Through this testing, with an eye on future shared mobility, Mazda aims to build a social contribution model that will support regional revitalization and enrich lives in the region by offering safe, secure and unrestricted mobility to people everywhere. In cooperation with local residents and governments, the Company is working to develop an environment that enables more effective use of cars and connectivity technologies, so as to encourage human interaction and create connections between drivers participating in the testing and people in each local community (see p. 104).

To deal with social issues on a global basis, in January 2018, Mazda signed the United Nations Global Compact, and in May 2019, declared its support for the recommendations from the Task Force on Climate-related Financial Disclosures (TCFD), set up by the Financial Stability Board (FSB) (see p. 22).

While securing coordination among international organizations, local governments and companies, we will push forward with CSR initiatives to contribute to achievement of the SDGs.

## Aiming to be a brand that is connected to all stakeholders by the strongest of bonds

With vehicles sold in more than 130 countries and regions worldwide and manufacturing operations in seven, Mazda has a social responsibility to many stakeholders. Together with our customers, business partners, local communities, employees and all other stakeholders, we will work hard to realize our shared dreams. As they make these efforts with us, we want to enable them to feel alive, proud of their connection with Mazda, and emotionally attached to the brand. That will make Mazda into the brand we want it to be, connected to all stakeholders by the strongest of bonds. I pledge to value dialogue with our stakeholders as we strive to realize our corporate vision and achieve sustainable growth for both Mazda and society. We will continue to work wholeheartedly to grow as a company that is truly trusted by our global stakeholders, and inspire people through cars that are sustainable with the earth and society.



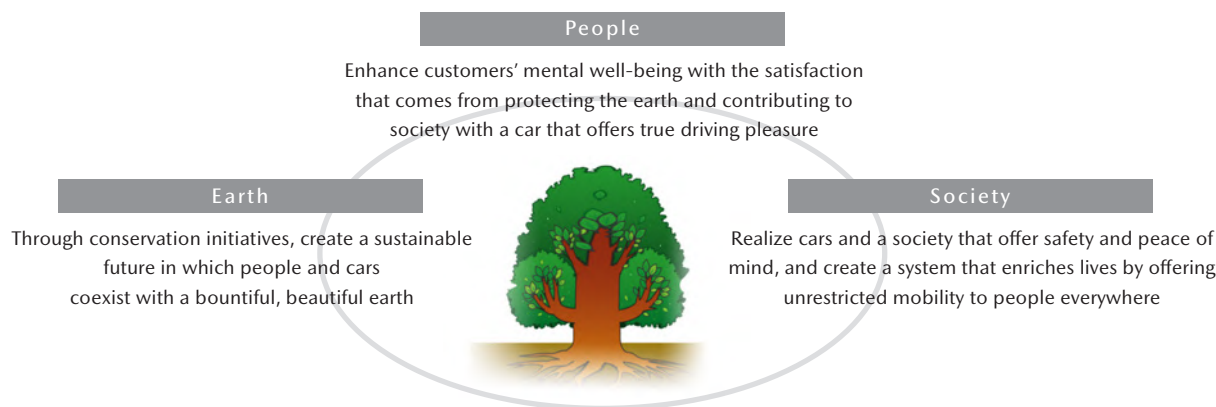
## Feature Story 1: Long-Term Vision for Technology Development

In 2007, Mazda announced the “Sustainable Zoom-Zoom” long-term vision for technology development. Based on that vision, Mazda has worked to provide both driving pleasure and outstanding environmental and safety performance.

In August 2017, Mazda announced “Sustainable Zoom-Zoom 2030,” its long-term vision for technology development that looks ahead to the year 2030. In light of the significant changes in the global automobile industry, the new vision takes a longer-term perspective and sets out how Mazda will make use of driving pleasure—the fundamental appeal of the automobile—to help resolve issues facing the earth, society, and people.

### Sustainable Zoom-Zoom 2030

**At Mazda, we see it as our mission to bring about a beautiful earth and to enrich people’s lives as well as society. We will continue to seek ways to inspire people through the value found in cars.**



#### Earth

Through conservation initiatives, create a sustainable future in which people and cars coexist with a bountiful, beautiful earth

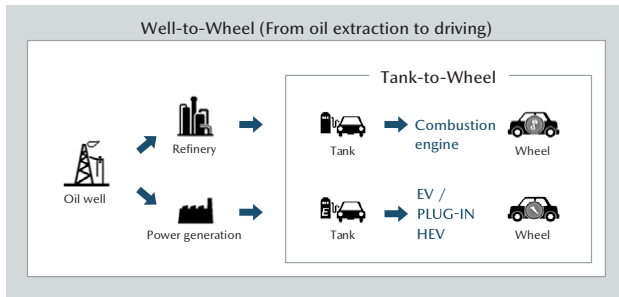
#### Issues and the External Environment

- Need for substantial reductions in CO<sub>2</sub> emissions in order to reduce greenhouse gases, which are a primary cause of global warming
- Increasingly serious air pollution in major cities around the world

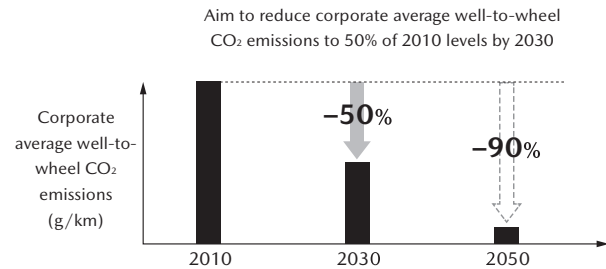
To address these issues and truly reduce greenhouse gases, we must work to reduce CO<sub>2</sub> emissions throughout a vehicle’s life cycle. Accordingly, we are promoting the reduction of CO<sub>2</sub> emissions not just from the conventional perspective, which evaluates CO<sub>2</sub> emissions while driving, but also from a well-to-wheel perspective, which evaluates CO<sub>2</sub> emissions from oil extraction to product manufacture and shipping as well. Specifically, we aim to reduce our corporate average well-to-wheel CO<sub>2</sub> emissions to 50% of 2010 levels by 2030 with a view to achieving a 90% cut by 2050.

This approach and its goals are in alignment with the Paris Agreement, an international agreement to combat climate change and reduce greenhouse gas emissions, and the Strategic Commission for the New Era of Automobiles, under Japan's Ministry of Economy, Trade and Industry (METI).

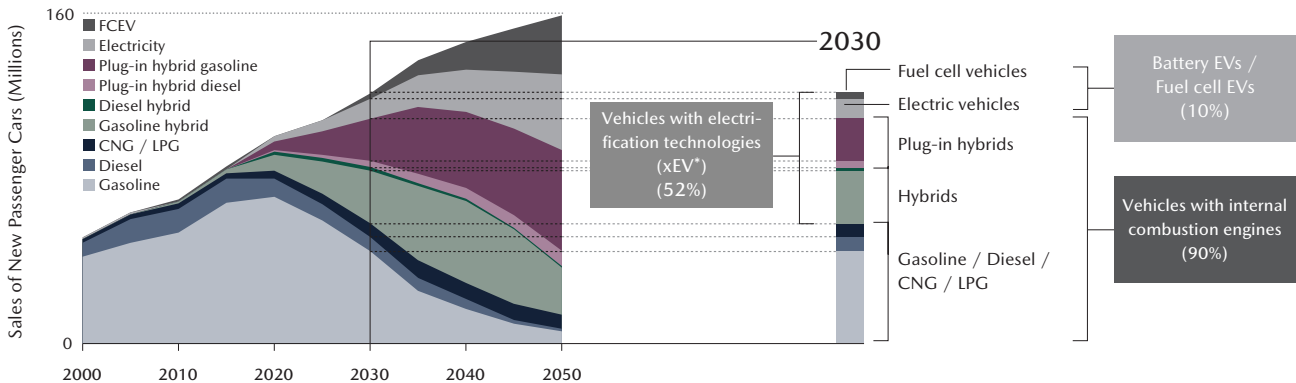
#### CO<sub>2</sub> Emissions Reduction from Well-to-Wheel Perspective



#### Targets



To achieve these objectives, we are developing multiple solutions that enable us to offer appropriate powertrains that take into consideration each region's energy situation and power generation mix. We will continue to pursue advances in the internal combustion engine, which is widely expected to help power the majority of cars worldwide well into the future (see illustration below). Meanwhile, we plan to equip all combustion engine-powered cars with some form of electrification technology by 2030. In addition, aiming to make fuels themselves as carbon neutral as possible, we will step up collaborative efforts with other companies and between industry, academia, and government to encourage the spread of renewable liquid fuels such as microalgae biofuels.



IEA / ETP-Energy Technology Perspective 2015

\* xEV = Electrified vehicles (Battery EVs, plug-in hybrid EVs, hybrid EVs, and fuel cell EVs), based on the Interim Report by the Strategic Commission for the New Era of Automobiles under METI

#### Means to Achieve Our Targets

To protect the earth, we will implement the following initiatives in order to maximize the effect of reduced greenhouse gas emissions under real-world conditions.

1. Aspire to make the best internal combustion engine in the world
2. Combine the ideal internal combustion engine with efficient electrification technologies
3. Introduce electric vehicles (EVs) and other electric-powered technologies in regions that use clean energy to curb global warming and in regions that implement government policies to reduce air pollution

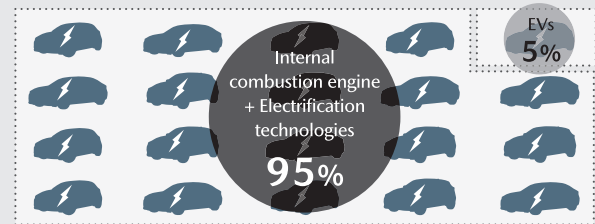


## Electrification Technologies

- Mazda will strive to reduce CO<sub>2</sub> emissions and enhance the joy of driving by deploying compact, lightweight electrification technologies while further refining the internal combustion engine.
- We will introduce EVs as the optimal solution in regions that generate a high ratio of electricity from clean energy sources or restrict certain vehicle types to reduce air pollution.

Mazda plans to deploy some form of electrification technology in all production vehicles by 2030. We expect that by 2030, internal combustion engines combined with some form of electrification technology will account for 95% of the vehicles we produce and that battery EVs will account for 5%. In our in-house development of EVs, we aim to leverage the advantages of electric drive systems and be guided by our unique human-centered development philosophy that focuses on human traits and sensibilities. We aim to bring these EVs to market from 2020.

Composition of Mazda Vehicles with Electrification Technology in 2030



### EVs True to the Mazda Spirit: Three Concepts

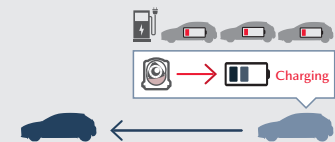
#### 1 Driving Pleasure

We aim to offer true driving pleasure with EVs by offering an enhanced sense of connection with the car through the use of G-Vectoring Control and other technologies.

#### 2 Earth-Friendly Technologies: Electrification Technologies Using Small, Lightweight Rotary Engines

Mazda is developing two battery EVs, one powered solely by a battery, and another that pairs a battery with a newly developed range extender powered by Mazda's small, lightweight, and exceptionally quiet rotary engine. The range extender will recharge the battery when it is low to effectively increase the vehicle's driving range. Also, different combinations of generators, batteries, and fuel tanks will make it possible to offer a shared packaging layout for plug-in hybrids and series hybrids.

Resolving the issue of driving range



#### 3 Technologies That Can Contribute to Society: A Life in Which Your Car Can Act as a Power Source

Taking advantage of the rotary engine's compatibility with gaseous fuels, the rotary engine range extender is designed to also burn liquefied petroleum gas (LPG) and provide a source of electricity in times of emergency.

A power source in times of emergency



## SKYACTIV-X



SKYACTIV-X

Skyactiv-X is an innovative internal combustion engine that combines the distinctive high-revving performance of a gasoline engine with the fuel efficiency, torque, and response of a diesel. Using Mazda's proprietary combustion method called Spark Controlled Compression Ignition (SPCCI), Skyactiv-X is a new generation of engine. Achieving outstanding environmental performance, power, and acceleration performance, Skyactiv-X is an engine that stands by the earth and people while supporting the *Jinba-ittai* "horse and rider as one" enjoyment that we strive to offer our customers. We are installing the engine in our new-generation products, starting with the Mazda3 launched in 2019. We will continuously evolve Skyactiv-G and Skyactiv-D engines to meet diverse customer needs across a broad engine lineup.

### "SPCCI"

Spark Controlled Compression Ignition



	Gasoline Engine	New-Gen Engine	Diesel Engine
Fuel economy	Fair	Good	Good
Torque	Fair	Good	Good
Response	Fair	Good	Good
Output (expansion)	Good	Good	Fair
Heating	Good	Good	Fair
Exhaust purification	Good	Good	Fair

## Society

Realize cars and a society that offer safety and peace of mind, and create a system that enriches lives by offering unrestricted mobility to people everywhere

### Issues and the External Environment

- Emergence of new causes of traffic accidents, especially in developed nations
  - Accidents caused by young and inexperienced drivers
  - Distracted driving due to increase in the volume of information from smartphones, etc.
  - Driving errors by elderly drivers
  - Dangerous driving under the effects of overwork and illness
- Emergence of issues accompanying changes in the structure of society
  - Weakening / disappearance of public transport in areas of depopulation
  - Increase in numbers of elderly or disabled who have difficulty getting around

With the goal of realizing a motorized society without traffic accidents, we are striving to develop more advanced safety technologies under the Mazda Proactive Safety philosophy.

### Means to Achieve Our Targets

#### 1. Continuously evolve fundamental safety technologies and standardize them across all models

- Driving position
- Pedal layout
- Visibility
- Active Driving Display

#### 2. Advanced safety technology to help drivers recognize and assess potential hazards

i-Activsense advanced safety technology, which helps drivers recognize potential hazards, and avert accidents or reduce their severity

- FY March 2018: Standardize in Japan\*

\* Technologies made standard equipment: Advanced Smart City Brake Support (A-SCBS), Smart Brake Support (SBS), AT Acceleration Control, Lane Departure Warning System (LDWS), Adaptive LED Headlights (ALH) or High Beam Control (HBC), Blind Spot Monitoring (BSM), Rear Cross-Traffic Alert (RCTA)

The Mazda Co-Pilot Concept centers on people and leverages automated driving technologies

- 2020: Commence testing
- By 2025: Aim to make standard equipment

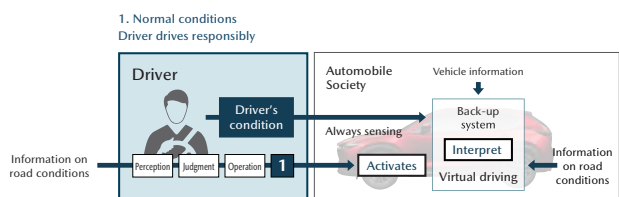
#### 3. Utilize connectivity technologies

Using an advanced version of Mazda Connect, we will examine the potential of a new business model that enables car owners to help fulfill the mobility needs of people in depopulated areas that have dilapidated public transportation systems.

### Mazda Co-Pilot Concept

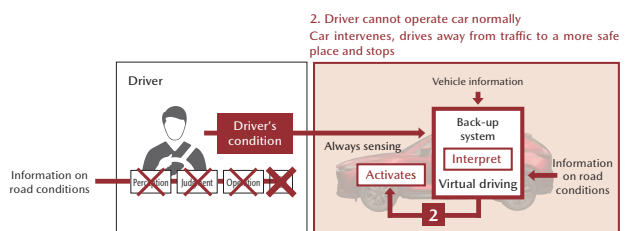
#### When the driver's condition is normal

Under normal conditions, drivers can enjoy driving themselves while the car constantly monitors their condition and conducts "virtual driving," meaning it is ready to drive itself at any time.



#### When the driver cannot operate the vehicle in a normal manner

When it is determined that the driver cannot operate the vehicle normally, the car intervenes in an attempt to avoid collisions and moves the vehicle away from traffic to a more safe location where it can stop the vehicle.



## Mazda's Approach to Issue Resolution

### Connectivity Technologies

In line with its human-centered development philosophy, Mazda is developing connectivity technologies that offer an enriching experience of the joy of life, connecting people by facilitating the sharing of experiences and feelings through cars. We are contributing to the resolution of social issues, such as the weakening of interpersonal connections that has accompanied changes in society, by connecting people and society through connectivity technologies.



One such initiative is a shared mobility service utilizing connectivity technologies that we started testing in Miyoshi, Hiroshima in 2018 in cooperation with local residents and prefectural and city authorities. We aim to build a social contribution model that will support regional revitalization through mobility service trials with an eye on future shared mobility.

We are also working on technologies that connect customers to their car and technologies that connect customers to Mazda. To build a stronger customer relationship and connection for our business in the future, we will use connectivity technologies to drive business innovation.

#### Mazda Pursues Two Value Concepts in Connectivity

- Offer the ability to enjoy digital convenience, safely with minimal distraction, while in your car
- Based on our human-centered development philosophy, provide an enriching lifestyle and experience of car ownership that energizes people physically and mentally

### People

Enhance customers' mental well-being with the satisfaction that comes from protecting the earth and contributing to society with a car that offers true driving pleasure

#### Issues and the External Environment

- People today enjoy a more affluent lifestyle thanks to mechanization and automation. However, stress levels have also been rising due to a lack of exercise and opportunities for direct social contact.

Through our vehicles, we aim to offer driving pleasure and an enriched life to an even greater number of customers. We will build on our strengths by further pursuing a *Jinba-ittai*—or “horse and rider as one”—driving feel, which unlocks people's potential and revitalizes them mentally and physically, and further maturing our Kodo design language, which is grounded in a philosophy of bringing cars to life and raises car design to the level of art to enrich people's emotional lives.

## Mazda's Approach to Issue Resolution

### Skyactiv-Vehicle Architecture Platform New-Generation Structural Technologies

Mazda's Skyactiv-Vehicle Architecture was developed with an increased focus on the human-centered design philosophy to maximize the human body's inherent ability to balance itself. In this way, it offers all occupants a more comfortable and less tiring ride and enables them to respond quickly to environmental changes. As the human body is easily able to balance itself in response to driving inputs, the new vehicle architecture provides responsive driving and the ultimate *Jinba-ittai* driving feel.

#### Kodo—Soul of Motion Design Philosophy: A Step Further

Since 2010, Mazda has striven to create cars that embody the dynamic beauty of life through application of its Kodo—Soul of Motion design philosophy. Going deeper, matured Kodo design pursues the expression of a “new elegance” based on Japanese aesthetics.

## Unveiling Mazda's New-Generation Products

# MAZDA3

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We started launches of the Mazda3 in 2019 as the first of our new-generation products incorporating new technologies targeting the realization of “Sustainable Zoom-Zoom 2030,” our long-term vision for technology development. Based on its human-centered philosophy, Mazda has dramatically improved every area: design, driving performance, NVH, environmental performance and quality feel, trying to create a new, hitherto unknown value.

The Mazda3 adopts a matured Kodo design language that attempts to embody the essence of Japanese aesthetics. While the overall form presents a simple, single motion, subtle undulations bring the design to life through shifting light and reflections that glide over the body surface. The result is a

richer and more powerful expression of vitality than previous Kodo models. Despite sharing the Mazda3 moniker, the hatchback and sedan models have distinct personalities—the design of the hatchback is emotive, the sedan elegant. The Mazda3 adopts Mazda's new Skyactiv-Vehicle Architecture, designed to enable people to make the most of their natural sense of balance. The powertrain lineup comprises the latest Skyactiv-X, Skyactiv-G, and Skyactiv-D engines, each of which seeks to enable responsive control of speed in any driving situation. Based on its philosophy of designing the car around the human being, Mazda has dramatically enhanced the car's fundamental driving attributes such that accelerating, turning, and braking feel completely natural.

### Mazda CX-30 Compact Crossover SUV, the Second New-Generation Model

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The CX-30 is a new compact crossover that combines the bold proportions of an SUV with elegant styling that embodies Mazda's Kodo design language.

As a new core model, the global launch of CX-30 is underway with sales starting from Europe in September 2019.



## Feature Story 2 : Mazda's Unique Battery Electric Vehicles (BEVs)

Earth- and people-friendly electrified cars that offering driving pleasure and contribute to society

Mazda, also in the field of EVs, aims to create a beautiful earth and a spiritually affluent society and provide customers with the brilliance of life through car ownership according to the "Sustainable Zoom-Zoom 2030" declaration. Based on the concept of Life Cycle Assessment (LCA), we plan to launch Mazda's own battery electric vehicles (BEVs) in 2020. We are working hard to substantively reduce CO<sub>2</sub> emissions. We are pursuing the *Jinba-ittai* driving feel that makes people one with the cars based on human-centered philosophy unchanged for EVs. We will continue our way of making cars, developing cars with the driving pleasure and earth- and people-friendly electrification technologies that contribute to society.

### Earth

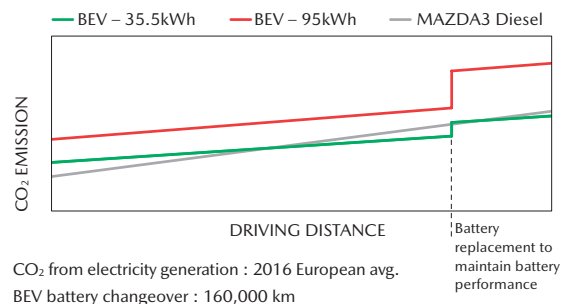
To hand down a beautiful earth to future generations, Mazda has set a goal of reducing average corporate CO<sub>2</sub> emissions based on the Well-to-Wheel perspective toward reduced CO<sub>2</sub> emissions throughout the vehicle's entire life cycle. Based on the Well-to-Wheel perspective, Mazda is developing a multi-electrification technology that provides multiple solutions to different regional characteristics, such as power source suitability, energy situations, and power generation mix, providing the right vehicle type for each region. For instance, for a region with sufficient clean energy resources or a region with air pollution control norms, we believe that our electric driving technology for EVs is the optimal solution. By fully utilizing Mazda's unique technologies, we are promoting the commercialization of EVs full of driving pleasure, which customers can willingly select. In addition, from the life cycle perspective, we are actively engaged in activities to reduce environmental impacts by adopting the Life Cycle Assessment (LCA), which calculates and evaluates environmental impacts at each stage of material procurement, manufacturing, use, recycling, and disposal. From an LCA perspective, Mazda desires to contribute to substantive reduction of the global environmental impact by installing batteries with appropriate capacities.

### Life-cycle CO<sub>2</sub> emissions of BEVs and ICEVs

(Mazda's trial calculation based on evaluation conditions of the presentation and paper during the academic conference shown in Fig. b on p. 62)











Using the LCA calculation and comparing the CO<sub>2</sub> emissions of BEVs and internal combustion engine vehicles (ICEVs) over the entire life cycle shows that EVs with smaller battery sizes tend to generate lower CO<sub>2</sub> emissions. In addition, in the latter half of the life cycle, we need to replace a battery to maintain its performance. So, the CO<sub>2</sub> emissions of EVs with smaller batteries are almost equivalent to those of ICEVs.

X-axis: Total driving distance after manufacturing Y-axis: Total CO<sub>2</sub> emissions



### Mazda's unique technology, the Rotary Engine

Mazda is focusing on a range-extender that uses Mazda's proprietary rotary engine technology, expanding its usage in multiple systems including plug-in hybrids and series hybrids with a single package layout. By developing a multiple electrification technology that utilizes a single vehicle family layout to multilaterally satisfy different regional power generation mixes, we believe we can provide multiple solutions for different regional characteristics, such as power source suitability, energy situations, and power generation mix, offering the right vehicle type for each region.

Electrification technologies		Regional characteristics		Engine	Electrification system		
		Clean power source ratio	Penetration of charging stations	(Power to rotate the generator)	Generator	Battery	Fuel tank
Range-Extender	Technology that primarily uses an external power supply and secondarily uses power supplied from an auxiliary generator mounted on the vehicle (to prevent a power shortage)	Good	Fair	Rotary engine			
Plug-in Hybrid	Technology that uses both an external power supply and power supplied from a generator mounted on the vehicle	Fair	Fair	 Common			
Series Hybrid	Technology that uses only power supplied from a generator mounted on the vehicle	Poor	Poor				

## Society

The rotary engine can accommodate various fuels such as hydrogen, LPG, and CNG in addition to gasoline. In the event of a disaster or emergency, we believe that relatively and widely available LPG cylinders can be used by the rotary engine to generate the minimum power required for daily life. Mazda EVs go to disaster-affected areas and provide electricity to those in need, a way of contributing to society. Mazda EVs transform themselves into emergency mobile power supplies. We will make such a new form of social contribution a reality.

Future development potential: Multiple electrification technology



## People

Mazda focuses on a human-centered approach to its product development and develops EVs that produce a sense of unity with the vehicle and provide customers with driving pleasure in everyday driving scenes. Using the motor's regenerative braking, our EVs enable more flexible acceleration/deceleration control than before, enabling seamless and precise control in all directions. The car should be engineered to smoothly interact with the human body, moving in ways that conform to the natural movements of the body. You will be able to control a vehicle's behavior in accelerating, turning, and braking intuitively, like your hands and feet. We believe this will allow us to achieve the *Jinba-ittai* driving feel that makes people feel one with the car.

Technology to realize a sense of unity between cars and humans

### ■ Multi-directional ring structure body

The battery pack forms a loop with the body frame and cross members. As a result, the diagonal force of the four wheels transmits power without delay.

### ■ Motor pedal

Ability to control acceleration and deceleration by utilizing the characteristics of the motor. By transmitting torque without delay and reducing delay in vehicle responses, the motor pedal achieves the kinetic characteristics of a sensation as if the car is an extension of the driver's own body.

### ■ G-VECTURING CONTROL

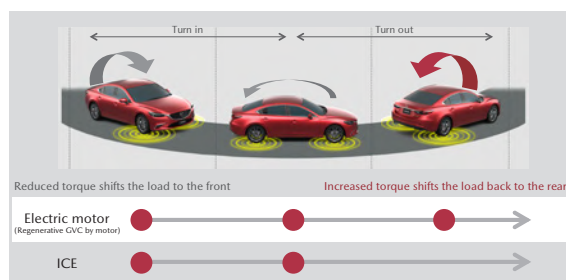
Seamless motion that feels natural for humans is achieved by making the G transition seamlessly while cornering, from deceleration to turning and from turning to acceleration.

### Mazda's advanced proprietary technology

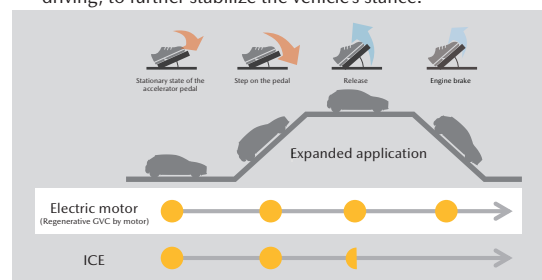
#### G-VECTURING CONTROL

Using G-vectoring control, Mazda's unique vehicle motion control technology, we are pursuing optimal back-and-forth load shift during turning. Utilizing the motor's regenerative braking, which is unique to EVs, we realized more flexible acceleration/deceleration, seamless, and with precise control.

(1) Control of increased torque when turning the steering wheel back to further stabilize vehicle motion.



(2) G-vectoring control works in all driving situations, including when releasing the accelerator pedal and during downhill driving, to further stabilize the vehicle's stance.







## MAZDA GLOBAL TECH FORUM 2019 in OSLO



Mazda held the Mazda Global Tech Forum 2019 from August 26 to September 2, 2019, in Oslo, Norway, inviting approximately 40 automotive journalists from 16 countries worldwide. Mazda Global Tech Forum 2019 emphasized Mazda's unchanging car-making philosophy also in EVs, based on the viewpoints of Earth, People, and Society, featuring (1) a human-centered development philosophy, (2) contribution to substantive reduction of global environmental impacts based on the LCA perspective, and (3) future potentials of the rotary engine range-extender. At the Mazda Global Tech Forum, journalists drove a technology prove-out EV\* specially produced for this event to experience the *Jinba-ittai* feel, a feeling of unified car-and-human driving. Through detailed discussions with journalists, we obtained various valuable opinions and advice toward our EV launch in the future.

\* Technical prototype model that is not planned for sale



Key points appealed during the test drive:

- Seamless vehicle motion in all directions
- Composed ride quality from a feeling that the vehicle constantly gravitates toward the road surface
- All operations including accelerating, turning, and stopping are intuitive, providing control as if the car is an extension of the driver's arms and legs.



Feedback from participating media (excerpts)

- Impression different from other EVs.  
The car realized very smooth motion in accelerating, turning, and stopping.
- I relate to the idea of not only the Well-to-Wheel perspective, but also Mazda's idea of EVs, in addition to its consideration for the environment, from resource mining to battery disposal.

### EV usage environment in Norway

Blessed with nature, Norway highly advances the use of renewable energy, with almost all its electricity supplied by hydroelectric power plants. It is the most advanced EV country in Europe, promoting zero-emission cars as government policy and exceeding 50% share by EVs.



Household recharging equipment in Norway

### World premiere of Mazda's first mass-production EV at the 2019 Tokyo Motor Show

Mazda unveiled its first mass-production EV at the 46th Tokyo Motor Show\* sponsored by the Japan Automobile Manufacturers Association and held from October 23, 2019. The new EV will be the third installation in Mazda's new-generation lineup. Developed in accordance with Mazda's human-centered philosophy and making full use of the benefits of electric drive technology, it offers performance drivers can enjoy effortlessly and whole-heartedly.

\* Tokyo Motor Show 2019 details:  
<https://www.mazda.co.jp/experience/tokynomotorshow2019/en/>



## FY March 2019 Highlights

Number of sales countries/regions

More than **130** countries/regions

Number of tier 1 suppliers

**1,087**

Global sales volume

**1,561** thousand units  
Down 4.2% YoY

Global sales share

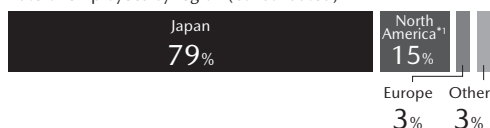


Number of employees

**49,998**

Overseas local employment rate for management **76%**

Rate of employees by region (consolidated)



Net sales

**3,564.7** billion yen Up 2.6% YoY

Operating income

**83.0** billion yen Down 43.3% YoY

Domestic production volume

**1,010** thousand units

Overseas production volume

**560** thousand units

CO<sub>2</sub> emissions per unit of sales revenue from production  
(Four principal domestic sites\*2)

**17.6** t-CO<sub>2</sub>/100 million yen Reduced by 58% compared with  
FY March 1991 levels

Total amount of landfill waste (Four principal domestic sites\*2)

**0** t Maintained since FY March 2009

Rate of reinstatement after childrearing leave (Non-consolidated)

**99** %

Percentage of employees with special needs (Non-consolidated)

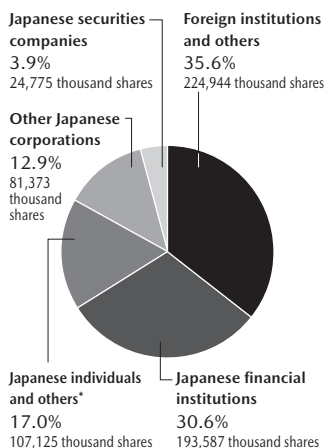
**2.11** %

\*1 Including Mexico.

\*2 Head Office (Hiroshima); Miyoshi Plant; Hofu Plant, Nishinoura District; and Hofu Plant, Nakanoseki District (including R&D and other indirect areas)

## Financial Information

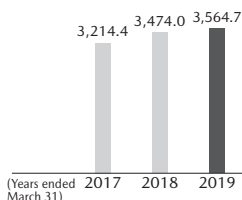
Breakdown of Shareholders by Type  
(as of March 31, 2019)



\* Treasury stock is included in "Japanese individuals and others"

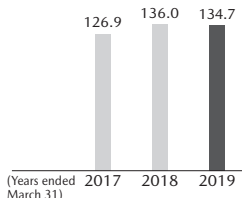
Net Sales

(Billions of yen) ■ Net sales



R & D Costs

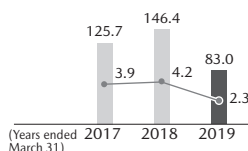
(Billions of yen) ■ R & D Costs



Operating Income / Operating Income Ratio

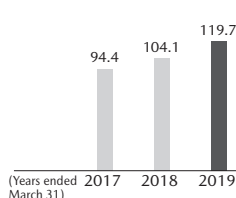
(Billions of yen / %) ■ Operating Income

→ Operating Income Ratio



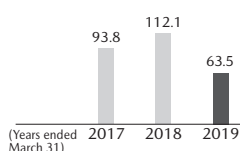
Capital Expenditures

(Billions of yen) ■ Capital Expenditures



Net Income Attributable to Owners of the Parent Company

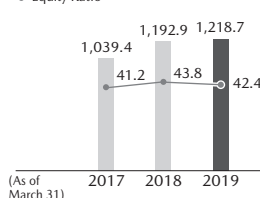
(Billions of yen) ■ Net income



Equity / Equity Ratio

(Billions of yen / %) ■ Equity

→ Equity Ratio



## MAJOR PRODUCT LINEUP

Since 2012, Mazda has been introducing products featuring Skyactiv Technology and Kodo—Soul of Motion design, which provide both driving pleasure and outstanding environmental and safety performance. The launch of the Mazda3 in 2019 marked the roll-out of our first new-generation product.

### MAZDA CX-3



Global Sales Volume   Sales markets   **J N E C O**  
161 thousand units   Production bases   **J O**

### MAZDA CX-30



Global launch is underway with sales starting from Europe in September 2019

### MAZDA CX-4



Global Sales Volume   Sales markets   **C**  
56 thousand units   Production bases   **C**

### MAZDA CX-5



Global Sales Volume   Sales markets   **J N E C O**  
458 thousand units   Production bases   **J E C O**

### MAZDA CX-8



Global Sales Volume   Sales markets   **J C O**  
35 thousand units   Production bases   **J C**

### MAZDA CX-9



Global Sales Volume   Sales markets   **N E O**  
59 thousand units   Production bases   **J E**

### MAZDA 2



Global Sales Volume   Sales markets   **J N E O**  
169 thousand units   Production bases   **J N O**

### MAZDA 3



Global Sales Volume   Sales markets   **J N E C O**  
362 thousand units   Production bases   **J N C O**

### MAZDA 6



Global Sales Volume   Sales markets   **J N E C O**  
136 thousand units   Production bases   **J E C O**

### MAZDA MX-5

(Japanese name: Mazda Roadster)



Global Sales Volume   Sales markets   **J N E C O**  
31 thousand units   Production bases   **J**

### MAZDA BT-50



Global Sales Volume   Sales markets   **O**  
38 thousand units   Production bases   **O**

Sales markets and production bases:

**J** Japan   **N** North America   **E** Europe  
**C** China   **O** Other markets

\* Global sales volume is for fiscal year March 2019; sales markets and production bases are as of March 31, 2019.

\* Vehicle specifications differ by market.

## GLOBAL NETWORK (As of March 31, 2019)

Mazda is based in Hiroshima Prefecture and has major production sites in Japan, Mexico, Thailand, and China. The Company conducts sales in more than 130 countries and regions around the world. Mazda has established a global network of headquarters, R&D bases, production facilities, dealerships, and other facilities.

### Japan

(Number of dealerships: 961)

- 1 Headquarters
- 2 Headquarters R&D Divisions
- 3 Mazda R&D Center (Yokohama)
- 4 Miyoshi Proving Ground
- 5 Mine Proving Ground
- 6 Hokkaido Kenbuchi Proving Ground
- 7 Hokkaido Nakasatsunai Proving Ground
- 8 Hiroshima Plant
- 9 Hofu Plant
- 10 Miyoshi Plant
- 11 Press Kogyo Onomichi Plant<sup>\*1</sup>

### Asia

(Number of dealerships: 858)

- 12 Mazda Motor (China) (MCO) / MCO China Engineering Support Center
- 13 FAW Car<sup>\*1</sup>
- 14 Changan Mazda Automobile (Nanjing Company)
- 15 Changan Mazda Engine
- 16 AutoAlliance (Thailand)
- 17 Mazda Powertrain Manufacturing (Thailand)
- 18 Thaco Premium Automobile Assembly and Manufacturing Limited Liability Company<sup>\*1</sup>
- 19 Mazda Malaysia
- 20 FAW Mazda Motor Sales
- 21 Changan Mazda Automobile Sales
- 22 Mazda Motor Taiwan
- 23 Mazda Sales (Thailand)

### Oceania

(Number of dealerships: 192)

- 24 Mazda Australia
- 25 Mazda Motors of New Zealand



**14 Changan Mazda Automobile**  
Location: Nanjing, China  
Production capacity: 220,000 units per year  
Models in production: CX-5, CX-8, Mazda3



**16 AutoAlliance (Thailand)**  
Location: Rayong, Thailand  
Production capacity: 135,000 units per year  
Models in production: CX-3, CX-5, Mazda2, Mazda3, BT-50



**1 Headquarters**  
Location: Aki-gun, Hiroshima, Japan



**3 Mazda R&D Center (Yokohama)**  
Location: Yokohama, Kanagawa, Japan



**8 Hiroshima Plant**  
Location: Aki-gun, Hiroshima, Japan  
Production capacity: 569,000 units per year  
Models in production: CX-3, CX-5, CX-8, CX-9, MX-5, Bongo, Sports cars for Fiat Chrysler Automobiles



**9 Hofu Plant**  
Location: Hofu, Yamaguchi, Japan  
Production capacity: 416,000 units per year  
Models in production: CX-3, CX-5, Mazda2, Mazda3, Mazda6

<sup>\*1</sup> Consignment production facilities

## North America

(Number of dealerships: 792)

- 26 Mazda North American Operations
- 27 Mazda Toyota Manufacturing, U.S.A., Inc.\*1
- 28 Mazda de Mexico Vehicle Operation
- 29 Mazda Motor of America
- 30 Mazda Canada
- 31 Mazda de Mexico Sales & Commercial Operation

## Europe

(Number of dealerships: 2,023)

- 32 Mazda Motor Europe
- 33 Mazda Sollers Manufacturing Rus
- 34 Mazda Motor Logistics Europe
- 35 Mazda Motors (Deutschland)
- 36 Mazda Motors UK
- 37 Mazda Motor Russia
- 19 distributors in other main markets



26 Mazda North American Operations  
Location: California, USA



28 Mazda de Mexico Vehicle Operation  
Location: Guanajuato, Mexico  
Production capacity: 250,000 units per year  
Models in production: Mazda2, Mazda3, Compact vehicles for Toyota



32 Mazda Motor Europe  
Location: Leverkusen, Germany

## Caribbean, Central and South America, Middle East, Africa

(Number of dealerships: 424)

- 38 Mazda De Colombia
- 39 Mazda Southern Africa

### Main Business Lines

Regional headquarters / R&D	1 2 3 4 5 6 7 12 26 32 34
Production facilities	8 9 10 11 13 14 15 16 17 18 19 27 28 33
Distributors	20 21 22 23 24 25 29 30 31 35 36 37 38 39

\*1 Start of operations planned for 2021



# MAZDA CSR

Mazda will grow and develop together with society through the realization of its corporate vision.

While striving to meet the requests and expectations of all of Mazda's stakeholders, each employee pursues corporate social responsibility (CSR) initiatives in the course of their daily business activities.

## CONTENTS

21 CSR Management

26 Stakeholder Engagement

### CSR Targets for FY March 2020

(Self-assessment key ○ : Accomplished, △ : Nearly accomplished, × : Not accomplished)

Items	FY March 2019 targets	FY March 2019 results	Self-assessment	FY March 2020 targets	ISO 26000 core subjects
CSR management	① Continue to implement the PDCA (plan-do-check-act) process in addressing key CSR issues (materiality). ② Continue to secure coordination between related divisions to reinforce CSR initiatives on a global basis, in line with international CSR norms. ③ Enhance the contents of activities to raise CSR awareness among employees, and develop a system to further expand opportunities for such activities.	① Gathered information on social issues to which stakeholders attach importance, to reflect external perspectives in discussion on the methods of linking the key CSR issues and Sustainable Development Goals (SDGs). ② Implemented CSR initiatives based on international CSR norms, and participated in working group meetings of the UN Global Compact and utilized the obtained knowledge in the Company. ③ Envisioned the ideal state of activities to raise CSR awareness among employees, and completed deliberations on optimization of the contents of and opportunities for activities to raise employees' CSR awareness by level.	○	① Review key CSR issues (materiality) in view of changes inside and outside the Company. ② Continue to secure coordination between related divisions to reinforce CSR initiatives on a global basis, in line with international CSR norms. ③ Implement optimization of the contents and opportunities for activities to raise employees' CSR awareness by level.	6.2 Organizational governance
Stakeholder engagement	Continue and strengthen stakeholder engagement.	Executed stakeholder engagement initiatives in various forms, as planned.	○	Continue and strengthen stakeholder engagement.	6.2 Organizational governance



# CSR MANAGEMENT

## Basic Approach

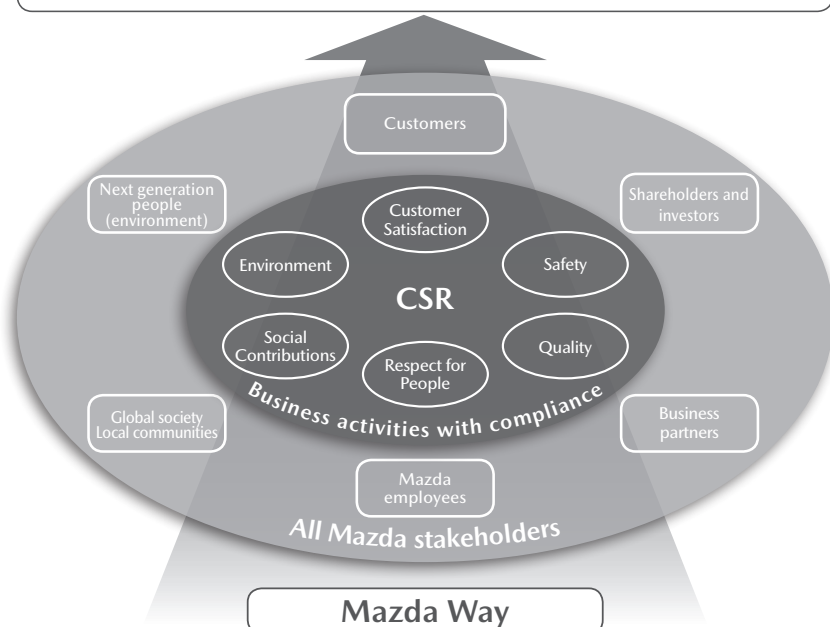
Mazda aims to achieve its Corporate Vision through the actions of each individual, based on the Mazda Way (see p. 85). While striving to meet the requests and expectations of all of Mazda's stakeholders, each employee pursues CSR initiatives in the course of their daily business activities, in order to achieve the sustainable development of both society and the Company itself.

### Sustainable Development of Society and the Company

#### Corporate Vision\*<sup>1</sup>

We love cars and want people to enjoy fulfilling lives through cars.  
We envision cars existing sustainably with the earth and society,  
and we will continue to tackle challenges with creative ideas.

1. Brighten people's lives through car ownership.
2. Offer cars that are sustainable with the earth and society to more people.
3. Embrace challenges and seek to master the Doh ("Way" or "Path") of creativity.



## Areas of CSR Initiatives

Referencing the Charter of Corporate Behavior issued by the Japan Business Federation (Keidanren)\*<sup>2</sup>, etc., Mazda classifies and evaluates its CSR initiatives. The areas of CSR initiatives are periodically reviewed and revised in the light of issues in the business activities of the automotive industry and Mazda, as well as social issues to which stakeholders attach particular importance. The most recent review was made in July 2016, by which the Company defined the following as the key areas of its CSR initiatives: Customer Satisfaction, Quality, Safety, Environment, Respect for People, and Social Contributions.

Customer Satisfaction	Providing a Mazda brand experience that exceeds customer expectations •Commitment to customers./•Sales and customer service, etc.
Quality	Offering products and services that please our customers •Establishing stable product quality./•Achieving quality that exceeds customer expectations./•Cultivating human resources capable of thinking and acting for the happiness of customers
Safety	Promoting safety initiatives to achieve a safe and accident-free automotive society •Safety initiatives based on the three viewpoints; vehicles, people, and roads and infrastructure
Environment	Reducing environmental impact throughout the entire vehicle life cycle •Environmental management, efforts regarding product and technology development, efforts regarding manufacturing and logistics, recycling, biodiversity, communication, etc.
Respect for People	Developing human resources, who are the foundations of the Company and society, and respecting for human rights •Initiatives with employees (including occupational safety and health)/•Respect for human rights, etc.
Social Contributions	Contributing to local communities as a good corporate citizen •Activities based on the three pillars (environment and safety performance, human resources development, and community contributions), etc.

\*<sup>1</sup> Mazda revised its Corporate Vision in April 2015, with the following objectives, aiming to be recognized as a corporate group gaining sincere trust of its stakeholders.

- Clarify the attributes of the Mazda brand, and make concerted efforts across the Mazda Group to realize the Corporate Vision.
- Promote the Group-wide dialogue process to share, understand and agree the goal of the Corporate Vision through the continuous thorough discussions.
- Closely link the Corporate Vision to our daily business activities.

\*<sup>2</sup> Mazda actively supports the Charter of Corporate Behavior issued by the Japan Business Federation (Keidanren).

## CSR Promotion Organization

a b

Each department carries out its operations based on goals and plans formulated with an understanding of the policies and guidelines determined by the CSR Management Strategy Committee, which the president chairs, and in cooperation with other Group companies. From FY March 2016, the Board of Directors holds discussions on issues concerning sustainability.

### CSR Management Strategy Committee

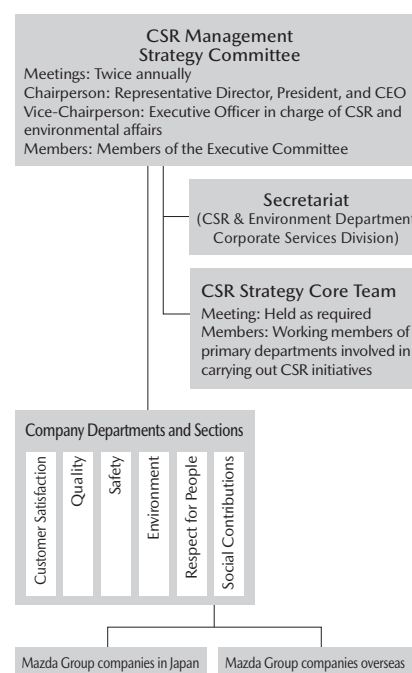
Deliberate the CSR activities that are expected of Mazda from a global perspective, in consideration of changes in social environment.

- Establishment of CSR targets and follow-up of the progress in CSR efforts (see p. 24)
- Performance evaluation of the mid-term environmental plan (Mazda Green Plan) (see pp. 54-55)
- Reviewing and identifying key CSR issues (materiality) (see p. 23)
- The present status of social needs and trends regarding CSR and the results of external evaluations of CSR initiatives

### b History of the CSR Structure

FY March 2005	<ul style="list-style-type: none"> <li>• Began company-wide CSR initiatives</li> <li>• CSR Committee established</li> </ul>
FY March 2008	<ul style="list-style-type: none"> <li>• Mazda evaluates its CSR initiatives in the six areas referencing the Charter of Corporate Behavior issued by the Japan Business Federation (Keidanren), etc.</li> <li>• CSR Promotion Department established as a permanent structure</li> </ul>
FY March 2009	<ul style="list-style-type: none"> <li>• Integrated CSR initiatives and management</li> <li>• Reinforced global perspective</li> <li>• CSR Committee reorganized as the CSR Management Strategy Committee</li> </ul>
FY March 2010	<ul style="list-style-type: none"> <li>• Promoted initiatives both globally and across departments</li> <li>• CSR &amp; Environment Department established as a permanent structure</li> <li>• Former CSR Promotion Department reorganized as a supervising compliance body and renamed as the Compliance Administration Department</li> </ul>
FY March 2013	<ul style="list-style-type: none"> <li>• CSR Targets established</li> <li>• Started to implement the PDCA cycle to promote CSR initiatives based on ISO 26000</li> <li>• Compliance supervision functions transferred to the Office of General &amp; Legal Affairs</li> </ul>
FY March 2014	<ul style="list-style-type: none"> <li>• Started study to review and identify key CSR issues (materiality)</li> </ul>
FY March 2015 - FY March 2016	<ul style="list-style-type: none"> <li>• Disclosed the process of reviewing and identifying materiality</li> <li>• Continued to conduct interviews with interested parties in the Company and with external experts and specialists</li> </ul>
FY March 2017	<ul style="list-style-type: none"> <li>• Disclosed the results of the materiality review, and the items that were identified</li> <li>• Reviewed the areas of CSR initiatives</li> </ul>
FY March 2018-2019	<ul style="list-style-type: none"> <li>• Continued the process of reviewing and identifying materiality</li> </ul>

### a CSR Promotion Organization



## Collaboration with Local Governments, Industrial Organizations, etc.

To fulfill its social responsibility, Mazda is actively collaborating with external organizations, including local governments and industrial organizations. The Company has participated in activities conducted by industrial organizations, such as the Japan Business Federation (Keidanren) and the Japan Automobile Manufacturers Association, while also being involved in government-led activities, such as the Strategic Commission for the New Era of Automobiles set up by Japan's Ministry of Economy, Trade and Industry. In addition, Mazda signed the United Nations Global Compact<sup>\*1</sup> and declared its support for the recommendations from the Task Force on Climate-related Financial Disclosures (TCFD)<sup>\*2</sup>, as part of its efforts in line with the international community's initiatives.

<sup>\*1</sup> UNGC: United Nations Global Compact

The UNGC is a voluntary effort by corporations and organizations to be good corporate citizens by exercising responsible, creative leadership, and to build a global framework for sustainable growth. More than 13,000 corporations and organizations in approximately 160 countries worldwide are participants or signatories to the compact. Mazda joined the Global Compact Network Japan (GCNJ) comprising Japanese signatory companies and organizations to the UNGC. As a member of GCNJ, the Company participates in workshops and gathers information on such themes as ESG, the environment, supply chains, labor and human rights.

<sup>\*2</sup> TCFD: Task Force on Climate-related Financial Disclosures  
A private sector-led organization set up by the Financial Stability Board (FSB), in response to the request from the G20 Finance Ministers and Central Bank Governors.

### External Evaluations of CSR (as of September 15, 2019)

Mazda identifies key external ratings and evaluations both from within Japan and overseas. By analyzing the results, Mazda evaluates its own initiatives. Mazda continuously makes active efforts to disclose information by responding to both domestic and global surveys and evaluations, such as those by socially responsible investment (SRI) and environmental, social and governance (ESG) rating organizations.

- Inclusion in the Dow Jones Sustainability Index (DJSI) Asia Pacific Index (Selected since September 2017)
- Inclusion in the FTSE4Good Index series (Selected since March 2011)
- Inclusion in the FTSE Blossom Japan Index (Selected since the index was established in July 2017).
- Inclusion in the Ethibel EXCELLENCE Investment Register (Selected since October 2013)
- In the CDP Climate Change Report 2018, Mazda's score was B.
- Inclusion in the S&P/JPX Carbon Efficient Index (Selected since the index was established in September 2018).
- Winning a Bronze Class award in the SAM Sustainability Award 2019 as an outstanding company in the automotive industry.

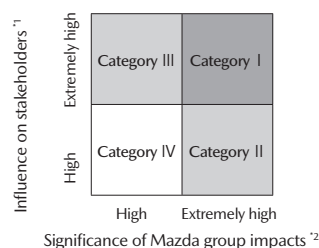


## Key CSR Issues (Materiality)

Mazda has been implementing a four-phase process (Step 1–Step 4) to extract the social issues that the Company should address, so as to identify the key CSR issues (materiality). In identifying materiality, Mazda reflects the external opinions of experts and various other stakeholders, while taking into account opinions both from management and the relevant divisions. During the materiality identifying process, Mazda has also referenced the Sustainable Development Goals (SDGs)\*<sup>1</sup> adopted by the United Nations. In the future, Mazda will continue to review materiality, while further clarifying the relationship between SDG-related issues and key CSR issues.

\*<sup>1</sup> Announced in September 2015. SDGs call on United Nations member nations to mobilize efforts to achieve sustainable development, by accomplishing such targets as ending poverty and hunger, ensuring access to affordable and clean energy, combating climate change, and promoting peaceful and inclusive societies between 2015 and 2030. SDGs comprise 17 goals with 169 targets.

## Mazda Group's Key CSR Issues (Materiality) (as of August 2019)



\*<sup>1</sup> Expectation to Mazda group and automotive industry

\*<sup>2</sup> Risk and opportunity for Mazda group

C

## C Materiality Review Process

### [Step 1] Extraction of social issues

Extract aspects of greatest importance from the following perspectives, and clarify the scope of expected impact (boundary) of each aspect.

- Social issues in the business activities of the automotive industry and Mazda
- Social issues to which stakeholders attach particular importance or that have substantive influence when stakeholders evaluate Mazda

### [Step 2] Prioritization

Evaluate the importance of the social issues extracted in Step 1, grade them and show the graded scores by mapping according to the following two axes, so as to identify the aspects with greatest importance (the status was reported to CSR Management Strategy Committee.)

- Horizontal axis: Significance of Mazda group impacts (graded by Mazda's relevant divisions, from such viewpoints as the possibilities for existing risks and opportunities at Mazda, and the significance of their impact)
- Vertical axis: Influence on stakeholders (graded by external experts and institutional investors, from such viewpoints as the relationship with the business activities of the automotive industry and Mazda, and of the possibilities for having impact)

### [Step 3] Validation

Reconfirm the validation of the boundaries of aspects identified in Step 2 based on the business plan, etc. The CSR Management Strategy Committee approved the validation.

### [Step 4] Disclosure of identification results and development of the PDCA cycle

Disclose the materiality aspects identified in Steps 1-3 and the management reporting results for the first time in the Mazda Sustainability Report 2016. Continuously collect the opinions of stakeholders inside and outside the Company and carry out periodic reviews, so as to develop the PDCA (plan-do-check-act) process.

Category	Items		Outline	Related item(s) in Mazda Sustainability Report 2019[In-Depth Version]	Target	Boundary of Impact
I	Economic	Indirect Economic Impacts	• Indirect economic impact and the degree of contribution in the country/region where Mazda conducts business	• Top Message <sup>3</sup>	See Securities Report <sup>4</sup>	Inside and outside the organization
	Environmental	Energy	• Impact of energy use throughout the value chain on the entire society	• Environment (energy / global warming)	See Mazda Green Plan 2020 (p. 54)	Inside and outside the organization
	Environmental	Water Source in Community	• Impact of water use on the entire society by water source	• Environment (cleaner emissions, resource recycling, biodiversity)	See Mazda Green Plan 2020 (pp. P54-55)	Inside and outside the organization
	Environmental	Emissions	• Impact of greenhouse gases (such as CO <sub>2</sub> ) and NOx on the atmosphere	• Environment (energy / global warming, cleaner emissions)	See Mazda Green Plan 2020 (pp. P54-55)	Inside and outside the organization
	Environmental	Effluents and Waste	• Impact of factory waste/wastewater on ecosystems and on the entire society	• Environment (cleaner emissions)	See Mazda Green Plan 2020 (p. 55)	Inside and outside the organization
	Environmental	Products and Services from Environmental Aspect	• Environmental impact when a product is in use, and impact of waste from end-of-life vehicles	• Environment (efforts regarding product and technology development)	See Mazda Green Plan 2020 (pp. P54-55)	Inside and outside the organization
	Labor practices	Occupational Health and Safety	• Health and safety of employees, etc., and impact on their health	• Respect for People (initiatives with employees)	See CSR Targets (p.84)	Inside the organization
	Labor practices	Diversity and Equal Opportunity	• Providing an opportunity and working environment where a diverse range of employees can succeed, regardless of race, gender, age, religion, etc.	• Respect for People (initiatives with employees)	See CSR Targets (p.84)	Inside the organization
	Consumer issues	Customer Health and Safety	• Providing vehicles that customers can use safely	• Quality (in general) • Safety (in general)	See CSR Targets (pp.34,40)	Inside and outside the organization
II	Economic	Economic Performance	• Stable distribution of generated profits    • Risks and opportunities brought by climate change and changes in external environments, such as social conditions	• Respect for People / Social Contributions / Management <sup>3</sup>		
	Environmental	Transport	• Significant environmental impacts of transporting products and purchased materials, and of transporting members of the workforce	• Environment (efforts regarding manufacturing and logistics)		
	Labor practices	Employment	• Providing employment opportunities (stably securing human resources with diverse qualities, and promoting a life-work balance)	• Respect for People (initiatives with employees)		
	Labor practices	Training and Education	• Human resources development by improving training programs and establishing career development programs	• Respect for People (initiatives with employees)		
III	Economic	Market Presence	• Appointing personnel coming from countries / regions where the Company's business sites are located, as managers and above	• Respect for People (initiatives with employees)		
	Environmental	Materials	• Promoting effective use of raw materials and recycling (reducing the level of dependence on natural resources)	• Environment (resource recycling)		
	Environmental	Supplier Environmental Assessment	• Environmental impact assessment in the supply chain	• Environment (environmental management) • Management (supply chain)		
	Labor practices	Supplier Assessment for Labor Practices	• Working environment assessment in the supply chain	• Management (supply chain)		
	Social	Social Community	• Understanding the impact of conducting business on the country/region, and taking relevant measures	• Top Message • Social Contributions (in general)		
	Social	Supplier Assessment for Impacts on Society	• Compliance evaluation in the supply chain	• Management (Supply chain)		
	Consumer issues	Product and Service Labeling	• Product labeling that enables customers to select a vehicle to purchase based on correct information	• Customer Satisfaction (in general)		
	Consumer issues	Compliance of Product Area	• Compliance with regulations and rules in vehicle development / manufacturing / sales / after-sales service	• Management (compliance)		
IV	Economic	Purchasing practices	• Transactions with suppliers in countries / regions where production sites are located	• Management (supply chain)		
	Environmental	Compliance of environmental area	• Compliance with environment-related regulations and rules	• Environment (environmental management) • Management (compliance)		
	Labor practices	Labor/Management Relations	• Labor-management dialogue held in a timely and appropriate manner	• Respect for People (initiatives with employees)		
	Labor practices	Equal Remuneration for Women and Men	• Closing wage disparity between men and women	• Respect for People (in general)		
	Human rights	Forced or Compulsory Labor	• Preventing and eliminating all forms of forced or compulsory labor	• Respect for People (human rights)		
	Human rights	Assessment	• Evaluation of human rights protection	• Respect for People (human rights)		
	Social	Anti-corruption	• Preventing bribery, money laundering, abuse of power, etc.	• Management (compliance)		
	Social	Compliance of social area	• Compliance with regulations and rules in areas other than those related to the environment and products	• Management (compliance)		
	Consumer issues	Marketing Communications	• Publicity and advertisement that enable customers to select a vehicle to purchase, based on correct information	• Customer Satisfaction (in general)		
	Consumer issues	Customer Privacy	• Protection of customer privacy (personal information, etc.)	• Management (risk management)		

\*<sup>3</sup> Financial materials (described in the Security Report and other documents)

\*<sup>4</sup> [https://www.mazda.com/globalassets/ja/assets/investors/library/s-report/files/E\\_repo190627.pdf](https://www.mazda.com/globalassets/ja/assets/investors/library/s-report/files/E_repo190627.pdf) (Japanese only)

## Promoting Initiatives Based on the SDGs

The Mazda Group pushes forward with various initiatives to contribute to the achievement of the Sustainable Development Goals (SDGs),\*<sup>1</sup> adopted by the United Nations. In FY March 2019, the CSR Management Strategy Committee enhanced SDG-related information available to the Company's management, and employees' awareness of SDGs was raised through the effective use of the Company's intranet. Mazda's activities that are instrumental in realizing the 17 goals of the SDGs are presented in each section of this Sustainability Report 2019 [In-Depth Version] (see the following table).

17 Goals of the SDGs		Related Items in Mazda Sustainability Report 2019 [In-Depth Version]
Goal 1. 	End poverty in all its forms everywhere	<ul style="list-style-type: none"> <li>• Respect for People (initiatives with employees)</li> <li>• Management (supply chain)</li> </ul>
Goal 2. 	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	<ul style="list-style-type: none"> <li>• Social Contributions (in general)</li> </ul>
Goal 3. 	Ensure healthy lives and promote well-being for all at all ages	<ul style="list-style-type: none"> <li>• Quality (in general)</li> <li>• Safety (in general)</li> <li>• Environment (cleaner emissions)</li> </ul>
Goal 4. 	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	<ul style="list-style-type: none"> <li>• Respect for People (initiatives with employees)</li> </ul>
Goal 5. 	Achieve gender equality and empower all women and girls	<ul style="list-style-type: none"> <li>• Respect for People (initiatives with employees)</li> <li>• Management (supply chain)</li> </ul>
Goal 6. 	Ensure availability and sustainable management of water and sanitation for all	<ul style="list-style-type: none"> <li>• Environment (cleaner emissions, resource recycling)</li> </ul>
Goal 7. 	Ensure access to affordable, reliable, sustainable and modern energy for all	<ul style="list-style-type: none"> <li>• Environment (energy / global warming)</li> <li>• Innovation (in general)</li> </ul>
Goal 8. 	Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all	<ul style="list-style-type: none"> <li>• Environment (in general)</li> <li>• Respect for People (initiatives with employees)</li> <li>• Management (supply chain)</li> </ul>
Goal 9. 	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation	<ul style="list-style-type: none"> <li>• Innovation (in general)</li> </ul>
Goal 10. 	Reduce inequality within and among countries	<ul style="list-style-type: none"> <li>• Respect for People (initiatives with employees)</li> </ul>
Goal 11. 	Make cities and human settlements inclusive, safe, resilient and sustainable	<ul style="list-style-type: none"> <li>• Customer Satisfaction (products)</li> </ul>
Goal 12. 	Ensure sustainable consumption and production patterns	<ul style="list-style-type: none"> <li>• Customer Satisfaction (products)</li> <li>• Quality (in general)</li> <li>• Environment (in general)</li> </ul>
Goal 13. 	Take urgent action to combat climate change and its impacts	<ul style="list-style-type: none"> <li>• Environment (energy / measures against global warming, environmental communication)</li> </ul>
Goal 14. 	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	<ul style="list-style-type: none"> <li>• Environment (cleaner emissions, resource recycling, biodiversity)</li> </ul>
Goal 15. 	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	<ul style="list-style-type: none"> <li>• Environment (biodiversity)</li> </ul>
Goal 16. 	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	<ul style="list-style-type: none"> <li>• Mazda CSR (stakeholder engagement)</li> <li>• Management (compliance)</li> </ul>
Goal 17. 	Strengthen the means of implementation and revitalize the global partnership for sustainable development	<ul style="list-style-type: none"> <li>• Mazda CSR (CSR management)</li> </ul>

## Development of PDCA Cycle in Line with CSR Targets

Mazda has established its CSR targets for each year starting in FY March 2014. In establishing these targets, CSR initiatives are reaffirmed in reference to the seven core subjects of the ISO 26000 social responsibility guidelines, and each division envisions the ideals that Mazda aims to achieve in the future, and summarizes them in these targets.

The targets for FY March 2020 as well as the results for FY March 2019, as well as the, which were established taking into account the process of identifying materiality, were approved by the CSR Management Strategy Committee. Mazda will continue to implement the PDCA (plan-do-check-act) process, so as to carry out CSR management in line with global standards.

### d CSR Targets

Customer Satisfaction (see p. 28) / Quality (see p.34) /  
Safety (see p.40) / Environment (see p. 51) /  
Respect for People (see p. 84) /  
Social Contributions (see p. 99) /  
Management (see p. 105)  
All areas  
[https://www.mazda.com/globalassets/en/assets/csr/download/2019/2019\\_csrtarget.pdf](https://www.mazda.com/globalassets/en/assets/csr/download/2019/2019_csrtarget.pdf)

\*1 Announced in September 2015. SDGs call on United Nations member nations to mobilize efforts to achieve sustainable development, by accomplishing such targets as ending poverty and hunger, ensuring access to affordable and clean energy, combating climate change, and promoting peaceful and inclusive societies between 2015 and 2030. SDGs comprise 17 goals with 169 targets.

## Raising Executive and Employee Awareness

Mazda endeavors to deepen awareness and understanding of CSR among all its executive officers and employees, and to promote the undertaking of CSR initiatives in the course of their daily business activities. The level of employees' CSR awareness is confirmed through Global Employee Survey.

To ensure constant improvement of the CSR awareness level, Mazda will continue a range of initiatives.

### Examples of Awareness-Raising Activities

- Implementation of a lecture delivered by an external expert on the theme of "Strengthening sustainability management," for executive officers and divisional general managers (including general managers of independent departments)
- Distribution of the Mazda Sustainability Report to Group companies in Japan and overseas
- Particular training and enlightenment for specific issues including quality, environment, human rights and compliance
- Implementation of CSR training programs by level (lecture type training and group discussions for a total of around 1,300 participants, including new recruits, mid-career hires, new band 5 (assistant manager level) and newly appointed managers)\*<sup>1</sup>
- Communication about CSR efforts via the Company's Intranet and the in-house newsletter My Mazda, on an as needed basis\*<sup>1</sup>

## CSR Promotion throughout the Entire Value Chain

In cooperation with suppliers and dealerships, Mazda has established a CSR initiative promotion system throughout the entire value chain. The Company places emphasis on dialogues with stakeholders, to ensure that its CSR initiatives not only comply with international rules as well as the laws and regulations of each country/region, but also respect local history, culture, and customs.

### Research and Development



Research and development in Japan, North America, Europe and China for providing innovative products tailored to the markets

### Purchasing



Implementation of a broad range of initiatives, in tandem with 1,087 major suppliers in Japan and overseas, aiming for harmonious coexistence and co-prosperity

### Manufacturing



Pursuit of high-level manufacturing in a total of 7 countries, including Japan, Thailand, China and Mexico

### Logistics



Pursuit of high-quality, safe and environmentally conscious transportation on a global basis

### Sales and services



Provision of vehicles and services to customers in more than 130 countries and regions

### Recycling end-of-life vehicles



Pursuit of end-of-life vehicle recycling and waste reduction

e f

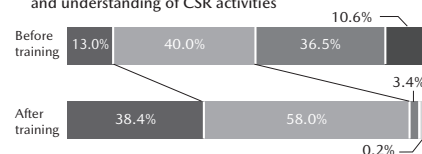
### e Global Employee Survey (Positive Answer Percentage) (Non-consolidated) FY March 2019

My workplace is engaged in CSR through their day-to-day activities. (Local item) 45%\*<sup>1</sup>

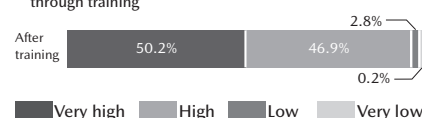
\*<sup>1</sup> Percentage of positive responses from indirect employees (The survey was conducted on both direct and indirect employees.)

### f Results of Group Discussion Surveys in FY March 2019 (around 1,300 participants) (Non-consolidated)

#### 1. Interest in, knowledge about, and understanding of CSR activities



#### 2. Awareness of your efforts to contribute to society, through training



\*<sup>1</sup> Unconsolidated activities of Mazda



# STAKEHOLDER ENGAGEMENT

## Basic Approach

Mazda clarifies key responsibilities and issues that the Mazda Group should accomplish, through dialogue with stakeholders which are important for a company's sustainable development<sup>\*1</sup>, and carries out daily business activities while making efforts for improvement.

To ensure effective communications with customers and other respective stakeholders, Mazda has defined its key stakeholders, and determined the frequencies of providing opportunities for dialogue and information disclosure. The information obtained is reported to the relevant departments or committee meetings attended by the Company's management, and used for planning and improving Mazda's daily business activities.

In the brand value management which the Company has been promoting in earnest since 2013, Mazda is pushing ahead with various initiatives, aiming to continue to grow as a corporate group that earns the trust of all its stakeholders. By establishing indicators for its relationships with its stakeholders, Mazda implements the PDCA (plan-do-check-act) cycle.

a

a Examples of Indicators

Customers	Degree of customer satisfaction, brand likeability, loyalty (retention), net promoter score, (unaided) awareness level, brand recommendation level
Shareholders and investors	Evaluations by external research organizations
Business partners	Stakeholder Survey
Employees	Global Employee Engagement Survey
Global society and local communities	Stakeholder Survey
Next-generation people	Evaluations by external research organizations

## Key Stakeholder Relationships and Opportunities for Key Dialogue and Information Disclosure

Key Stakeholder	Mazda Group's Key Responsibilities and Issues	Opportunities for Key Dialogue and Information Disclosure (Frequency)
Customers	<ul style="list-style-type: none"> <li>Improving customer satisfaction</li> <li>Providing safe, reliable and attractive products and services</li> <li>Appropriate disclosure and explanation of information regarding products, services and technical terms</li> <li>Providing customer support in a timely and appropriate manner</li> <li>Appropriate management of customer information</li> </ul>	<ul style="list-style-type: none"> <li>Establishment of call centers (always)</li> <li>Mazda Official Website and social media (always)</li> <li>Day-to-day sales activities (always)</li> <li>Customer satisfaction surveys (as needed)</li> <li>Holding events (as needed)</li> <li>Interviews with customers (as needed)</li> <li>Meetings with Mazda vehicle owners (as needed)</li> </ul>
Shareholders and investors (see the website for shareholders and investors*)	<ul style="list-style-type: none"> <li>Timely and appropriate information disclosure</li> <li>Maximizing corporate value</li> <li>Strict exercise of voting rights (at the general meeting of shareholders)</li> <li>Active investor relations activities</li> </ul>	<ul style="list-style-type: none"> <li>Website for shareholders and investors (always)</li> <li>Publication of the asset securities report and the quarterly financial reports (four times a year)</li> <li>Publication of the summary of financial results (four times a year)</li> <li>Quarterly presentation of financial results (four times a year)</li> <li>Publication of shareholder reports (twice a year, Japanese only)</li> <li>Holding ordinary general meetings of shareholders (once a year)</li> <li>Publication of the Annual Report (once a year)</li> <li>Publication of corporate governance reports (as needed)</li> <li>Presentations and plant tours for investors (as needed)</li> </ul>
Business partners <ul style="list-style-type: none"> <li>Suppliers</li> <li>Domestic dealerships</li> <li>Overseas distributors</li> </ul>	<ul style="list-style-type: none"> <li>Fair and equitable trading</li> <li>Open and transparent business opportunities</li> <li>Support for requests for collaboration on CSR implementation</li> <li>Appropriate disclosure and sharing of information</li> </ul>	<ul style="list-style-type: none"> <li>Hotlines linking Mazda with dealerships (always)</li> <li>Day-to-day purchasing activities (always)</li> <li>Supplier communication meetings (once a month)</li> <li>Conferences with representatives of dealerships (once a year)</li> <li>Conferences with supplier executives (once a year)</li> <li>Commendation of outstanding suppliers and dealerships (once a year, respectively)</li> </ul>
Employees	<ul style="list-style-type: none"> <li>Respect for human rights</li> <li>Choice and self-accomplishment</li> <li>Promoting a healthy work-life balance</li> <li>Optimum matching of people, work and placement</li> <li>Promotion and improvement of employee health and safety</li> <li>Promotion of diversity</li> <li>Mutual understanding and trust between labor and management</li> </ul>	<ul style="list-style-type: none"> <li>Labor-Management Council (as needed)</li> <li>Direct communication with senior management (MBLD) (as needed)</li> <li>Global Employee Engagement Survey (as needed)</li> <li>Career meetings (four times a year)</li> <li>Career Challenge System (in-house recruitment and "Free Agent") (as needed)</li> <li>Group and optional training (as needed)</li> <li>Lectures (as needed)</li> </ul>
Global society and local communities <ul style="list-style-type: none"> <li>Community people</li> <li>Government and administrative agencies</li> <li>NGOs/NPOs</li> <li>Experts and specialists</li> <li>Educational institutions</li> </ul>	<ul style="list-style-type: none"> <li>Respect for local cultures and customers</li> <li>Prevention of workplace accidents and disasters</li> <li>Activities contributing to local communities (including cooperative work)</li> <li>Disaster-relief activities in regions in which Mazda does business</li> <li>Compliance with laws and regulations</li> <li>Payment of taxes</li> <li>Cooperation with government policies</li> <li>Cooperative work and support in search of solutions to global social issues</li> <li>Foundation activities</li> </ul>	<ul style="list-style-type: none"> <li>Opening to the public of the Mazda Museum and plant tours (always)</li> <li>Execution of social contribution activities and participation in and promotion of volunteer activities (as needed)</li> <li>Dialogue through economic and industry organizations (as needed)</li> <li>Interaction/exchange of views with the local community (as needed)</li> <li>Response to hearings, information disclosure, etc. (as needed)</li> <li>Dialogue, cooperation and support through collaboration of industry, academia and government (as needed)</li> </ul>
Next generation people (environment)	<ul style="list-style-type: none"> <li>Consideration for the environment</li> <li>Energy-/ global-warming-related issues</li> <li>Promoting resource recycling</li> <li>Cleaner emissions</li> <li>Environmental management</li> </ul>	<ul style="list-style-type: none"> <li>Holding and participating in environmental events (as needed)</li> <li>Setting targets and reporting the results under Mazda Green Plan 2020, midterm environmental plan (once a year)</li> </ul>

\* <https://www.mazda.com/en/investors>

\*1 Parties who are directly or indirectly related to the business of the Mazda Group



## Conducting the Stakeholder Survey

b

Since FY March 2014, Mazda has conducted a Stakeholder Survey (once a year), inviting opinions from stakeholders outside the Company regarding employee conduct and attitudes toward the promotion of brand value management.

The submitted opinions and their analysis results are shared with top management.

After clarifying the actual situations and issues to be addressed, the results are announced to Mazda employees and employees of the entire Group in Japan and abroad through MBLD (see p. 88).

This provides these employees with opportunities to review their own actions and practices, from the perspective of implementing the corporate vision and strengthening connections with stakeholders.

To generate frank opinions and guarantee objectivity of the analysis, Mazda has commissioned a third party organization (research firm) to conduct the survey.

**b** Those Covered by Stakeholder Survey  
(Only in Japan)

Suppliers, distributors/dealerships, local autonomous entities, academic societies, industrial associations, etc.

## Communication through Publication of the Mazda Sustainability Report

The Mazda Sustainability Report has been published with the aim of informing stakeholders of Mazda's CSR initiatives, in accordance with GRI Reporting Principles for Defining Report Content. To obtain the opinions and evaluations regarding the report's content and editorial method, Mazda has conducted a questionnaire survey and applied for CSR-related awards. The submitted opinions and evaluations are fed back to executive officers, external directors, and each division's employees in charge of producing the Mazda Sustainability Report, and are utilized for designing the next year's initiatives and for considering the information to be disclosed in the report. The questionnaire survey results are published on the Mazda official website. The Mazda Sustainability Report 2018 won the Award of Merit of the 22nd Environmental Communication Awards, presented by the Japanese Ministry of the Environment, etc.

# CUSTOMER SATISFACTION

Mazda is striving to improve customer satisfaction through providing a Mazda brand experience that exceeds customer expectations.

## CONTENTS

### 29 Providing the Mazda Brand Experience to Customers

#### CSR Targets for FY March 2020

(Self-assessment key ○ : Accomplished, △ : Nearly accomplished, × : Not accomplished)

Items	FY March 2019 targets	FY March 2019 results	Self-assessment	FY March 2020 targets	ISO 26000 core subjects
Sales and services	Sell products and offer services to provide a value realizing a circle of smiles for keeping on growing through a life with Mazda, which makes you feel you always "want to continue choosing" Mazda.	<ul style="list-style-type: none"> <li>•Strengthened efforts to increase awareness of customer value among staff on the sales floor, through activities to communicate the value that Mazda offers to society, to enable the staff to offer their smiles to customers.</li> <li>•Reinforced measures to impart the value offered by Mazda directly to customers (e.g., by holding fan events in three locations in Japan, i.e., Tohoku, Kanto and Western Japan, with 14,376 participants, and by implementing a total of nine Driving Academy programs in various regions.)</li> </ul>	○	<ul style="list-style-type: none"> <li>•Strengthen efforts to increase awareness of customer value among staff on the sales floor, through activities to communicate the value that Mazda offers to society, to enable the staff to offer their smiles to customers.</li> <li>•Implement measures to impart the value offered by Mazda directly to customers.</li> </ul>	6.7 Consumer issues
Products	Develop products incorporating specific technologies that make "Sustainable Zoom-Zoom 2030" a reality.	Evolved the attributes of the Mazda brand in line with the principles of "Sustainable Zoom-Zoom 2030" in Mazda3, and introduced the model into the market.	○	Develop products incorporating specific technologies that make "Sustainable Zoom-Zoom 2030" a reality.	6.7 Consumer issues

## PROVIDING THE MAZDA BRAND EXPERIENCE TO CUSTOMERS

The Mazda Group promotes brand value management. By enhancing its brand value, the Group aims to increase the number of enthusiastic Mazda fans and attain its business growth, thereby consequently enhancing its corporate value. With a view to building special bonds with customers in more than 130 countries and regions where Mazda vehicles are sold, Mazda pushes forward with various initiatives in cooperation with local distributors/dealerships to provide customers with a Mazda brand experience in all stages of their car ownership.

### Three Approaches to Establish an Emotional Connection with Customers

To establish an emotional connection with customers, Mazda considers it necessary to take into account all touch points, i.e., not only the period during which customers are in possession of a Mazda vehicle, but also the periods before they purchase the vehicle and after they let go of it. Under this belief, the Company has determined three approaches that sales, marketing, customer services, and other relevant divisions should jointly pursue, based on which the Group companies of each country/region implement specific measures appropriate for their local cultures and environment.

#### Three approaches

- View customers from a lifelong perspective. In childhood, people ride in their family vehicle, and after growing up, they enjoy owning their own vehicle. Then at an advanced age, they return to riding in someone else's vehicle. It is important to have customers continue to feel close to Mazda and Mazda vehicles over all these years.
- Continuously maintain the relationship. Always provide customers with excitement and stimulation so that customers can feel a stronger connection to Mazda as time proceeds.
- Place particular emphasis on Mazda's uniqueness (e.g., strong attachment to Hiroshima, where Mazda Head Office is located, enthusiasm for offering driving pleasure).

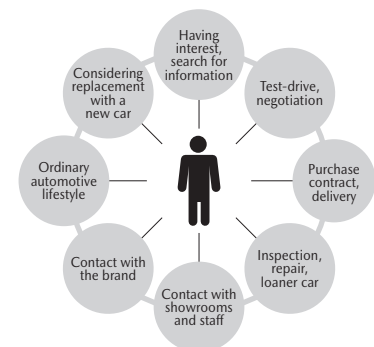
### Approach to Developing Products

In 2017, in light of the rapid changes taking place in the global automotive industry, Mazda announced "Sustainable Zoom-Zoom 2030." This new vision for technology development takes a longer-term perspective and sets out how Mazda will use driving pleasure, the fundamental appeal of the automobile, to help solve issues facing people, the earth and society (see pp. 7–12). To achieve this, Mazda is engaged in research and development aimed at creating the world's best functions with the maximum efficiency.

- To reflect customer's input about products, obtained in the sales area, in subsequent product development
- To improve quality by swiftly dealing with problems with the help of after-sales service area and sharing information with product development

a

a Every touch point



#### TOPICS Winning the Best of the Best, under the Japan Branding Awards 2019

Mazda won the Best of the Best, the highest prize of the Japan Branding Awards\*1 2019, organized by Interbrand Japan, Inc. These awards are the first of their kind in Japan to honor the excellent branding activities of organizations. The Company was bestowed this award for its company-wide efforts to promote brand value management across departments, thereby succeeding in improving employees' awareness and behavior by dramatically changing their ways of thinking.

\*1 In 2018, Interbrand Japan, Inc. established the Japan Branding Awards to evaluate and honor the excellent branding activities of companies and organizations as well as their businesses and services, and provides opportunities to widely introduce these efforts, in order to support further growth of these award recipients.



Awarding ceremony of the Japan Branding Awards 2019

(Right) Mr. Masahito Namiki, President & CEO, Interbrand Japan, Inc.  
(Left) Ryuichi Umeshita, Executive Officer, Mazda Motor Corporation

## Responding to the Diverse Customer Needs

Mazda has been establishing a system to deliver products and services to customers in the most appropriate way taking into consideration the cultures and trends of each country and region. At its R&D centers in Japan, North America, Europe and China, Mazda gathers information about markets and customers around the globe. Through local testing, Mazda develops products and provides services to suit its customers' wide-ranging needs.

To effectively enhance its brand awareness, Mazda focuses on promoting an understanding of the Mazda brand's common visions and the Company's spirit of product development and manufacturing, rather than on awareness of individual models.

### Examples to Meet Specific Customer Needs

#### <Research and Planning Conducted from a Female Perspective>

To respond to the increasingly diverse needs of female drivers, a team composed of female members from various departments conducts research on the vehicles which are convenient for themselves to use from the female viewpoint.

#### <Customizing Business (in Japan)>

Believing that the development of vehicles serving people with specific needs is essential to a more open and accessible automotive society, Mazda produces a wide range of vehicle types, as described below.

Vehicles for people with special needs	In 1995, Mazda became the first Japanese automaker to launch a vehicle for people with special needs. It was developed with top priority placed on "ease of use and comfort for both care givers and receivers." The Company has expanded the lineup to four types.	b
Instructional vehicles	Mazda offers its instructional vehicles equipped with various unique features. As the first car that trainees drive in their life, it can help them to feel driving pleasure and to acquire correct driving techniques.	c
Commercial and specially equipped vehicles	Mazda offers a wide commercial vehicle lineup to respond to various business needs. To satisfy highly specialized needs, the Company has developed the TESMA line, adapting the Bongo Van and Titan Truck for use as dry van trucks, refrigerator and freezer trucks, etc.	

## Co-Creation of Product Training by Mazda Motor Corporation and Distributor/Dealership Staff

Mazda offers training for sales staff to enable them to provide customers with correct and detailed information on the attractive features of Mazda vehicles. As part of the initiatives to enhance brand value, the training is aimed at globally communicating the ideas and efforts employed in development and manufacturing, as well as stories behind the technology, in addition to basic information on functions and equipment.

## Product Information, Display, and Advertising

For product information and display, Mazda not only complies strictly with each law and regulation of each country and region, but also places strong emphasis on safety, human rights, environmental issues, and ethical standards, giving careful attention to information display and expression appropriate for a company that manufactures and sells automobiles. Moreover, Mazda conducts studies on advertising on a periodic basis to check whether information provided to customers is correct and understandable.

Video and animated computer graphics are used to provide customers with easily understandable explanations of products' features and functions.

## Development/Launch of Value-Added Accessories

Mazda develops and provides various accessory parts that satisfy the diverse needs of customers. Mazda also provides items that address environmental issues to make customers' life more comfortable, considering the requests from society. While ensuring compliance with regulations of each country, the Company promotes voluntary switching of maintenance and other accessories to those containing environmentally conscious elements.

### b Lineup for vehicles for people with special needs (as of September 30, 2019)

- **Vehicles with a swivel passenger seat:**  
Vehicle with a powered passenger seat that rotates (Mazda2)



- **Vehicles with a lift-up passenger seat:**  
Vehicles with a powered lift-up passenger seat that elevates and rotates (CX-5)
- **Wheelchair-ramp-equipped vehicle:**  
Vehicle with a ramp that enables people in a wheelchair to get in and out while remaining in a wheelchair (Flair Wagon)
- **Vehicle with hand-operated controls:**  
A welfare model that allows the driver to enjoy driving pleasure by only using both hands (Roadster [MX-5 overseas])

### c Mazda instructional vehicle

Mazda instructional vehicles (released in May 2019) pursue the ideal features for instructional vehicles, i.e. being easy to operate for both trainees and trainers, and able to help trainees acquire correct driving techniques and drive more safely and with peace of mind.



### d Seminar targeted at training staff of distributor/dealership



### e Product example

- High-performance air conditioning filter capable of filtering PM 2.5
- Water-based corrosion inhibitor (below)



## Communicating the Mazda Brand and Providing the Brand Experience

Mazda promotes initiatives to provide customers with opportunities to communicate with the Mazda brand and strengthen bonds with Mazda throughout their car ownership.

To convey globally consistent visual impressions, the VI (Visual Identity) Guidelines have been established and shared within the entire Mazda Group.

### New Concept in Sales Outlets “New-Generation Showrooms” f g

Starting in FY March 2015, Mazda has been developing a new concept in sales outlets both in Japan and overseas, which is called New-Generation Showrooms, to allow customers to experience the attractiveness of Mazda and its vehicles. Under the supervision of Mazda's Design Division, the showrooms are built in accordance with guidelines specifying three values to provide\*<sup>1</sup> and four showroom design concepts\*<sup>2</sup>. Interiors and exteriors are designed using colors of black, white and silver, with black-based facility signs\*<sup>3</sup>, and as accents, wood is used to form a comfortable space where dignity, high quality and warmth are well-balanced. In FY March 2016 in Japan, Mazda Brand Space Osaka, a showroom directly run by Mazda, was opened and has attracted many visitors. Mazda is also developing New-Generation Showrooms overseas in collaboration with local sales-related Group companies.

### Information Service for Customers through Websites h

Mazda makes efforts to enhance the usability of its website to enable the website visitors to easily obtain the information they need. The website is designed to communicate to many people, not only the facts, but also the underlying principles and philosophy. The website also provides easily understandable information useful for customers at all stages from considering a purchase to the ownership of their vehicles. At the same time, Mazda uses Facebook, blogs, and Twitter, to enhance interactive communications with its customers. Many opinions and messages of encouragement have been posted in response to the articles on the Company's official Facebook pages.

### Promoting Activities to Enable Customers to Experience “Driving Pleasure” i

Mazda promotes activities in which both beginners and advanced drivers can easily participate, to experience “driving pleasure” and learn about driving considering safety and the environment. Various events for multiple needs are offered. For example, at circuit events sponsored by Mazda, the Company holds lessons to learn advanced techniques useful in daily driving, and races in which everyone from beginners to advanced drivers can participate. These activities are designed to communicate the concept of Mazda's *monotsukuri* and its latest technologies to customers, and offering them opportunities to dialogue with employees. Through these various approaches, Mazda strives to establish special bonds with customers, while striking a balance between providing customers with driving pleasure and raising their safety and environmental awareness.

#### Examples of Mazda-Sponsored Events:

**Mazda Fan Endurance (organizer: Circuit where the event is held, main administrator: B-Sports Corporation)**

A circuit event held by Mazda vehicle users. Regular vehicles without any special modifications can participate in this race. To promote safety and environmental awareness, professional driving advisors are stationed at the circuit to give participants advice regarding safe driving, and refueling is prohibited during the race, as a way to encourage better fuel economy.

**Mazda Fan Festa 2018 in OKAYAMA (organizer: Okayama International Circuit, main administrator: B-Sports Corporation)**

One of Mazda's largest fan events in Japan. In addition to a car race among Mazda vehicle users, the Festa was highlighted by experience-based programs, with the aim of deepening bonds with customers. For example, Mazda engineers delivered a lecture on *jinba-ittai* (oneness between car and driver) driving performance and offered customers the chance to test drive Mazda vehicles. Participants also enjoyed a hands-on manufacturing experience.

f [Japan] Mazda Brand Space Osaka



g [United States] New-Generation Showroom



h Example of information services through websites  
Mazda3 digital owner's manual (Japanese only)  
<https://www.mazda.co.jp/carlife/manual/>



Digital magazine “Mazda Stories”  
<http://www.mazdastories.com/>



i Examples of Mazda-sponsored events

**Mazda Fan Endurance**  
(With a total of 576 participants [in six races] in FY March 2019)



**Mazda Fan Festa in OKAYAMA**  
(With 6,711 participants in FY March 2019)



\*1 Shop designed with sense of exhilaration and Mazda uniqueness, new vehicle showroom that highlights the attractive features of Mazda vehicles, and shop layout that can help strengthen bonds with people

\*2 Dignified presence, power to attract people, showing vehicle as attractive and beautiful, with comfortable furniture

\*3 Mazda brand symbol and showroom name that are used at each showroom



## Realizing Customer Services Relied on by Customers for Life

To provide a safer, more secure and comfortable ownership experience and to realize customer services that will be relied on by customers for life, Mazda has established a system to promptly and certainly support customers with its high maintenance skills.

The Company, seeing the period between purchase of a new vehicle and the next purchase as an important and valuable time to deepen the special bonds between Mazda and customers, has been promoting reform of operation sites, not only to simply resolve customer complaints but also to provide customers with services that exceed their expectations.

Through developing and providing service/repair tools and service manuals, establishing parts supply networks, and offering training for service trainers and service staff, Mazda supports dealers in Japan and overseas, aiming at building up systems to enable them to provide close and proper support for customers.

### Providing Tools/Service Manuals

Hoping that customers can use Mazda vehicles more safely and with peace of mind that they can make better use of increasingly multifunctional devices, Mazda distributes digital owner's manuals, which enable customers to easily search and obtain the information they need by using their PC or smart phones.

Mazda also promotes the initiatives to ensure a constant high service quality at Mazda Group dealers in Japan and overseas.

- Providing information on special tools dedicated to Mazda vehicles and their usage
- Deploying unique malfunction diagnostic devices that are compatible with the sophisticated electronic control systems adopted in a wide range of safety and environmental technologies
- Establishing an internet-based support system, which enables quick and accurate access to the latest service manuals, as well as efficient search and ordering for parts

### Developing Service Trainers/Staff

To develop service professionals with a high level of maintenance skills and customer service skills on a global scale, Mazda operates training centers in Japan and major countries overseas. In each of the areas of ASEAN, Middle East, and Latin America, locally employed instructors are stationed to provide training for trainers of the dealers in the countries within the area, thereby enhancing support for human resources development and service quality improvement in each country.

Mazda has also hosted Service Skills Competitions in Japan and overseas for the purpose of boosting the service skills and motivation of service staff. Through this Competition, the Company aims to show what professionals with excellent maintenance skills and customer service skills should be like and realize the highest level of services from the customers' viewpoint. The best service engineers of each country and region are invited to the world competition, contributing to further raising motivation of service staff members. In May 2019, the 5th Customer Service Skills World Competition was held at the Mazda Head Office. Service staff members from 15 teams from 15 countries that had made it through preliminaries competed with each other over their maintenance skills.

### j Customer Service Skills World Competition



The 5th Mazda Customer Service Skills World Competition, in which participants competed in terms of maintenance skills (May 2019)



## Communication with Customers and Business Partners

### Responding to Expectations and Opinions of Customers

At distributors/dealerships in each country and region, systems have been established to listen to the opinions and requests of customers, to respond to them honestly, accurately and quickly, and to reflect them in sales and services in cooperation with Mazda Head Office.\*1

The contacts of each market area and FAQ (frequently asked questions)\*2 are available on the Mazda website for the convenience of customers.

To strengthen bonds with customers, Mazda conducts global surveys focusing on "Mazda brand experience," "sales and after-sales services," "ownership cost," product attractiveness," and other specific items. Through these surveys, the Company identifies problems in each market and addresses them in cooperation with local distributors/dealerships. With the indicators to measure customer satisfaction (see p. 26) applied, the PDCA (plan-do-check-act) cycle process has been established.

### Sharing and Recognition of Best Practices at Distributors/Dealerships

To boost the level of sales and CS\*3 efforts throughout the distributors and dealerships, a system of sharing and awarding best practices, selected based on such viewpoints as achievements in CS activities and remarkable contribution to vehicle sales, has been put in place.

#### Examples of initiatives in Japan

Measures	Frequency	Objective/Contents
Staff Awards/ Shop Awards	Once a year	To encourage staff self-improvement, meetings are held on a periodic basis to award sales and service staff members according to their degrees of achievement of targets, improvement of technical skills, and contribution to improved vehicle quality. Awards are also given to dealerships that have achieved their targets as a result of all staff's customer-oriented activities, demonstrating excellent teamwork. In particular, best practices from the shops producing outstanding results are shared and commended at the presentation meetings hosted by the Mazda Dealership Association in each region across Japan.
Walk-Around Contest	Once a year	The Walk-Around Contest, a competition of customer-service roleplaying, is held with the aim of encouraging sales staff to acquire product knowledge and improve their customer service skills.

### Communication with Dealerships

Mazda works to provide its all dealerships in Japan and overseas with information on mid- and long-term strategies, products, and services in a timely manner, and also makes proactive efforts to collect information from them.

#### Communication Opportunities with Distributors/Dealerships in Japan

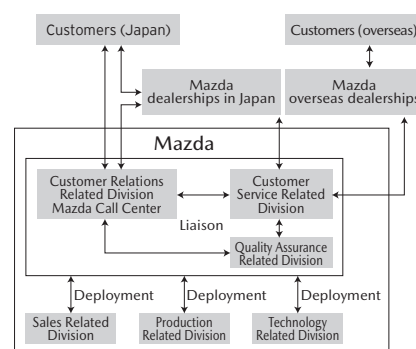
Participants		Frequency	Objective/Contents
Conferences for dealership representatives	Representatives of dealerships and Mazda directors	Once a year	To communicate Mazda policies
Mazda Dealership Association in Japan Executive board of directors meeting	Executive board members and others from Mazda Dealership Association in Japan	Twice a year	Opinions are exchanged concerning sales strategies, product planning, used car policies, services, quality concerns, and other topics.
Mazda Dealership Association in Japan Specialized committees	Committee members from Mazda Dealership Association in Japan and Mazda representatives	As needed	

#### Communication Opportunities with Overseas Group Companies and Distributors

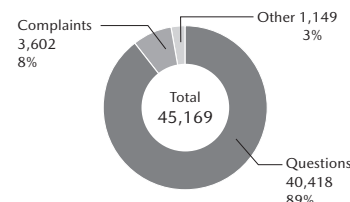
Participants		Frequency	Objective/Contents
Product Launch Events	Representatives from major overseas bases of operation, such as the United States, Europe, China and Australia	Indetermined	To share information and exchange opinions globally upon the product launch. In FY March 2019, the event was held in August, with around 60 participants.
Global Brand Events	Representatives from major operation bases, such as the United States, Europe, China, Australia and Japan	3 times a year	Representatives of major regions meet to build common understanding and consensus on brand strategies, and share initiatives. In FY March 2019, a total of 150 representatives participated.
Regional Brand Events	Representatives from major operation bases, such as the United States, Europe, China, ASEAN and Japan	3 to 4 times a year	Discussions are held and opinions are exchanged for each region to determine practical actions for implementing the brand strategies. In FY March 2019, a total of 500 representatives participated.
4A*1 Distributor Events	Representatives from Southeast Asia, Central and South America, Middle East, and Africa regions	Once a year	Discussions covering a wide range of topics including business, marketing, product launches, etc. In FY March 2019, the event was held in September, with around 150 participants.

\*1 Areas except North America, Europe, China, Taiwan and Japan

#### k Framework



FY March 2019 Breakdown of Mazda Call Center Customer Responses by Type (In Japan)  
(April 2018–March 2019)



Voices of the customers who purchased or testdrove Mazda vehicles are presented on the website (Japanese only).  
<https://www2.mazda.co.jp/carlife/voice/>

\*1 Distributor List in each country  
<https://www.mazda.com/en/about/d-list/>  
\*2 Inquiries from Japan / FAQ (Japanese only)  
<https://www.mazda.co.jp/inquiry/>  
\*3 Customer Satisfaction

# QUALITY

Mazda enriches the lives of its customers by providing products and services that reflect steady and uncompromising work.

## CONTENTS

### 35 Commitment to Quality

#### CSR Targets for FY March 2020

(Self-assessment key ○ : Accomplished, △ : Nearly accomplished, × : Not accomplished)

Items	FY March 2019 targets	FY March 2019 results	Self-assessment	FY March 2020 targets	ISO 26000 core subjects
Quality	Establish a quality assurance system that covers production sites in Japan and overseas, ports and dealerships, to globally enable delivery of products of equal quality.	Introduced a vehicle evaluation (MQIC) system, in which quality comparison and improvement can be made using the same standards on a global basis. All the production sites (9 sites) completed the introduction of the system in FY March 2018. In addition, the system's introduction into shipping ports in Japan and overseas was completed in FY March 2019. The system is also being introduced into major arrival ports.	○	Establish a quality assurance system that covers production sites in Japan and overseas, ports and dealerships, to globally enable delivery of products of the same quality.	6.7 Consumer issues

# COMMITMENT TO QUALITY

## Spirit of Quality Policy

Under its Corporate Vision, Mazda further advances the efforts it has made and promotes united collaboration among all areas, continuing to enhance Mazda's unique value.

## Approach to Quality Improvement

To deliver customers safety, trust and excitement through automotive lifestyles, Mazda makes Group-wide efforts based on the three principles below:

1. Establishing quality for new products
2. Achieving quality that exceeds customer expectations
3. Cultivating human resources capable of considering and acting toward the happiness of customers

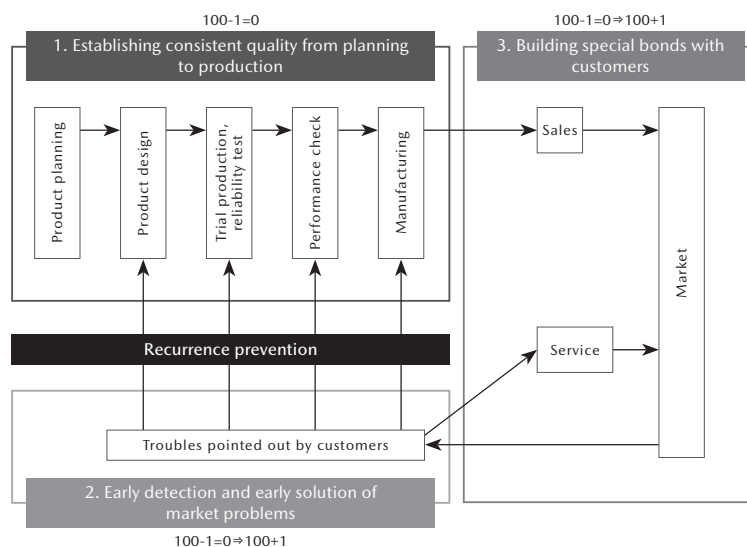
### Vision for Quality Assurance

Vehicle production based on the "100-1=0" belief

1. Establishing consistent quality from planning to production:  
"100-1=0" expresses Mazda's strong desire to provide good quality to all customers, under the belief that for an individual customer, his/her vehicle is not one out of 100 vehicles but the only one. Mazda pursues a kind of vehicle production that respects each vehicle as a certain customer's "one-and-only," and aims to achieve "zero defects." Standing firmly on the basic principles and mechanisms of manufacturing, all related departments make consistent efforts to establish quality in all processes, from planning to production.

Initiative for the process to change "100-1=0" to "100+1"

2. Early detection and early solution of market problems  
If an unpredictable problem arises in the market, it may result in loss of trust from customers ("100-1=0"). To avoid this, Mazda promotes quality assurance activities for the early detection and early solution of any trouble pointed out by customers.
3. Building special bonds with customers  
Mazda aims to build special bonds of ever-lasting trust with its customers by keeping contact with customers in good faith and with a sense of commitment to them ("100-1" ⇒ "100+1").



a

## a Mazda Quality Policy



### Spirits of Quality Policy



## Mazda Quality Management System (M-QMS)

To make faithful and unceasing efforts and constantly ensure quality in products, sales and after-sales services that can always satisfy the expectations and trust of customers, Mazda has established the Mazda Quality Management System (M-QMS) based on ISO 9001<sup>\*1</sup>, and has applied it to the series of processes from product design and development to production, sales and after-sales services. In January 2018 Mazda acquired ISO 9001:2015 certification, which was revised in September 2016.

At overseas production sites, Mazda also promotes the establishment of systems that encourage local employees of new sites to make self-reliant efforts to improve quality, and encourages them to acquire ISO 9001, thereby promoting the quality improvement of Mazda vehicles, which are produced and sold worldwide.

### 1. Establishing Quality for New Products

To satisfy the diverse needs of customers and offer greater trust, joy and excitement, Mazda is engaged in establishing a consistent quality level to be assured at all stages from planning/development to the delivery of products to customers.

### Establishing Stable Quality

Not only to improve the performance and reliability of products but also to improve the quality of new technologies including the initiatives to address environment issues, Mazda is committed to "process assurance." Process assurance is the approach of ensuring a consistent quality level at all stages from engineering (planning, product development) to manufacturing (purchasing, vehicle production, logistics, after-sales services). Based on the correct understanding of customer needs and expectations, the elements necessary to ensure each function/performance are identified. The Company has established a system to maintain and manage them in every stage from engineering to manufacturing. Furthermore, to allow customers feel driving pleasure through its products, Mazda identifies the functions and performance that embody "driving pleasure" for each stage from before getting in the car to after starting driving, so as to enhance consistency in establishing quality.

### Global Quality Assurance

To ensure the same quality on a global scale, Mazda has adopted the "global common" concept, under which overseas production sites establish the same quality by employing the same indicators, the same operations, and the same structures as those of the Mazda Head Office. With the aim of achieving and maintaining the same quality into the future, the roles and responsibilities of the Mazda Head Office and overseas production sites have been clarified for management. Mazda continuously organizes collective training for persons in charge of quality control of purchased parts or quality evaluation of finished vehicles to help deepen understanding of their roles and to encourage communication and opinion exchange by formulating a human resources development plan and other activities. In cooperation with Mazda North American Operations, Mazda is currently in the process of developing a quality assurance system toward the commencement of mass production at a new joint-venture plant that will start operations in Alabama, the United States, in 2021.

b

### b Acquisition of ISO 9000 series

- 1994: Acquired ISO 9002<sup>\*1</sup> (first Japanese automaker)  
Apply to: Vehicles produced at Hiroshima Plant and Hofu Plant
- 1996: Acquired ISO 9001  
Apply to: Engineering, product development, manufacturing and after-sales service
- 2001: Expanded the ISO 9001 application range  
Apply to: Accessories, KD, product planning, design, specially equipped vehicles (TESMA), etc.
- 2001: AAT<sup>\*2</sup> acquired ISO 9001
- 2007: CMA<sup>\*3</sup> and CFME<sup>\*4</sup> acquired TS16949 (ISO 9001 sector certificate)
- 2015: MMVO<sup>\*5</sup> and MPMT<sup>\*6</sup> acquired ISO 9001
- 2016: MSMR<sup>\*7</sup> acquired ISO 9001:2015
- 2018: Hiroshima Plant, Hofu Plant, MMVO and AAT acquired ISO 9001:2015
- 2018: CMA<sup>\*3</sup> and CFME<sup>\*4</sup> (now CME<sup>\*8</sup>) acquired IATF16949:2016 (ISO 9001 sector certificate)

<sup>\*1</sup> International standard for product and after-sales service quality assurance

<sup>\*2</sup> AutoAlliance (Thailand) Co., Ltd.

<sup>\*3</sup> Changan Mazda Automobile Co., Ltd.

<sup>\*4</sup> Changan Ford Mazda Engine Co., Ltd.

<sup>\*5</sup> Mazda de Mexico Vehicle Operation

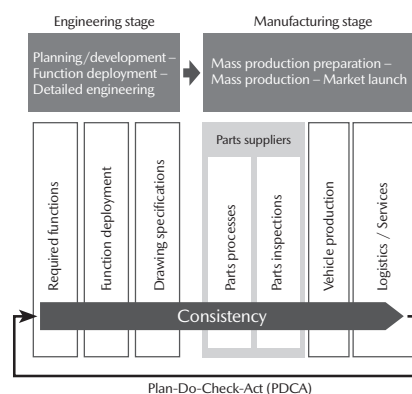
<sup>\*6</sup> Mazda Powertrain Manufacturing (Thailand) Co., Ltd.

<sup>\*7</sup> MAZDA SOLLERS Manufacturing Rus

<sup>\*8</sup> Changan Mazda Engine Co., Ltd.

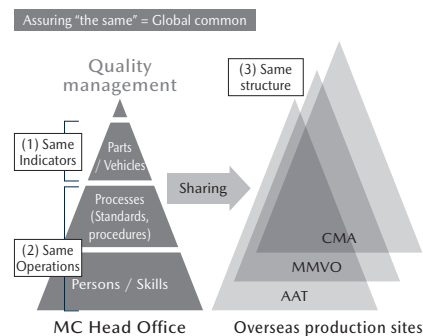
c

### c Consistent Process Assurance based on Major Characteristics



d

### d Initiative for Global Quality Assurance



<sup>\*1</sup> International standard for quality maintenance and assurance

### <Initiatives for Developing Human Resources>

To develop human resources who play the key roles in the “global common” concept, the Mazda Head Office provides back-office support for overseas production sites to encourage their autonomous efforts. Mazda gathers leaders of overseas production sites for collective training in Japan, to monitor the growth of the site leaders and raise their sense of responsibility, as well as to promote quality improvement through encouraging mutual learning between sites.

### Enhancing Quality Assurance after Shipment

To ensure that the high quality at factory shipment is maintained until delivery to customers around the world, Mazda has introduced the same quality evaluation indicators for production plants, distribution centers in Japan, overseas ports, dealerships in Japan and overseas distributors and dealers, with the aim of delivering products maintaining high quality to customers around the world under a consistent evaluation system.

## 2. Achieving Quality that Exceeds Customer Expectations

To satisfy customer needs, Mazda makes constant efforts to gather market/ quality-related information both in Japan and overseas, while sincerely listening to customer voices, and to take speedy actions to improve the quality of present and future products.

### Speedy and Comprehensive Quality Improvement

Mazda makes Group-wide efforts to ensure stable and speedy quality improvement by comprehensive gathering and management of the voices of customers from around the world.

All relevant divisions at the Head Office, such as those in the customer services, product development, and manufacturing areas, share all items of quality information gathered from customers, dealerships in Japan and distributors overseas, and the management team monitors the daily progress, so as to expedite stable quality improvement.

### Responding to Customer's Complaints and Expectations

To faithfully respond to customers' expectations and complaints, regarding such matters as what additional functions Mazda vehicles should have and in what ways Mazda vehicles are less user-friendly, Mazda proactively gathers voices of expectations and complaints annually from over 160,000 customers worldwide by employing the results of surveys by outside survey institutions and conducting its own market research. Based on the principle of early detection and early solution, all related divisions, including product development, production, quality assurance and customer services, make united efforts to improve or solve quality problems in response to the gathered customer voices.

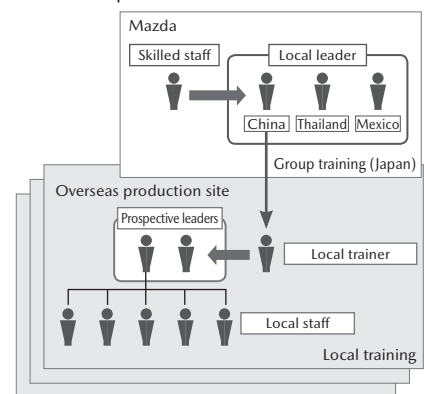
Mazda takes advantage of various opportunities, such as motor shows and fan events, to have its engineers engage in direct talks with customers on new functions and safety performance of Mazda vehicles so as to communicate their passion about Mazda vehicles that cannot be fully expressed in written materials, hoping to help improve the car ownership experience of customers.

The customer voices obtained through such communication are also reflected in the development of new model vehicles, with the aim of delivering to customers products that exceed their expectations.

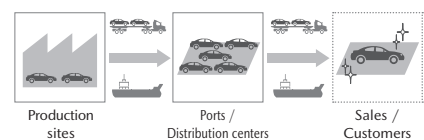
### <Examples of Surveys/Analyses>

- Gathering customer voices through Mazda-unique market survey
- Market surveys conducted by third parties
- Questionnaire surveys Mazda has developed
- Analysis of customer voices on social media
- Centralized management of global quality information
- Enhancing information to support dealerships to ensure repair completion at one time

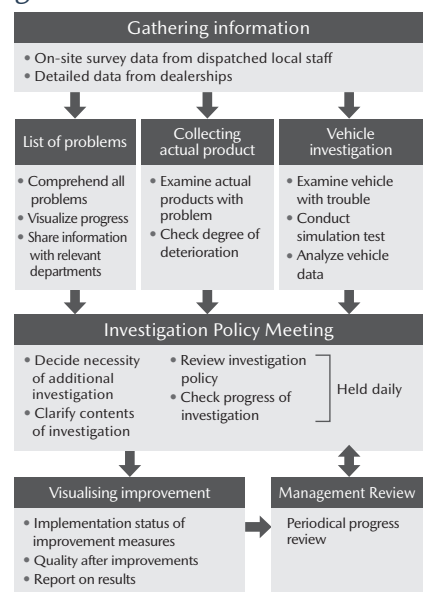
### e Initiatives for Global Human Resources Development



### f Consistent evaluation system



### g Expediting Quality Improvement



### h Real-time information gathering



## Corporate Activities with Highest Priority on Customer Safety and Comfort

Mazda prioritizes safety and comfort of vehicles above all. Under a strict quality assurance system, Mazda conducts inspections on conformity with laws and regulations of each country and on functions to be used by customers, with a view to manufacturing vehicles that customers feel safe using.

This quality assurance system is maintained and managed by the development, production and quality divisions auditing each other from independent standpoints.

### Recall Procedures (Overview)\*<sup>1</sup>

- Registration with authorities in each jurisdiction, according to the laws and regulations of each country and region
- Disclosure to customers via direct mail, telephone, and other methods, and explanations at dealerships
- Disclosure of information on recalls on the Mazda Official Website

## 3. Cultivating Human Resources Capable of Thinking and Acting for the Happiness of Customers

To encourage every employee to think about what they should do to please customers and to act accordingly, Mazda places emphasis on cultivating a customer-oriented corporate culture/mind. Specifically, the entire Mazda Group is committed to promoting quality awareness-raising activities, quality control education, and QC (Quality Control) circle activities.

### <Major Activities>

#### Quality Awareness-Raising Activities

Quality meetings with the consequent aim of enhancing brand value are held on a regular basis. The meetings encourage all employees to obtain new findings through discussions and to improve their quality awareness and quality of action. Each meeting is intended to provide opportunities for individual employees to consider issues on the theme of quality, to discuss how they should change their awareness and behavior to achieve their ideal state, and to share the results with the aim of reflecting them in their work.

#### Quality Control Education

For the purpose of developing human resources capable of proactively finding/solving problems from a customer viewpoint and working for continuous improvement, quality control education is provided for employees. Quality education courses taught by internal instructors are offered, and employees take appropriate courses when their job type or management level changes.

#### Mazda QC (Quality Control) Circle Activities

Mazda promotes QC circle activities to encourage members of each workplace to find and solve problems by themselves. QC circle activities, which have been implemented for over 50 years as key activities for the company, have evolved into global activities, being conducted not only inside Mazda but also at its suppliers and dealerships. The All Mazda QC Circle Competition held every year at the Mazda Head Office is now participated by QC circles of overseas sites, such as those in China, Thailand, and Mexico.

#### Training Program to Deepen Employees' Understanding of the Mazda Brand

To enable Mazda employees to explain Mazda's products and communicate the concept of Mazda's *monotsukuri*, or product development and manufacturing, with their own words to Mazda's stakeholders, Mazda offers a training program for employees, designed to help them deepen their understanding of the Mazda brand by actually experiencing the products. Through test rides in the latest models, program participants are expected to deepen their understanding of not only each product's characteristics, but also the spirit and philosophy common in all Mazda products. Another initiative is under way to help employees reaffirm Mazda's commitment to and concept of *monotsukuri* that have been handed down since the Company's founding, through restoration of Mazda's historic vehicles.

### i Group-wide Quality Education Courses

	Course	Objective (for FY March 2019)
1	Quality program for freshmen	To understand basic quality control concepts (customer-oriented attitude, continuous improvement efforts)
2	Problem-solving story course	To understand the concept, processes and basic techniques of problem solving
3	Quality management elementary course	To apply the concepts, processes, and basic techniques of problemsolving to daily operations, thereby obtaining problem-solving abilities
4	Quality management intermediate course	To become capable of applying and practically implementing specialized quality management techniques
5	Quality Improvement Seminar for Assistant Managers	To reaffirm Mazda's vision for quality assurance, as a team leader

### j All Mazda QC Circle Competition President's Award



\*1 Recall procedures may vary among countries/regions.



## 4. Results of Quality Improvement Initiatives

Mazda's initiatives to improve quality have been highly praised worldwide.

### FY March 2019 Results (April 2018 – March 2019)\*<sup>1</sup>

Country	Name of the Study	Vehicle Type and Rankings	Name of Company
U.S.	Reliability/Road Test by Consumer Report	"Recommend" acquired for 4 models Mazda 6, CX-5, CX-9, MX-5	Consumer Reports
Japan	2018 Automotive Performance Execution and Layout (APEAL)* <sup>2</sup>	CX-3 : 2nd, CX-5 : 2nd, Demio (Mazda 2) : 3rd	J.D. Power
China	2018 Initial Quality Study (IQS)* <sup>3</sup>	Mazda 6 Atenza: 3rd	J.D. Power
Thailand	2018 Initial Quality Study (IQS)* <sup>4</sup>	Mazda 2 : 1st, Mazda 3 : 2nd	J.D. Power

\*<sup>1</sup> Details of the studies for other countries by J.D. Power and J.D. Power Asia Pacific are available at the J.D. Power global website (<https://www.jdpower.com/>).

\*<sup>2</sup> The J.D. Power 2018 Japan Automotive Performance Execution And Layout (APEAL) is based on responses from around 23,000 purchasers of new cars. The study was fielded between May and June 2018.

\*<sup>3</sup> The J.D. Power 2018 China Initial Quality Study (IQS) is based on responses from around 33,000 purchasers of new cars. The study was fielded between March and July 2018.

\*<sup>4</sup> The J.D. Power Asia Pacific 2018 Thailand Initial Quality Study (IQS) is based on responses from around 5,000 purchasers of new cars. The study was fielded between May and September 2018.

### Addressing Issues Associated with the Measurement of Fuel Economy and Emissions in Final Inspections

Last year, in response to a request from Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT), the Mazda Group conducted an investigation into its sample testing of fuel economy and emissions during final vehicle inspections. The investigation found that there were instances in which data was handled inappropriately. Specifically, test results were judged valid despite vehicle speed having deviated more than the permitted amount from the speed trace pattern prescribed by the JC08 test cycle (a condition known as a speed trace error). Mazda reported the findings of its investigation to MLIT.

To prevent similar occurrences in the future, Mazda has introduced systems that automatically invalidates test results in the event of a speed trace error (excluding gear shift timing in manual transmission vehicles) and automatically store test data (excluding particulate matter in exhaust gas (PM)) and create test reports.

Mazda will continue its efforts to raise compliance awareness and promote constant process improvement, in order to earn customers' trust.

# SAFETY

Mazda is promoting safety initiatives, aiming to achieve a safe and accident-free automotive society from the three viewpoints of vehicles, people, and roads and infrastructure.

## CONTENTS

### 41 Safety Initiatives

#### CSR Targets for FY March 2020

(Self-assessment key ○ : Accomplished, △ : Nearly accomplished, × : Not accomplished)

Items	FY March 2019 targets	FY March 2019 results	Self-assessment	FY March 2020 targets	ISO 26000 core subjects
Safety	<p>①Further evolve, and expand the introduction of i-Activsense, which is a series of advanced safety technologies developed in line with Mazda Proactive Safety, the Company's safety philosophy.</p> <p>② Obtain high ratings in the new car assessment programs (NCAPs) of respective countries.</p>	<p>① Expanded the introduction of i-Activsense in the Japanese market. For all the vehicle types and models, the technologies that qualify for the "Wide" Suppocar S (Safety Support Car S) category were applied as standard equipment.</p> <p>Specifically, six technologies qualifying for the "Wide" Suppocar S category were made standard equipment for all the vehicle types and models. Other i-Activsense features that have become standard are Blind Spot Monitoring (BSM), which supports drivers in confirming safety when changing lanes, and Rear Cross Traffic Alert (RCTA), which helps drivers confirm safety when backing out of a parking space or garage.</p> <p>② Obtained the highest ratings in the new car assessment programs (NCAPs) of each country as follows:</p> <ul style="list-style-type: none"> <li>•J-NCAP Advanced Safety Vehicle (ASV) Technology Assessment: Atenza (Mazda6 overseas), CX-3, CX-5 and CX-8 obtained "ASV++," the highest rating.</li> <li>•IIHS: CX-5 obtained "TSP+," the highest rating.</li> <li>•Euro-NCAP safety performance evaluations: Mazda6 obtained "5☆," the highest rating.</li> </ul>	○	<p>①Further evolve, and expand the introduction of, i-Activsense, which is a series of advanced safety technologies developed in line with Mazda Proactive Safety, the Company's safety philosophy.</p> <p>②Obtain high ratings in the new car assessment programs (NCAPs) of respective countries.</p>	6.7 Consumer issues

# SAFETY INITIATIVES

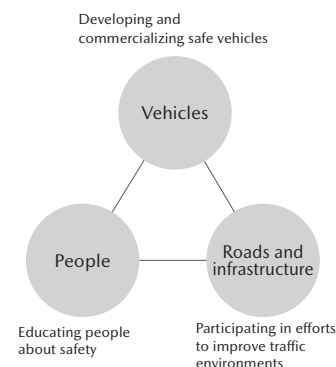
## Mazda's Basic Approach to Safety

Aiming to achieve a safer and accident-free automotive society, Mazda promotes safety initiatives from the three viewpoints of vehicles, people, and roads and infrastructure.

In 2017, Mazda announced “Sustainable Zoom-Zoom 2030” in light of the rapid changes taking place in the automotive industry around the world. This updated vision for technology development takes a long-term perspective and sets out how Mazda will use driving pleasure, the fundamental appeal of the automobile, to help solve issues facing people, the earth and society (see pp. 7–12). Mazda believes its mission is to bring about a beautiful earth and to enrich people's lives as well as society. The company will continue to seek ways to inspire people through the value found in cars. In the realm of society, which encompasses safety, “Sustainable Zoom-Zoom 2030” demonstrates Mazda's determination to leverage cars and a society that provide safety and peace of mind, to create a system that enriches people's lives by offering unrestricted mobility to people everywhere.

a

### a Three Viewpoints of Safety Initiatives



## Initiatives in Vehicles

Mazda will address the issue of traffic safety, which requires a multi-faceted, balanced, and comprehensive approach, by providing all its customers with excellent safety performance, through vehicle engineering, the field in which Mazda can take the initiative.

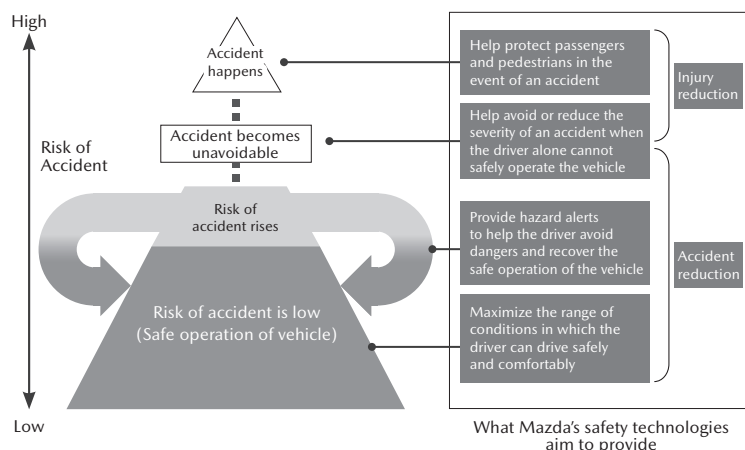
While continuing to keep abreast of the latest safety advancements, Mazda works on technology development with the belief that technologies will demonstrate their true value only when their use becomes widespread.

## Mazda Proactive Safety: Mazda's Safety Philosophy

Mazda's safety philosophy, which guides the research and development of safety technologies, is based on understanding, respecting and trusting the driver.

To drive safely it is essential to recognize potential hazards, exercise good judgment and operate the vehicle in an appropriate fashion. Mazda aims to support these essential functions so that drivers can drive safely and with peace of mind, despite changing driving conditions.

Since drivers are human beings, and human beings are fallible, Mazda offers a range of technologies which help to prevent or reduce the damage resulting from an accident.



By providing a good driving environment and excellent handling stability to support the drivers' safer driving, Mazda aims to maximize the range of ordinary driving conditions in which the driver can concentrate on driving without anxiety or stress. If the risk of an accident increases, the sensing functions on the vehicle provide hazard alerts to help the driver avoid danger, thereby supporting safer driving. Moreover, understanding that human nature means that mistakes cannot be totally eliminated, Mazda offers safety functions on its vehicles that help prevent such human errors as much as possible, and if an error occurs, help prevent an accident or reduce the resulting damage.

While implementing measures appropriate for each accident risk so as to reduce the risk as soon as possible, Mazda places the highest focus on improving ordinary driving conditions to remove possible causes of an accident rather than on a "what if"-based approach (preparing for possible results).

Through providing these safety technologies based on a respect and understanding of human nature, Mazda supports safer and secure driving.

## Continuously Evolving Basic Safety Technologies as Standard for All Vehicles

Aiming to achieve a safer and accident-free automotive society, Mazda promotes continuous evolution of basic safety technologies, such as the ideal driving position and pedal layout, excellent visibility, and human machine interface, and will install these in all vehicles as standard.

### Ideal Driving Position

The major driving operation devices, including the pedals and the steering wheel, which are interface between man and vehicle, are located in an ideal position for a driver to operate them with ease and without fatigue.

#### Pursuing the Ideal Joint Angle for Comfortable Driving

The driving position is designed based on the theory of the "comfortable joint-link angle," the joint angle at which the driver of any physical type can exert strength quickly and properly. For Mazda3, which was introduced in 2019, the adjustable range of the telescoping mechanism\*1 has been extended and the driving position adjustment accuracy has been improved to provide the driver with a more comfortable driving position. The above design modification has reduced the tightness a small driver feels when he/she moves the seat forward. The front console layout has also been renewed. In particular, the cup holder position has been moved to the front of the shift lever.

b

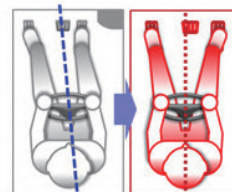
b Image of comfortable joint-link angle



### Ideal Pedal Layout

c

c Comfortable layout enabling easy operation

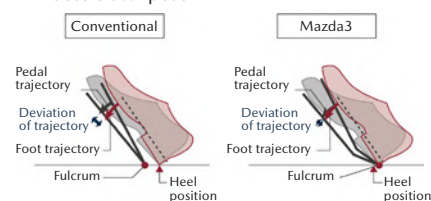


The front tires and tire houses have been repositioned farther forward to realize an offset-free, ideal pedal layout where the driver can stretch his/her foot forward and naturally rest it on the accelerator pedal when he/she sits in the seat. The distance between the accelerator pedal and the brake pedal has also been reviewed and optimized. As a result, the driver can enjoy driving more comfortably for many hours in a relaxed posture while operating the pedals more smoothly. These design improvements reduce both driving fatigue and the possibility of the driver stepping on the wrong pedal when braking in an emergency.

#### Organ-Type Accelerator Pedal

d

d New and conventional organ-type accelerator pedal



With an organ-type accelerator pedal, the driver's heel is placed on the floor, and the driver's foot and the pedal follows the same trajectory. This makes accelerator pedal control easier because the heel position is stabilized. For the 2019 Mazda3, Mazda has developed a new organ-type accelerator pedal structure in which the pedal fulcrum is positioned more closely to the driver's heel when compared with conventional accelerator pedals of this type. The new accelerator pedal minimizes the deviation of its trajectory when depressed, enabling the driver to use his/her calf muscles more efficiently.

\*1 A mechanism to move the steering wheel back and forth.

## Excellent Visibility

Mazda considers it important to secure good visibility to help the driver prevent accidents by supporting his/her ability to predict and avoid his/her surroundings, such as road environment, other vehicles, obstacles, and pedestrians including children. To expand the vision through the door mirror so as to improve the visibility of pedestrians and obstacles, door mirrors of all Mazda passenger vehicles currently available on the market are installed on the outer door board in a lower position. For the 2019 Mazda3, the visibility has been enhanced by a combination of the inherent slenderness and the well-devised shape of the A-pillar. Visibility for children is specially cared.

## "HMI Concepts" to Minimize Causes of Careless Driving

Human Machine Interface (HMI) refers to the equipment and mechanisms to facilitate transmission of various information between the driver and the vehicle. Mazda's thoroughly human-centered cockpit design minimizes the three factors\*<sup>1</sup> that cause careless driving: cognitive distraction, visual distraction, and manual distraction.

The information necessary for driving is presented in order of priority, so that the driver can concentrate his/her attention on driving and thus reduce cognitive distraction.

Indications in front of the driver's seat have been simplified to make the display easier to see and thus reduce visual distraction.

Indicators and other intuitively operable devices are installed to reduce manual distraction.

## i-ACTIVSENSE Advanced Safety Technologies\*<sup>2</sup>

Mazda is committed to continuous evolution of i-Activsense advanced safety technologies, to deliver safer, more reliable cars to a greater number of customers, from beginners to elderly drivers. Mazda's i-Activsense is an umbrella term covering a series of advanced safety technologies, developed in line with Mazda Proactive Safety. They include active safety technologies that support safer driving by helping the driver to recognize potential hazards, and pre-crash safety technologies which help to avert collisions or reduce their severity in situations where they cannot be avoided.

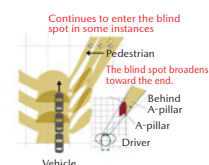
The Company has completed application of six technologies, including the collision damage reduction brake (Advanced Smart City Brake Support or Smart Brake Support), for all the seven major models sold in Japan, as standard equipment. Under the new vehicle safety concept "Safety Support Car S (Supporcar S)" promoted by the Ministry of Economy, Trade and Industry and the Ministry of Land, Infrastructure, Transport and Tourism, these models qualify for the "Wide" Supporcar S category (as of August 2019).

e

### e Opening angle enlarged by improved A-pillar

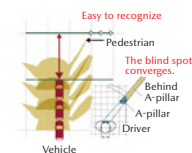
In the case of an A-pillar where the blind spot broadens toward the end

A pedestrian is often continuously hidden behind the A-pillar, preventing the driver from recognizing him/her.



In the case of Mazda3's A-pillar where the blind spot converges

Sufficient visibility is provided by a combination of the slenderness of the A-pillar itself and its well-devised shape, making the blind spot smaller than in the case of a conventional pillar.



f

### f Designing a cockpit that enables the driver to concentrate his/her attention on driving

The area that becomes visible when moving the eyes

① Active driving display

Active information

- Vehicle speed
- Sign
- Navigation information and others

The area that becomes visible when rotating the head from side to side

③ Center display

Information for comfort and convenience

- Media information
- Map information
- Warning information and others

The area that becomes visible when lowering the head

② Meter

Status information

- Tachometer
- Fuel gauge, water temperature gauge
- Travel distance and others

1. Vehicle speed and other "active information that should be checked at every moment" are shown in the active driving display.
2. The amount of fuel and other "status information necessary for checking the status of the vehicle" are shown by meters.
3. Media information and other "information for comfort and convenience" are shown in the center display.

g

### g Technologies made standard equipment on the seven major models sold in Japan (For details, see p. 44.)

- Advanced Smart City Brake Support (A-SCBS) / Smart Brake Support (SBS)\*
- AT Acceleration Control\*
- Lane Departure Warning System (LDWS)\*
- Adaptive LED Headlights (ALH)\* or High Beam Control (HBC)\* (either according to the grade)
- Blind Spot Monitoring (BSM)
- Rear Cross-Traffic Alert (RCTA)

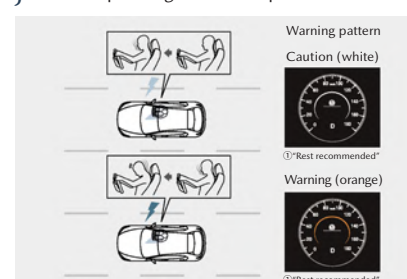
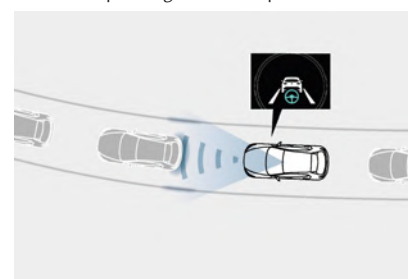
\* Technologies to be equipped to qualify for the "Wide" Supporcar S category

<sup>1</sup> The following are three factors that cause careless driving.  
 • Cognitive distraction: The driver is distracted by something other than vehicle control, such as checking the position of a switch and its operation method.  
 • Visual distraction: The driver takes his/her eyes off the road to check the information or for other purposes.  
 • Manual distraction: The driver strongly moves his/her body and adopts an awkward posture to operate a device.  
<sup>2</sup> i-Activsense technologies are designed to reduce damage and/or injuries resulting from accidents. However each system has its limitations, and no safety system or combination of such systems can prevent all accidents. These systems are not a replacement for safe and attentive driving. Please drive carefully at all times and do not rely on technology to prevent an accident.  
<sup>3</sup> Applied models: Mazda2, Mazda3, Mazda6, CX-3, CX-5, CX-8, and Roadster/MX-5

**i-ACTIVSENSE technologies**

Abbreviation	Name	Effective when	Function
AFS	Adaptive Front-Lighting	Driving forward (night)	Turns the headlights automatically to illuminate in the direction the driver is steering.
HBC	High-Beam Control	Driving forward (night)	Detects oncoming traffic and vehicles in front, automatically switching between high beam and low beam settings.
ALH	Adaptive LED Headlights		
	Glare-free High Beam	Driving forward (night)	Detects oncoming traffic and vehicles in front, automatically controlling the area illuminated by the high beams to maintain maximum visibility.
	Wide Light-Distribution Low Beam	Driving forward (night)	Illuminates areas on either side of the vehicle that conventional low-beams cannot reach.
	Highway Mode	Driving forward (night)	Raises the axis of lighting when travelling at highway speeds, making it easier to see road signs and obstacles as early as possible.
Hazard Recognition Support	—	Driving forward (at reduced speed) Reversing	Projects on the center display images of the vehicle's top view, as well as front, rear, and right/left views, by using the four separate cameras installed on all sides of the vehicle.
	BSM	Blind Spot Monitoring	Alerts the driver to the presence of vehicles in the blind spot with an icon in the wing mirror. If the driver indicates to change lanes, the icon flashes and a warning beep sounds.
	LDWS	Lane Departure Warning System	Warns the driver with a sound (or vibrating steering wheel) and a visual display if the vehicle starts to stray from its lane.
	LAS	Lane-Keep Assist System	
		Lane Departure-Averting Assist	Provides steering assistance to return the vehicle toward the center of the lane if the driver starts to stray from the lane.
		Line Trace	Provides steering assistance to help keep the vehicle centered in the lane.
	FOV	Forward Obstruction Warning	Detects vehicles in front and warns the driver with a visual display and alarm if there is a risk of collision.
Collision Avoidance / Damage Reduction Support	FCTA	Front Cross Traffic Alert	Detects a vehicle approaching from the right or left front blind spot at an intersection and issues an acoustic or visual warning in response to the approaching state of the vehicle.
	RCTA	Rear Cross Traffic Alert	Alerts the driver with an icon in the wing mirror and a warning beep if it detects vehicles approaching from either side while backing out of a parking space or garage.
	SBS	Smart Brake Support	With a millimeter-wave radar that detects distant objects, works at a higher speed to automatically apply the brakes when there is a risk of frontal collision. This helps to avoid collisions or reduce the severity if one does occur.
Collision Avoidance / Damage Reduction Support	Advanced SCBS	Advanced Smart City Brake Support	Works at lower speeds to automatically apply the brakes when there is a risk of frontal collision. This helps to avoid frontal collisions or reduce the severity if one does occur.
	—	AT Acceleration Control [Driving forward]	Issues a warning and simultaneously controls the engine output to prevent sudden acceleration, if the accelerator pedal is depressed more than necessary even if there is an obstacle in front of the vehicle.
	—	AT Acceleration Control [Reversing]	Issues a warning and simultaneously controls the engine output to prevent sudden acceleration, if the accelerator pedal is depressed more than necessary even if there is an obstacle behind the vehicle.
	SCBS R	Smart City Brake Support [Reversing]	Automatically applies the brake to stop or slow the vehicle when there is a risk of collision with an obstacle behind.
Driving Support	SBS-RC	Smart Brake Support (rear and both sides)	Detects a vehicle approaching the right, left or rear side of driver's vehicle when reversing, and automatically decelerates or stops the driver's vehicle when a collision is considered unavoidable.
	DAA	Driver Attention Alert	Monitors the vehicle's behavior and recommends a rest stop if signs of driver fatigue or reduced concentration are detected.
	DM	Driver Monitoring	Detects a change in the feature point of each part of the driver's face with a driver monitoring camera to estimate the degree of the driver's fatigue and sleepiness, and warns the driver with a display or sound, or advances the timing of issuance of an automatic brake start alarm.
	TSR	Traffic Sign Recognition System	Automatically detects speed limits and indicates speed limit in the Active Driving Display.
	MRCC	Mazda Radar Cruise Control	Measures the distance to the car ahead and controls speed to maintain a safer following distance.
	CTS	Cruising & Traffic Support	In addition to maintaining driving operation that keeps the distance from the vehicle ahead constant, the steering assist function helps the vehicle run along the lane or along the running locus of the vehicle ahead.

New technologies used for the 2019 Mazda3 and subsequent models

**h** Conceptual figure of the operation of FCTA**i** Conceptual figure of the operation of SBS-RC**j** Conceptual figure of the operation of DM**k** Conceptual figure of the operation of CTS

Advanced safety technology "i-ACTIVSENSE" reference website

<https://www.mazda.com/en/innovation/technology/safety/i-activsense/>



## The Mazda Co-Pilot Concept: Human-Centered Autonomous Driving

The Mazda Co-Pilot Concept is Mazda's development concept for human-centered self-driving technology. Based on this concept, people enjoy driving and are revitalized mentally and physically through the process. Meanwhile, the car knows all the movements of the driver and the car is driving "virtually" in the background at all times. If the unexpected occurs, such as the driver suddenly losing consciousness, the car takes control to help prevent endangering vehicle occupants and passersby. It also automatically contacts emergency services and drives to a safer location. The Company aims to make the Mazda Co-Pilot Concept, which uses autonomous driving technologies to allow drivers to enjoy any drive with peace of mind, standard by 2025.

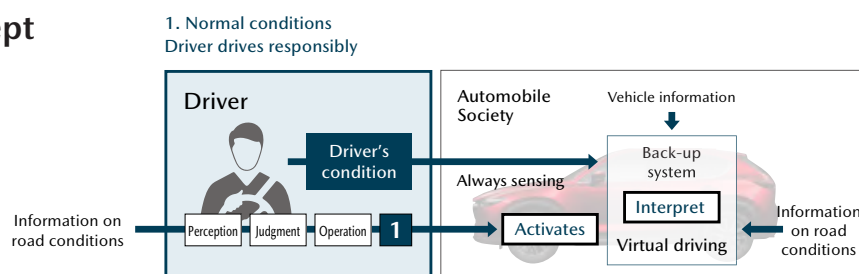
### Autonomous Driving Technologies as Standard Equipment

Mazda Co-Pilot Concept,  
employing autonomous driving technologies

2020: Start demonstration test  
By 2025: Apply as standard equipment

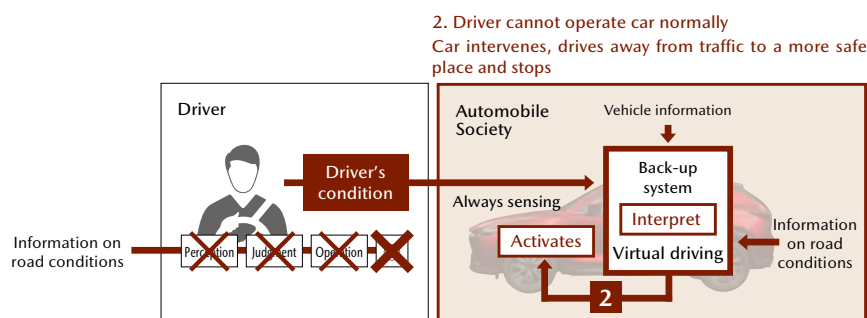
## Mazda Co-Pilot Concept

**When the driver's condition is normal**  
Under normal conditions, drivers can enjoy driving themselves while the car constantly monitors their condition and conducts "virtual driving," meaning it is ready to drive itself at any time.



### When the driver cannot operate the vehicle in a normal manner

When it is determined that the driver cannot operate the vehicle normally, the car intervenes in an attempt to avoid collisions and moves the vehicle away from traffic to a more safe location where it can stop the vehicle.



### TOPICS Cooperation with the government to promote the spread of safe-driving support cars

The Ministry of Economy, Trade and Industry, the Ministry of Land, Infrastructure, Transport and Tourism, and other ministries and agencies recommend a new car safety concept called "Safety Support Car S (Suppocar S)." All Mazda's flagship models\*<sup>1</sup> currently available in the Japanese market are furnished with advanced safety technologies as standard equipment. These technologies qualify for the "Wide" \*<sup>2</sup> subcategory of "Suppocar S." "Suppocar S" is a popular name for a safe-driving support car designed to prevent traffic accidents that have become a societal problem. A Suppocar S, which is particularly recommended for use by an aged driver, is equipped with various safe driving support systems, including a damage mitigation brake and an acceleration suppression device that functions when the driver depresses the wrong pedal. Mazda will continue to further advance its leading-edge technologies to deliver safer and more secure cars to beginner drivers and senior drivers.



\*1 Equipped with a damage mitigation brake (for pedestrians), an acceleration suppression device that functions when the driver depresses the wrong pedal, a lane departure warning device, and an advanced headlight.

\*2 Mazda2, Mazda3, Mazda6, CX-3, CX-5, CX-8, and Roadster (MX-5) (as of August 2019)

## Technologies to Mitigate Injuries in an Accident

Focusing mainly on vehicle damage morphology and the mechanisms by which damage develops in the human body (human study) in the event of an actual traffic accident, Mazda has been promoting the development of safety technologies that help mitigate injuries to passengers and pedestrians in the event of a traffic accident. The Company has been dramatically enhancing the collision safety performance of Mazda vehicles by using leading-edge safety technologies, including vehicle body structures made of highly rigid ultrahigh-tensile steel plates that can improve the energy absorption efficiency and the occupant protection structure the Company has developed based on the study of human characteristics to minimize injury to the occupants. Mazda's major safety technologies are described below.

### Lightweight, high-rigidity, safer body:

Vehicle body skeletons are constructed of highly rigid ultrahigh-tensile steel plates to securely receive impacts and vehicle body frame structures are designed so that they can efficiently absorb and distribute impact energy transmitted from the front, rear and both sides of the vehicle. Vehicle bodies constructed as above minimize the deformation of the cabin.

### Occupant protection:

To reduce injuries to the occupants, Mazda has developed various human characteristic-based injury protection structures and uses them in its vehicles.

### Pedestrian protection:

Mazda uses various methods to reduce injury to pedestrians in the event of a collision.

### Technologies Used in Mazda3

The following technologies have been used in the Mazda3, which was launched domestically in May 2019.

#### Lightweight, High-rigidity, Safe Body

##### Ultrahigh-tensile steel plate

Compared with the previous model, the percentage of ultrahigh-tensile steel plates having a strength of 980 MPa or more was dramatically increased from approximately 9% to approximately 30%. In addition, Mazda used the world's first\* cold-stamped vehicle body structural parts made of 1,310 MPa-class ultrahigh-tensile steel plates.

##### Frontal collision safety performance

The bumper beam was elongated in the lateral direction and a perimeter beam was newly installed to minimize the damage to the collision partner.

##### Side collision safety performance

Shock dispersion type hinge pillars and rear body structures were used to securely receive the collision impact, thereby minimizing the deformation of the cabin.

#### Occupant Protection

##### Front seat

The rigidity of seat frames was increased and the cushion side frames was constructed so that they can absorb collision impact force. The above design modification is designed to reduce the injury to occupants' neck by constraining the heads at the initial stage of a rear-end collision and, at the same time, suppressing the reaction of the seat back when it returns from a backward tilted position to the original position.

##### Seatbelt

The front seatbelt was reconstructed so that the lap anchor can be attached to the seat. This minimizes the slacking of the belt even after the occupant moves the seat to any longitudinal position, making it possible to help quickly protect the occupant in the event of a collision.

##### Driver's seat knee airbag

Mazda installed driver's seat knee airbags for the first time. If a collision occurs, these airbags will deploy around the driver's knees to help limit the forward movement of the driver, thereby reducing injuries to his/her chest, belly, and legs.

##### Front side airbag

To reduce the impact load that will be applied to the occupants' ribs and their neighboring areas which are sensitive to collision impact force, Mazda used airbag systems (two-chamber type) that were designed after taking into account the load bearing performance of the human body.

#### Pedestrian Protection

##### Head protection measures

To reduce the impact force and injury to a pedestrian when his/her head hits the bonnet (hood) in the event of a collision, Mazda optimized the distance between the outer and inner panels of the bonnet and the impact absorption structure of the inner panel. The above design modification enables the bonnet to absorb large energy at the initial stage of a collision with the pedestrian's head and to softly and uniformly receive the head after the collision.

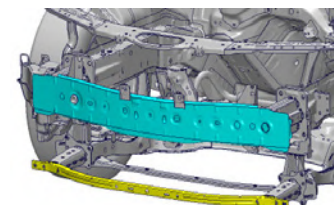
##### Leg protection measures

The upper and lower legs of the occupant are supported by the face upper and the lower stiffener, respectively, to prevent the legs from bending like a bow, thereby reducing damage to the ligaments and knees in the event of a collision.

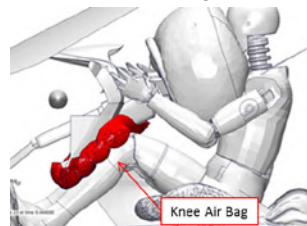
#### Lightweight, high-rigidity, safer body



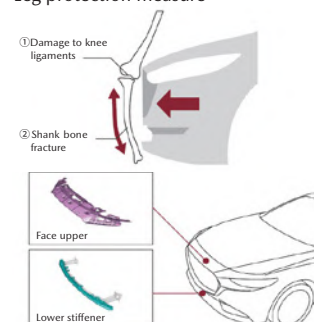
#### Safety measures against frontal collision



#### Driver's seat knee airbag



#### Leg protection measure



\* As of January 2019, according to Mazda data

## External Evaluations for Mazda's Safety Technologies

m

Mazda has earned high evaluations for its safety technologies.

### Third Party Safety Evaluations

#### Rating by vehicle model

(As of June 30, 2019)

		Demio/ Mazda2	Mazda3	Atenza/ Mazda6	CX-3	CX-5	CX-8	CX-9	Roadster/ MX-5
Japan	J-NCAP <sup>*1</sup> (Collision Safety Performance Tests)	5-Star (2014-2015)	— <sup>*6</sup>	5-Star (2013-2014)	5-Star (2015-2016)	5-Star (2017-2018)	5-Star (2017-2018)	— <sup>*5</sup>	— <sup>*6</sup>
	J-NCAP <sup>*1</sup> (Advanced Safety Vehicle (ASV) Technology Assessment)	ASV+ (2014)	— <sup>*6</sup>	ASV+++ (2018)	ASV+++ (2018)	ASV+++ (2018)	ASV+++ (2018)	— <sup>*5</sup>	— <sup>*6</sup>
US	US-NCAP <sup>*2</sup>	— <sup>*5</sup>	— <sup>*6</sup>	5-Star (2019MY)	5-Star (2019MY)	5-Star (2019MY)	— <sup>*5</sup>	5-Star (2019MY)	— <sup>*6</sup>
	IIHS <sup>*3</sup>	— <sup>*5</sup>	19TSP	19TSP	19TSP	19TSP+	— <sup>*5</sup>	19TSP	— <sup>*6</sup>
Europe	Euro-NCAP <sup>*4</sup>	4-Star (2015)	5-Star (2019)	5-Star (2018)	4-Star (2015)	5-Star (2017)	— <sup>*5</sup>	— <sup>*5</sup>	4-Star (2015)

#### Change in rating in the last three years<sup>\*7</sup>

		2017	2018	2019
Japan J-NCAP <sup>*1</sup> (Collision Safety Performance Tests)	5-Star	5	6	5
	4-Star	0	0	0
US US-NCAP <sup>*2</sup>	5-Star	3	5	4
	4-Star	1	0	0
Europe Euro-NCAP <sup>*4</sup>	5-Star	3	3	3
	4-Star	3	3	3

\*1 Japan New Car Assessment Tests: Vehicle collision safety performance evaluations conducted by the National Agency for Automotive Safety and Victims' Aid. For collision safety performance, 5-Star is the highest possible rating. For Advanced Safety Vehicle (ASV) Technology Assessment, ASV++ is the highest possible rating (From 2016).

\*2 National Highway Traffic Safety Administration's 5-Star Safety Ratings program. 5-Star is the highest possible rating.

\*3 Insurance Institute for Highway Safety: Safety performance evaluations by an independent, nonprofit organization funded by auto insurers. Top Safety Pick + (Plus) is the highest possible rating.

\*4 European New Car Assessment Programme: An independent agency comprised of the transport authorities of European countries, etc. 5-Star is the highest possible rating.

\*5 Not yet introduced as of the end of June 2019

\*6 Not evaluated.

\*7 As of the end of June 2019. New-generation models were the target of evaluation.

### J-NCAP car assessment result presentation



CX-8 won the highest scores among the cars which were assessed in FY March 2018 from two aspects: passive safety and active safety.

## Initiatives with People

It is said that most traffic accidents are caused directly or indirectly by human behavior. Mazda endeavors to raise safety awareness among adults and children through various means of communication.

### Raising Traffic Safety Awareness

In cooperation with local municipalities and organizations, Mazda and its Group companies in Japan and overseas conduct various activities to raise safety awareness. The Company hosts safety-related exhibitions at the Mazda Museum in the Hiroshima Head Office, the "Kids' Quiz on Traffic Safety" website for children, and other projects. In June 2019, Mazda held a program for experiencing advanced headlight ALH (adaptive LED headlight) as part of the Sustainable "Zoom-Zoom" Forum 2019 at the Mazda R&D Center Yokohama (MRY). The Company also organized other various events to promote understanding of Mazda's safety technologies.\*1

### Safe Driving Demonstration

Starting from FY March 2015, Mazda has held the Mazda Driving Academy, an experience and training program to help customers in Japan learn the theories and techniques to control their cars easily, comfortably and safely. A variety of curriculums tailored to the needs and level of the customers are offered, from basic driver training of drive, turn, and stop, to the exciting experience of driving on a racing circuit, with the aim of improving their driving skills and raising the awareness of safe driving. In FY March 2019, the Mazda Driving Academy was held 9 times.

n Mazda Kids' Quiz on Traffic Safety website for children (Japanese Only)

<https://www2.mazda.com/ja/about/kids/safetyquiz/>



O Experiencing the collision damage reduction brake



## Initiatives with Roads and Infrastructure

### Initiatives toward Realizing a Safe Automotive Society with ITS\*2

Traffic accidents and congestion are serious social problems in many countries and cities. To solve these problems, worldwide efforts have been taken to introduce advanced technologies for roads and automobiles. As an automobile manufacturer, Mazda has been proactively supporting the ITS project driven by the government and private sector, and working collaboratively with the national and local governments and related companies in order to realize a society where the road traffic is safe and accident-free.

### Technology to Notify the Driver of Unseen Dangers

Mazda is promoting research and development of ITS as a means to monitor the objects in a distant position that cannot be detected by Mazda's advanced technology i-Activsens or the areas in an intersection that cannot be seen from the driver.

#### ITS Projects Mazda Participates

Project	Description	Organizer
Smart Way	Research and preparation of next-generation road systems using ITS technology, linking people, vehicles, and roads by means of information, mainly for expressways and toll roads	Road Bureau, Ministry of Land, Infrastructure, Transport and Tourism
DSSS (Driving Safety Support Systems)	Research and development of driving safety support systems utilizing road-vehicle communication, in which signals are transmitted between vehicles and the road infrastructure, as well as systems to enable smooth traffic flow	National Police Agency, UTMS*1
ASV (Advanced Safety Vehicle)	Research and development to realize a system to assist safer driving utilizing cutting-edge technologies, including communication-based driving safety support systems. In 1991, the project's first phase was launched, and currently discussions are under way as to the sixth phase	Road Transport Bureau, Ministry of Land, Infrastructure, Transport and Tourism
ITS Connect*2	The ITS Connect Promotion Consortium promotes practical application and widespread use of a driving support system combining automobile-related technology with new ITS communication technology. The consortium aims to achieve a safe anxiety-free transportation society, by studying the fundamental technology for the driving support system (ITS Connect), which utilizes ITS-dedicated frequency band, and carrying out operation support.	ITS Connect Promotion Consortium
Hiroshima SAND BOX	Effective use of communication-type ITS systems and open cloud data to enhance the safety and convenience of public transportation systems and make transportation smoother by realizing priority traffic signal control for public transportation systems, minimizing hazardous events at intersections and other places, and promoting ride sharing by increasing transfer convenience.	Hiroshima Prefecture

\*1 UTMS Society of Japan

\*2 Website of ITS Connect Promotion Consortium (<https://www.itsconnect-pc.org/en/>)

\*1 Refer to the following URL for social contribution activities regarding safety communications by the Mazda Group: <https://www.mazda.com/en/csr/social/>

\*2 ITS: Intelligent transport system uses telecommunications technology to bring together vehicles, people, and the traffic environment, with the aim of easing traffic congestion and reducing the number of accidents throughout Japan.

## Advanced Safety Vehicle “Mazda Atenza ASV-5”

Mazda has participated in the ASV\*<sup>1</sup> research and development project since its first phase.

In the fifth phase, the Company developed Mazda Atenza ASV-5 which is equipped with the communication technology-based driving safety support system. The vehicle is designed to eliminate blind-spots and supports hazard recognition in 360-degrees through a combination of vehicle-to-vehicle, street-to-vehicle and pedestrian-to-vehicle communication technologies and on-board autonomous sensors. The intuitive HMI displays hazards surrounding the driver in all directions including blind spots, and does not interfere with the operation of the vehicle.

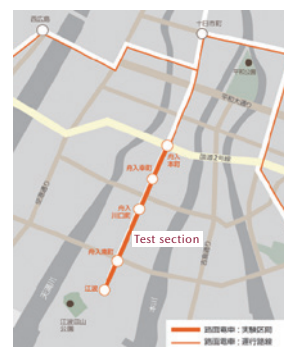
When the driver fails to recognize a hazard, and a risk of collision arises, the HMI warns the driver to brake.

### Demonstration test for Streetcar-to-Vehicle Communication ASV

In October 2013, in Hiroshima City where about 150,000 people use streetcars each day, the world's first demonstration test\*<sup>2</sup> for the streetcar-to-vehicle communication + autonomous safety technology\*<sup>3</sup> was conducted jointly by the University of Tokyo, Hiroshima Electric Railway, and National Traffic Safety and Environment Laboratory, and Mazda Motor Corporation. The findings on the test are as follows:

- Effective in preventing collisions in situations such as when a vehicle turns right or enters the streetcar's path in order to pass a stopped vehicle.
- Effective in preventing accidents by coordinating with a smartphone application for the early detection of pedestrians who are in positions difficult for the driver to see.

### Demonstration Tests on Public Road



Reference website:

<https://www.mazda.com/en/innovation/technology/safety/its/>

\*1 ASV: Advanced Safety Vehicle

\*2 As of September 2017, according to Mazda data.

\*3 The test was conducted as one of the post-congress tour events for the ITS World Conference Tokyo 2013

## Mazda's Safety Initiatives and Primary Safety Technologies

For more details, visit Mazda website:

SAFETY TECHNOLOGY : <https://www.mazda.com/en/innovation/technology/safety/>

Category	Accident reduction		Injury reduction
	Basic safety (Maximizing the range of conditions in which the driver can drive safely and comfortably)	Preventive safety (Mitigation of risk/damage from an accident)	Collision safety (Minimizing injuries in accidents)
Vehicles	<p>Offers the ideal driving position</p> <ul style="list-style-type: none"> <li>■ Ideal pedal layout</li> <li>■ Organ-type accelerator pedal</li> </ul> <p>Supports both safety and Driving Pleasure</p> <ul style="list-style-type: none"> <li>■ A newly developed front strut and rear multilink suspension system</li> <li>■ A lightweight cross member with high rigidity</li> <li>■ Active Driving Display</li> <li>■ A-pillar/door mirror for improved front field vision</li> <li>■ Power Windows with Injury Prevention Function</li> <li>■ G-Vectoring Control (GVC)</li> </ul> <p>Helps to avoid danger</p> <ul style="list-style-type: none"> <li>■ Brake Assist and EBS</li> <li>■ 4-Wheel Antilock Braking System (4W-ABS)</li> <li>■ Dynamic Stability Control (DSC)</li> <li>■ Brake Override System (BOS)</li> </ul>	<p>Supporting driver's recognition</p> <ul style="list-style-type: none"> <li>■ Blind Spot Monitoring (BSM)/Rear Vehicle Monitoring (RVM)</li> <li>■ Front Cross Traffic Alert (FCTA)</li> <li>■ Rear Cross Traffic Alert (RCTA)</li> <li>■ Lane Departure Warning System (LDWS)</li> <li>■ Lane-Keep Assist System (LAS)</li> <li>■ Front Obstruction Warning (FOW)</li> <li>■ 360 Degree View Monitor</li> <li>■ Emergency Signal System (ESS)</li> <li>■ Adaptive Front Lighting System (AFS)</li> <li>■ High Beam Control (HBC)</li> <li>■ Adaptive LED Headlight (ALM)</li> </ul> <p>Minimizes damage in an accident</p> <p>[When moving forward]</p> <ul style="list-style-type: none"> <li>■ Smart Brake Support (SBS)</li> <li>■ Advanced Smart City Brake Support (Advanced SCBS)</li> </ul> <p>[When reversing]</p> <ul style="list-style-type: none"> <li>■ AT Acceleration Control</li> <li>■ Smart City Brake Support R [When reversing] (SCBS-R)</li> <li>■ AT Acceleration Control</li> <li>■ Smart Brake Support [Rear side] (SBS-RC)</li> </ul> <p>Supports both safety and Driving Pleasure</p> <ul style="list-style-type: none"> <li>■ Mazda Radar Cruise Control (with Stop &amp; Go function) (MRCC)</li> <li>■ Cruising &amp; Traffic Support (CTS)</li> <li>■ Driver Attention Alert (DAA)</li> <li>■ Driver Monitoring (DM)</li> <li>■ Traffic Sign Recognition System (TSR)</li> </ul>	<p>Helps to protect drivers/passengers in accidents</p> <ul style="list-style-type: none"> <li>■ Use of Straight Basic Skeleton</li> <li>■ Continuation Technology/Multi-Load Path Structure</li> <li>■ Cruciform Section Front Frame</li> <li>■ Ultrahigh-tensile Steel Bumper Frame</li> <li>■ SRS Airbag System (Driver's seat, front passenger's seat, curtain, front-side airbags and driver's knee)</li> <li>■ Soft Interior to Absorb Impacts</li> <li>■ Front Seats Designed to Reduce Impacts to the Neck / Rear Seats that Resist against Luggage Flying Forward</li> <li>■ Pre-Tensioners and Load-Limiter Seatbelts</li> <li>■ Collapsible Brake Pedal</li> <li>■ ISO-FIX-Compliant Child Seat</li> </ul> <p>Anchoring point</p> <ul style="list-style-type: none"> <li>■ Impact-Absorbing Steering Column</li> </ul> <p>Minimizes damage in an accident with pedestrians</p> <ul style="list-style-type: none"> <li>■ Impact-Absorbing Bumpers</li> <li>■ Impact-Absorbing Hood</li> <li>■ Active Hood</li> </ul>
People	<p>Safety Education</p> <ul style="list-style-type: none"> <li>■ Safety-related exhibitions at the Mazda Museum</li> <li>■ Traffic safety awareness quiz website for children</li> <li>■ Presentation of safety technologies at various events</li> </ul>		
Roads and Infrastructure	<p>Initiatives for a Safe society</p> <ul style="list-style-type: none"> <li>■ Intelligent Transport Systems (ITS)</li> <li>■ Smart Traffic Flow Control</li> <li>■ ITS Spot services</li> <li>■ Development of Advanced Safety Vehicles (ASVs)</li> <li>■ Road-Vehicle Communication ITS (DSRC)</li> <li>■ World's first demonstration tests*1 for the streetcar-to-vehicle communication ASV in Hiroshima</li> </ul>		

\*1 As of September 2017, according to Mazda data.



# ENVIRONMENT

Mazda views environmental protection as an urgent issue for humanity, and the highest priority issue facing automakers. The Company is making efforts to reduce environmental impact throughout the entire product life cycle.

## CONTENTS

52	Basic Approach on Environmental Protection, and Environmental Promotion Framework and Plan
58	Environmental Management
62	Efforts Regarding Product and Technology Development
70	Efforts Regarding Manufacturing and Logistics
77	Collection and Recycling of End-of-Life Vehicles (ELVs) and Used Parts
79	Biodiversity Conservation
80	Environmental Communication
82	Mazda's Corporate Activities and Impact on the Environment

## CSR Targets for FY March 2020

(Self-assessment key ○ : Accomplished, △ : Nearly accomplished, × : Not accomplished)

Items	FY March 2019 targets	FY March 2019 results	Self-assessment	FY March 2020 targets	ISO 26000 core subjects
Energy and global-warming-related issues					
Promoting resource recycling		(See Mazda Green Plan 2020)			6.5 The environment
Cleaner emissions					
Environmental management					

# BASIC APPROACH ON ENVIRONMENTAL PROTECTION, AND ENVIRONMENTAL PROMOTION FRAMEWORK AND PLAN

## The Mazda Global Environmental Charter

### Environmental Principles

The Mazda Group aims to promote environmental protection and contribute to a better society while maintaining harmony with nature in its business activities worldwide.

- We will contribute to society by creating environmentally friendly technologies and products.
- We will use the Earth's resources and energy sparingly and never overlook environmental considerations when conducting our business.
- We will do our part to improve the environment by working with local communities and society.

### Action Guidelines

#### 1. Creation of Environmentally Sound Technologies and Products

We are committed to the task of creating clean technologies, including methods to achieve cleaner exhaust emissions and reductions in CO<sub>2</sub> emissions, and the development of clean-energy vehicles.

We will promote the creation of products that are environmentally friendly from planning and development to manufacturing, use and recycling/disposal.

#### 2. Corporate Activities in Consideration of Conserving Resources and Energy

We will actively promote resource-saving and recycling activities to conserve the Earth's limited resources.

We will strive to diversify energy sources and use them efficiently.

We will promote the appropriate disposal and recycling of end-of-life vehicles.

#### 3. Corporate Activities in Pursuit of a Cleaner Environment

We will comply with environmental laws and regulations, and will also impose voluntary controls for higher standards and implement self-regulated controls.

We will promote the development of new technologies and the introduction of new systems in our pursuit of a cleaner environment.

#### 4. Working with Business Partners to Create a Better Environment

We will actively provide our employees with education and information about environmental protection to enhance their awareness of the global environment.

We will work in close cooperation with each other to achieve better environmental protection.

#### 5. Creating a Better Environment in Cooperation with Local Communities and Society

We will work actively to understand and appreciate society's requirements for the environment and reflect them in our business activities.

We will disclose and publicize environment-related technologies, systems and information.

We will not only conduct our own environmental activities, but will also actively participate in social activities for the conservation of the environment.

(Established in 1992; revised in April 2005)

## Mazda's Approach to the Environment

Environmental problems, including global warming, are issues of critical importance for the human race. Mazda actively adopts initiatives to promote a low-carbon, recycling-oriented society in harmony with nature, in cooperation with local governments, industrial organizations, and non-profit organizations. These efforts are reflected in all of Mazda's corporate activities with the aim of achieving a sustainable society.

## Philosophy and Policies

Mazda carries out its corporate activities with the aim of fulfilling its corporate vision (see p. 3). To this end, Mazda established the Mazda Global Environmental Charter as the basic policy for environmental matters in the Mazda Group. The Charter, which states "The Mazda Group aims to promote environmental protection and contributes to a better society while maintaining harmony with nature in its business activities worldwide," along with the five Action Guidelines from the basis of Mazda's approach to the environment. The Company carries out corporate activities related to products and technologies; manufacturing, logistics, and office operations; social contributions, respectively in consideration of the environment.

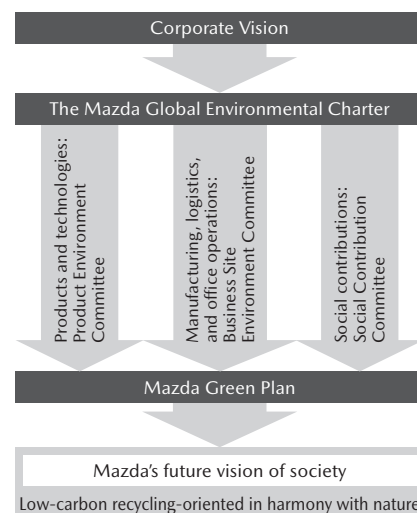
Specific targets and results are laid out in the Mazda Green Plan (see pp. 54-55), the Company's environmental mid-term plan. By using the PDCA (plan-do-check-act) cycle when executing activities and following up on their results, Mazda can effectively reduce impact on the environment. The Company also strives to address various social issues, including climate change and resource recycling, while placing emphasis on collaboration with external organizations.

### External Organizations in Which Mazda Participates

- Subcommittees of Japan Automobile Manufacturers Association
- Working groups of Global Compact Network Japan (GCNJ)
- TCFD Consortium<sup>\*1\*2</sup>

a

### a Philosophy and Policies for Environmental Initiatives



<sup>\*1</sup> TCFD: Task Force on Climate-related Financial Disclosures  
A private-sector led organization set up by the Financial Stability Board (FSB), in response to the request from the G20 Finance Ministers and Central Bank Governors.

<sup>\*2</sup> The TCFD Consortium is an organization established in Japan, aimed at holding discussions on effective corporate information disclosure and efforts for leading disclosed information to appropriate decision-making on investment by financial institutes and other entities. The Ministry of Economy, Trade and Industry, the Financial Services Agency and the Ministry of the Environment participate in the consortium as observers.

## Mazda Environmental Promotion Framework

b

Mazda has established three committees under the CSR Management Strategy Committee, chaired by the president of the Company, to promote environmental management throughout the Group. These are the Product Environment Committee, the Business Site Environment Committee, and the Social Contribution Committee.

Each committee sets targets, and monitors results and progress, under the “Mazda Green Plan 2020” mid-term environmental plan.

## Mazda Green Plan 2020 Mid-Term Environmental Plan

c

Based on the “Philosophy and Policies” for environmental initiatives, Mazda developed this mid-term plan toward 2020, centering on the following three main perspectives.

### I. Themes to Be Resolved in the Future

Mazda considers the following as issues that both customers and society expect automakers to make positive contributions toward:

1. Energy- and Global-Warming-Related Issues  
Undertaking measures to reduce CO<sub>2</sub> emissions over the entire life cycle of a vehicle.
2. Promoting Resource Recycling  
Reducing waste from vehicles, the vehicle manufacturing and shipping processes, and disposal of end-of-life vehicles, as well as actively promoting the comprehensive recycling of resources.
3. Cleaner Emissions  
Reducing various emissions/waste (aside from CO<sub>2</sub>) from vehicles and manufacturing processes, especially emissions with highly adverse environmental impacts.
4. Environmental Management  
Develop environmental management throughout the entire Group and supply chain.

### II. Mazda's Initiatives (two categories)

- a. Vehicles and vehicle technology  
Contributing to a reduced environmental impact through products and technology.
- b. Manufacturing, Logistics, Office Operations, Social Contributions, etc.  
Contributing to a reduced environmental impact through all activities (excluding those related to products and technology)

### III. Consideration of the Entire Vehicle Life Cycle

Mazda is making efforts to reduce environmental impact throughout the entire product life cycle. Around 75% of CO<sub>2</sub> emissions occur over the period from customer use to disposal – an overwhelming percentage of overall emissions (see p. 62).

- Manufacturing and logistics (materials manufacturing, and vehicle manufacturing): accounts for around 25%
- Product use and disposal (use by customer, maintenance, disposal and recycling): accounts for around 75%

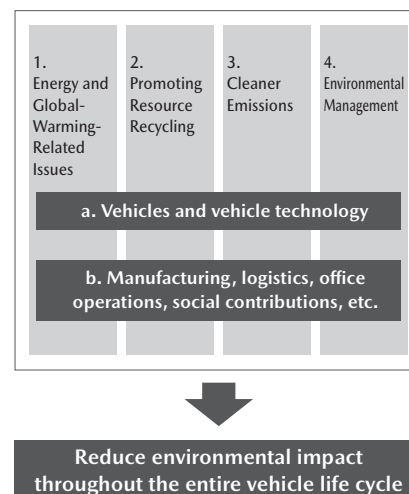
## Next Medium-and Long-Term Environmental Plan

Mazda is in the process of formulating the next medium-and long-term environmental plan, referencing “Mazda's Vision for Society's Relationship with Vehicles in the Future” (see p. 56), aiming at realizing the vision. With “decarbonization” and “resource recycling” selected as the main themes, discussions are under way to finalize the plan.

## b Mazda Environmental Promotion Framework (as of March 31, 2019)



## c Approach on the Mazda Green Plan 2020



**Targets and Actions in the Mazda Green Plan 2020 Mid-Term Environmental Plan** (Self-assessment key ○:Accomplished, △:Nearly accomplished, ×: Not accomplished)

Category	Item	Targets and actions by 2020	FY March 2019		Self-assessment	FY March 2020
			Targets and actions	Results		Targets and actions
1. Energy- and Global-Warming-Related Issues						
a. Vehicles and vehicle technology	① Respond to fuel economy standards in each country/region.	Introduce technology to raise fuel economy, to respond fully to the fuel economy standards of each country/region.	•Meet fully the fuel economy/greenhouse gas standards of each country/region.	•Achieved fuel economy/greenhouse gas emission standards in Japan, U.S., and China.	○	•Meet fully the fuel economy/greenhouse gas standards of each country/region.
	② Improve fuel economy using Skyactiv Technology.	Raise the average fuel economy of the Mazda vehicles sold worldwide by 30% by 2015 and by 50% by 2020 compared with 2008 levels.	•Promote Skyactiv Technology steadily toward achieving the fuel economy target for 2020. •Promote development and implementation of technologies based on the Building-Block Strategy.	Promoted Skyactiv Technology steadily, and also promoted development and implementation of technologies based on the Building-Block Strategy.	○	•Promote Skyactiv Technology steadily toward achieving the fuel economy target for 2020. •Promote development and implementation of technologies based on the Building-Block Strategy.
	③ Promote development of next-generation vehicles using biofuels, electrical power, hydrogen, etc.	Promote the development of electric motor drive technologies.	Continue the sales of vehicles with hybrid system.	Continued the sales of Axela Hybrid	○	Promote the introduction of vehicles with Mazda's unique mild-hybrid system.
			Promote the development of electric motor drive technologies based on the analysis results of Demio EV's traveling data.	Examined solutions to problems related to driving range, etc. with reference to Demio EV's traveling data and customer feedback.	○	Promote development of electric vehicles and plug-in hybrids.
		Promote development of technologies supporting alternative fuels such as biofuels, synthetic fuels, and hydrogen.	Promote development of technologies supporting alternative fuels, such as biofuels, synthetic fuels, and hydrogen.	Promoted development of technologies supporting alternative fuels, such as biofuels, synthetic fuels, and hydrogen.	○	Promote development of technologies supporting biofuels.
b. Manufacturing, logistics, office operations, social contributions, etc.	④ Reduce CO <sub>2</sub> emissions from factories and offices.* <sup>1</sup>	Reduce CO <sub>2</sub> emissions from all Mazda Group factories and offices in Japan by 28% or more compared with 1990 levels.	Reduce CO <sub>2</sub> emissions from all Mazda Group factories and offices in Japan by 44% compared with 1990 levels.	Reduced CO <sub>2</sub> emissions from all Mazda Group plants and offices in Japan by 47% compared with 1990 levels. (Including the effects of the heavy rain in July 2018)* <sup>2</sup>	○	Reduce CO <sub>2</sub> emission intensity from all Mazda Group plants and offices in Japan by 45% compared to 1990 levels.
	⑤ Reduce CO <sub>2</sub> emissions from logistics.	Reduce CO <sub>2</sub> emissions from all Mazda Group logistics operations in Japan by 50% compared with 1990 levels.	Reduce CO <sub>2</sub> emissions from all Mazda Group logistics operations in Japan by 60% compared with 1990 levels.	Reduced CO <sub>2</sub> emissions from all Mazda Group logistics operations in Japan by 56% compared to 1990 levels. (Including the effects of the heavy rain in July 2018.* <sup>2</sup> CO <sub>2</sub> intensity improvements are being implemented according to plan.)	△	Reduce CO <sub>2</sub> emission intensity from all Mazda Group logistic operations in Japan by 58% compared to 1990 levels.
* <sup>1</sup> For CO <sub>2</sub> emissions calculations, the CO <sub>2</sub> coefficient based on the standard (Keidanren's Commitment to a Low Carbon Society) of the Japan Business Federation (Nippon Keidanren) are used. (For the calculations of FY March 2019 and after, the coefficient of FY March 2018 is used.) * <sup>2</sup> Heavy rains in July 2018 in western Japan damaged roads and other transportation networks. Plant and office CO <sub>2</sub> emissions decreased due to lower production volume as production adjusted to the disaster, while alternative routes and shipping methods, including trucks, temporarily increased logistics' CO <sub>2</sub> emissions.						
2. Promoting Resource Recycling						
a. Vehicles and vehicle technology	⑥ Promote vehicle recycling.	Develop vehicles that are easy to disassemble and recycle.	Promote development for ease of disassembly and recycling.	For the Mazda3, achieved improved disassembly/recycling efficiency and thermal recyclability, appropriate disposal measures, and expanded use of recycled materials.	○	Promote development for ease of disassembly and recycling.
		Promote the use of bioplastics.	Develop and implement bioplastics, and expand adoption.	Expanded parts and models adopting paintless bioplastics with high-quality textures, which can also be used for large exterior parts.	○	Develop and implement bioplastics, and expand adoption.
		Promote bumper-recycling technology.	Promote collection and recycling of damaged bumpers.	Continued to promote collection and recycling of damaged bumpers. (Collected bumpers: around 62,900)	○	Promote the collection and recycling of damaged bumpers.
b. Manufacturing, logistics, office operations, social contributions, etc.	⑦ Reduce waste volumes, promote recycling.	Reduce direct landfill waste to zero* <sup>3</sup> across the entire Mazda Group in Japan.	Reduce direct landfill waste across the entire Mazda Group in Japan to zero* <sup>3</sup> as compared to total waste volume.	Reduced direct landfill waste across the entire Mazda Group in Japan to 0.1% of total waste volume.	○	Reduce direct landfill waste to zero across the entire Mazda Group in Japan.* <sup>3</sup>
	⑧ Reduce packaging volume used.	Reduce volume of packaging and wrapping across the entire Mazda Group in Japan by 45% compared with 1990 levels.	Reduce volume of packaging and wrapping across the entire Mazda Group in Japan by 60% compared with 1990 levels.	Reduced volume of packaging and wrapping across the entire Mazda Group in Japan by 56% compared with 1990 levels. (Effect of increase in number of units shipped, intensity reduction is being implemented according to plan.)	△	Reduce volume of packing and wrapping in terms of basic units across the Mazda Group in Japan by 56% compared with 1990 levels.
	⑨ Reduce volume of water used and promote effective use of water.	Reduce volume of water used across the entire Mazda Group in Japan. Reduce volume of tap water used by 47% compared with 1990 levels.	Reduce volume of water used across the entire Mazda Group in Japan. Reduce volume of tap water used by 49% compared with 1990 levels.	Reduce volume of water used across the entire Mazda Group in Japan. Reduced volume of tap water used by 52% compared with 1990 levels.	○	Reduce the volume of water used across the Mazda Group in Japan by 53% compared with 1990 levels.

\*3 Here "zero" is defined as the condition where the percentage of direct landfill is 0.5% or less of the total volume of waste generated.

(Self-assessment key ○:Accomplished, △:Nearly accomplished, ×: Not accomplished)

Category	Item	Targets and actions by 2020	FY March 2019		Self-assessment	FY March 2020
			Targets and actions	Results		Targets and actions
3. Cleaner Emissions						
a. Vehicles and vehicle technology	⑩ Ensure cleaner vehicle exhaust gas emissions.	Introduce and promote low emission vehicles to improve air quality in each country and region.	Promote the introduction of low emission vehicles that meet the needs of each country and region.	Japan: 89% (vehicle number ratio) of passenger vehicles met the SU-LEV (★★★★) standard. United States: Introduced low-emission vehicles that meet Tier3/LEV2,3 regulations in all product lines. Europe: All product lines met the Euro 6 standards. China: Developed vehicles that meet Euro5 standards or equivalent levels. Other: Introduced low-emission vehicles that meet the needs of each country and region.	○	Promote the introduction of low emission vehicles that meet the needs of each country and region.
	⑪ Reduce inclusion of substances of environmental burden in products.	Reduce VOCs in vehicle interiors.  Promote development and adoption of car air-conditioning systems using new refrigerants with low environmental impact.	Pass Ministry of Health, Labour and Welfare (MHLW) guidelines for the indoor aerial concentration in all new vehicles.  Promote development and adoption of car air-conditioning systems using new refrigerants with low environmental impact.	Passed Ministry of Health, Labour and Welfare (MHLW) guidelines for the indoor aerial concentration with the Mazda3.  Developed a car air-conditioning system using a refrigerant with low environmental impact for adoption in new model vehicles.	○  ○	Pass Ministry of Health, Labour and Welfare (MHLW) guidelines for the indoor aerial concentration in all new vehicles.  Promote development and adoption of car air-conditioning systems using new refrigerants with low environmental impact.
b. Manufacturing, logistics, office operations, social contributions, etc.	⑫ Reduce waste volumes of PRTR substances.	Reduce waste volumes of PRTR substances across the entire Mazda Group in Japan.	Reduce waste volumes of PRTR substances across the entire Mazda Group in Japan.	Reduced waste volumes of PRTR substances across the entire Mazda Group in Japan by 18% compared with FY March 2018 levels.	○	Reduce waste volumes of PRTR substances across the entire Mazda Group in Japan.
	⑬ Reduce volumes of VOC waste emissions.	Reduce volumes of VOC waste emissions to an average 23 g/m <sup>2</sup> or less across all Mazda lines.	Reduce volumes of VOC waste emissions to an average 22 g/m <sup>2</sup> or less across all Mazda lines.	Reduce volumes of VOC waste emissions to an average 20.0 g/m <sup>2</sup> or less across all Mazda lines.	○	Reduce volumes of VOC waste emissions to an average 20 g/m <sup>2</sup> or less across all Mazda lines.
4. Environmental Management						
a. Vehicles and vehicle technology	⑭ Promote life cycle assessment (LCA).	Expand the implementation of LCA (in Japan).	•Steadily implement LCA for new technologies related to environmental performance.  •To expand use of renewable energy, promote demonstration testing of the combination of renewable energy and reused batteries at business sites.	•Studied and evaluated CO <sub>2</sub> emissions from internal combustion engine vehicles and electric vehicles through industry-academia collaboration, and announced the results in Japan and overseas.  •Promoted demonstration testing of the combination of renewable energy and reused batteries.	○	•Steadily implement LCA for new technologies related to environmental performance.  •To expand use of renewable energy, promote demonstration testing of the combination of renewable energy and reused batteries at business sites.
	⑮ Promote an integrated approach to traffic systems.	Improve driving technique and promote activities to raise awareness.	Aiming to realize smooth traffic flows that will help reduce energy loss due to frequent acceleration/ deceleration, promote the development of technologies based on human-centered design (such as control technologies to enable operation of the accelerator/brake pedals as intended, and Skyactiv-Vehicle Architecture technologies to realize smooth driving that makes drivers feel a sense of connectedness to their cars).	Equipped the Mazda3 with control technologies to enable operation of the accelerator/brake pedals as intended, and Skyactiv-Vehicle Architecture technologies to realize smooth driving that makes drivers feel a sense of connectedness to their cars.	○	Improve driving technique and promote activities to raise awareness, taking a customer-centered approach.
b. Manufacturing, logistics, office operations, social contributions, etc.	⑯ Reduce the environmental risk of the Mazda Group in Japan.	Promote environmental protection activities among Mazda Suppliers.	Expand promotion of the Mazda Green Purchasing Guidelines and revise if necessary.  •Support 100% establishment of EMS among major suppliers.  •Support and enhance EMS at secondary suppliers.	Cascaded the Guidelines to all suppliers, and requested compliance.  •Supported 100% establishment of EMS among major suppliers.  •Supported and enhanced EMS at secondary suppliers.	○  ○	Expand promotion of the Mazda Green Purchasing Guidelines and revise if necessary.  •Support 100% establishment of EMS among major suppliers.  •Support and enhance EMS at secondary suppliers.
		Promote the establishment and introduction of environmental management systems (EMS).	Continue to provide follow-up support for the introduction of EcoAction 21 at all Mazda Group dealerships*1 in Japan, and support newly opened shops in obtaining certification.  Review the activities carried out at auto parts sales companies*1 and the support necessary from Mazda, in order to ramp up EMS at the sales companies.	Completed the introduction of EcoAction 21 at all Mazda Group dealerships*1 in Japan, and continued to support newly opened shops in obtaining certification.  Completed the introduction of EMS at auto parts sales companies. Confirmed proper operation of EMS at these companies through periodic reports, etc.	○  ○	Continue to provide follow-up support to newly opened shops in obtaining certification, to maintain the EcoAction 21-certified status at all Mazda Group dealerships*1 in Japan.  Review the activities carried out at auto parts sales companies*1 and the support necessary from Mazda, in order to ramp up EMS at the sales companies.
	⑰ Promote activities to raise awareness of environmental issues.	Actively disseminate environmental information to improve environmental awareness among Mazda and Mazda Group company employees.	Continuously raise awareness inside the Group regarding environmental issues that society faces and measures throughout the entire life cycle of vehicles to reduce environmental impact.	Continuously promoted education for employees at Mazda and its Group companies, implementing "cool-biz," "warm-biz" and "light-down" campaigns and other activities to raise biodiversity awareness.	○	Continuously raise awareness inside and outside of the Group regarding environmental issues that society faces and measures throughout the entire life cycle of vehicles to reduce environmental impacts.
	⑱ Promote environmental protection activities in partnership with regional communities.	Promote environmental protection activities in regional communities by taking part in environmental volunteer activities (including regional cleanups and efforts to preserve biodiversity) and dispatching instructors to regional events and schools to offer environmental education.	Continuously raise awareness of environmental issues and deepen understanding of biodiversity based on the needs of regional communities, preserve forests, and participate in regional cleanups.	•Promoted environmental activities based on the needs of regional communities.  •Conducted around 30 activities in Japan and abroad, including forest preservation activities, support for protection of endemic species, regional cleanups, and carbon offset.	○	Continuously raise awareness of environmental issues and deepen understanding of biodiversity based on the needs of regional communities, preserve forests, and participate in regional cleanups.
	⑲ Inform the public about the Mazda Group's environmental protection activities.	•Disseminate information about the Mazda Group's environmental protection activities worldwide by hosting and actively participating in environmental events.  •Actively disseminate environmental information to improve environmental awareness among Mazda customers.	Continue and enhance disclosure of information on the Mazda Group's environmental protection activities and education to raise the environmental awareness of customers.	•Disseminated information by participating in Eco-Pro 2018 (Dec. 6-8) and other environmental exhibitions, and by holding and participating in various events.  •Continuously raise environmental awareness by holding environmental events, such as Earth Hour 2019 (Mar. 30), and dispatching instructors for environmental education.  •Conducted environmental activities, including forest preservation activities, support for protection of endemic species, regional cleanups, and carbon offset.	○	Continue and enhance disclosure of information on the Mazda Group's environmental protection activities and education to raise environmental awareness of customers.

\*1 Applicable to consolidated Group companies and equity-method Group companies in Japan.

## Mazda's Vision for Society's Relationship with Vehicles in the Future

Mazda is aware that the greatest challenge in curbing global warming is reducing CO<sub>2</sub> emissions, which is the major cause of this problem. The Intergovernmental Panel on Climate Change (IPCC) reported that global greenhouse gas emissions must be reduced by 40-70 percent as compared to 2010 levels by the year 2050 in order to limit the temperature increase to 2°C above pre-industrial levels. Also, the 2015 United Nations Climate Change Conference (COP 21) adopted the Paris Agreement. Against this backdrop, the world has been moving toward a decarbonized society. The realization of such a society requires major innovations, which will bring about changes in society and lifestyles. Mazda knows it must take these changes into account in its future operations.

### Around 2030: A society that aims for decarbonization, resource recycling, and coexistence in harmony with nature

Mazda predicts that around 2030 the world will see the evolution of energy and its related technologies in order to meet the unique characteristics of each country and region, as well as the steady introduction of low-carbon technology for all product life-cycle processes, including production, consumption by users, and disposal. Working toward decarbonization, energy structures will shift to be primarily based on renewable energy sources (including solar power, wind power, and biofuels and other renewable liquid fuels) and non-CO<sub>2</sub>-emitting hydrogen. In addition, the establishment of a smart grid,<sup>\*1</sup> whose main power supply comprises distributed energy<sup>\*2</sup> resources, is projected to build up an electric supply and demand structure characterized by the local consumption of locally produced power that is suitable for the respective regional environment.

Mazda also forecasts progress in various initiatives to realize a recycling-oriented society that coexists in harmony with nature from the perspective of natural capital. This will be achieved through using resources without any losses, establishing circulation systems including those based on the three Rs (reduce, reuse, and recycle) for water, plastic, and other resources, and activities to contribute to biodiversity conservation. It is also expected that household use of solar power generation units and energy-saving housing will become increasingly commonplace, while plants and offices will succeed in both reducing their environmental impact and improving energy efficiency thanks to artificial intelligence (AI) and the Internet of Things (IoT).

<sup>\*1</sup> A power transmission network that can optimize the flow of power with a function to adjust the flow of power from both the supply and demand sides.

<sup>\*2</sup> Energy supplied from relatively small-scale power generation facilities and heat source equipment that have been installed near the relevant energy-consuming areas. Distributed energy generation has the advantage of reduced transmission loss and the ability to function as an emergency power source. In addition, it is considered to be effective in promoting widespread use of renewable energies and revitalizing local industries.

### Trends Regarding Vehicles

Around 2030, as indicated by the IEA,<sup>\*3</sup> while the number of vehicles powered by electricity or hydrogen will increase, vehicles featuring internal combustion engines incorporating electrification technologies,<sup>\*4</sup> highly efficient transmissions, and reduced body weight will account for a significant proportion of total vehicles. Vehicles equipped with internal combustion engines are projected to further improve in terms of efficiency, electrification technologies, and widespread and effective use of diversified fuels, such as natural gas and biomass that emit less CO<sub>2</sub>. Electric vehicles will be selected more often as the optimal form of mobility in regions where electricity can be generated with renewable energy or other cleaner sources. These factors will accelerate the trend toward lower carbon emissions. To substantially reduce CO<sub>2</sub> emissions throughout the entire vehicle lifecycle (on a Well-to-Wheel basis), a multi-solution approach that is tailored to each region is necessary in response to diversifying needs around the world, including regional needs, vehicle characteristics, fuel performance and characteristics, and power generation mixes. Additionally, as autonomous driving becomes prevalent in regions with advanced connectivity technologies and infrastructure innovations, unnecessary acceleration and deceleration and the stopping and starting of vehicles will decrease, which will lead to a reduced environmental impact. A significant reduction in energy and resource losses over the entire vehicle manufacturing supply chain may be expected as a result of efforts for their more efficient use. Dramatic progress will also be made in recycling and waste reduction initiatives through the promotion of the three Rs.

<sup>\*3</sup> International Energy Agency (see p. 63)

<sup>\*4</sup> Hybrid systems, plug-in hybrid systems, etc.

### Around 2050: A sustainable society that sees advancements in efforts toward decarbonization, resource recycling, and coexistence in harmony with nature

Around 2050, a decarbonized energy structure will have been realized. A new system is expected to emerge that will make the boundary between power supply and consumption seamless by combining a system for renewable energy-based electricity supply and storage (including energy accumulation in the form of hydrogen) with a supply and demand structure capable of local consumption of locally produced electricity using a smart grid. In addition, humankind will see significant progress toward the realization of a sustainable society, along with advances in activities to create a resource recycling-oriented society and achieve coexistence in harmony with nature.

It will also become necessary to address new social problems. These problems include a high aging rate, a decline in the working-age population, rural depopulation due to concentration of the population in large cities, and increased stress caused by weakening real-world relationships.

### Trends Regarding Vehicles

Around 2050, as a result of technological innovations, methods of reducing CO<sub>2</sub> emissions from vehicles will be further diversified in accordance with the characteristics of each region and country, facilitating significant progress toward decarbonization. Vehicles powered by electricity and hydrogen will become ubiquitous, along with an increasing rate of low-carbon electricity generation in each country as part of the distributed energy resources that comprise smart grids.

Internal combustion engine-equipped vehicles running on renewable liquid fuels (including biofuels) will also find widespread use. Moreover, the great evolution of autonomous driving technology using vehicle and connectivity expertise will expand the commercial use of fully-autonomous driving technology as a means of supplementing the labor force in public transportation and logistics services. This will be instrumental not only in improving convenience and efficiency but also in reducing environmental impact. In this manner, vehicles are expected to enhance convenience while dramatically improving environmental performance, thereby significantly reducing CO<sub>2</sub> emissions. In addition, throughout the entire vehicle manufacturing supply chain, resource recycling will be realized through conversion to decarbonized energies and the establishment of recycling technologies.

Mazda believes that the above-stated innovations will be able to create a sustainable future in which people and cars coexist with a bountiful, beautiful earth, a future that offers safety and peace of mind and enriches lives by offering unrestricted mobility to people everywhere.



Referencing "Mazda's Vision for Society's Relationship with Vehicles in the Future," and aiming to realize the vision, the three environmental committees (Product Environment Committee, Business Site Environment Committee, and Social Contribution Committee) are currently collaborating to draw up the Company's next environmental medium-to-long-term plan. In 2019 Mazda established the 2030 Targets / 2050 Challenges to be achieved by its business sites.

## Medium-to-Long-Term Targets for Business Sites

Mazda is developing medium- and long-term initiatives also for business sites, based on the approach adopted under its long-term vision for technology development "Sustainable Zoom-Zoom 2030." The Company aims to develop business sites that will promote harmonious coexistence with the earth, improve employees' work environments, and coexist and co-prosper with local communities, from the perspectives of "the earth," "people" and "society."

As for environmental activities, in line with "Mazda's Vision for Society's Relationship with Vehicles in the Future," the Company will pursue and promote environmental technologies that will contribute to resource/energy value maximization (by minimizing consumption and fully utilizing resources/energy without any waste) and resource/energy diversification, looking ahead to 2030 and then 2050.

### Establishment of the 2030 Targets / 2050 Challenges

Mazda has established the 2030 Targets / 2050 Challenges in the three important areas: decarbonization, resource recycling for materials, and resource recycling for water. The Company has also stipulated its policy for initiatives to meet these targets and challenges. The policy indicates the two perspectives to be shared throughout the entire vehicle supply chain.

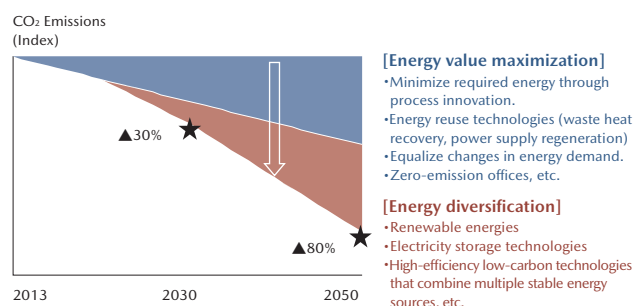
One is a "well-to-wheel perspective," which derives from the concept "from fuel extraction to consumption during driving." Mazda applies the "well-to-wheel" perspective in considering the reduction of environmental impact throughout the entire process, from resource/energy selection, through transportation, to recycling. The other is a "global & supply chain perspective." Based on these two perspectives, Mazda will push forward with the initiatives for decarbonization, resource recycling for materials, and resource recycling for water.

#### Decarbonization / Low-Carbonization

The Mazda Group strives for energy value maximization and energy diversification, to achieve decarbonization and low-carbonization throughout the product life cycle from manufacture to disposal.

As specific objectives, in comparison with 2013 levels, the Group aims to achieve reductions in the global total CO<sub>2</sub> emissions from plants/offices and logistics operations by at least 30% by 2030 and by at least 80% by 2050.

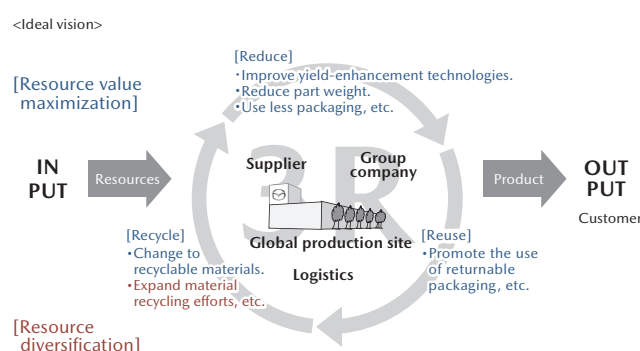
2030	2050
Reduce the global total CO <sub>2</sub> emissions from plants/offices and logistics operations by at least 30% in comparison with 2013 levels. (Promote low-carbonization)	Reduce the global total CO <sub>2</sub> emissions from plants/offices and logistics operations by at least 80% in comparison with 2013 levels. (Promote decarbonization)



#### Resource Recycling for Materials

The Mazda Group continues to expand its global efforts for zero emissions and resource recycling, by such means as using resources without any losses, and the three Rs activities (to reduce, reuse, and recycle resources). The Group aims to realize resource recycling overseas at the same level as in Japan in 2030, and to depart from thermal recycling and other combustion-based processes in 2050.

2030	2050
Achieve zero emissions* in manufacturing and logistics processes on a global basis.  * The status in which landfill waste is reduced to 0.1% or lower of the total waste generated. The Mazda Group companies in Japan achieved zero emissions in 2018.	Achieve zero emissions through expanded resource recycling initiatives* in manufacturing and logistics processes on a global basis.  * Break away from dependence on thermal recycling or other combustion-based recycling methods, and augment material recycling.

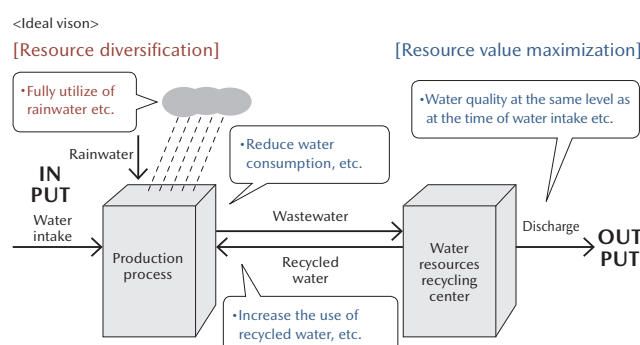


#### Resource Recycling for Water

To conserve water resources, the Mazda Group promotes activities to eliminate wasteful water use, and circulate water resources by treating used water so that it is the same quality as it was taken from nature. The Group aims to achieve these goals at the Hiroshima District in 2030, and then at global business sites in 2050.

2030	2050
Implement an optimal approach to water resources recycling and circulation at model plants* in Japan.  • Fully utilize water without any waste, as a valuable resource that is a natural blessing. • Circulate water as a valuable resource that is a natural blessing, by treating used water so that it is the same quality as before it was used, and returning it to nature.	Implement an optimal approach to water resources recycling and circulation in global manufacturing processes.  • Fully utilize water without any waste, as a valuable resource that is a natural blessing. • Circulate water as a valuable resource that is a natural blessing, by treating used water so that it is the same quality as before it was used, and returning it to nature.

\* Model plant: A pilot plant where new attempts are made, ahead of other facilities.



# ENVIRONMENTAL MANAGEMENT

Mazda is establishing an environmental management system throughout its value chain, including Group companies, suppliers, dealerships, and others.

## Establishing Environmental Management Systems

Mazda is promoting the establishment of environmental management systems (EMS) across its entire supply chain and in all Group companies. The purpose of the EMS is to carry out more environmentally conscious business activities in a more effective manner, based on ISO 14001 and other standards.

### Progress Status

- 14 Mazda and Group manufacturing companies in Japan and overseas have now acquired ISO 14001 certification. (Disclosure by 14 out of a total of 15 companies)
- Mazda is expanding ISO 14001 certification scope to all domestic sites following the revision of ISO 14001:2015. The expansion of certification scope and examination of transfer to ISO 14001:2015 were completed in September 2016. Also, the Mazda Group companies that have acquired ISO14001 completed transfer to ISO14001:2015 within FY March 2018.
- Mazda has had dealerships in Japan certified under EcoAction 21 (EA21)\*<sup>1</sup>, an environmental management system (as of March 2019, 34 dealerships of the Mazda/Mazda Enfini sales channel, 144 dealerships of the Mazda Autozam sales channel, and Mazda Chuhan, a used car sales company, have been certified), and continue to support certification of newly opened shops.
- Mazda has completed introduction of an exclusive Mazda EMS to two Mazda Group vehicle parts companies in Japan.

a

### a List of ISO 14001 Certified Production and Business Sites

#### Domestic production/business sites

Hiroshima district	Hiroshima Plant	June 2000
	Miyoshi Plant	
Hofu Plant	Nishinoura district	September 1998
	Nakanoseki district (extended certification)	September 1999

#### Overseas production site

AutoAlliance (Thailand) Co., Ltd.* <sup>1</sup>	May 2000
Changan Mazda Automobile Co., Ltd.* <sup>1</sup>	December 2008
Changan Mazda Engine Co., Ltd.* <sup>1</sup>	February 2009
Mazda de Mexico Vehicle Operation* <sup>2</sup>	December 2014
Mazda Powertrain Manufacturing (Thailand) Co., Ltd.* <sup>2</sup>	November 2016

\*1 Equity-method group company

\*2 Consolidated group company

### Four Domestic Consolidated Group Companies (excluding sales companies)

Mazda E&T Co., Ltd. * <sup>3</sup>	June 2000
Mazda Ace Co., Ltd. * <sup>3</sup>	June 2000
Mazda Logistics Co., Ltd. * <sup>3</sup>	June 2000
Kurashiki Kako Co., Ltd.	December 2001

\*3 Some or all of the organizations at each of the companies above acquired ISO 14001 certification in the certification scope of Mazda.

### Four Domestic Equity-Method Group Companies

Toyo Advanced Technologies Co., Ltd. * <sup>4</sup>	June 2000
Japan Climate Systems Corporation	May 2000
Yoshiwa Kogyo Co., Ltd.	April 2002
MCM Energy Service Co., Ltd. * <sup>5</sup>	June 2008

\*4 The company was ISO 14001 certified in the certification scope of Mazda. As a separate business facility, the company individually acquired the certification in March 2016. As a separate company, however, the company acquired re-certification in April 2017, resulting in the exclusion of the company from the certification scope of Mazda.

\*5 Although the company was inside the certification scope of Mazda, it acquired the certification on its own in March 2013.

\*1 Simplified EMS established by the Ministry of the Environment, for application at companies of various scales, such as small to medium-sized companies.

## Promoting Green Purchasing

With the aim of reducing the environmental burden throughout its entire supply chain, Mazda established the “Mazda Green Purchasing Guidelines” (revised in March 2017) and engages in operation activities accordingly.

These guidelines require all of its suppliers worldwide to undertake measures to reduce their burden on the environment, at all stages from product development to manufacturing and delivery. The guidelines also make it clear that Mazda will give preference in purchasing to suppliers who implement such environmental measures. Mazda also requires its suppliers of parts, materials, and industrial equipment and tools to obtain and maintain ISO 14001 certification, and to reduce the amount of greenhouse gas emissions generated through their corporate activities by 1% annually. In addition, the Company promotes environmental activities in collaboration with its suppliers by providing them with information and other assistance. Presently, all major suppliers involved in Mazda vehicle development and manufacturing have acquired ISO 14001 certification.

## Status of Establishment of Environmental Management Systems (EMS) at Suppliers

- All major suppliers in Japan and abroad with which the Company has ongoing business relationships (around 400 companies), including new suppliers, have maintained certification as of the end of March 2019.
- Under the Mazda Green Purchasing Guidelines, Mazda requires, through primary suppliers, secondary suppliers to establish EMS.

## Status of Implementation of Environmental Audits

To confirm that environmental management systems, such as ISO14001 and EcoAction 21, are operating effectively, both internal audit and environmental management system audit (EMS audit) are carried out annually at Mazda and all of its Group companies, both in Japan and overseas, that have obtained certification. The FY March 2019 EMS audit revealed no serious compliance issues. The results of the internal audit and EMS audits were reported to senior management. Any problems were swiftly and appropriately rectified.

## Eliminating Sensory Pollution

Sensory pollution comprises noise, vibration, and odors that have a sensory or psychological impact on people.

Mazda recognizes that clearing legal regulations may not be enough to prevent noise, vibration, and odors from annoying neighborhood residents. For this reason, Mazda is systematically stepping up measures to alleviate the causes of such pollution, as well as measures to improve noise insulation and odor removal.

## Specific Initiatives in Environmental Risk Management

### Environmental Monitoring

- Regular training is conducted at each plant and office to prepare for response in the event of accidents that adversely affect the natural environment.
- Environmental monitoring, including monitoring of air and water pollution, is conducted regularly.

### Legal Violations

In FY March 2019, an overseas production site exceeded the allowable wastewater standards. After dealing with this problem appropriately, Mazda has been taking recurrence prevention measures.

### Complaints

In FY March 2019, Mazda received complaints concerning three cases, and is taking appropriate actions to address them in good faith.

## b EMS Audit Results on ISO 14001

### Mazda Motor Corporation

	FY March 2015	FY March 2016	FY March 2017	FY March 2018	FY March 2019
Serious noncompliance issues	0	0	0	0	0
Minor noncompliance issues	2	2	6	1	0
Observation issues	8	16	10	5	6

### Group Companies

		FY March 2019	
		Japan	Overseas
ISO14001	Serious noncompliance issues	0	0
	Minor noncompliance issues	3	12
	Observation issues	28	75
EA21	Noncompliance issues	0	—
	Issues requiring improvement	3	—

## C Environmental Monitoring

Environmental monitoring item	Target of monitoring	Items monitored	Monitoring frequency
Air quality	Boilers, melting furnaces, heating furnaces, drying furnaces, etc.	5 items: sulfur oxides, nitrogen oxides, soot, volatile organic compounds, hydrogen chloride	Around 400 times per year
Water quality	Treated wastewater	43 items: cadmium, cyanide, organic phosphorus, lead, hexavalent chromium, etc.	Around 1,600 times per year
Noise and Vibration	Site boundaries	1 item: noise level	12 times per year
Odor	Site boundaries	1 item: odor index	12 times per year
Waste products	Slag, sludge, scrap metal, etc.	25 items: cadmium, cyanide, organic phosphorus, lead, hexavalent chromium, etc.	Around 100 times per year

## d Legal Violations and Complaints

(FY March 2019)

		Number of incidents	Response
Guidance from local government	Water quality	1	Adjusted equipment, verified operational procedures, and provided education
Complaints	Noise	2	Modified equipment and changed operational procedures
	Green area management	1	Removed bushes and weeds within the Company's premises

## Environmental Education/Education Program Structure

e f

As part of its EMS, Mazda conducts regular environmental education for all employees twice a year, as well as education for EMS leaders and department management twice a year, and encourages employees to obtain environment-related public qualifications. In addition, Mazda offers support for employees working toward these qualifications, including financial support through the Mazda Flex Benefit program (see p. 91).

## Routine Environmental Activities

### Reducing Paper Use

Mazda continually makes efforts to considerably reduce the amount of paper used for office work through the digitization of documents, ledger sheets, and other forms, as well as through the use of projectors and monitors at meetings, etc.

As part of its recycling efforts, the Company also reuses waste paper (shredder dust) as packaging material for shipping parts, and is increasing efforts to separate the collection of waste paper by type during disposal.

### Reducing Energy Use

Through regular initiatives, including purchasing of low power-consumption office equipment and furniture, and turning off lights and computers when they are not in use, Mazda makes continual efforts to reduce energy use.

Furthermore, Mazda implements a "Cool Biz" program during the summer season every year, setting internal room temperatures at 28°C (82.4°F) on a standard basis. During the winter season when electricity consumption is particularly high, energy saving measures are implemented through adjustment of air conditioning systems (heating set at 20°C, or 68°F), lighting, office automation equipment, etc.

## Use of Renewable Energy

Mazda uses renewable energy sources\*<sup>1</sup> as follows.

- At the Hofu Plant, solar-powered units have been introduced in some corridor lighting.
- A solar power system is installed on the roof of the radio wave experiment building of the Miyoshi Office. The amount of electricity generated by the system in FY March 2019 was 27.4 MWh. Electricity generated by this system is used to provide power and lighting for the building, thereby continuously contributing to the reduction of CO<sub>2</sub> emissions.
- Mazda de Mexico Vehicle Operation (MMVO) in Mexico installed outdoor solar lighting, thereby promoting effective use of renewable energy\*<sup>1</sup> using solar power and LEDs. In FY March 2019, MMVO additionally installed 40 units. The total number of units reached 507, generating 79.3 MWh of power for lighting.

## Environment-Related Accident Emergency Drill and Prevention Campaign

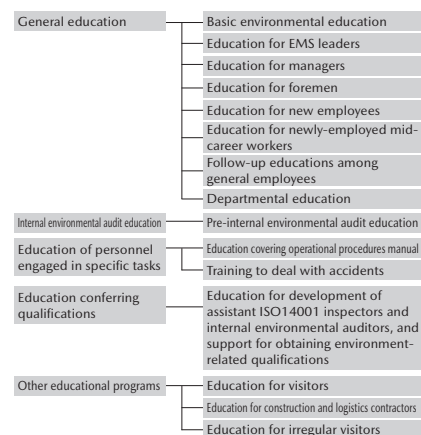
g h

- **Emergency Drill to Prevent Marine Pollution**  
In cooperation with Mazda Ace Co., Ltd. and Mazda Logistics Co., Ltd., Mazda Motor Corporation carries out an annual emergency drill based on an assumed simulation in which hydraulic oil has leaked from a domestic vessel (dedicated car carrier) into the sea. In the simulation drill, participating employees are engaged in operations of removing oil spillage and communicating through an emergency contact network. Each year, the content of the drill has been reviewed and improved to simulate a situation that is closer to reality, to establish a system that ensures that employees can make a quick and appropriate response in the event of an accident.
- **Campaign for Oil Spill Prevention and Traffic Safety**  
Jointly with Mazda Logistics Co., Ltd. and several truckload transportation companies, Mazda Motor Corporation conducts an awareness-raising campaign to prevent oil spills on roads during vehicle delivery and improve traffic safety awareness. In this campaign, which are held twice a year, awareness-raising leaflets are distributed to drivers of delivery trucks to the Hiroshima Plant and the Hofu Plant. These activities are part of the Mazda Group's efforts to improve such drivers' awareness of the environment and safety, and establish a system that ensures that employees can make a quick and appropriate response in the event of an accident.

### e Qualifications that Employees Are Encouraged to Obtain:

- Energy attorney
- Head supervisor of pollution control
- Supervisor of air and water pollution control (Class 1 to 4)
- Supervisor of noise- and vibration-related pollution control
- Supervisor of dust and particulate pollution control (Specified, General)
- Supervisor of dioxide pollution control
- Special managing supervisor in charge of industrial waste disposal
- Environmental Society Test (=Eco Test)
- EMS inspector
- Internal environment auditor
- Environment measurer
- Construction environment hygiene control engineer

### f Environmental Education Structure



Number of Employees Receiving Environmental Education  
(Non-consolidated Unit: person(s))

	FY March 2015	FY March 2016	FY March 2017	FY March 2018	FY March 2019
Managers	75	81	83	75	53
Section managers	161	174	190	188	209
Foremen	86	76	60	60	68
New employees	282	755	538	550	606

\* In addition to the above, environmental education is provided to general employees in each department

### g Emergency Drill to Prevent Marine Pollution (Extending an oil absorption mat)



### h Campaign for Oil Spill Prevention and Traffic Safety



\*<sup>1</sup> Refers to natural energy sources that can be used continuously without being depleted, such as electricity generation using solar, wind, geothermal, hydroelectric or biomass power, or direct solar heating. These types of energy generate zero or negligible CO<sub>2</sub> emissions.

## Environmental Accounting

Mazda is carefully assessing the costs and benefits of its environmental activities and is working constantly to improve their efficiency.

**Data collection period:** April 2018 through March 2019

**Basis of data collection:** Calculated according to Mazda's own guidelines in line with Environmental Accounting Guidelines.

**Boundary of data collection:** Mazda Motor Corporation; 21 domestic & 15 overseas consolidated Group companies; six domestic & five overseas equity-method Group companies

### Environmental Protection Costs

			(million yen)					
Category	Major activities	Mazda unconsolidated			Mazda Group			
		Investment	Cost	Total	Investment	Cost	Total	
Business area	Preventing pollution	Conforming to legal limits for air and water pollution, odor abatement, etc.	2,723	3,710	6,433	2,787	4,450	7,237
	Protecting the global environment	Preventing global warming, conserving energy, preventing destruction of the ozone layer, and other environmental protection activities	1,903	1,017	2,920	2,049	1,116	3,165
	Recycling resources	Effective resource use, recycling waste, processing and disposing of waste	1,068	1,311	2,379	1,082	4,143	5,224
Upstream/downstream	Container recovery, recovery of end-of-life vehicle bumpers	0	164	164	0	782	782	
Management activity	Employee environmental education, creating and operating environmental management systems, monitoring and measurement of environmental impact, other activities	5	980	985	5	1,547	1,552	
Research and development	R&D for products, production methods and distribution, to contribute to reduced environmental impact	1,838	47,573	49,410	1,884	49,082	50,966	
Social activities	Greening, beautification, and environmental improvement; support of community residents and organizations; information disclosure; and other activities	0	58	58	0	77	77	
Environmental Damage	–	0	0	0	0	2	2	
Total		7,538	54,813	62,351	7,808	61,198	69,005	

### Overall Environmental Protection Effects

Category			Mazda unconsolidated			Mazda Group
			Environmental protective effect		Economic effect (million yen)	Economic effect (million yen)
Protecting the global environment	Global warming prevention	Production	CO <sub>2</sub> emissions volume (on unit sales basis)	17.6 t-CO <sub>2</sub> /100 million yen	–	–
		Distribution	Annual shipping volume	547,440 thousand (ton-km/year)	–	–
Recycling resources		Effective use of resources, recycling	Shell sand	15,745 t (year)	45	2,409
			Steel scrap	31,225 t (year)	2,364	
Upstream/downstream		Product recycling	Number of discarded bumpers collected	62,920 (bumpers/year)	–	29
Other		Sale of items with commercial value	Metals	132,488 t (year)	2,929	2,972
			Paint thinner, effluent	747 t (year)		
			Empty drums, wheels, discarded tires	18,102 (units/year)	43	
			Recovered sand, plastics, cardboard scraps	5,894 t (year)		
			Total		5,381	5,410

#### Boundary of data collection

##### Mazda Motor Corporation

##### Consolidated Group companies

**21 domestic companies:** Manufacturing companies: Mazda Ace Co., Ltd., Mazda Logistics Co., Ltd., Kurashiki Kako Co., Ltd., Mazda Engineering & Technology Co., Ltd., Sales companies: Mazda Chuhan Co., Ltd., Hakodate Mazda Co., Ltd., Tohoku Mazda Co., Ltd., Fukushima Mazda Co., Ltd., Kitakanto Mazda Co., Ltd., Koushin Mazda Co., Ltd., Kanto Mazda Co., Ltd., Shizuoka Mazda Co., Ltd., Tokai Mazda Sales Co., Ltd., Hokuriku Mazda Co., Ltd., Keiji Mazda Co., Ltd., Kansai Mazda Co., Ltd., Nishi Shikoku Mazda Co., Ltd., Kyushu Mazda Co., Ltd., Minami Kyushu Mazda Co., Ltd., Okinawa Mazda Sales Co., Ltd., Parts sales company: Mazda Parts Co., Ltd.

**15 overseas companies:** Mazda Motor of America, Inc., Mazda Canada Inc., Mazda Motor Manufacturing de Mexico, S.A. de C.V., Mazda Motors (Deutschland) GmbH, Mazda Motor Europe GmbH, Mazda Motors UK Ltd., Mazda Motor Russia.OOO, Mazda Australia Pty Ltd., Mazda Motors of New Zealand Ltd., Mazda Powertrain Manufacturing (Thailand) Co., Ltd., Mazda Southern Africa (Pty) Ltd., Mazda Motor (China) Co., Ltd., Mazda Motor Taiwan Co., Ltd., Mazda De Colombia S.A.S., Mazda Sales (Thailand) Co., Ltd.

##### Equity-method Group companies

**6 domestic companies:** Toyo Advanced Technologies Co., Ltd., Japan Climate Systems Corporation, Yoshiwa Kogyo Co., Ltd., Mazda Processing Chugoku Co., Ltd., MCM Energy Service Co., Ltd., Mazda Parts Sales Hiroshima Co., Ltd.,

**5 overseas companies:** Mazda Sollers Manufacturing Rus LLC, AutoAlliance (Thailand) Co., Ltd., Changan Mazda Automobile Co., Ltd., Changan Mazda Engine Co., Ltd., FAW Mazda Motor Sales Co., Ltd.



## EFFORTS REGARDING PRODUCT AND TECHNOLOGY DEVELOPMENT

In 2017, Mazda announced “Sustainable Zoom-Zoom 2030” (see pp. 7-12) in light of the rapid changes taking place in the automotive industry around the world. This updated vision for technology development takes a long-term perspective and sets out how Mazda will use driving pleasure, the fundamental appeal of the automobile, to help solve issues facing people, the earth and society. Mazda believes its mission is to bring about a beautiful earth and to enrich people's lives as well as society. The Company will continue to seek ways to inspire people through the value found in cars. In terms of the environment, “Sustainable Zoom-Zoom 2030” demonstrates Mazda's determination to use conservation initiatives to help create a sustainable future in which people and cars can coexist with a bountiful, beautiful earth.

### Energy-and Global-Warming-Related Issues

#### Approach to Product Environmental Performance

As vehicle ownership continues to expand around the world, automobile manufacturers must redouble their efforts to achieve cleaner exhaust emissions, and improve fuel economy in order to cut CO<sub>2</sub> emissions and help reduce the world's dependence on increasingly scarce fossil fuels. Mazda considers it necessary to develop a multi-solution approach to automobile-related environmental issues that takes into account various factors such as regional characteristics, vehicle characteristics and types of fuel.

#### Addressing Global Warming

Mazda sees reducing emissions of CO<sub>2</sub> and other greenhouse gases over the vehicle's entire lifecycle — including manufacturing, use and disposal — as one of its top priorities and a duty of automotive industry. The Company wants to maximize its contribution by considering not only “tank-to-wheel” emissions that occur while driving but also “well-to-wheel” emissions, including fuel extraction, refining and power generation (well-to-tank). Offering a number of powertrain options in consideration of each region's energy sources and power generation methods will allow Mazda to make the optimum contribution to CO<sub>2</sub> emissions reductions by region. In August 2017, Mazda set a goal of reducing corporate average “well-to-wheel” CO<sub>2</sub> emissions to 50% of 2010 levels by 2030, with a view to achieving a 90% cut by 2050.

#### Life Cycle Assessment (LCA)

LCA is a method for calculating and evaluating the environmental influence of vehicles across their entire life cycle through the purchase of materials, manufacture, use, recycling, and final disposal. Since 2009, Mazda has adopted LCA as a means of determining the time required to reduce the environmental impact of vehicles in their life cycle, and has been actively working to reduce the environmental impact at each stage of the life cycle. The Company is also promoting evaluation of the practicability and reliability of new technologies for environmental performance in compliance with the methods specified in the international standards (ISO14040 and ISO14044).

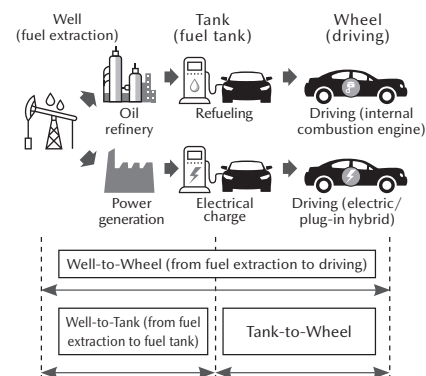
#### Multi-solution Oriented Technology Development through Effective Use of LCA

Automotive power sources, the energy situation, and the composition of power sources differ from region to region. Mazda has been promoting the development of various technologies to offer the right solution to each region. In FY March 2019, the Company assessed the life cycle CO<sub>2</sub> emissions from internal combustion engine vehicles and electric vehicles in five regions of the world. The results revealed that the significance of CO<sub>2</sub> emissions from internal combustion engine vehicles and electric vehicles during their life cycles depends on the electric power supply status, fuel/electrical power cost, total mileage, and other factors in each region. With the above life cycle assessment results in mind, Mazda has been promoting multi-solution oriented technology development.

#### a The “Well-to-Wheel” Perspective

Make efforts to reduce CO<sub>2</sub> emissions from the perspective of “well-to-wheel,” with the aim of reducing emissions over a vehicle's entire lifecycle.

Conceptual diagram of Well-to-Wheel\*



\* Where fossil fuel is extracted and used to drive a vehicle.

#### b Conference presentation/Publication of paper on Mazda's LCA

Conference presentation:

14th meeting of the Institute of Life Cycle Assessment, Japan (March 2019)

Subject: Estimation of CO<sub>2</sub> emissions of an internal combustion engine vehicle and a battery electric vehicle (BEV)

[http://www.ilcaj.org/meeting/files/14thmeeting\\_proceedings\\_openaccess.pdf](http://www.ilcaj.org/meeting/files/14thmeeting_proceedings_openaccess.pdf) (Japanese only)

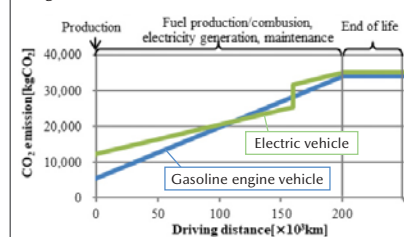
Publication of paper:

Sustainability magazine, 2019, Volume 11, Issue 9, p.2690

Subject: “Estimation of CO<sub>2</sub> Emissions of Internal Combustion Engine Vehicles and Battery Electric Vehicles Using LCA”  
<https://doi.org/10.3390/su11092690>

#### c An example of a comparison between an internal combustion engine vehicle and an electric vehicle in terms of CO<sub>2</sub> emissions (in Japan)

Until the travel distance reaches approximately 110 thousand km, the internal combustion engine vehicle emits less CO<sub>2</sub> than the electric vehicle; however, this magnitude relationship reverses when the travel distance exceeds the above distance. (However, if the battery of the electric vehicle is replaced once at a travel distance of 160 thousand km, the internal combustion engine vehicle emits less CO<sub>2</sub>.)



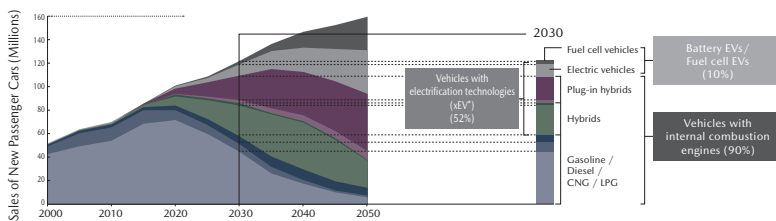


## The Building-Block Strategy

Mazda adopts the Building-Block Strategy to realize its goal of reducing CO<sub>2</sub> emissions and raising the average fuel economy of Mazda vehicles sold worldwide. Given the internal combustion engine is forecast to remain a principle propulsion technology in cars worldwide for many years to come, the Company thinks it important to continue efforts to perfect the technology. At the same time, the Building Block Strategy also calls for the commercial introduction of electric, plug-in and other electrified vehicles in consideration of each country or region's energy resources, regulations, power generation methods, infrastructure and so on. Through this Building-Block Strategy and advances in process innovations, such as computer Model-Based Development (see p. 124), and *Monotsukuri* Innovation (see p. 122), Mazda will, despite limited management resources, offer products and technologies that exceed customers' expectations. Mazda plans to start introducing electric vehicles and other electric drive technologies in regions that generate a high ratio of power from clean energy sources or restrict certain vehicle types to reduce air pollution.

### e Graphic representation of global market share of powertrain technologies

It is expected that the majority of vehicles in the global market will continue to be powered by internal combustion engines, and that such vehicles will contribute the most to CO<sub>2</sub> reduction. (about 90% of the vehicles are powered by internal combustion engines in 2030)

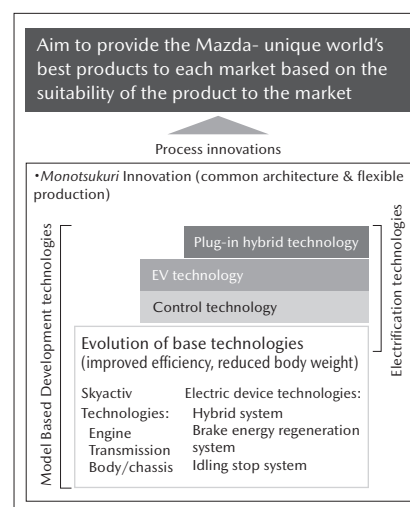


## Comprehensive Improvements of Base Technologies by Skyactiv Technology

The term Skyactiv Technology covers all Mazda's innovative base technologies. Mazda redesigned these technologies from scratch, enhancing the efficiency of powertrain components, such as the engine and transmission, reducing vehicle body weight, and improving aerodynamics. The number of models featuring Skyactiv Technology has steadily increased since the first Skyactiv-G engine was introduced in 2011 in the Demio (known as Mazda2 overseas). Following the adoption of the technology in the CX-5 in 2012, the number of models that fully incorporate Skyactiv Technology has increased. In August 2017, Mazda disclosed plans to introduce next-generation technologies from 2019, including the Skyactiv-X engine, set to become the world's first commercial gasoline engine to use compression ignition.<sup>\*1</sup> This unique new engine combines the advantages of gasoline and diesel engines to achieve outstanding environmental performance and uncompromised power and acceleration performance. Mazda will work toward the market introduction of the Skyactiv-X while continuing to advance Skyactiv-G and Skyactiv-D, both of which remain highly competitive engines.

d e

### d Building-Block Strategy



f

### f Features of the next-generation gasoline engine

	Gasoline engine	Next generation gasoline engine	Diesel engine
Fuel economy	Fair	Good	Good
Torque	Fair	Good	Good
Response	Fair	Good	Good
Output (expansion)	Good	Good	Fair
Heating	Good	Good	Fair
Exhaust purification	Good	Good	Fair

\*1 As of August 2017, according to Mazda data

### TOPICS Launching the CX-5 Clean Diesel Model in the U.S.

In July 2019, Mazda launched the CX-5 equipped with a clean diesel engine "Skyactiv-D 2.2" in the U.S. market. The CX-5 is the first clean diesel-powered passenger vehicle Mazda launched in the U.S. The "Skyactiv-D 2.2" adopts a specially designed combustion control software and exhaust purification system to clear U.S. emissions regulations, yet ensures the excellent response and smooth acceleration feel for which this engine is renowned.



Mazda CX-5 (U.S. specifications)

## Improving Fuel Economy

Mazda is working to improve fuel economy in order to help our customers save money and reduce the use of fossil fuels, which is a cause of global warming. Prioritizing improvements in real-world fuel economy, the Company has adopted cylinder deactivation and other technologies that suppress fluctuations in fuel consumption rooted in the way the car is used and environmental factors such as air temperature. Moreover, to provide customers with information on fuel economy that better reflects their real driving environment, the Company was the first automaker in Japan to display WLTC Mode\*<sup>1</sup> fuel economy figures.

## Evolution of Eco Drive Support Technology

The Intelligent-Drive Master “i-DM,” developed by Mazda to encourage drivers to drive in a safe, fun and environmentally conscious manner, was introduced in all of Mazda’s Japanese models that incorporate Skyactiv Technology.

## Development of Electrification Technology

After taking into account the appropriate power source for vehicles, the energy situation, the power generation mix, and other factors in each region, Mazda is promoting the development of electrification technology to provide customers in each region with the best solution. In 2030, Mazda will equip all vehicles it produces with electrification technology. In terms of the ratio of power units, internal combustion engine vehicles—including plug-in hybrid vehicles\*<sup>2</sup> and hybrid vehicles—will account for 95%, while pure electric vehicles will account for 5%. In the development of electrification technology, Mazda follows its unique “human-centered” approach that sets priority on human characteristics and sensibilities in order to make the most of the advantages of electric drives.

\*1 Stands for Worldwide-harmonized Light Vehicles Test Cycle.  
This is a test cycle based on WLTP (Worldwide-harmonized Light Vehicles Test Procedure)

\*2 Hybrid vehicle with a battery that can be charged by household power supply.

## Promoting Technology Development for Alternative Fuels

One of the ways Mazda is addressing global warming through its products is by promoting the research and development of technologies compatible with alternative fuels, including biofuels and synthetic fuels, so that countries and regions can use energy sources that suit their circumstances.

### Compatibility with Bioethanol and Bioethanol Mixed Fuel

Mixed fuels, which include bioethanol or biodiesel made from plant materials, are attracting attention for their effectiveness in reducing CO<sub>2</sub> emissions. Mazda sells vehicles that are compatible with these fuels.

### Efforts for the Spread of Next-generation Automotive Liquid Fuel

Mazda believes that liquid fuel will be an efficient and useful energy source for automobiles and other movable bodies equipped with internal combustion engines even in the future. Mazda has been actively promoting industry-academia-government cooperation and tie-ups between companies to provide technical support for the spread of algae biofuel and other next-generation renewable liquid fuels (see pp. 125–129).

### g Status of Bioethanol Sales\*<sup>1</sup>

Japan: Compatible with B5\*<sup>2</sup> - Mazda2, Mazda3 (introduced in 2019), Mazda6, CX-3, CX-5

Thailand: Compatible with E20\*<sup>3</sup> - Mazda2  
Compatible with E85\*<sup>4</sup> - Mazda3 (introduced in 2019), CX-3, CX-5

\*1 Subject to variation depending on specifications

\*2 Diesel mixed with 5% biodiesel fuel

\*3 Gasoline mixed with 20% ethanol

\*4 Gasoline mixed with 85% ethanol

## TOPICS Industry-academia-government Collaboration and Tie-ups between Companies for the Spread of Next-generation Automotive Liquid Fuel

### Setting up a joint study course at a graduate school of Hiroshima University

Since 2017, Mazda has opened a joint research course called the “Next-generation Automotive Technology Joint Research Course—Algae Energy Creation Laboratory” at a graduate school of Hiroshima University. In this laboratory, research staff and students have been advancing various research projects, including gene injection using genome editing technology, the development of optimal culture environments, and other research projects, in order to create renewable bio-liquid fuel from micro algae.

<https://www2.mazda.com/ja/publicity/release/2017/201704/170428c.html> (Japanese only)

### Participation in Hiroshima “Your Green Fuel” Project

Since 2018, Mazda has participated in the Hiroshima “Your Green Fuel” Project, a demonstration project for next-generation biofuels jointly run by the Hiroshima Council of Automotive Industry-Academia-Government Collaboration and Euglena Co., Ltd. In line with the above demonstration project, the Company has been conducting various researches in collaboration with Euglena’s Made-in-Japan Biofuels Project to spread next-generation biofuels and construct a model for revitalizing regional areas by establishing an entire biofuel value chain—from material manufacture and supply to the use of carbon-neutral next-generation biofuels—within the Hiroshima area.

## Shift to Air Conditioner Gas with Low Global Warming Potential

To globally introduce vehicles complying with the refrigerant regulations in each country/region, Mazda has been actively developing vehicles that use a new environmentally friendly refrigerant (HFO-1234yf) with low global warming potential.\*<sup>1</sup> In Japan in 2019, Mazda launched the Mazda3 in which the new refrigerant is used.

\*<sup>1</sup> A measure of how much a greenhouse effect gas contributes to global warming

## Development of Resin Material for Auto Parts For Weight Reduction

In addition to Skyactiv Technology, which is developed with the whole concept of weight reduction, Mazda actively adopt new technologies for reducing weights in detailed parts. Mazda will continue to pursue weight reduction by using resin, aluminum, ultra-high tensile steel and other materials having both lightness and strength.

### Offers a Bumper Which Is One of the Lightest in Its Class

Mazda has developed a new resin material for auto parts that can maintain the same level of rigidity as conventional materials while trimming vehicle weight. Because the new resin enables the manufacture of thinner parts and thus a significant reduction in the amount of material used, when used for front and rear bumpers, this resulted in the reduction of weight by around 20%. In the manufacturing process, thinner parts have enabled the shortening of cooling time upon shaping and halved the shaping time of bumpers partly due to the utilization of CAE analysis techniques. This resulted in a drastic reduction of the amount of energy used in manufacturing.

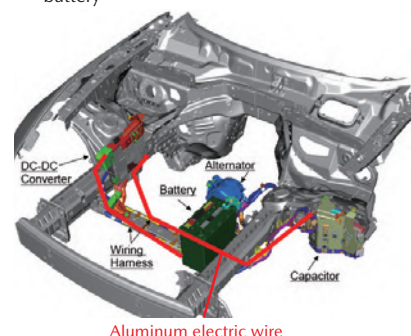
This new resin bumper, one of the lightest in its class,<sup>\*1</sup> was mounted on the 2012 CX-5 and subsequent models. In FY March 2019, the new bumper was attached to the Mazda3.

### Development of Light Weight Wiring Harness Using Aluminum Electric Wire

Mazda has developed a lightweight wiring harness using aluminum electric wire, which enables the Company to achieve vehicle weight reduction while maintaining connection reliability (quality). Since equipping the Roadster/MX-5, launched in 2015, with this lightweight wiring harness, the Company has been increasing the number of models\* that incorporate the material. In FY March 2019, the lightweight wiring harness was adopted in the Mazda3.

\* Models adopting the lightweight wiring harness (as of June 2019): Roadster/MX-5, Mazda3, Atenza/Mazda6, CX-5, CX-8, and CX-9

h Aluminum electric wire of the Roadster/MX-5  
Connection between capacitor and DC-DC converter  
Connection between DC-DC converter and battery



## Cleaner Emissions

### Cleaner Gas Emissions

Mazda is committed to mitigating air pollution from exhaust gas. To this end, the Company is actively developing low-emission vehicles, clearing the emission regulations in each country/region to introduce these vehicles globally.

[Major countries' emissions regulations cleared by Mazda vehicles]

- Japan: The percentage of SU-LEVs that cleared the certification system for low-emission vehicles has reached 89% (excluding light vehicles and OEM vehicles).
- U.S.: Tier3/LEV2,3 regulations
- Europe: Euro 6 regulations
- China: China 5 regulations (equivalent to Euro 5)

<sup>\*1</sup> 1,500 to 2,000 cc class, as of March 2017, according to Mazda data

## Development of Unique Single-Nanotechnology

Mazda pays attention to global movements toward tighter control of exhaust emissions and fuel economy, market expansion due to rapidly growing emerging countries, and depletion of scarce resources. The Company has developed its unique single-nanotechnology and soot (PM) oxidation catalyst, promoting reduction of the use of precious metals and cleaning of exhaust gases.

### Single-Nanotechnology Dramatically Reduces Consumption of Precious Metals

Based on the belief that it is important to help three-way catalysts for gasoline exercise excellent catalyst performance after reducing the use of scarce elements, such as rare metals (precious metals) and rare earths (ceria material), Mazda developed in 2009 the world's first single-nanocatalyst\*<sup>1</sup> that achieves both cleaner exhaust characteristics and higher durability while reducing the use of precious metals for vehicle catalysts by around 70% compared with the conventional figure at Mazda.

Furthermore, Mazda succeeded in an additional 30% to 40% reduction in the consumption of precious metals needed for a single-nanocatalyst, and has been progressively introducing the technology since 2011, when it was first introduced into the Demio (Mazda2 overseas).

At present, this technology is employed in Mazda's clean diesel engine Skyactiv-D.

(For details, see the URL)

[https://www.mazda.com/en/innovation/technology/env/other/singlenano\\_tech/](https://www.mazda.com/en/innovation/technology/env/other/singlenano_tech/)

### Technology to improve performance of PM oxidation catalyst

Mazda has developed a unique PM oxidation technology for diesel engine catalysts, which enables rapid combustion and removal of PM (soot) and reduces CO<sub>2</sub> emissions. Compared with conventional catalysts, this technology effectively utilizes oxygen not only on the surfaces of catalyst particles but also of their inside, and enables supply of a larger amount of highly active oxygen for soot, thereby achieving dramatic improvement in functions. The introduction of this technology has reduced the use of precious metals, or rare elements, to around one-tenth, along with the durability sufficient to maintain the catalytic function throughout the entire vehicle life cycle. The introduction began in 2009 into diesel engine models, and in the Mazda3 in FY March 2019.

## Proper Management of Chemical Substances and Heavy Metals

Mazda publishes Management Standards for Environmentally Hazardous Materials, specifying substances and heavy metals whose use in parts and materials it purchases is subject to restrictions (prohibited substances and substances for which reporting is required), to properly control the use of such hazardous materials.

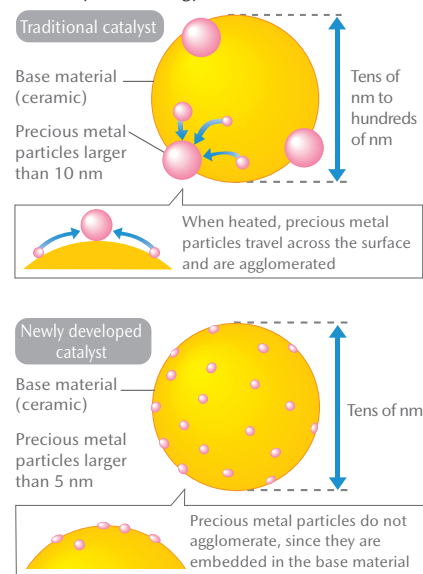
## Collection and Management of Automotive Parts Materials

Mazda is working across its entire supply chain to reduce the use of environmentally hazardous materials such as lead, mercury, hexavalent chromium and cadmium. Using the standardized IMDS\*<sup>2</sup>, international system, the Company gathers information on the materials from suppliers (Met all of the voluntary targets of the Japan Automobile Manufacturers Association, Inc. (JAMA) (reduction of the use of lead and mercury, and prohibition of the use of hexavalent chromium and cadmium) by February 2007, earlier than the scheduled deadlines).

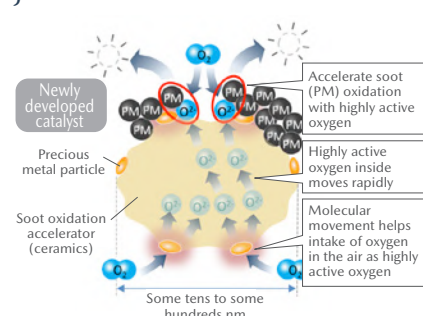
### Measures Related to Application of IMDS

- To ensure that suppliers enter IMDS data appropriately, the Company publishes and distributes guidelines each year.
- The data gathered through IMDS is used to calculate the Company's vehicle recycling rate and to comply with various regulatory regimes for chemical materials, such as REACH\*<sup>3</sup> in Europe.

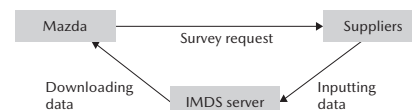
i Model of precious metal dispersion by new catalyst technology



j Mechanism of PM oxidation catalyst



k How IMDS Works



\*1 Catalyst featuring single-nanotechnology to control finer materials structures than nanotechnology

\*2 International Material Data System.

\*3 Registration, Evaluation, Authorization and Restriction of Chemicals.

## VOC Reductions: VOCs in Vehicle Cabins

To maintain a comfortable cabin environment, Mazda is committed to reducing VOCs\*<sup>1</sup> such as formaldehyde, toluene and xylene, which have been implicated as possible causes of sick building syndrome.

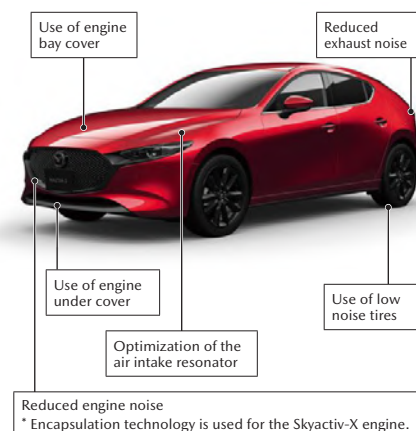
- In 1999 Mazda developed a deodorizing filter with the capacity to remove aldehydes (adopted as either standard or optional in core vehicle models).
- In new models, starting with the Demio (Mazda2 overseas) launched in 2007, Mazda reduced VOCs in the main materials used in the cabin, such as plastics, paints, and adhesives, thereby conforming with the indoor aerial concentration guidelines established by Japan's Ministry of Health, Labour and Welfare. (The Mazda3, introduced in 2018, followed the above guidelines.)

## Reduction of Vehicle Noise

Mazda has established its own noise standards which are even stricter than the most recent legal requirements. In compliance with the above in-house standards, the Company has been working to reduce the road traffic noise of all the passenger vehicles and commercial vehicles it produces. The Company has also been actively addressing the development of technologies to reduce the three major vehicle noises: engine noise, air intake/exhaust system noise, and tire noise.

### Example of Anti-Noise Measures (Mazda3)

The Mazda3, which was introduced in FY March 2019, cleared in advance the legal noise regulations that will be tightened in 2020.



## Promoting Resource-Saving Initiatives

### Product Development and Design with Consideration for Recycling Needs

Mazda builds resource-saving initiatives into every phase of the lifecycle of its vehicles, based on the three Rs: reduce, reuse, and recycle. Many limited resources are used to manufacture vehicles, such as steel, aluminum, plastics and rare metals.

Mazda established the Recyclable Design Guidelines in 1992, and is incorporating three Rs design into all vehicles currently under development.

Mazda is steadily increasing the recyclability of its new vehicles, drawing on the following initiatives.

1. Research into vehicle design and dismantling technologies that simplify dismantling and separation, to make recyclable parts and materials easier to remove
2. Use of easily recyclable plastics, which constitute the majority of ASR\*<sup>2</sup> by weight

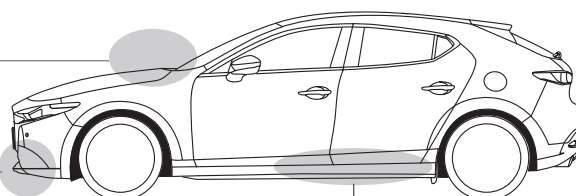
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#### Instrument Panel

Instrument panel fasteners are constructed to disengage simply, so that they can be removed easily when pulled during dismantling

#### Bumpers

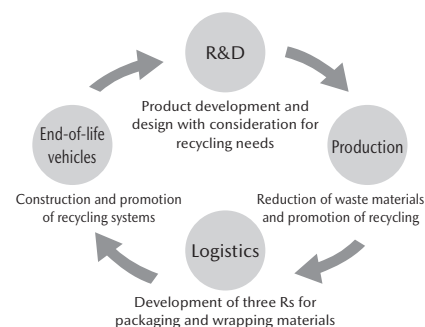
Thin-walled construction of bumper underside fastenings makes the bumper easy to demount by pulling its opening.



#### Easily Dismantled Earth Terminals

Terminals are designed to break off when the harness is pulled out to prevent breakage of the harness

### m Resource-saving based on 3Rs



\*1 Volatile Organic Compounds

\*2 Automobile Shredder Residue  
It refers to the residue remaining after the crushing/shredding of what is left of the vehicle body following the removal of batteries, tires, fluids, and other parts requiring appropriate processing; the removal of engines, bumpers, and other valuable parts; and the separation and recovery of metals.



## Expanded Adoption of Biomaterials

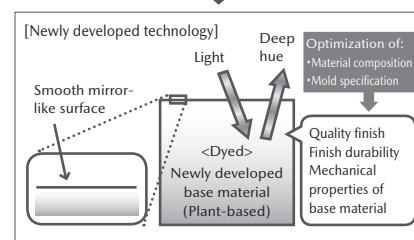
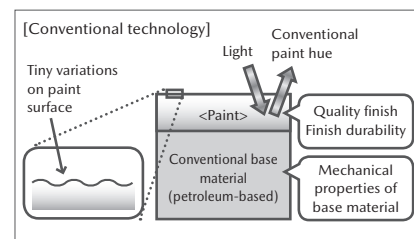
Mazda has produced new vehicle parts from plant-derived materials on a commercial basis, which have the potential to facilitate society's shift away from the use of fossil fuels and reduce CO<sub>2</sub> emissions, and is currently increasing the number of vehicle models containing these parts.

2011: Bioplastic radiator tanks were first used in the Demio (overseas model: Mazda2) with the Skyactiv-G engine.

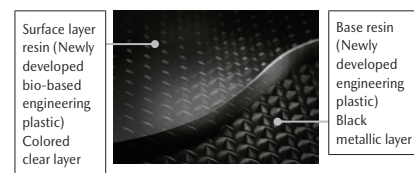
2014: Mazda developed bio-based engineering plastic featuring a high-quality finish without painting, suitable also for vehicle exterior parts. By developing paint-less technology for interior and exterior parts taking advantage of the characteristics of this material, the Company not only secured the excellent environmental performance of the material but also achieved a high-quality finish that could not be achieved with conventional paint, and contributed to environmental protection and production cost reduction by eliminating the painting process.

2017: Mazda developed materials suitable for making large, intricately shaped exterior parts, such as front grilles, and optimized the die specifications in order to substantially enhance the formability of these parts.

2018: Mazda developed a new technology for two-layer molding of pattern-designed bio-based engineering plastic, which enables the molding of a transparent surface layer and a base layer with a pattern-engraved surface, both of which are made of environmentally friendly bio-based engineering plastic. The new technology reduces environmental impact while making it possible to provide elaborated, shaded patterns of deep color, which was previously impossible with conventional technology.



New technology for two-layer molding of pattern-designed bio-based engineering plastic  
Schematic illustration



# EFFORTS REGARDING MANUFACTURING AND LOGISTICS

## Energy-and Global-Warming-Related Issues

Mazda promotes the efficient use of energy while aiming to reduce CO<sub>2</sub> emissions in the areas of manufacturing and logistics.

### 【Manufacturing】Energy-Saving / Measures to Reduce CO<sub>2</sub> Emissions <FY March 2019 Results (compared with FY March 1991)> a b

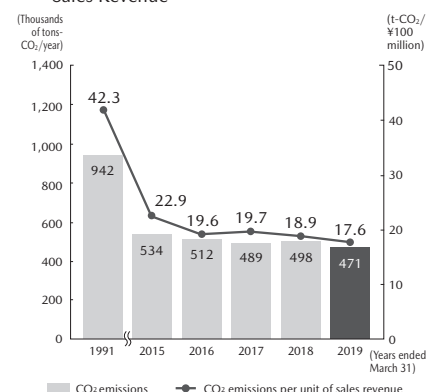
- Total CO<sub>2</sub> emissions from Mazda's four principal domestic plants\*<sup>1</sup> reduced by 50.0% compared with FY March 1991 (471 thousand tons-CO<sub>2</sub>)
- Emissions per unit of sales revenue reduced by 58.4% (17.6 t-CO<sub>2</sub>/100 million yen)

Production sites in Japan and abroad promote activities to improve the facility operation rate and shorten the cycle time, and take measures to cut losses at each step from production to consumption of energy.

Under "Monotsukuri Innovation," Mazda strives to reduce per-unit energy consumption. The "Monotsukuri Innovation" is the initiative to achieve a breakthrough in "sharing a completely new concept beyond the boundaries of models," in order to improve quality and brand value, as well as to increase profit margins, while flexibly responding to the requirements for the manufacture of several models and changes in production volume (see p. 122).

- Material: Reduced material weight by using thinner casted and forged parts, shortening the forging cycle time, and modifying production methods, so as to reduce energy consumption.
- Processing and assembly: Evolved conventional flexible manufacturing lines to realize higher-efficiency, mixed flow production. Also pursued more efficient manufacturing by ensuring a smooth flow of lines and by consolidating and integrating lines.
- Press: Reduced the amount of scraps generated in manufacturing of press parts, and retrieved parts from scraps to reduce the amount of use of steel sheets. Also achieved multi-pressing, which performs molding of several parts using a single die, resulting in both integration of processes and reduction of energy consumption.
- Paint: Completed the introduction of the Aqua-Tech Paint System, a new water based painting technology realized through the integration of painting functions and high-efficient panting technologies, into the Ujina Plant No.2. Also introduced the Aqua-Tech Paint System to global production sites, resulting in reduced energy use and a substantial reduction of VOC (volatile organic compound) emissions.

#### a CO<sub>2</sub> Emissions from Mazda's Four Principal Domestic sites/CO<sub>2</sub> Emissions per Unit of Sales Revenue



\* CO<sub>2</sub> emissions at Mazda's four principal domestic sites are calculated using the CO<sub>2</sub> coefficient for each year based on standards from the Japan Automobile Manufacturers Association Inc. (JAMA) (Commitment to a Low Carbon Society). Data for each fiscal year were recalculated according to the coefficient change of August 10, 2018. The power coefficient for FY March 2019 is undetermined as of June 27, 2019; the FY March 2018 power coefficient is used for FY March 2019.

\* The figures of the CO<sub>2</sub> emissions at Mazda's four principal domestic sites in FY March 2019 have been verified by a third party (see p. 133).

#### b Energy Consumption Breakdown at Mazda's Four Principal Domestic Plants

	Unit: (Thousands of GJ/year)					
	FY March 1991	FY March 2015	FY March 2016	FY March 2017	FY March 2018	FY March 2019
Electricity	4,921	6,247	6,150	6,124	6,248	6,115
Industrial steam	0	1,409	1,359	1,236	1,253	1,165
Coal	4,967	0	0	0	0	0
Coke	766	170	171	168	171	218
Fuel oil A	596	27	19	15	14	24
Fuel oil B	11	0	0	0	0	0
Fuel oil C	1,168	6	6	7	6	5
Gasoline	193	65	64	52	54	59
Kerosene	101	8	11	11	15	5
Diesel	81	43	47	46	48	40
LPG	989	52	55	55	56	55
City gas	45	1,019	1,006	949	955	882
Total	13,838	9,046	8,888	8,663	8,820	8,568

\* Amount of heat emission at Mazda's four principal domestic facilities is calculated using the CO<sub>2</sub> coefficient for each year based on standards from the Japan Automobile Manufacturers Association Inc. (JAMA) (Commitment to a Low Carbon Society). Past data was recalculated according to the change of the coefficient.

\*<sup>1</sup> Head office (Hiroshima); Miyoshi Plant; Hofu Plant, Nishinoura District; Hofu Plant, Nakanoseki District (including non-manufacturing areas such as product development)

## 【Logistics】CO<sub>2</sub> Emissions during Product Shipment Reduced by 40.4% (Compared with FY March 1991 Levels)

Mazda is working with logistics companies, dealerships, and other automakers throughout Japan to provide customers with the volume they require, with the precise timing they expect, while reducing CO<sub>2</sub> emissions during product shipment through highly efficient logistics across the entire supply chain.

### <FY March 2019 Results>

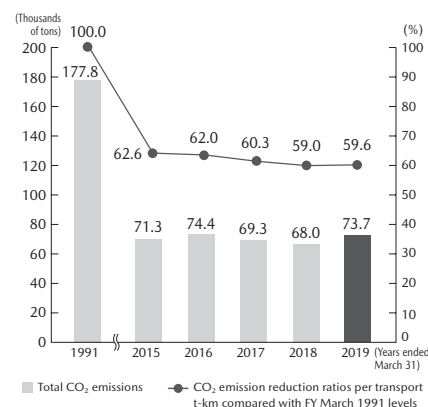
- Total domestic transportation volume was approximately 550 million ton-kilometers.

This represents a 40.4% reduction in transportation CO<sub>2</sub> emissions per ton-kilometer compared with FY March 1991 levels, far exceeding the Company's target of 31% or more.

However, CO<sub>2</sub> emissions increased from the previous year, since railways could not be used for some time due to the heavy rain in July 2018, which required changing the transportation means to trucks during that time. (Generally, truckload transportation is considered to produce higher CO<sub>2</sub> emissions than railway transportation.)

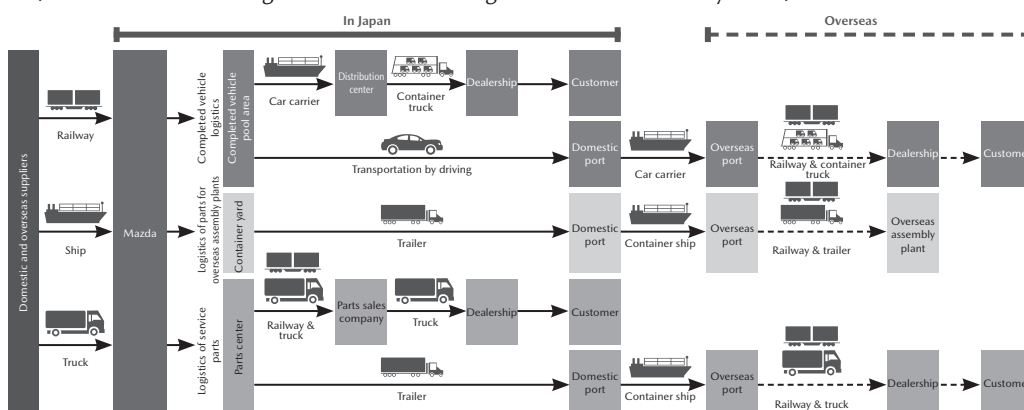
C

### C CO<sub>2</sub> Emissions and Reductions for Logistics (in Japan)



### ■ Range of the tracking capability for CO<sub>2</sub> emissions in the supply chain

( —→ Current tracking line    - - - -> Tracking line to be extended by 2030)



## 【Logistics】Realizing Logistics that Enables CO<sub>2</sub> Reduction in a Timely Manner

Mazda is taking the following measures to provide customers with the volume they require, with the precise timing they expect, while reducing CO<sub>2</sub> emissions. Efforts to focus on the following three pillars of logistics are being taken by visualizing in detail the hidden logistics issues in each process on a global level.

### 1. Hub-and-spoke system for transportation of completed vehicles and service parts<sup>\*1</sup>

d

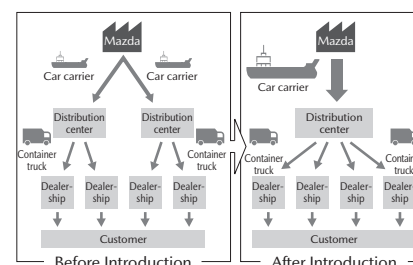
- Reforming transportation by consolidating logistics centers for completed vehicles Mazda consolidated its logistics centers nationwide with the aim of combining delivery routes with low shipping volumes while ensuring timely shipments (and finished the consolidation in FY March 2012).

Continuously reviewing the operation of car carriers (hereinafter referred to as "domestic vessels") according to their shipping volumes has enabled the Company to improve loading efficiency. To make more effective use of the domestic vessels on the return journey, collaborative transportation has also been promoted with other companies.

In FY March 2018, Mazda reduced CO<sub>2</sub> emissions by around 3,800 tons, by enhancing fuel economy through operations of newly-built or modified domestic vessels, which were introduced in FY March 2017.

In FY March 2019, the Company continued its efforts to improve the loading efficiency of domestic vessels, and promoted the loading of completed vehicles into ships as directly as possible from their manufacturing sites, thereby succeeding in curbing around 15 tons of CO<sub>2</sub> emissions.

### d Hub-and-Spoke System



<sup>\*1</sup> In the "hub-and-spoke" system, distribution centers around the country (hubs) act as bases for delivering completed vehicles to dealerships (spokes). In transporting service parts, parts suppliers serve as the hubs and vehicle dealerships the spokes.

### ■ Improving the ratio of modal shift for the transportation of service parts

Mazda is striving to improve the rate of modal shift regarding the transportation of service parts.

In May 2016, the Company started to use large returnable containers, originally introduced to transport parts overseas, for domestic transportation. This was aimed at reducing transportation CO<sub>2</sub> emissions by improving the load efficiency of JR containers.

In FY March 2018, Mazda promoted the use of railway for domestic transportation, in accordance with the relocation of parts sales companies beginning in FY March 2016. As a result, the Company increased the rate of transportation by railway from 25% to 45% per transportation volume (ton-kilometer), reducing CO<sub>2</sub> emissions by around 400 tons.

In FY March 2019, service parts were transported by trucks instead of trains until the restoration of the railway lines, which were damaged by the heavy rain in July. Owing to this change, CO<sub>2</sub> emissions increased by around 1,000 tons.

## 2. "Straightening" of logistics network

### ■ Straight logistics without distribution centers (Vanning at plant, packaging at plant)

After the manufacture of parts to be exported to overseas assembly plants is completed, they are packaged and loaded into containers at the same location, eliminating the need for shipment between production locations and distribution centers. At present, the coverage of this logistics system is expanding to engines, transmissions and auto body parts produced at the Hiroshima Plant and the Hofu Plant.

In FY March 2018, Mazda expanded the quantity of transmissions vanned at plants to be exported to the Mexico plant. For some parts that are manufactured at a supplier's plant to be exported to the Mexico plant, the Company is planning to cease transporting these parts to Hiroshima in the future, by packaging and loading them into containers at the supplier's plant, or in a place near the supplier.

### ■ Reducing the transportation distance for procured parts for overseas production

Previously, the parts procured in Asia to be used for overseas production were transported via Japan to the Mexico plant. In July 2016, this was changed to direct transportation, so that now these parts are transported from existing distribution centers in Thailand and China, leading to a reduced transportation distance.

In Japan, Mazda started to land parts imported from overseas at the ports close to production sites, in order to reduce the transportation distance between the Hiroshima Plant and Hofu Plant. In FY March 2018, the Company enlarged the scope of models to which this measure is applied, thereby achieving about 8 tons of CO<sub>2</sub> emissions. In FY March 2019 as well, by applying this measure to a broader range of parts, Mazda further reduced CO<sub>2</sub> emissions by around 3 tons.

### ■ Reducing the transportation distance for repair parts

When the Mexico plant started to run, repair parts were transported via North America to Europe, since their transpiration volume was small. Three years after the plant's startup, however, the volume was on the rise. For this reason, the shipping method was changed to direct transportation to Europe. By reducing the transportation distance through straight logistics, Mazda succeeded in reducing around 1,400 tons of CO<sub>2</sub> emissions. In the future, the Company plans to set up a distribution center for repair parts in Mexico, in order to promote further reduction of the transportation distance.

## 3. Continuous improvement of transportation efficiency for procured parts

For domestically produced parts, deployment of the Milk-Run system\*<sup>1</sup> was completed throughout Japan by FY March 2008. Today, Mazda is introducing the same system in overseas production sites, with deployment in the Mexico plant completed in FY March 2014, and in the transmission plant in Thailand completed in FY March 2016, aiming to reduce CO<sub>2</sub> emissions by further promoting efficiency in the purchasing and logistics processes across the entire supply chain.

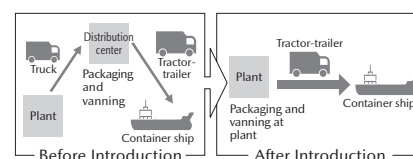
In FY March 2019, the means of transporting procured parts was provisionally changed from trains to trucks until the restoration of the railway lines, which were damaged by the heavy rain in July. Since truckload transportation is considered to produce higher CO<sub>2</sub> emissions than railway transportation, Mazda saw an increase of around 2,000 tons in CO<sub>2</sub> emissions from the previous year.

The Company is continuing its initiatives to optimize its packaging volume for purchasing parts, reflecting the logistics needs at the beginning of the product development process, so as to further improve the load efficiency of trucks and reduce the number of trucks required.

In Japan, Mazda introduced the Cloud-based Transportation/Delivery Progress Management Service for Logistics Operators\*<sup>2</sup> in 2016. This service has been proven effective in reducing delivery time and costs and improving the quality of transportation, as well as in mitigating the burden on drivers, easing traffic congestion, and reducing CO<sub>2</sub> emissions through efficient transportation. The Company plans to apply this service to 600 vehicles in five years after its launch. In FY March 2017, the number of vehicles covered by this service was 220. The figure increased to 350 in FY March 2018, and then to 416 in FY March 2019.

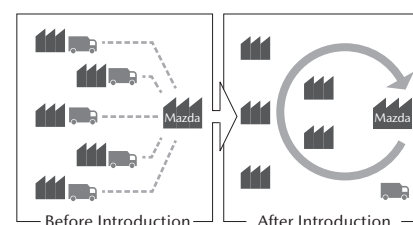
e

### e Logistics without Distribution Centers (Vanning at plant)



f

### f Milk-Run System



\*1 A method in which a single truck visits multiple suppliers to collect supplies. Named after truck routes in rural areas, which picked up milk from each farm.

\*2 The Cloud-based Transportation/Delivery Progress Management Service for Logistics Operators, developed by DOCOMO Systems, Inc.

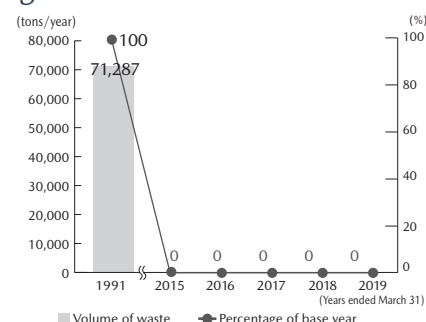
## Promoting Resource Recycling

Mazda builds resource-saving initiatives into every phase of the life cycle of its vehicles, based on the three Rs: reduce, reuse, and recycle. The Company implements thorough recycling and waste-reduction initiatives in the areas of manufacturing and logistics as well, in order to ensure that limited resources are used effectively.

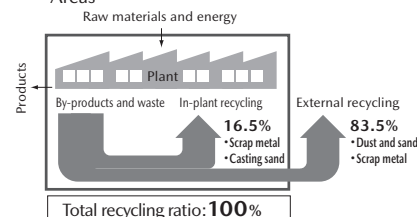
### 【Manufacturing】 Maintaining the Status of Zero Landfill Waste and Promoting the Reduction of Waste

To reduce landfill waste at its four principal domestic facilities\*<sup>1</sup> to zero, Mazda is promoting reductions in the volume of manufacturing by-products and waste, more rigorous sorting of waste, and recycling. As a result, the Company has achieved zero landfill waste, and has maintained this status from FY March 2009 to FY March 2019. The Company has also achieved material recycling, to ensure that packaging materials used in the vehicle assembly process can be reused as raw materials, by more strictly sorting these packaging materials by ingredient and quality. The amount of waste\*<sup>2</sup> in FY March 2019 was reduced by 82% compared with FY March 1991 levels.

g Changes in the Amount of Landfill Waste



h FY March 2019 Recycling of Manufacturing Byproducts and Waste in the Manufacturing Areas



### 【Logistics】 Reducing Volume of Packaging and Wrapping Materials

Mazda is moving forward with efforts centering on the “three Rs of Mazda logistics” to cut down on resources used for packaging and wrapping. The target for packaging and wrapping materials was a reduction in volume of 49.5% or more from FY March 1991 levels; in FY March 2018, a 56.2%\*<sup>3</sup> reduction was achieved.

Since FY March 2013, Mazda has been continuing activities to reflect logistics needs at the beginning of product development, so as to optimize parts specifications and structures, by considering efficient logistics in the development stage of work processes, from design to production and shipment.

In FY March 2017, departments in the five areas—development, production, procurement (purchasing), logistics and quality—closely worked together to achieve the optimization of parts procurement and vehicle manufacturing, from the stage of product development, and to establish strong cooperation with the supply chain. These efforts resulted in reduced volumes of packaging and wrapping materials, and an increased packaging filling rate.

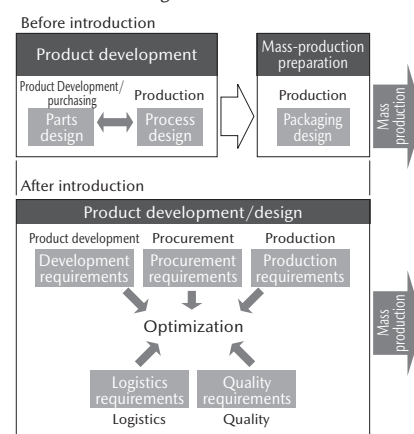
In FY March 2018, Mazda continued integrated efforts among departments in relevant areas to optimize the specifications and structures of the parts for the next models. And for some parts, the Company enabled containers that are used to hold double the previous volume of parts. In FY March 2019, similar measures were taken to improve the packaging filling rate for some parts, and to reduce the volumes of their packaging and wrapping materials.

Mazda will continue promoting and expanding these activities that involve efforts in different areas, so as to reduce the consumption of materials.

In the area of repair parts for overseas, the Company continues to expand the application of large-size returnable containers, aiming at increasing the container filling rate.

By using these containers, Mazda succeeded in reducing the use of packaging and wrapping materials by about 2,200 tons in FY March 2018, and by about 2,400 tons in FY March 2019.

i Activities Image



\*1 Head office (Hiroshima); Miyoshi Plant; Hofu Plant, Nishinoura District; Hofu Plant, Nakanoseki District (including non-manufacturing areas such as product development)

\*2 The figures of the amount of waste at four principal domestic sites in FY March 2019 have been verified by a third party (see p. 133).

\*3 Forecasted reduction rate compared with measures similar to those performed in FY March 1991

## Cleaner Emissions

To preserve water and air quality, Mazda has specified voluntary emission standards stricter than the legal requirements and is ensuring appropriately low emissions of pollutants. In the area of manufacturing, the Company is engaged in a range of initiatives to eliminate or reduce chemical substances that damage the environment.

### 【Manufacturing】 Clean Water Consumption at Mazda's Four Principal Domestic Sites\*<sup>1</sup> Reduced by 34.2% Compared with FY March 2014 Levels

With the exception of its Miyoshi Plant, nearly all the water Mazda uses in production processes at the plants and offices in Japan is water for industrial use. The Company does not use subsurface water, as this may cause ground subsidence.

Mazda also makes effective use of water by collecting and storing rainwater for use in the Miyoshi Plant. Furthermore, the Company is committed to saving clean water consumption at plants and offices.

In FY March 2019, Mazda introduced water-saving shower caps in washroom faucets and reinforced management of water heater usage, so as to reduce wasteful water consumption. The Company also ensures wastewater cleanliness by properly treating water used for industrial processes, human hygiene, and other purposes.

### 【Manufacturing】 Air Pollution Prevention: Actively Adopting Fuels that Reduce Environmental Burdens

Mazda is continuing efforts to reduce the emission of sulfur oxides (SOx), nitrogen oxides (NOx), dust and soot, fine particles, vapors, and volatile organic compounds (VOCs).

In addition, Mazda is shifting the use of fuel oil to that of city gas and makes other efforts to actively adopt materials that reduce the environmental burden.

#### VOC Reductions: Body-Painting Lines

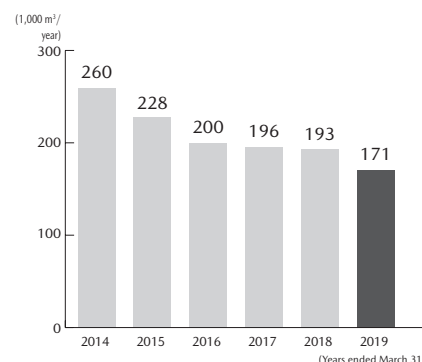
In FY March 2019, Mazda made steady progress toward achieving the target of reducing VOC emissions from vehicle body paint in body-painting lines to 22.0 g/m<sup>2</sup> or less.

The target was achieved by reducing VOC emissions in body painting lines to 20.0 g/m<sup>2</sup>, as a result of various measures. Such measures include the Three Layer Wet Paint System introduced as the standard process in all plants in Japan and major plants overseas, the Aqua-Tech Paint System (see p. 70) that delivers world-leading environmental performance, a low-VOC paint that the Company developed and introduced, and improved efficiency in thinner recovery in cleaning operations.

### 【Manufacturing】 Reducing Emissions of PRTR-Listed Substances

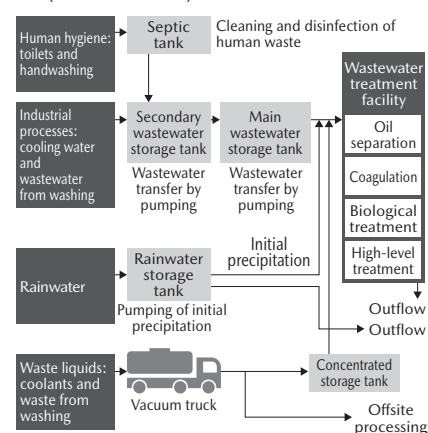
With various efforts, such as the additional introduction of the Aqua-Tech Paint System into the painting process and improvements to the efficiency of thinner recovery for cleaning operation, in FY March 2019 the amounts of substances that are designated under the PRTR Law\*<sup>2</sup> released into the water system and the atmosphere decreased by 69% from FY March 1999 levels, to 852 tons. Mazda will continue working to reduce emissions of PRTR-designated substances.

j Clean Water Consumption at Four Principal Domestic Sites\*<sup>1</sup>

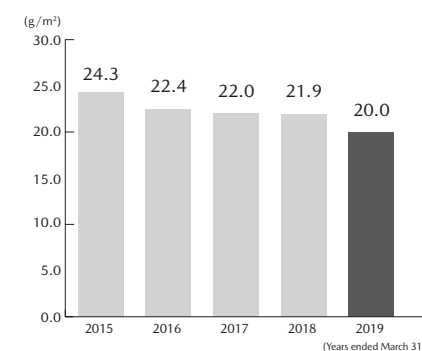


\* The figures of the amount of clean water consumption at four principal domestic sites in FY March 2019 have been verified by a third party (see p. 133).

k Overview of Wastewater Treatment System (Hiroshima Plant)



l VOC Emissions in All Lines at Plants in Japan



\*<sup>1</sup> Head office (Hiroshima); Miyoshi Plant; Hofu Plant, Nishinoura District; Hofu Plant, Nakanoseki District (including non-manufacturing areas such as product development)  
However, Mazda Hospital, dormitories and catering facilities are excluded.

\*<sup>2</sup> Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof. PRTR: Pollutant Release and Transfer Register



## FY March 2019 Data on Water and Atmosphere

## Water Pollutants

Wastewater Drainage Destination: Enko River and Kaita Bay

Site	Water Pollutants	Unit	Regulation	Actual		
				Max.	Min.	Avg.
Hiroshima Plant	pH (freshwater)	—	5.8~8.6	7.3	6.5	6.9
	pH (seawater)	—	5.5~9.0	7.7	6.9	7.3
	BOD	mg/L	160	13	ND	<2.3
	COD	mg/L	20	13	2.3	5.1
	SS	mg/L	200	17	ND	<4.6
	Oil	mg/L	5	ND	ND	ND
	Fluorine (freshwater)	mg/L	8	0.2	ND	<0.13
	Fluorine (seawater)	mg/L	15	9.6	0.2	3.2
	Copper	mg/L	3	0.07	ND	<0.01
	Zinc	mg/L	2	0.93	0.01	0.2
	Soluble manganese	mg/L	10	0.7	ND	<0.2
	Chromium	mg/L	2	0.02	ND	<0.1
	Total nitrogen	mg/L	120	12	1.2	5.4
	Total phosphorus	mg/L	16	2.1	0.01	0.36
	Coliform groups	colonies/cm <sup>3</sup>	3,000	290	ND	<25
	Boron (freshwater)	mg/L	10	0.3	ND	<0.2
	Boron (seawater)	mg/L	230	2	0.2	1.5
	Ammonia, ammonium, nitrous acid, and nitrous acid compounds	mg/L	100	6.6	1.4	2.8

The following substances were not detected: cadmium, cyanogen, organic phosphorus, lead, hexavalent chromium, arsenic, mercury, alkyl mercury, PCBs, trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,3-dichloropropene, thiuram, simazine, thiobencarb, benzene, selenium, 1,4-dioxane, phenol, copper, soluble iron, chromium and boron.

Wastewater Drainage Destination: Basen River

Site	Water Pollutants	Unit	Regulation	Actual		
				Max.	Min.	Avg.
Miyoshi Plant	pH	—	5.8~8.6	7.5	6.9	7.3
	BOD	mg/L	90	4.2	1	2.1
	SS	mg/L	90	8.2	1	4.6
	Oil	mg/L	5	ND	ND	ND
	Fluorine	mg/L	8	0.2	0.2	0.2
	Zinc	mg/L	2	0.01	0.01	0.01
	Soluble manganese	mg/L	10	0.3	ND	<0.2
	Total nitrogen	mg/L	120	1.3	1.3	1.3
	Total phosphorus	mg/L	16	0.03	0.03	0.03
	Coliform groups	colonies/cm <sup>3</sup>	3,000	380	ND	<53
	Ammonia, ammonium, nitrous acid, and nitrous acid compounds	mg/L	100	0.7	0.7	0.7

The following substances were not detected: cadmium, cyanogen, organic phosphorus, lead, hexavalent chromium, arsenic, mercury, alkyl mercury, PCBs, trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,3-dichloropropene, thiuram, simazine, thiobencarb, benzene, selenium, 1,4-dioxane, phenol, copper, soluble iron, chromium and soluble manganese.

Wastewater Drainage Destination: Umi Bay

Site	Water Pollutants	Unit	Regulation	Actual		
				Max.	Min.	Avg.
Nishinoura District, Hofu Plant	pH	—	5.0~9.0	7.2	6.2	6.8
	COD	mg/L	50	11.5	2.1	7.9
	SS	mg/L	40	4.5	0.7	2.6
	Oil	mg/L	2	ND	ND	ND
	Zinc	mg/L	2	0.8	0.1	0.5
	Soluble manganese	mg/L	120	9	0.6	2.5
	Total nitrogen	mg/L	16	4.1	0.5	2.5
	Total phosphorus	colonies/cm <sup>3</sup>	3,000	200	17	109
	Coliform groups	mg/L	230	1.2	0.8	1
	Boron	mg/L	15	4.1	4	4.1
	Ammonia, ammonium, nitrous acid, and nitrous acid compounds	mg/L	100	0.7	0.5	0.6

The following substances were not detected: cadmium, cyanogen, organic phosphorus, lead, hexavalent chromium, arsenic, mercury, alkyl mercury, PCBs, trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,3-dichloropropene, thiuram, simazine, thiobencarb, benzene, selenium, 1,4-dioxane, phenol, copper, soluble iron, chromium and soluble manganese.

Wastewater Drainage Destination: Umi Bay

Site	Water Pollutants	Unit	Regulation	Actual		
				Max.	Min.	Avg.
Nakanoseki District, Hofu Plant	pH	—	5.0~9.0	7.7	6.5	7.3
	COD	mg/L	50	9.4	3.1	5.3
	SS	mg/L	40	15	ND	<3.9
	Oil	mg/L	2	ND	ND	ND
	Zinc	mg/L	2	0.2	0.03	0.1
	Soluble manganese	mg/L	120	12.6	1.9	7
	Total nitrogen	mg/L	16	1.5	0.1	0.7
	Total phosphorus	colonies/cm <sup>3</sup>	3,000	61	ND	<31
	Coliform groups	mg/L	230	ND	ND	ND
	Boron	mg/L	15	0.2	ND	<0.1
	Ammonia, ammonium, nitrous acid, and nitrous acid compounds	mg/L	100	4.6	4	4.3

The following substances were not detected: cadmium, cyanogen, organic phosphorus, lead, hexavalent chromium, arsenic, mercury, alkyl mercury, PCBs, trichloroethylene, tetrachloroethylene, dichloromethane, carbon tetrachloride, 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,3-dichloropropene, thiuram, simazine, thiobencarb, benzene, selenium, 1,4-dioxane, phenol, copper, soluble iron, chromium and soluble manganese.

## Atmospheric Pollutants

Site	Water Pollutants	Unit	Regulation	Actual (Max.)
Hiroshima Plant	Boilers	ppm	150	43
	Drying ovens	ppm	250	59
	Melting furnaces	ppm	230	32
	Diesel engines	ppm	180	82
	Heating furnaces	ppm	950	650
			200	58
			180	41
			150	76
	Boilers	g/m <sup>3</sup> N	0.25	0.0012
			0.1	0.0017
Miyoshi Plant	Drying ovens	g/m <sup>3</sup> N	0.4	0.0033
			0.35	0.0031
	Diesel engines	g/m <sup>3</sup> N	0.2	0.0043
			0.15	0.014
	Dust		0.4	<0.001
	Melting furnaces	g/m <sup>3</sup> N	0.20	0.077
			0.10	0.0011
	Diesel engines	g/m <sup>3</sup> N	0.10	0.013
			0.4	0.0014
	Heating furnaces	g/m <sup>3</sup> N	0.25	0.018
Nishinoura District, Hofu Plant			0.20	0.1
	SOx K-value regulation	—	7	1.1
	VOC Painting facilities	ppm	700	359
	Washing facilities	ppm	400	75
	Boilers	ppm	250	160
	Diesel engines	ppm	950	740
	Boilers	g/m <sup>3</sup> N	0.30	0.064
	Dust Diesel engines	g/m <sup>3</sup> N	0.10	0.096
	Boilers	ppm	150	120
	Drying ovens	ppm	130	72
Nakanoseki District, Hofu Plant	Boilers	ppm	230	37
		g/m <sup>3</sup> N	0.10	0.004
	Dust		0.35	0.003
	Drying ovens	g/m <sup>3</sup> N	0.30	0.003
			0.20	0.006
	SOx K-value regulation	—	4.5	0.002
	Total pollutant load control	m <sup>3</sup> N/h	20.56	0.015
	VOC Painting facilities	ppm	700	360
	NOx Melting furnaces	ppm	180	46
			0.25	0.002

## Volume of PRTR-designated Pollutants Emitted and Transferred in FY March 2019

(Items marked with an asterisk (\*) are Class 1 designated chemical substances of which 500 kg/year or more are handled.)

### Hiroshima Plant

Unit: (kg/year)

Substance No.	Substance group	Amount handled				Volume emitted	Amount consumed	Amount disposed	Amount transferred	Amount recycled
			Air	Water	Soil				Waste products	
1	Water-soluble zinc compounds	27,074	0	433	0	433	23,663	2,978	0	0
53	Ethyl benzene	103,729	35,635	0	0	35,635	30,433	28,746	0	8,915
80	Xylene	428,874	185,657	0	0	185,657	126,840	83,102	0	33,275
87	Chromium and trivalent chromium compounds	40,700	0	0	0	0	40,057	0	642	1
88*	Hexavalent chromium compounds	1,565	0	0	0	0	923	642	0	0
258	1,3,5,7-tetraazetoricyclo [ 3.3.1.1 <sup>3,7</sup> ] decane	4,517	0	0	0	0	0	4,517	0	0
277	Triethylamine	191,697	1,150	0	0	1,150	0	190,547	0	0
296	1,2,4-trimethylbenzene	138,853	14,024	0	0	14,024	78,722	46,107	0	0
297	1,3,5-trimethylbenzene	34,680	17,828	0	0	17,828	278	14,488	0	2,086
300	Toluene	646,112	130,061	0	0	130,061	253,703	219,942	0	42,406
309*	Nickel compounds	4,889	0	587	0	587	1,687	0	2,615	0
349	Phenol	31,814	1	1	0	2	0	31,812	0	0
355	Bis (2-ethylhexyl) phthalate	19,130	0	0	0	0	18,556	0	574	0
374	Hydrogen fluoride and its water-soluble salts	3,156	0	505	0	505	0	2,651	0	0
392	n-Hexane	106,389	266	0	0	266	90,270	15,853	0	0
400*	Benzene	21,285	27	0	0	27	15,901	5,357	0	0
411*	Formaldehyde	3,153	1,096	0	0	1,096	0	2,057	0	0
412	Manganese and its compounds	54,502	0	371	0	371	51,956	0	2,120	55
438	Methylnaphthalene	6,662	33	0	0	33	0	6,629	0	0
448	Diisocyanate (methylene-bis [4,1-phenylene])	234,043	0	0	0	0	0	234,043	0	0
453	Molybdenum and its compounds	1,285	0	0	0	0	983	0	63	239
302	Naphthalene	13,784	85	0	0	85	0	13,691	0	8
Total		2,117,893	385,863	1,897	0	387,760	733,972	903,162	6,014	86,985

### Miyoshi Plant

Substance No.	Substance group	Amount handled				Volume emitted	Amount consumed	Amount disposed	Amount transferred	Amount recycled
			Air	Water	Soil				Waste products	
53	Ethyl benzene	2,371	0	0	0	0	0	2,371	0	0
80	Xylene	10,079	1	0	0	1	0	10,078	0	0
296	1,2,4-trimethylbenzene	6,598	1	0	0	1	0	6,597	0	0
297	1,3,5-trimethylbenzene	1,156	0	0	0	0	0	1,156	0	0
300	Toluene	30,750	11	0	0	11	0	30,739	0	0
392	n-Hexane	3,740	9	0	0	9	0	3,731	0	0
400*	Benzene	1,006	1	0	0	1	0	1,005	0	0
438	Methylnaphthalene	3,219	16	0	0	16	0	3,203	0	0
Total		58,919	39	0	0	39	0	58,880	0	0

### Nishinoura District, Hofu Plant

Substance No.	Substance group	Amount handled				Volume emitted	Amount consumed	Amount disposed	Amount transferred	Amount recycled
			Air	Water	Soil				Waste products	
1	Water-soluble zinc compounds	16,810	0	269	0	269	14,692	1,849	0	0
53	Ethyl benzene	106,763	65,018	0	0	65,018	29,615	12,130	0	0
80	Xylene	280,644	106,504	0	0	106,504	123,419	24,277	0	26,444
296	1,2,4-trimethylbenzene	135,207	23,968	0	0	23,968	76,579	3,836	0	30,824
297	1,3,5-trimethylbenzene	23,425	11,614	0	0	11,614	196	3,811	0	7,804
300	Toluene	541,590	254,893	0	0	254,893	246,155	27,697	0	12,845
309*	Nickel compounds	3,293	0	395	0	395	1,136	0	1,762	0
355	Bis (2-ethylhexyl) phthalate	2,137	0	0	0	0	2,073	0	64	0
392	n-Hexane	89,582	224	0	0	224	88,061	1,297	0	0
400*	Benzene	15,739	20	0	0	20	15,490	229	0	0
411*	Formaldehyde	3,290	1,184	0	0	1,184	0	2,106	0	0
412	Manganese and its compounds	4,445	0	243	0	243	2,797	0	1,388	17
Total		1,222,925	463,425	907	0	464,332	600,213	77,232	3,214	77,934

### Nakanoseki District, Hofu Plant

(No applicable chemical substances subject to reporting. (The volume of the PRTR-designated groups' substances handled is less than the designated volume subject to reporting.))

### Company Total

Substance No.	Substance group	Amount handled				Volume emitted	Amount consumed	Amount disposed	Amount transferred	Amount recycled
			Air	Water	Soil				Waste products	
Total		3,414,767	849,331	2,804	0	852,135	1,334,185	1,054,300	9,228	164,919

# COLLECTION AND RECYCLING OF END-OF-LIFE VEHICLES (ELVS) AND USED PARTS

Around 80% of a vehicle can be recycled. Implementing thorough recycling and waste reduction initiatives to ensure that limited resources are used effectively, Mazda promotes efforts to establish a recycling-oriented society. Attaching importance to building resource-saving initiatives into every phase of the life cycle of its vehicles, based on the three Rs: reduce, reuse, and recycle, the Company undertakes various efforts, such as the collection and recycling of end-of-life vehicles (ELVs) and used parts.

## End-of-Life Vehicles (ELVs)

### Measures in Response to End-of-Life Vehicle Recycling Law in Japan a b c

Mazda properly processes and recycles three designated items (fluorocarbons, airbags, and automobile shredder residue [ASR]<sup>\*1</sup>) pursuant to the End-of-Life Vehicle Recycling Law in Japan. In addition, the Company is creating unique technologies and measures to move this recycling program forward. In the case of ASR, Mazda is working through ART<sup>\*2</sup>, a consortium of 13 key companies including Mazda, Nissan Motor Co., Ltd., and Mitsubishi Motors Corporation, to comply with the law and achieve progress in the reuse of resources. The Company appropriately executes recycling at dealerships. Dealerships collect vehicle recycling fees at the time of sale and receive the ELVs from their final owners in order to transfer them to the disposal processing companies.

As for recycling fees, the Company reviewed its fee calculation standard for new models launched in 2012. The new fee standard is applicable to the Company's new models launched after that. While forecasting a future recycling situation, the Company will continue to push forward with its recycling business in such a way to ensure a balance between revenue and expenditures in the medium- and long-term.

The End-of-Life Vehicle Recycling Law was revised in February 2012, and newly designated lithium-ion batteries and nickel-metal hydride batteries as items for advance collection before dismantling of end-of-life vehicles. Mazda, in cooperation with manufacturers, is committed to collecting lithium-ion batteries installed in micro-minis (OEM vehicles) launched in and after October 2012. The Company also collects nickel metal hydride batteries installed in the Axela (Mazda3 overseas) Hybrid (launched in November 2013). Moreover, Mazda promotes the appropriate disposal of capacitors for i-ELOOP, a brake energy regeneration system, in order to ensure safety during recycling by related contractors, even though capacitors are not designated for advance collection. Measures to ensure appropriate disposal include attaching a caution label inside the engine room of the vehicle, and providing a disposal manual on the Company's website.

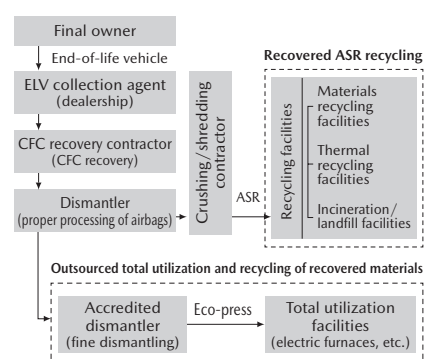
Reference website (Japanese only) for Mazda's efforts with regard to the End-of-Life Vehicle Recycling Law  
<https://www.mazda.com/ja/csr/recycle/>

## ASR and the End-of-Life Vehicle Recycling Law

Disposed vehicles consist of about 80% useful metal and about 20% automotive shredder residue (ASR) that includes resin.

Useful metal is recycled in cooperation with metal recycling-related companies such as dismantlers, crushing/shredding contractors, and steel manufacturers. With regard to ASR, which used to be disposed by landfill, is now subject to the End-of-Life Vehicle Recycling Law, which was enforced in January 2005. This is due to the rise in the risk of illegal dumping of end-of-life vehicles on the back of a surge in disposal costs due to overstrained final landfill sites and weakness in iron scrap prices. After the enforcement of this law, car manufacturers are required to recycle ASR, chlorofluorocarbons—which lead to global warming and ozone depletion—and airbags—which require specialist knowledge for disposal—under their responsibility, using recycling fees deposited by final owners of the ELVs.

### a End-of-Life Vehicle Recycling Process



### b Resource Recycling Results in FY March 2019

Number of vehicles from which fluorocarbon is collected		137,325 units
Number of vehicles from which airbags are collected		131,255 units
Number of vehicles from which ASR is collected		147,994 units
Recycling ratio	Airbags	94.2%
	ASR	97.8%
Recycling ratio for ELVs*		More than 99%
Total contracting deposits received		1,736,604,673 yen
Total expenses for recycling		1,490,997,562 yen

(Includes separate cost required at Mazda)

\*Recycling ratio for ELVs is the recycling ratio in dismantling/shredder processes of 83% (cited from the May 2003 joint council data), plus the remaining ASR ratio of 17% multiplied by the ASR recycling rate of 97.8%.

### c Vehicle caution labels for capacitors for i-ELOOP

[For the Roadster (MX-5)]



[For models other than the Roadster (MX-5)]



\*1 ASR : Automobile Shredder Residue

\*2 ART : Automobile shredder residue Recycling promotion Team

## Promoting Recycling Overseas

Mazda is committed to the recycling of end-of-life vehicles overseas in accordance with the laws in each country and region, under the initiative of the local distributors.

As for countries in which recycling-related laws are planned to be established, Mazda is preparing to respond in cooperation with the distributors in such countries. To ensure the appropriate disposal of capacitor-equipped vehicles in countries where i-ELOOP equipped new models are introduced, Mazda provides related contractors with information on appropriate disposal by attaching a caution label in vehicles and providing a capacitor disposal manual in eight languages on its website, as in the case of cars sold in Japan.

### Europe

Based on the EU Directive, Mazda Motor Europe provides a dismantling manual to recycling contractors when introducing a new model and has established a network to collect used vehicles from their final owners free of charge, in cooperation with the distributors in each country.

### China

A law was enforced in January 2015, in accordance with which local manufacturers are managing substances with environmental impact and developing dismantling manuals.

#### Capacitor disposal manual reference website

<https://www.mazda.com/en/csr/environment/recycle/capacitor/>

## Used parts

### Promoting the Collection and Recycling of Used Parts (in Japan)

Mazda is continuously engaged in the recycling of damaged bumpers replaced for repairs as plastic materials for new vehicle bumpers, etc.

- Recycling of damaged bumpers: Mazda collects bumpers removed for repairs at dealerships throughout Japan, and recycles them for reuse as plastic parts (new vehicle bumpers, undercovers, etc.). In FY March 2019, the Company collected 62,920 bumpers, which were utilized as recycled materials.

## d Capacitor Disposal Manual



# BIODIVERSITY CONSERVATION

## Initiatives for Biodiversity

Endorsing the aims of the “Declaration of Biodiversity by Keidanren (the Japan Business Federation),” Mazda promotes initiatives to protect the global environment.

In FY March 2012, with the aim of systematically developing its initiatives to protect biodiversity, Mazda conducted an assessment of impacts on biodiversity, and recognized the blessings of nature it receives and the significance of the impacts on ecosystems it gives through business activities. In line with this assessment, the Company established the Mazda Biodiversity Guidelines in December 2012 and has been implementing relevant initiatives in cooperation with society.

Based on the results of the above assessment of impacts on biodiversity, Mazda believes that the Company is not so directly connected with biodiversity, although it ensures cooperation with society and implements a wide variety of awareness-raising activities for its employees and other people concerned. In its core business activities, the Company understands that it generates impacts on biodiversity in no small quantities, especially in energy, water, and other resources.

To mitigate such impacts, the Company undertakes a wide variety of efforts in the processes of products, technology, production, and logistics.

In FY March 2019, as in the previous year, Mazda issued a newsletter carrying articles about life forms found during the ecosystem survey conducted at the Miyoshi Plant (Hiroshima Prefecture). Also, the Company's efforts for biodiversity conservation were presented on the occasion of the Miyoshi Commerce and Industry Festival, the Mazda Open Day, and the Hiroshima Environment Day.

a

### a Process for Assessment of Impacts on Biodiversity

- Step 1: Selecting an assessment target scope  
(The assumption is that an assessment will be made for companies with major impacts in the value chain.)
- Step 2: Assessing the levels of the dependence and impacts on ecosystem services, as well as assessing the threat to biodiversity
- Step 3: Identifying business risks and opportunities regarding biodiversity
- Step 4: Identifying priority issues and assessing the current situations of the existing responses
- Step 5: Identifying a direction for future responses

### The Mazda Biodiversity Guidelines

#### [Basic Approach]

Based on “The Mazda Global Environmental Charter,” the Mazda Group, recognizing the blessings of nature and the significance of environmental impacts, contributes to the conservation of biodiversity through its corporate activities worldwide, with the aim of establishing and developing a rich, sustainable society that ensures harmony between people and nature.

#### [Priority Initiatives]

#### 1. Creation of Environmentally Sound Technologies and Products

We will encourage the creation of technologies and products considering harmony between the environment and our corporate activities, by developing technologies that contribute to cleaner emission gases, reduction of CO<sub>2</sub> emissions, research and development of clean energy-based vehicles, promotion of recycling and biodiversity.

#### 2. Corporate Activities in Consideration of Conserving Resources and Energy

We will promote reduction of substances with environmental impact and effective use of resources, and contribute to conservation of biodiversity, through efficient energy use and resource-saving/recycling activities.

#### 3. Collaboration/Cooperation with Society and Local Communities

We will promote local community-based activities, by striving to establish collaboration/cooperation with a wide range of stakeholders including supply chains, local governments, communities, NPOs/NGOs, and education and research institutions.

#### 4. Awareness Enhancement and Information Disclosure

We will take active and self-initiative actions and disclose and share the achievements widely to society, by striving to enhance awareness of the importance of coexistence between people and nature.

Established in December 2012

### Examples of Initiatives

Creation of Environmentally Sound Technologies and Products	<ul style="list-style-type: none"> <li>• Improving the base technologies comprehensively through the introduction of Skyactiv Technology (see p. 121)</li> <li>• Electric vehicles (see pp. 13-15)</li> <li>• Developing and designing product with consideration for recycling (see p. 68)</li> </ul>
Corporate Activities in Consideration of Conserving Resources and Energy	<ul style="list-style-type: none"> <li>• Improving the facility operation rate and shortening the cycle time in the production process (see p. 70)</li> <li>• Introducing hub-and-spoke system for transportation of completed vehicles and service parts (see p. 71)</li> <li>• Assessing and considering the impact on biodiversity when constructing a new plant</li> </ul>
Collaboration/Cooperation with Society and Local Communities	<ul style="list-style-type: none"> <li>• Promoting the preservation of forests, the protection of rare species, and the protection of habitats of migratory birds<sup>*1</sup></li> </ul>
Awareness Enhancement and Information Disclosure	<ul style="list-style-type: none"> <li>• Activities through the Mazda Foundation<sup>*1</sup></li> <li>• Educating employees</li> <li>• Introducing the activities to the inside and outside of the company through the Mazda Sustainability Report etc.</li> </ul>

<sup>\*1</sup> United States <https://www.mazdafoundation.org/>  
Australia <http://mazdafoundation.org.au/>  
New Zealand <https://mazdafoundation.org.nz/>

# ENVIRONMENTAL COMMUNICATION

Under the Mazda Global Environmental Charter, Mazda carries out a wide variety of environmental protection activities related to products and technologies; manufacturing, logistics, and office operations; and social contributions.

The Company appropriately discloses information on each of these activities, and ensures opportunities for dialogue with the stakeholders concerned, thereby striving to respond promptly and appropriately to social problems.\*<sup>1</sup>

## Participation in Environmental Exhibits and Events

Mazda actively participates in various environment-related exhibitions and events, for the purpose of gaining stakeholders' understanding regarding its environmental initiatives and hearing their broad range of opinions. Mazda adopts a wide range of approaches to communicate about the environment, such as introducing its advanced environmental technologies at motor shows all over the world and offering test-drives of its vehicles equipped with Skyactiv Technology at various events held in and outside Japan.

## Reducing Environmental Impact Generated by Communication Activities

Mazda has been working to reduce the environmental impact generated by its communication activities.

### Environmental considerations in event operation

- Reusing/recycling booth decorating items
- Decreasing the amount of handouts to reduce CO<sub>2</sub> emissions
- Implementing carbon offsetting by calculating CO<sub>2</sub> emissions from event activities

### Environmental considerations in publishing materials

- Adopting FSC-certified paper, waterless printing, and vegetable oil ink
- Implementing carbon offset by calculating CO<sub>2</sub> emissions from the printing and bookbinding processes

## Use of Website and Publishing Materials

Mazda ensures environmental communication in a wide variety of ways in consideration of matters of interest that each stakeholder may have and media that he/she may frequently use.

Mazda uses images and computer graphics on its website in order to provide easy-to-understand explanations of environmental technologies. Reinforcing the use of social media, the Company disseminates information in a timely manner, and uses the comments provided to the Company for its daily operations.

For the Mazda Sustainability Report, the Company has prepared in-depth/digest versions, as well as PDF/Website/booklet versions, in consideration of stakeholders' needs regarding the edition method/media to be used. The results of the collected questionnaires and the number of visitors to the website are provided to the executive officer in charge of related affairs, as well as to production members, as feedback, and used for planning the next fiscal year's version.

\*<sup>1</sup> Refer to the following URL for social contribution activities regarding environmental communications by the Mazda Group:  
<https://www.mazda.com/en/csr/social/>



## In-House Awareness-Raising Activities

To raise environmental awareness among its employees, Mazda conducted a wide range of activities in FY March 2019 including the following.

### Eco Walk Commuting Program

In order to raise employees' environmental consciousness and encourage them to take better care of their health, employees who walk two kilometers or more as part of their daily commute to work are rewarded with an addition of 1,500 yen per month to their commuting allowance.

### Lunchtime Lighting Halved

Efforts to reduce lighting in Mazda offices and plants during lunch breaks to half the normal levels have continuously been promoted.

### Light-Down Campaign

(Participation by companies/facilities)

- CO<sub>2</sub> Reduction/Light-Down Campaign promoted by the Ministry of the Environment  
Mazda and its domestic Group companies participated in the CO<sub>2</sub> Reduction/Light-Down (i.e., lights-off) Campaign promoted by the Ministry of the Environment. They turned off the lighting of their signboards and indoor lighting (from 8 p.m. to 10 p.m. on June 21 [summer solstice] and July 7 [Tanabata, or the Star Festival], 2018).

Mazda Motor Corporation shut off the lighting of its signboards and indoor lighting every night from the summer solstice in June to Tanabata, the Star Festival (July 7) (15 sites).

Nation-wide 773 production/business sites of 84 Mazda Group companies in Japan participated in the campaign (on the summer solstice and Tanabata).

This campaign saved 20 thousand kWh of electricity, equivalent to around 10 tons of CO<sub>2</sub> emissions.

- WWF's Earth Hour 2019

Mazda and its domestic Group companies participated in the Earth Hour 2019 event organized by the World Wildlife Fund (WWF).

They turned off the lighting of their signboards and indoor lighting (from 8:30 p.m. to 9:30 p.m. on March 30, 2019).

Mazda Motor Corporation shut off the lighting of its signboards and indoor lighting (15 sites).

Nationwide, a total of 776 production/business sites of 69 Mazda Group companies in Japan shut off the lighting of their signboards and indoor lighting.

Mazda also participated as a supporting company in the WWF's event of shutting off the lighting of the Hiroshima Peace Memorial (Genbaku Dome) in the Hiroshima Peace Memorial Park, as in the previous year.

(Participation by individuals)

- Employees' private participation in the Light-Down campaign

In conjunction with the CO<sub>2</sub> Reduction/Light-Down Campaign promoted by the Ministry of the Environment, Mazda and its domestic Group companies conducted the private Light-Down campaign, in which their employees, family members and friends joined lights-off activities on an individual basis. A total of 40,000 people, including all senior executives and general managers of Mazda Motor Corporation, participated in this private event to turn off their lights (from 8 p.m. to 10 p.m. on June 21 [summer solstice] and July 7 [Tanabata, or the Star Festival], 2018).

This initiative resulted in saving 5,700 kWh of electricity, equivalent to around 3 tons of CO<sub>2</sub> emissions (estimated figures).

### President's Messages during Environment Month

The president transmitted messages to the entire Company during Environment Month (June), emphasizing the importance of thinking about and taking action for the environment.

In FY March 2019, the president placed a special focus on raising employees' awareness of the importance of global warming prevention and biodiversity conservation. The president's message was also disseminated to Group companies in Japan and overseas.

### Environmental Education during Environment Month

To encourage every employee to think about and take action for the environment, educational programs regarding general environmental issues, the importance of biodiversity, Mazda's environmental initiatives, and environmental conservation activities in the workplace have been implemented, in coordination with basic education on ISO 14001.

## a Companies that Participated in the Light-Down Campaign

1.Mazda Motor Corporation	51.Mazda Autozam Kurashiki-Chuo
2.Mazda Ace Co., Ltd.	52.Mazda Autozam Oda
3.Mazda Engineering & Technology Co., Ltd.	53.Mazda Autozam Tonami
4.Toyo Advanced Technologies Co., Ltd.	54.Mazda Autozam Bairin
5.Yoshiwa Kogyo Co., Ltd.	55.Maps Co., Ltd.
6.Kurashiki Kako Co., Ltd.	56.Hiroshima Seimitsu Co., Ltd.
7.Mazda Logistics Co., Ltd.	57.Nishikawa Rubber Co., Ltd.
8.Mazda Processing Chugoku Co., Ltd.	58.Toho Industrial Co., Ltd.
9.Hakodate Mazda Co., Ltd.	59.Japan Climate Systems Corporation
10.Tohoku Mazda Co., Ltd.	60.MCM Energy Service Co., Ltd.
11.Fukushima Mazda Co., Ltd.	61.Kyoto Mazda Co., Ltd.
12.Kitakanto Mazda Co., Ltd.	62.Yamaguchi Mazda Co., Ltd.
13.Koshin Mazda Co., Ltd.	63.Mazda Autozam Miyamoto Obihiro
14.Kanto Mazda Co., Ltd.	64.Mazda Autozam Ebetsu
15.Shizuoka Mazda Co., Ltd.	65.Mazda Autozam Koriyama-Minami
16.Tokai Mazda Co., Ltd.	66.Mazda Autozam Sukagawa
17.Hokuriku Mazda Co., Ltd.	67.Mazda Autozam Tomobe
18.Keiji Mazda Co., Ltd.	68.Mazda Autozam 17
19.Kansai Mazda Co., Ltd.	69.Mazda Autozam Maebashi-Chuo
20.Nishi Shikoku Mazda Co., Ltd.	70.Mazda Autozam Sado
21.Kyushu Mazda Co., Ltd.	71.Mazda Autozam Higashi
22.Minami Kyushu Mazda Co., Ltd.	72.Mazda Autozam Chichibu-Nishi
23.Okinawa Mazda Corporation	73.Mazda Autozam Kashiwa
24.Mazda Chuhan Co., Ltd.	74.Mazda Autozam Ichihara-Kita
25.Mazda Parts Co., Ltd.	75.Mazda Autozam Ayabe
26.Mazda Parts Sales Hiroshima Co., Ltd.	76.Mazda Autozam Susono
27.Aomori-Mazda Automobile Corporation	77.Mazda Autozam Katsuragi
28.Chiba Mazda Co., Ltd.	78.Mazda Autozam Matsue
29.Eunos Horie Co., Ltd.	79.Mazda Autozam Bizen
30.Mazda Odawara Co., Ltd.	80.Mazda Autozam Fuchu
31.Tokyo Mazda Corporation	81.Mazda Autozam Kaita
32.Eunos Sansho Co., Ltd.	82.Mazda Autozam Kure-Kita
33.Osaka Mazda Motor Corporation	83.Mazda Autozam Hofu-Chuo
34.Kobe Mazda Co., Ltd.	84.Delta Kogyo Co., Ltd.
35.Nara Mazda Co., Ltd.	85.Niitech Co., Ltd.
36.Okayama Mazda Co., Ltd.	86.Mazda Parts Sales Yamaguchi Co., Ltd.
37.Hiroshima Mazda Co., Ltd.	87.Mazda Parts Sales Chiba Co., Ltd.
38.Enfini Hiroshima Co., Ltd.	88.Mazda Autozam Isumi
39.Tottori Mazda Co., Ltd.	89.Mazda Autozam Izumi
40.Nagasaki Mazda Co., Ltd.	90.Mazda Autozam Yano
41.Mazda Autozam Nichido-Funabashi	91.Mazda Autozam Ojiya
42.Mazda Autozam Mihara	92.Mazda Autozam Kumagaya
43.Mazda Autozam Asahikawa	93.Mazda Autozam Nagaoka-Nishi
44.Mazda Autozam Yasufuruichi	94.Mazda Autozam Tanagura
45.Mazda Autozam Funabashi-Kita	95.Mazda Autozam Shin-Shirakawa
46.Mazda Autozam Ogaki-Higashi	96.Mazda Autozam Iwase
47.Mazda Autozam Kusunoki	97.Mazda Autozam Tsuyama
48.Mazda Autozam Kashiwanoha-Campus	98.Mazda Autozam Kuse
49.Mazda Autozam Izumo-Hirata	99.Mazda Autozam Yamamoto-Aoba
50.Mazda Autozam Ueda	100.Hiroshima Orizuru Tower

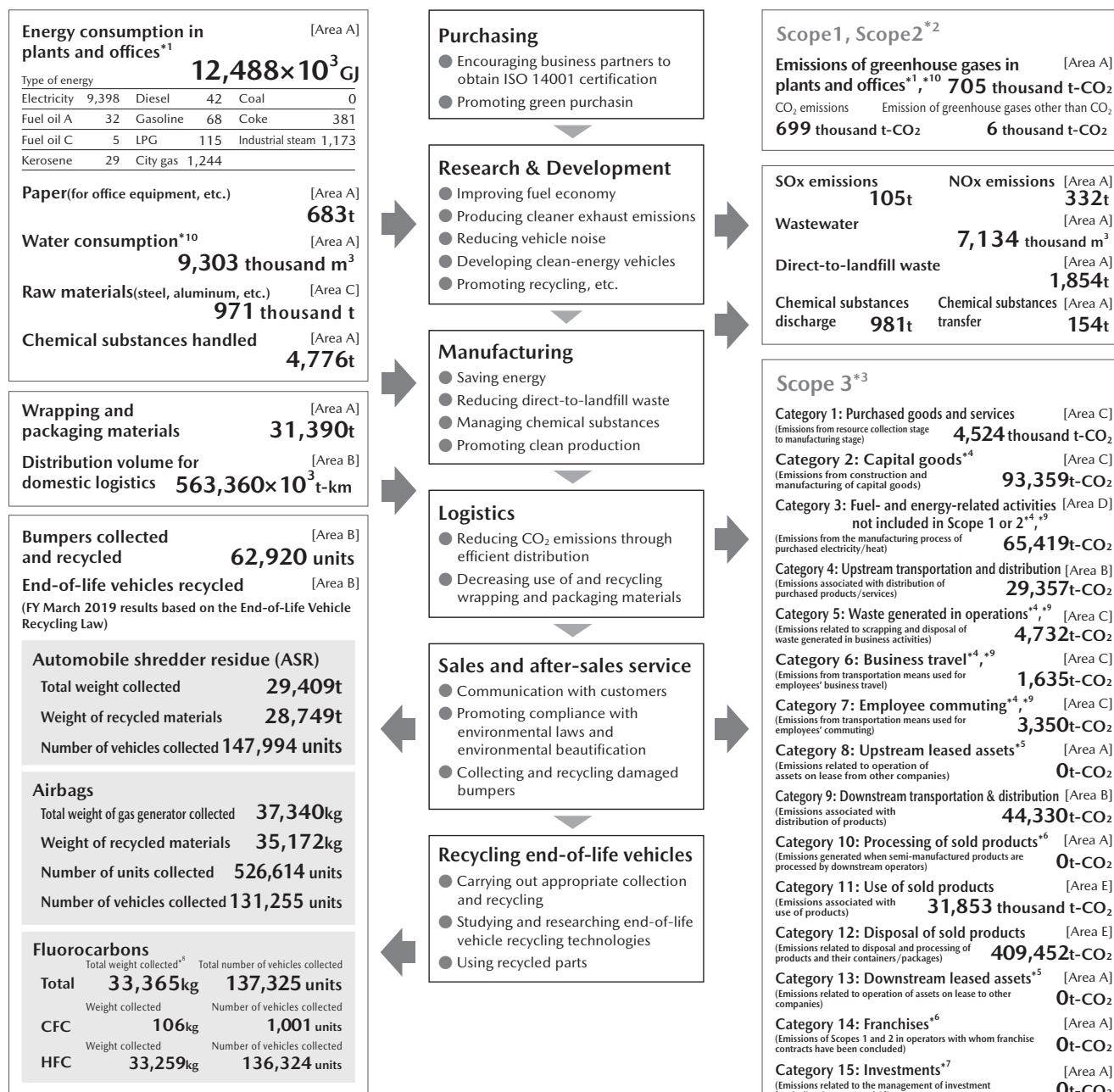
\* Companies No. 59 to 85 participated only in the CO<sub>2</sub> Reduction/Light-Down Campaign by the Ministry of the Environment.

Companies No. 86 to 100 participated only in the WWF's Earth Hour 2019.

# MAZDA'S CORPORATE ACTIVITIES AND IMPACT ON THE ENVIRONMENT

## Results of FY March 2019

Mazda tracks ecological data to help reduce the environmental impact of its corporate activities in all areas.



\*1 Energy consumption, greenhouse gas emissions and distribution volume are calculated using the energy conversion factor and carbon emission coefficient based on the standards of the Japan Automobile Manufacturers Association, Inc. (JAMA) (Commitment to a Low Carbon Society). (For FY March 2019, the FY March 2018 coefficients are used.) Figures for consolidated subsidiaries and equity-method Group companies are prorated based on the percentage equity stake held by Mazda. CO<sub>2</sub> emissions resulting from power consumption by overseas companies are calculated by applying the coefficient used in CO<sub>2</sub> Emissions from Fuel Combustion (2013 Edition) published by International Energy Agency (IEA).

Data collection period: April 2018 to March 2019

Scope of data collection: Area A: Mazda Motor Corporation, 22 domestic consolidated Group companies and eight domestic equity-method Group companies, and 15 overseas consolidated Group companies and five overseas equity-method Group companies. Area B: Mazda Motor Corporation, 22 domestic consolidated Group companies and eight domestic equity-method Group companies. Area C: Mazda Motor Corporation. Area D: Mazda Motor Corporation, four domestic production sites and five overseas production companies (two consolidated Group companies and three equity-method Group companies). Area E: Domestic and major sales regions (North America, Europe and China)

\*2 Scope 1: Direct emissions from consumption of fuels and industrial processes; Scope 2: Emissions associated with consumption of purchased heat/electricity (indirect emissions from energy consumption)

\*3 Scope 3: Other indirect emissions are calculated using Mazda's own calculation method, based on the Ministry of the Environment's emission basic unit database (ver. 2.3, released in December 2017) for organizations to use when calculating greenhouse effect gas emissions generated throughout their supply chains. (Source: [https://www.env.go.jp/earth/ondanka/supply\\_chain/gvc/files/tools/GuideLine\\_ver2.3.pdf](https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/GuideLine_ver2.3.pdf))

\*4 CO<sub>2</sub> emissions are calculated based on the Ministry of the Environment's emission basic unit database (ver. 2.6, released in March 2019) for organizations to use when calculating greenhouse effect gas emissions generated throughout their supply chains. (Source: [https://www.env.go.jp/earth/ondanka/supply\\_chain/gvc/files/tools/DB\\_V2-6.xlsx](https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/DB_V2-6.xlsx))

\*5 Category 8: Upstream leased assets, Category 13: Downstream leased assets are included in the greenhouse gas emissions in plants and offices.

\*6 Category 10: Processing of sold products is omitted because the emission volume is very small, Category 14: Franchises are omitted because Mazda has no franchise system.

\*7 Category 15: Investments, for group companies, are included in the greenhouse gas emissions in plants and offices.

\*8 The total figure may not match the sum of the individual items due to rounding.

\*9 Figures assured by a third-party (see p. 133).

\*10 Including figures assured by a third-party (see p. 133).

**Period of Data Collection: FY March 2019 (April 2018–March 2019)****Boundary of Data Collection**

**Mazda Motor Corporation** Hiroshima Head Office, Hiroshima Plant, Miyoshi Plant, Hofu Plant (Nishinoura district), Hofu Plant (Nakanoseki district), Tokyo Office, Osaka Fleet Sales Gr., Mazda R&D Center Yokohama, Hokkaido Kenbuchi Proving Ground, Hokkaido Nakasatsunai Proving Ground, Mine Proving Ground, Parts Centers (2 sites), Mazda Technical Service Centers (6 sites), Mazda Training Centers (2 sites), Mazda Saka Studio, Mazda Education Center, IT Solution Division (Ozu Building), Mazda Hospital

**Consolidated Group companies**

**22 domestic companies** Manufacturing companies: Mazda Ace Co., Ltd., Mazda Logistics Co., Ltd., Kurashiki Kako Co., Ltd., Mazda Engineering & Technology Co., Ltd. Sales companies: Hakodate Mazda Co., Ltd., Tohoku Mazda Co., Ltd., Fukushima Mazda Co., Ltd., Kitakanto Mazda Co., Ltd., Koushin Mazda Co., Ltd., Kanto Mazda Co., Ltd., Shizuoka Mazda Co., Ltd., Tokai Mazda Sales Co., Ltd., Hokuriku Mazda Co., Ltd., Keiji Mazda Co., Ltd., Kansai Mazda Co., Ltd., Nishi-Shikoku Mazda Co., Ltd., Kyushu Mazda Co., Ltd., Minami-Kyushu Mazda Co., Ltd., Okinawa Mazda Sales Co., Ltd., Mazda Chuhan Co., Ltd., Mazda Motor International Parts sales company: Mazda Parts Co., Ltd.

**15 overseas companies** Mazda Motor of America, Inc., Mazda Canada, Inc., Mazda Motor Manufacturing de Mexico S.A. de C.V., Mazda Motors (Deutschland) GmbH, Mazda Motor Europe GmbH, Mazda Motors UK Ltd., Mazda Motor Russia, OOO, Mazda Southern Africa (Pty) Ltd., Mazda Australia Pty Ltd., Mazda Motors of New Zealand Ltd., Mazda de Colombia S.A.S, Mazda Powertrain Manufacturing (Thailand) Co., Ltd., Mazda Sales (Thailand) Co., Ltd., Mazda Motor (China) Co., Ltd., Mazda Motor Taiwan Co., Ltd.

**Equity-Method Group Companies**

**8 domestic companies** Toyo Advanced Technologies Co., Ltd., Japan Climate Systems Corporation, Yoshiwa Kogyo Co., Ltd., Sanfrece Hiroshima FC, Mazda Processing Chugoku Co., Ltd., SMM Auto Finance, Inc., MCM Energy Service Co., Ltd., Mazda Parts Sales Hiroshima Co., Ltd.

**5 overseas companies** Mazda Sollers Manufacturing Rus LLC, AutoAlliance (Thailand) Co., Ltd., Changan Mazda Automobile Co., Ltd., Changan Ford Mazda Engines Co., Ltd., FAW Mazda Motor Sales Co., Ltd.

# RESPECT FOR PEOPLE

Mazda aims to be a company staffed by people who enjoy their work. To this end, the Company promotes personal development revolving the principles of the Mazda Way. Mazda also regards respect for human rights as fundamental to its corporate activities, and is actively and sincerely committed to human rights protection activities.

## CONTENTS

### 85 Initiatives with Employees

### 96 Human Rights

## CSR Targets for FY March 2020

(Self-assessment key ○ : Accomplished, △ : Nearly accomplished, × : Not accomplished)

Items	FY March 2019 targets	FY March 2019 results	Self-assessment	FY March 2020 targets	ISO 26000 core subjects
Achieving of diversity	Continue to respect the diversity of employees. ① Continue and evolve training and effective development of top management in each region. ② Steadily implement plans for training female managers, toward achieving the target number of female managers.* <sup>1</sup> ③ Promote employment of people with special needs, encourage employment of intellectually challenged people and expand their opportunities, toward achieving the legally required percentage of employees with special needs (which was raised to 2.2%.) <sup>1</sup>	① Held meetings (twice a year) aimed to formulate a plan for developing successors of top management of Group companies, and implemented collective training and project work for successor candidates. ② Specified highly promising female candidates at the assistant manager level for management positions in the future, and drew up individual development plans for them. Progress is continuously followed up by each division and the Personal Development Committee 2 (PDC2). (Number of female middle managers: 45; percentage of female managers [middle management and above]: 3.1%)* <sup>1</sup> ③ Continued to actively promote employment of people with special needs, particularly intellectually challenged people (19 people were hired in FY March 2019), and to expand their opportunities. However, the percentage of employees with special needs stood at 2.11%, falling short of the legally required percentage.	①○ ②○ ③△	Continue to respect the diversity of employees. ① Continue and evolve training and effective development of top management in each region. ② Steadily implement plans for training female managers, toward achieving the target number of female managers.* <sup>1</sup> ③ Continue to promote employment of people with special needs, toward achieving the legally required percentage of employees with special needs (2.2%) at the earliest possible time.* <sup>1</sup>	6.3 Human rights
Human resource development	Strengthen initiatives to promote understanding of brand value management and its practice, and check the progress of these initiatives. ① Hold the MBLD#15 session themed on the implementation of brand value management practices. ② Start training for managers themed on what they should implement, to achieve dual goals—jobs (tasks) that lead to providing value to customers, and improvement in the level of members' job satisfaction.* <sup>1</sup>	① Held the MBLD#15 session in December 2018. ② Training for managers is scheduled to start in FY March 2020, after the program contents are formulated.	①○ ②○	Promote understanding of what Mazda's unique human resources and organization should be, and strengthen initiatives to take practical action to achieve the ideal state. ① Hold the MBLD#16 session themed on realizing the development of Mazda's unique human resources and organizations. ② Start training for managers to learn about what they should be and to practice what they should do, toward realizing the development of Mazda's unique human resources and organizations.	6.4 Labor practices
Work-life balance	Improve the quality of various measures for further implementation of work-life balance.* <sup>1</sup>	*To increase business competitiveness, worked to realize flexible working styles, and improve the environment/measures to enable individual employees to work enjoyably (e.g., by making revisions to the vacation regulations and the flextime working system.) *Almost all employees took at least the minimum number of paid vacation days per year (12 or more days) that was agreed between labor and management.* <sup>1</sup> *Increased both the rate and the average number of paid vacations: to 89%, up 1% from the previous year, to 17.1, up 0.2 days from the previous year.* <sup>1</sup>	○	Improve the quality of various measures for further implementation of work-life balance.* <sup>1</sup>	6.4 Labor practices
Occupational safety and health	Promote activities based on the Safety and Health Management System. ① Continue risk assessment and improvement activities based on the assessment results.* <sup>1</sup> ② Continue system auditing and share best practices with the related divisions.* <sup>1</sup> ③ Achieve Japan's lowest-level workplace accident occurrence ratio, and consolidate the results of workplace accident occurrence surveys of Group companies on a global basis.	① Surveyed/identified dangerous or hazardous factors and then conducted activities to remove/reduce these factors, resulting in a 64% reduction in high-risk factors.* <sup>1</sup> ② Conducted system auditing in all the targeted divisions, and shared the auditing results (improvements and best practices) with related divisions. ③ Total injury frequency rate <sup>2</sup> : 0.32 (improved by 0.1 point from 2017, and ranked 2nd among 14 JAMA companies. However, one serious accident occurred.) Consolidated the results of workplace accident occurrence surveys of Group companies (production sites.)	①○ ②○ ③△	Promote activities based on the Safety and Health Management System. ① Continue to conduct risk assessment and improvement activities based on the assessment results.* <sup>1</sup> ② Continue system auditing and share best practices with the related divisions.* <sup>1</sup> ③ Achieve Japan's lowest-level workplace accident occurrence ratio, and consolidate the results of workplace accident occurrence surveys of Group companies on a global basis.	6.4 Labor practices
Industrial relations	Maintain and improve sound labor relations through mutual respect and communication between labor and management at Mazda Motor Corporation and in each region.	Maintained and improved sound labor relations through mutual communication between labor and management in Mazda Motor Corporation and in each region (resulting in no collective labor disputes.)	○	Maintain and improve sound labor relations through mutual respect and communication between labor and management at Mazda Motor Corporation and in each region.	6.4 Labor practices
Respect for human rights	① Continue to support international initiatives, including the Universal Declaration of Human Rights and the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work. ② Encourage all divisions across the Company, Group companies and suppliers to use materials and manuals of Mazda's human rights awareness raising activities, for human rights meetings and training by level.* <sup>3</sup> including the programs to understand LGBT issues.	① Continued to clarify support for both declarations, in the Mazda Sustainability Report 2018. Continued efforts to realize the principles of the UN Global Compact, such as human rights protection. ② Executed the following activities as scheduled, to raise awareness of human rights* <sup>1</sup> : *As part of LGBT-related initiatives, held training by level and provided human rights mini-lectures, and encouraged Group companies to use materials and manuals designed for Mazda's human rights awareness raising activities. *Held human rights lectures using an external program, for management twice. (Both lectures were themed on human rights issues specific to Japan.) *Held on-site training lectures at the entire Hiroshima Plant. *Held a training program for department/group managers aimed at improving their interpersonal skills.	○	① Continue to support international initiatives, including the Universal Declaration of Human Rights, the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work, and the UN Global Compact. ② Encourage all divisions across the Company, Group companies and suppliers to use materials and manuals of Mazda's human rights awareness raising activities, for human rights meetings and training by level.* <sup>3</sup> including programs to understand LGBT issues.	6.3 Human rights
Due diligence	Continue surveys and follow-up of the status of human rights initiatives throughout the value chain.	Promoted human rights initiatives throughout the value chain, recognized the status of these initiatives, and conducted surveys of these initiatives, as planned. *Applied Mazda materials for human rights meetings to Group companies, dealerships, and parts sales companies in Japan. *Provided advance guidance to employees dispatched to overseas Group companies on local cultures and customs. *Checked the expressions used to disseminate information inside and outside the Company for human rights infringements. *Responded to consultation requests from collaborating companies submitted to the Human Rights Counseling Desk. *Introduced the way the Mazda Global Hotline is managed. *Conducted a questionnaire survey and hearing of local suppliers, regarding the way the Human Rights Counseling Desk was being managed. Also, presented the management method of the Mazda Global Hotline to local suppliers.	○	Continue surveys and follow-up of the status of human rights initiatives throughout the value chain.	6.3 Human rights

\*1 Initiatives at Mazda Motor Corporation (FY March 2019 results, and FY March 2020 targets.)

\*2 Results between January and December 2018. Accident frequency, measured as the number of casualties per million person-hours worked.

\*3 Training programs for new recruits, mid-career hires, new band 5 (assistant manager level) and newly appointed managers.

# INITIATIVES WITH EMPLOYEES

## Basic Approach to Human Resources

Mazda recognizes that people are its most important resource and aims to be a company staffed by people who enjoy their work.

To this end, the Company promotes human resources training based on the Mazda Way principles that are shared throughout the entire Mazda Group worldwide. Also, the Company has established Group-wide human resources policies and measures along with promotion of various initiatives.

## Mazda Way

In FY March 2009, Mazda summarized seven basic principles and values handed down within the Company over time and defined these as the Mazda Way. In FY March 2017, examples of best work practices conducted within the Company were shared to encourage the implementation of such practices, in order to raise awareness of the Mazda Way in each Mazda employee and promote related changes in behavior. Mazda continues to promote measures to ensure that the Mazda Way can easily be put into practice by employees.

## Group-wide Human Resources Policies

Mazda engages in regular communication with Group companies worldwide, and each Group company is working together to create further opportunities for interaction among personnel and cultivate a climate based on a shared point of view.

Overseas Group companies have established a system to conduct management strongly rooted in local communities.\*<sup>1</sup> By appointing locally hired personnel as managers and above, the Company makes global efforts to create a comfortable working environment tailored to the culture of each country and region. Mazda also implements human resources exchanges throughout the Group (short-term personnel exchange program), through the Global PDC (Global Personnel Development Committee) and other measures, to enable a diverse range of employees to succeed on the global stage regardless of their country of origin or place of employment.

### Global Personnel Development Committee\*<sup>2</sup>

Mazda is aiming to provide medium- to long-term training for employees to become leaders in every field of global business and ensure their optimal positioning and performance. Top managements of Mazda Motor Corporation and its Group companies discuss and decide the development and exchange plan for individual personnel in these companies.

### Short-term Personnel Exchange Program

This program is mainly designed for employees in mid-level positions, with the aim of developing human resources who can be immediately effective in global business settings. Suitable employees in the Head Office are exchanged with their counterparts in overseas regions to gain opportunities for overseas business experience for a short term (three to six months). (Total number of employees exchanged from FY March 2011, when the program commenced, to FY March 2019: 34)

### Regular Meetings with Human Resources Managers of Group Companies

- Bimonthly regular meetings with overseas regions
- Annual global human resource meetings with the managements in charge of human resources of major overseas bases
- Half-yearly meetings with domestic Group companies located on the premises of the Head Office (Hiroshima)

## Maintaining Global Employment and Recruitment

The Mazda Group conducts recruitment activities to employ the personnel suited to each country and region. Particularly production sites strive for the maintenance and management of appropriate employment, with an understanding that such practices have great impact on the local economies. In Japan, the Company has maintained the production volumes and related employment at manufacturing sites in Hiroshima and Yamaguchi Prefectures. Overseas, each of the Group companies promotes employment maintenance and recruitment activities tailored to the labor practices of each country/region. At the same time, initiatives are under way to improve the operation rate of plants in Mexico and Thailand, and to establish a new plant in the United States.

a

### a Seven Principles of the Mazda Way

#### ■ INTEGRITY

We keep acting with integrity toward our customers, society, and our own work.

#### ■ BASICS/FLAWLESS EXECUTION

We devote ourselves to the basics, and make steady efforts in a step by step fashion.

#### ■ CONTINUOUS KAIZEN

We continue to improve with wisdom and ingenuity.

#### ■ CHALLENGER SPIRIT

We set a high goal, and keep challenging to achieve it.

#### ■ SELF INITIATIVE

We think and act with "self initiative."

#### ■ TOMOIKU

We learn and teach each other for our mutual growth and success.

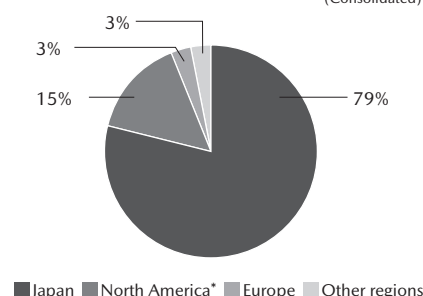
#### ■ ONE MAZDA

We think and act with the view of "Global" and "One Mazda."

b

### b Rate of employees by region

(Consolidated)



\* Including Mexico

### Rate of locally hired personnel assigned to management-level\* in overseas Group companies

(Consolidated)

Employment rate in FY March 2019	76%
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\* Executive officers/divisional general managers

\*1 Countries/regions where Mazda Group companies are located.

\*2 The Personnel Development Committee (PDC) comprises four committees: PDC1 and Global PDC, which cover personnel in domestic and overseas global companies; PDC2, which covers the personnel in middle management of Mazda Motor Corporation; and PDC3, which covers employees of Mazda Motor Corporation excluding PDC1 and PDC2 level.



## Realization of Diversity

Mazda respects the diversity of its employees, and the Company aims to foster a corporate climate in which every employee can express his/her individuality while working alongside others to contribute to the Company and society. Mazda also works on a variety of programs to enable its employees — a diverse range of people with different values and lifestyles — to enjoy their work by finding a healthy balance between their work and personal lives.

### Increasing the Employment and Range of Opportunities for Female Employees\*<sup>1</sup>

Through enhancement of measures promoting work-life balance and other initiatives, Mazda is striving to cultivate a workplace in which women can work comfortably. The Company has set the goal of increasing the number of female middle managers and above to three times the figure as of March 31, 2014 by 2020. To achieve this numerical target, Mazda has promoted initiatives according to voluntary action plans\*<sup>2</sup>. In 2016, the Company submitted these voluntary plans to the authority concerned as the business owner's action plans, based on the Act of Promotion of Women's Participation and Advancement in the Workplace. As of March 2019, the number of female middle managers and above has increased to more than twice the figure in FY March 2014. In the future, Mazda will continue to draw up and implement individual development plans for female candidates for middle and above management positions and also further promote the opportunities for female employees, by improving training and promoting female employee recruitment.

### Employment for Those with Special Needs\*<sup>1</sup>

Mazda steadily and continuously recruits employees with special needs, considering that each employee can demonstrate his/her best performance. In support of a comfortable working environment for employees with special needs, Mazda has established the Physical Challenge Support Desk for consultations.

In FY March 2016, the Company started to employ intellectually challenged people.

Mazda has employed two certified sign-language interpreters as regular employees, to further ensure provision of information to people with hearing impairments (as of April 2019).

In March 2014, the Company was certified as an Ai Support Company/Organization under the Ai Support campaign\*<sup>3</sup>, by Hiroshima Prefecture. Mazda participates in this campaign with the aim of helping realize a society where all people can live in harmony and in comfort, regardless of whether they are with or without special needs. The Company has also registered itself with the "special support school employment support unit Hiroshima" \*<sup>4</sup> to carry out the internship program for intellectually challenged students, as part of its collaboration with the local community to promote employment of people with special needs.

Many employees with special needs have been recognized as Excellent Workers with Disabilities by the Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers.

### Promoting Re-Employment of the Elderly, and Passing on Expertise, Skills, and Know-How\*<sup>1</sup>

Mazda is actively re-employing retired former employees to help them share their expertise, skills, and know-how with younger employees.

Efforts are being made to create a work environment that is fulfilling yet able to balance work and personal life through measures such as reduced work hours and shorter days.

Starting in FY March 2014, Mazda has introduced a system to ensure the continued employment of all post-retirement employees who wish to continue working, in response to the revised Act on Stabilization of Employment of Elderly Persons, which took effect in April 2013.


### Systems to Enable Limited-Term Employees in Manufacturing Operations to Become Fulltime Employees and Mazda Workers' Union Members\*<sup>1</sup>

Mazda is implementing ongoing measures toward the achievement of a workplace in which limited-term employees can feel fulfilled with their work.

A system has been put in place for limited-term employees who have worked for one year or more at Mazda in becoming full-time employees.

In addition, limited-term employees who have worked for six months or more and had their contracts renewed can become members of the Mazda Workers' Union.

Through these and other initiatives, the Company is cultivating a sense of oneness among employees with different employment styles as it aims to cultivate a vibrant environment where employees can enjoy their work.

Employee Data (as of March 31, 2019)  (see p. 134)

		Number of Employees		Average age* <sup>3</sup>	Average years of employment* <sup>3</sup>
		Production / medical	Administrative / engineering		
Non-consolidated* <sup>1</sup>	Male	10,440	10,460	40.4	17.2
	Female	716	1,471	37.5	13.7
	Total	23,087		40.2	16.9
Consolidated* <sup>2</sup> Total		49,998		—	—

\*1 The "Non-consolidated" numbers exclude the number of employees dispatched to Mazda Motor Corporation from other companies, but include the number of Mazda Motor Corporation employees dispatched to other companies.

\*2 The "Consolidated" numbers exclude the number of Mazda Group employees dispatched to companies outside the Group, but include the number of employees dispatched to Mazda Group companies from outside the Group.

\*3 Exclude the number of employees hired under the Expert Family system.

	(Non-consolidated)		
	FY March 2017	FY March 2018	FY March 2019
Number of female employees hired	133	170	200
Number of female managers (assistant manager and above)	190	206	226
Number of female managers (middle management and above)	36	42	45
Percentage of female managers* <sup>1</sup> (assistant manager and above)	4.6%	4.9%	5.3%
Percentage of female managers* <sup>2</sup> (middle management and above)	2.5%	2.9%	3.1%
Number of male managers (middle management and above)	1,419	1,405	1,404
Number of workers aged 60 and over (Expert Family)	1,042	994	958
Percentage of employees with special needs* <sup>3</sup>	2.03% (Legal rate: 2.0%)	2.11% (Legal rate: 2.0%)	2.11% (Legal rate: 2.2%)
Number of employees with special needs* <sup>3</sup>	303	324	337
Average age of managers	52.0	52.2	52.2
Employee turnover rate* <sup>4,5</sup>	2.8%	3.1%	4.0%
Number of new graduates hired (University, college and high school graduates)	Male 449 Female 77	448 94	479 112

\*1 Number of female managers (assistant manager and above) / Number of managers (assistant manager and above)

\*2 Number of female managers (middle management and above) / Number of managers (middle management and above)

\*3 Average number in each fiscal year

\*4 Exclude the number of employees hired under the Expert Family

\*5 The employee turnover rate increased because the Company actively accepted people from overseas Group companies and suppliers as temporary employees, to provide them with training and opportunities (these temporary employees, after leaving Mazda, returned to their original workplaces). The employee turnover rates excluding those dispatched to Mazda from other companies are as follows: 2.6% in FY March 2017, 2.6% in FY March 2018, and 3.0% in FY March 2019.

Global rate of female middle managers and above (Consolidated)

FY March 2019	6.6%
---------------	------

Percentage of female new graduates hired (from FY March 2018 to FY March 2020) (Non-consolidated)

	FY March 2018	FY March 2019	FY March 2020
Administrative	37%	42%	56%
Engineering	15%	15%	12%
Production	11%	12%	13%

 Subject to independent third-party assurance

\*1 Initiatives at Mazda Motor Corporation

\*2 "Mazda Promoting Active Participation of Female Employees" [https://www2.mazda.com/en/csr/csr\\_vision/employee/pdf/diversity.pdf](https://www2.mazda.com/en/csr/csr_vision/employee/pdf/diversity.pdf)

\*3 "Ai" is Love in English. The Ai Support campaign is intended to certify companies and organizations that recommend their employees to read the textbook "Let's Learn about and Live with People with Special Needs," and to participate in Ai Supporter training programs.

\*4 A program to promote the employment of special school students through collaboration between local companies and Hiroshima Prefecture.



## Global Employee Survey

C

Mazda has conducted employee surveys on a continual basis. These surveys are intended to identify employees' work motivation and the conditions in the environment supporting such motivation, and the results are used to make further improvements.

The survey results are reported to top managements of Mazda and its Group companies at home and abroad, and the major contents are disclosed to employees. The results for each division/company are fed back to its management-level members, who are thereby encouraged to develop improvement plans as part of the PDCA (plan-do-check-act) cycle.

To more accurately grasp the state of human resources and organizations that contribute to the realization of its corporate vision, Mazda revised the survey items in FY March 2018. The revised survey was commenced in May 2018.

### Percentage of Positive Responses in Global Employee Survey Results

(Consolidated)

	FY March 2019
I feel inspired/driven to achieve more than what is expected of me.	66%
I understand my role in helping the company be successful.	64%
I propose and implement new or better ways of working that enable me to deliver Mazda's brand philosophy and vision	45%

### C Examples of Improvement Measures at Workplaces Based on Survey Results

- Organizing divisional town hall meetings (for explanation of strategies/policies and holding discussions) and meetings with senior management
- Promoting idea sharing and strengthening teamwork by activating small-group activities

## Best Match of People, Work and Rewards

d e

Mazda has put in place a system to ensure that each employee understands their work evaluation results and ability level assessments, and feels that their growth and performance are appropriately reflected in their compensation. Specifically, since 2003, instead of using gender, age, nationality, or years of service as criteria, employees are graded according to their ability level (production and medical staff) and work level (administrative and engineering staff), so that individual employee's performances are directly reflected in their base salaries and bonuses. In wage determination, Mazda is not only in compliance with local laws and regulations in each region both in Japan and overseas, but also taking industry standards into consideration.

### d Average yearly salary

(Non-consolidated)

	FY March 2017	FY March 2018	FY March 2019
Total	6,846,000 yen	6,803,000 yen	6,769,000 yen

### e Average salary by gender

(Non-consolidated, in April 2019)

	Male	Female
Middle management and above positions	644,358 yen	580,986 yen
General employees	308,422 yen	290,278 yen

## Creating a Working Environment that Enables Each Employee's Successful Performance

Mazda strives to create a working environment where each employee can continue to proactively work and succeed. Specifically, the Company promotes the introduction of a system that encourages flexible and diverse work styles, reduction of working (overtime) hours through the effective use of information technology, and development of career plans for employees' continued success. In FY March 2019, as a measure to promote diverse work styles, Mazda made a trial of a satellite office (telework) system. For these initiatives, Mazda won the Award of Excellence of the 1st Platinum Career Award.\*1

\*1 The Platinum Career Award, hosted by Toyo Keizai Inc., recognizes enterprises that support their employees in developing and pursuing the "platinum career." The award winners are selected from three viewpoints: long-term perspectives, autonomous learning, and social contributions.

## Choice and Self-Accomplishment

Mazda provides various opportunities for employees to take the initiative in setting their own growth and performance goals and doing their best to achieve them, so that ultimately, such efforts will bring great results to the Company. Mazda offers a range of education and training programs to assist employees in developing their careers and improving their skills according to their job types and positions. These programs are for Mazda and its Group companies in Japan and overseas to manufacture and sell products of the same quality in all countries and regions, by sharing the same objectives.

f

### f Education/training results in FY March 2019

(Non-consolidated)

Average days of training per person	8.7 days/year
Average training cost per person	137,500 yen/year
Number of employees that received training	19,600 employees/year

### Major Education and Training Programs

Name of education and training program	Duration, frequency, etc.	Target	Objective	Content of training	Remarks
Mazda Business Leader Development (MBLD)	Once a year	All Group employees in Japan and overseas	<ul style="list-style-type: none"> <li>To communicate the intention of the top management</li> <li>To cultivate business leaders at all levels who have a company-wide perspective</li> <li>To reform the corporate culture and climate</li> </ul>	Regarding management issues and the future direction of the Company, message from the management team is delivered. The understanding and the future execution of the message through active participation by all employees is promoted	Commenced in 2000. Since FY March 2013, the program has been annually implemented on the theme of "Brand Value Management."
Global Business Leader Program	As needed	Employees selected from Mazda Group companies around the world	To hone skills in areas including leadership, broadness of vision, and the ability to think strategically, and train the next generation of business operators to take the lead in global business	The program features practical activities such as communication with top business leaders and engagement as a team on management issues	Inaugurated in FY March 2016
Human Resource Development at Global Production Sites	As needed	Management and production staff at overseas production sites	To provide basic training by level to employees working at overseas production sites	<ul style="list-style-type: none"> <li>Management training</li> <li>Supervisor education program</li> <li>Technical skills training</li> <li>Karakuri Kaizen training</li> </ul>	—
Training by level*1	As needed	Administrative and engineering staff*1	To encourage employees to reconfirm their roles at each level, and consider how they can help improve the organizational strength of the Company	<ul style="list-style-type: none"> <li>Training for new employees</li> <li>Training for third-year employees</li> <li>Training for band 6 employees</li> <li>Training for managers and team leaders</li> <li>Training for general managers</li> </ul> Each training program is designed to promote changes in the employees' ways of thinking, through group discussion among members from different departments.	—
Management skill training*1	When newly appointed	Newly appointed senior managers, new band 5 employees (assistant manager level)*1	To develop trainees' awareness and sense of responsibility as managers and urge them to acquire a companywide perspective, thereby altering their mindset toward their own roles	Mazda Way, CSR, compliance, internal controls, personnel management, human rights, safety and health, etc.	—
Production Leader Training Program*1	As needed	Foreman/Assistant Foreman/Team Leader candidates*1	To develop trainees' abilities to recognize and resolve problems, management improvement skills, and leadership capabilities and other skills required to work as a leader at each level	<ul style="list-style-type: none"> <li>Super leader training</li> <li>Senior leader training</li> <li>Team leader training</li> <li>Junior leader training</li> </ul>	—
WorldSkills Competition Training Program*1	Two years /12 employees	Selected employees in the production field who are under 21 years old*1	<ul style="list-style-type: none"> <li>Systematic training of young engineers</li> <li>Training participants to compete in the regional, national and international WorldSkills competitions</li> </ul>	Employees are trained in special skills so as to participate in the WorldSkills competition	Results of FY March 2019 Gold, silver and bronze medals in Sheet Metal Technology Bronze medal in Car Painting Bronze medal in Autobody Repair 1 of each 1 1
Advanced Technical Skills Training course*1*2	As needed	Selected highly skilled employees*1	To preserve the advanced technical skills necessary for manufacturing and hand them down from one generation of craftspeople to the next	<ul style="list-style-type: none"> <li>During the two-year program, one expert trains two apprentices</li> <li>After completing the course, the expert is awarded the title of Production Engineering Meister and receive the Meister Badge</li> </ul>	Cumulative Results since 1996 Number of employees completing the course Production Engineering Meisters Hiroshima Prefecture award winning skilled workers Contemporary Master Craftspeople Medal with Yellow Ribbon recipients 129 61 16 15 15
Welding Skills Training Program*1	As needed	Welding technicians	<ul style="list-style-type: none"> <li>To train technicians to compete in the regional and national competitions</li> <li>To promote the growth of individual technicians, pass on skills within Mazda and raise standards</li> </ul>	Specialized training is conducted with the goal of sending welding technicians to compete in the national championships	Inaugurated in 1982 (Figures below are the cumulative numbers) National competition winners Prize recipients 9 37

\*1 Initiatives at Mazda Motor Corporation

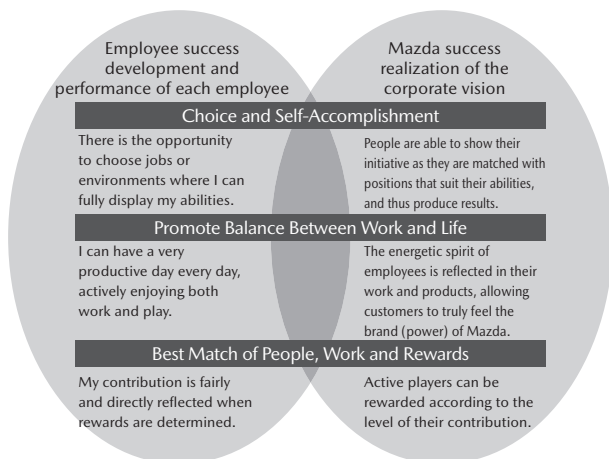
\*2 Twenty-four courses comprising skills to pass on to new engineers are available in 13 fields: iron and casting, die casting, casting, powder alloys, heat treatment, machining, engine assembly, axle assembly, transmission assembly, press, chassis, painting, and vehicle assembly

## Human Resources System to Provide Appropriate Jobs and Environments\*<sup>1</sup>

Mazda uses the Tobiuo Human Resources System to provide the appropriate jobs and environments where each employee can demonstrate their best performance and to support their development and success.

Specifically, a wide variety of human resource measures are actively deployed based on the system's three pillars of "Choice and Self-Accomplishment," "Promote Balance between Work and Life," and "Best Match of People, Work and Rewards."

### The Three Pillars of *Tobiuo*



### Career Meetings\*<sup>1</sup>

At Mazda, opportunities for formal communication are provided for all employees through one-on-one career meetings between supervisors and their staff, held four times a year. The things that employees should do, the specific targets and broad goals expected by supervisors are combined with the employees' personal goals as well as the things they hope to, and can achieve, enabling supervisors and their staff to understand each other and proceed to set common half-yearly targets. In light of these targets, they also reflect on their work accomplishments to clarify the issues to be addressed and set the next targets. Through these activities, employees' successful performance in the next half of the year and their further personal development are encouraged. Furthermore, the feedback on the competency evaluation results are utilized to help employees review their own work attitude and behavior, in order to facilitate their personal development.

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#### Main Themes of Career Meetings

Discussions to encourage personal development:

Confirm vision of future upon accomplishment of goals, determine abilities to refine through work and activities to undertake, monitor rate of improvement

Discussions to encourage performance:

Determine work-related targets, confirm progress toward meeting targets, share present and future issues

Ratio of career meetings held

FY March 2019

90.8% of all applicable employees

### Competency Evaluation System\*<sup>1</sup>

Once a year, Mazda carries out a competency evaluation, through which the work attitude and behavior of administrative and engineering staff are evaluated. Based on the seven principles of the Mazda Way, a subjective evaluation is carried out to assess the work attitude and behavior that individual employees are expected to improve (competency evaluation items), from the employees' own perspectives and from the perspectives of their supervisors, and for managers and above, also from the perspective of subordinates/colleagues/partner companies (multidimensional feedback). Feedback on the evaluation results is given to employees by supervisors at the career meetings, at which they discuss future issues to be addressed. The competency evaluation system is used as an effective tool for supporting employees' personal development and successful performance. The evaluation results are used as a reference for effective company-wide positioning of personnel.

\*<sup>1</sup> Initiatives at Mazda Motor Corporation

## OJT Coach System\*<sup>1</sup>

Mazda has introduced the OJT (on-the-job-training) coach system for all new employees in administrative and engineering positions since FY March 2012. Typically a senior employee who shares a workplace with the new hire is assigned as an OJT coach providing the job related advices to each new hire. The purposes of this system are to train new employees, foster the coach's growth, and energize the workplace.

## Career Challenge (In-House Recruitment / FA) System\*<sup>1</sup>

As part of the Career Challenge System (for employees' career development assistance), an in-house recruitment system has been implemented. Briefing sessions on in-house recruitment are held, attracting many participants who considered applications for the system. They actively exchange information with the personnel from various departments that called for applicants for specific assignments. Each time applications are invited, there are a large number of applicants. Mazda will continue to periodically implement this system to provide employees with an opportunity to think about their own career development.

### In-house recruitment

A system where the Company releases details on occupational experience and skill requirements for the specific assignments so that the appropriate employees are able to apply for a particular job

### FA (Free Agent) System

A system where employees release their abilities and career history via the FA Declaration in order to challenge the job in a different field of work or department using their accumulated skills and experience

## Mazda Technical College (Two-Year Course)\*<sup>1</sup>

Mazda Technical College, approved by the Ministry of Health, Labour and Welfare, is an in-house education institution offering courses to high school graduates and selected employees in order to cultivate human resources that can play a central role in manufacturing at Mazda. Those who complete the two-year program are assigned to production and manufacturing related divisions, and thrive at various manufacturing sites and in a range of situations.

- Number of present students: 104 (as of April 1, 2019)\*<sup>2</sup>
- Total number of graduates (among present employees): 1,539 (from April 1988 to March 2019)

## Promotion of Work-Life Balance\*<sup>1</sup>

Mazda is working on a variety of programs to enable its employees — a diverse range of people with different values and lifestyles — to enjoy their work and find a healthy balance between their work and personal lives. To promote understanding of various measures to help employees achieve a better life-work balance (see p. 91), the Company provides explanations in management skills training programs, and in the section "Compass for Work and Rewards of Employees" on the Intranet about support measures designed for each life event.

\*<sup>1</sup> Initiatives at Mazda Motor Corporation

\*<sup>2</sup> Including 15 students from Group companies

## Major Measures to Promote Work-Life Balance and Diversity in the Workplace

(Non-Consolidated)

System	Description (as of March 31, 2019)	Started	FY March 2017	FY March 2018	FY March 2019
Maternal care paid leave	This system allows female employees who are pregnant and have difficulty performing their duties due to morning sickness or other feelings of discomfort to take paid leave for the necessary amount of time.	Aug. 2008	47 beneficiaries (845 days)	36 beneficiaries (825 days)	32 beneficiaries (691 days)
Child-rearing paid leave	This system allows employees to take up to five consecutive working days off, following childbirth or for child-rearing.	Aug. 2008 <sup>*1</sup>	2,474 days (546 beneficiaries) Including 30 non-regular employees Male: 1,876 days (429 beneficiaries) Female: 598 days (117 beneficiaries)	2,164 days (481 beneficiaries) Including 35 non-regular employees Male: 1,742 days (394 beneficiaries) Female: 422 days (87 beneficiaries)	2,212 days (481 beneficiaries) Including 34 non-regular employees Male: 1,823 days (402 beneficiaries) Female: 389 days (79 beneficiaries)
Child-rearing leave	This system supports unpaid leave for child-rearing for children up to 3 years old. It is possible to take leave in installments. (Legal requirement: Up to one year old.)	Jan. 1991	300 beneficiaries (including 14 male) Rate of reinstatement after childrearing leave: 98% Rate of retention one-year after childrearing leave: 85%	269 beneficiaries (including 13 male) Rate of reinstatement after childrearing leave: 98% Rate of retention one-year after childrearing leave: 96%	253 beneficiaries (including 17 male) Rate of reinstatement after childrearing leave: 99% Rate of retention one-year after childrearing leave: 95%
Nursing care leave	This system allows employees with eligible family members requiring nursing care to take a leave of absence (maximum length of 1 year). (Legal requirement: up to total of 93 days per eligible family member.)	Jan. 1992	2 beneficiaries (including 1 male)	11 beneficiaries (including 5 male)	14 beneficiaries (including 9 male)
Special working arrangements for employees involved with child-rearing or nursing	This system allows employees involved with nursing or childrearing (until end of child's sixth year of primary school) to reduce work hours, be excused from overtime and holiday work, etc. (Legal requirement regarding work hour reduction: until the child reaches 3 years old.)	Apr. 1999	Employees with reduced working hours For child-rearing: 369 For nursing care: 6	Employees with reduced working hours For child-rearing: 392 For nursing care: 8	Employees with reduced working hours For child-rearing: 445 For nursing care: 18
Work-at-home system	This system enables employees to perform up to 25% of their work hours at home for the purpose of childrearing or nursing care, or when working at home will raise work efficiency.	Aug. 2008	149 beneficiaries	265 beneficiaries	766 beneficiaries <sup>*2</sup>
Special Warm Heart leave system	A paid-leave system covers nursing care for relatives, volunteer work, functions at one's child's school, and infertility treatment "Volunteer work" here refers to the following: •Social welfare (welfare services for children, for elderly people and for people with disabilities, etc.) •Environmental protection (forest preservation, recycling activities, etc.) •Interaction and cooperation with communities (participation in community events, support for activities of children's associations, crime prevention activities, etc.) •International friendship activities (welcoming home stay guests, interpretation service, etc.) •Health and medical volunteering (health care instructions, donor activities, etc.) •Disaster relief •Acquisition of qualifications, skills and knowledge that are useful in volunteer activities •Support for sports activities (sports coaching, organizing sports events, etc.) * Note that activities related to specific political and religious beliefs are not included in volunteer work.	Aug. 2008 <sup>*1</sup>	503 beneficiaries (2,598 days) Male: 229 beneficiaries (1,593 days) Female: 274 beneficiaries (1,005 days) For nursing care for relatives 377 beneficiaries (1,786 days) Including 30 non-regular employees Male: 165 beneficiaries (780 days) Female: 212 beneficiaries (1,006 days)	769 beneficiaries (3,051 days) Male: 448 beneficiaries (1,476 days) Female: 321 beneficiaries (1,575 days) For nursing care for relatives 411 beneficiaries (1,758 days) Including 34 non-regular employees Male: 158 beneficiaries (724 days) Female: 253 beneficiaries (1,034 days)	1,017 beneficiaries (4,391 days) <sup>*2</sup> Male: 655 beneficiaries (2,334 days) Female: 362 beneficiaries (2,057 days) For nursing care for relatives 552 beneficiaries (2,238 days) Including 48 non-regular employees Male: 256 beneficiaries (1,270 days) Female: 296 beneficiaries (978 days)
Onsite daycare center:Mazda Waku Waku Kids En	This daycare center was established for employees' children who have not yet entered school. A permanently stationed nurse is available to look after children who become ill.	Apr. 2002	Preschoolers: 47	Preschoolers: 47	Preschoolers: 47
Challenging Career leave	In order to increase future career potential, employees can use this system to take leave for up to three years while attending a school or other training facilities.	Oct. 2003	2 beneficiaries	2 beneficiaries	1 beneficiary
Leave for employees accompanying a transferred family member	This system allows employees to take a fixed-term leave in order to accompany a spouse who has been transferred, allowing the employee to resume their career at Mazda later on.	Oct. 2003	22 beneficiaries	15 beneficiaries	18 beneficiaries
Re-employment Systems	This system provides an opportunity for former Mazda employees who left the Company due to marriage, child-rearing, nursing care, or other reasons to return to work if they desire.	Aug. 2008	4 registrants	2 registrants	2 registrants
Expert Family System	This system enables interested individuals who meet a certain standard of abilities and experience to be rehired as engineers, advisors to younger engineers (to pass on their knowledge), specialists or in other positions following their retirement at the mandatory retirement age.	Apr. 2006	201 hires	180 hires	205 hires
Super-Flextime Working System (with no set core working hours)	This system was introduced to maximize results by supporting a balance between each employee's private life and working life. Under this flextime working system, the employees can setup days of not showing up to their workplace.	Oct. 2000	Used at 80% of administrative and engineering field workplaces	Used at 80% of administrative and engineering field workplaces	Used at 80% of administrative and engineering field workplaces
Go Home Early Campaign	By streamlining operations, the Company has reduced the long working hours for divisions not directly connected with production. Examples of this initiative include no-overtime days and setting mandatory lights-out times. (Information about the overtime hours is reported back to management of each division, once in three months to implement the PDCA cycle.)	Sep. 2007	Ongoing	Ongoing	Ongoing
Paid Leave for JICA Activities	Employees participating in Japan International Cooperation Agency (JICA) volunteer activities are entitled to take paid leave for these activities.	Apr. 2007	—	—	—
Mazda Flex Benefit System	This is a selective benefit system. Individual employees can seek the type of assistance that most suits them by choosing from a number of preset benefit options within the points they have. Livelihood support, capacity development, childrearing, nursing care, social contributions, hobbies, etc.	Oct. 2001	All employees	All employees	All employees
Benefit program to support employees' environmental protection and social contribution activities	As part of the Mazda Flex Benefit System, employees can apply their points toward compensation for the costs incurred during volunteer activities they perform. This system is also extended to employees who take a leave of absence to participate in JICA activities.	Oct. 2001	19 instances 415,800 yen	14 instances 201,800 yen	12 instances 297,500 yen
Promotion of planned use of paid leave	Labor and management cooperate to streamline and standardize work processes, helping to create an environment in which employees take the initiative in planning for and using their paid vacation days (vacation may be taken in 0.5 day increments).	Ongoing	Rate of vacation day use: 86% Average of vacation days taken: 16.5 days	Rate of vacation day use: 88% Average of vacation days taken: 16.9 days	Rate of vacation day use: 89% Average of vacation days taken: 17.1 days

\*1 Operated under a different system before August 2008.

\*2 The number of beneficiaries increased following the heavy rain in July 2018.

## Mazda Mutual Aid Union\*<sup>1</sup>

The Mazda Mutual Aid Union has its foundations in the spirit of mutual assistance for all members\*<sup>2</sup>. Funded by mutual membership fees (from both members and the Company) as well as special contributions from the Company, this organization provides a range of assistance to its members and their families.

### Marriage and Childbirth Support

- Payments of gift money for marriage and childbirth  
¥15,000 is paid upon marriage, and ¥5,000 per child is paid upon childbirth

### Long-Term Care Support

- Long-term care leave payments  
¥30,000/month will be paid to members who take leave under the long-term care leave system (If payment continues for more than three months, ¥100,000/month will be paid for the months after first three months)
- Family long-term care relief payments  
¥50,000/year will be paid to members whose dependent, or child who has not yet reached the first March 31 after his/her eighteenth birthday, is in a state requiring long-term care (as defined by the Ministry of Health, Labour and Welfare) for a continuous period of one year or more

### Education Support

- Payment of subsidies for raising disabled children  
¥50,000/year will be paid in support of child development to members whose child possess a grade 2 disability or higher

### Support During Disasters, etc.

- Payments of money as condolence following a disaster  
Up to ¥160,000 will be paid in condolence if a member or his/her parents' home is adversely affected by a disaster

### Other Support

- Injury/sickness leave payments, long-term medical relief payments, and injury/sickness leave special payments ¥5,000 will be paid each time a member takes leave of one month or more for injury or sickness  
¥30,000/month will be paid for a long-term (three months or more) period of leave (if longterm leave results in the member not receiving his/her bonus the member will receive a special payment of up to ¥100,000)
- Financial aid for advanced medical treatment
- Monetary condolence gifts and farewell gifts, financial support for survivor's pensions funds and scholarship pension funds, etc.

## Industrial Relations

Mazda has a standing labor agreement with the Mazda Workers' Union.\*<sup>3</sup> The Company build relationships in which everyone thinks and works together with the Union to build environment contributing to all stakeholders. The Company and the Union held discussion on such themes as personnel affairs, production and sales once or twice a month.

A discussion with the Mazda Workers' Union is also held regarding operation changes which may have a significant impact. The information about operation changes should be shared with employees with sufficient lead time. Moreover, various measures for discussion with labor are ready in entire Mazda Group to maintain and develop positive labor relations.

- Group companies in Japan  
Regularly exchanges information and engages in active discussions with the Federation of All Mazda Workers' Unions.
- Group companies overseas  
Measures for discussion with labor are ready based on the labor practices in each country and region.  
(There was no collective labor dispute in FY March 2019.)

\*<sup>1</sup> Initiatives at Mazda Motor Corporation

\*<sup>2</sup> Executives and regular employees, as well as those approved by the governing board

\*<sup>3</sup> Membership is around 90% of Mazda employees.



## Occupational Safety and Health

Under its Safety and Health Creed, Mazda is proactively working to develop people, workplaces, and mechanisms that ensure the safety and health of the employees. In FY March 2017, Mazda launched a new three-year plan and globally promoted all-participating-type activities under the three pillars that support the realization of a proactive and enjoyable workplace. The Company believes that it will help invigorate employees and improve their work performance, also leading to the fulfillment of Mazda's Corporate Vision.

### General Safety and Health Committee

Mazda has established the General Safety and Health Committee, whose members include management (executive officer in charge of safety, general managers of each division and independent department) and labor representatives (Mazda Workers' Union\*<sup>1</sup> leaders). The committee members meet to discuss each year's action plan and priority measures concerning safety and health. Based on the decision made by the committee, division/independent department general managers take the lead in promoting occupational safety and health activities taking into account the work characteristics and risks of each workplace. For Group companies in Japan and overseas, the committee shares information on its activities, observes and provides guidance to each workplace, and supports education activities, etc.

### Coordination with Overseas Group Companies

Mazda steadily promoted fostering people and improving workplaces that emphasize safety and health across the Mazda Group through sharing safety and health management methods with overseas Group companies considering the laws and regulations as well as labor practices of the countries and regions. During the three years from 2016 to 2018, Mazda supported each local site according to its level of safety and health activities, with the aim of facilitating work standardization. In addition, initiatives started to manage the injury frequency rate for the entire Mazda Group. The Company will continue to provide global support and establish a system that enables mutual learning between its Group companies, while strengthening exchange among production sites and encouraging each local site to make self-reliant efforts to develop people and workplaces that focus on safety and health.

### Safety and Health Management System (SMS)

Mazda implements voluntary and continuous safety and hygiene management through its Safety and Health Management System. This system reduces the potential risks for work-related accidents and enhances overall levels of safety and hygiene standards.

#### Contents of the Management System Initiative

Mazda performs risk assessments to prevent accidents before they happen. The Company also carries out internal audits for all applicable divisions and departments to investigate and evaluate the management system, as part of the PDCA (plan-do-check-act) cycle.

#### Risk Assessments

Since FY March 2006, Mazda has conducted risk assessments at all facilities to determine potential dangers and risks in manufacturing, product development, administration, office operations and other processes, in order to determine suitable countermeasures. Through these efforts the Company reviews and identifies risks each year, improving the level of workplace safety.

Since FY March 2016, Mazda has been developing a mechanism for risk evaluation based on the status of use and harmful effects of chemical substances and the system to prevent diseases caused by chemical substances by introducing risk assessment of chemical substances.

#### Safety Record (Injury Frequency Rate) in FY March 2019

In FY March 2019, Mazda saw a significant decrease in the injury frequency rate, from the previous year. The decrease is mainly attributable to a reduction in the number of routine work accidents, achieved through steady safety efforts to counteract the increasing trend in the rate that continued until the previous year. Specifically, managers and supervisors constantly confirmed the safety of their workplaces at a set time every week, in keeping with the "on-site and real thing" philosophy.

Unfortunately, however, in October 2018, a fatal accident occurred in which an employee was injured by being caught between a forklift and logistic materials, and passed away. Taking this accident seriously, Mazda is swiftly implementing measures to ensure safer cargo handling operations company-wide.

#### i Safety and Health Creed / Three-Year Plan "One Mazda Movement for an Enjoyable Workplace"

##### Safety and Health Creed

For workers, safety and health are essential assets.  
Our people are our most valuable resource, and we are committed to keeping them safe.

##### One Mazda Movement for an Enjoyable Workplace The Three-Year Plan

Policy: Realize a proactive and enjoyable workplace\* by accomplishing safety and health activities initiated by individuals and divisions.

Slogan: Safety and health first in One Mazda, 24 hours a day

##### Three pillars of activities

- 1) Development of human resources with heightened sensitivity
- 2) Realization of a safe, secure and comfortable working environment
- 3) Activities on a global basis

\* Proactive and enjoyable workplace: A workplace where intensive problem-solving activities are implemented, taking into account the division's characteristics, and where individual employees work as a team harmoniously led by their manager, so that individual employees and the organization are both invigorated.

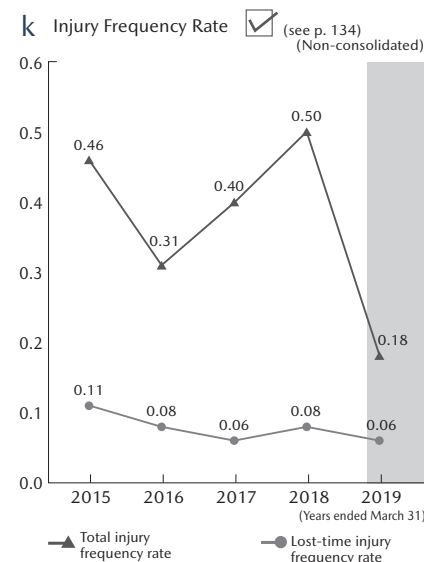
#### j Global lost-time injury frequency rate\*

FY March 2019	0.13
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\* Lost-time injury frequency rate:

The number of lost-time accidents per million person-hours worked.

Scope of data collection: Mazda Motor Corporation, eight Group companies in Japan, and five overseas production sites (Subsidiaries and equity-method Group companies that promote safety and health initiatives are included in the scope of data collection.)



Total injury frequency rate:

The number of lost-time and non-lost-time accidents in Mazda Motor Corporation per million person-hours worked.

Lost-time injury frequency rate:

The number of lost-time accidents in Mazda Motor Corporation per million person-hours worked.

☒ Subject to independent third-party assurance

\*1 Membership is around 90% of Mazda employees.

## Education and Training Concerning Occupational Safety and Health

To develop human resources with heightened sensitivity toward occupational safety and health, which is one of the three pillars of its activities, Mazda strives to improve safety and health education and training. In FY March 2019, the Company offered employees opportunities to share accident examples and realize the reported risks as their own issue, by combining the conventional safety education seminars\*<sup>1</sup> and risk simulation training.\*<sup>2</sup> Mazda also supports Group companies in Japan and overseas, suppliers (Toyukai Cooperative Union\*<sup>3</sup>), and collaborating companies within the Company premises in conducting education and training programs on safety and health, in order to create safer workplaces across the Mazda Group.

## Mental Health Measures\*<sup>4</sup>

In 2003, Mazda declared its commitment to active cooperation between labor and management to promote employees' mental health in the Warm Heart Declaration, and formulated the Mazda Warm Heart Plan. In 2007, labor and management, including managements, respective divisions, Company doctors and occupational health nurses, and the Mazda Worker's Union, cooperated to establish the Mental Health Project and construct a Company-wide support system.

### Consultation System

Mazda has established a system to provide consultations by Company doctors and health advisors. Not only for employees at Mazda Head Office, but also for employees dispatched to other companies in Japan and overseas, the Company offers on-site healthcare consultations, and consultations via video-conference system to support their health maintenance.

### Education and Training

Mazda holds "listening skills, coaching and assertion training" and "advanced training based on case studies" targeting newly appointed managers, and self-care training targeting third-year employees, on a regular basis. The Company also offers training by division on demand of the workplace. In addition, information is periodically provided to managers regarding the important points of mental health measures.

### System for Supporting Employees Returning to Work

The Company is also making efforts to support employees who have taken time off from work not to be absent again by improving measures to support them in getting back to work. The measures are such as the reduce work hour system, a system of allowing them to return to workplaces on a trial basis, and follow-up consultations after their reinstatement.

## Vitality Checkups (Investigation of Occupational Stress and Diagnosis of the Organization's Comprehensive Health Degree)

Prior to the legislation requiring companies to implement the stress check system (that came into effect in December 2015), in 2008 Mazda introduced occupational stress diagnoses known as "vitality checkups" for employees to reveal individual and organization-level risks. Employees use the results of individual diagnoses to grasp and manage their own health conditions. The result for organization-level is shared with the respective divisions. Based on the results of these diagnoses, each division promotes the complete checkups for workplaces\*<sup>5</sup> which will facilitate workplace improvements to prevent mental health problems. In FY March 2016, Mazda introduced the diagnosis of the organization's comprehensive health degree, aiming to assess the organizational productivity and human productivity based on the results of management and employees' engagement surveys.

## Contents of Education and Training Programs Concerning Occupational Safety and Health (FY March 2019)

(Non-consolidated)	
Contents	Number of training participants
Safety and health training prescribed by the Occupational Safety and Health Law	2,302 (including 531 from Group companies and suppliers)
Training for achieving zero accidents (prediction trainer training, etc.)	462
Capacity-building training for dangerous or hazardous work engaged persons (forklift operation, etc.)	1,095
Training for safety and health managerial and supervisory personnel (for newly appointed personnel)	139
Practical first aid training (including AED use)	1,476

## Number of Participants in Mental Health Training

(Non-consolidated)			
	FY March 2017	FY March 2018	FY March 2019
Training for newly appointed managers	190	152	177
Training for managers (advanced)	92	196	39
Training for third-year employees (Self-care seminar)	107	247	217
Training by division (at the division's request)	357	653	945

## Vitality Checkups (Investigation of Occupational Stress and Diagnosis of the Organization's Comprehensive Health Degree)

(Non-consolidated)			
	FY March 2017	FY March 2018	FY March 2019
Comprehensive health risk* <sup>1</sup>	94	90	90
Comprehensive health degree of the organization* <sup>2</sup>	52.3	52.8	52.4

\*<sup>1</sup> An indicator of health effect (risk), based on workload/discretion/support conditions. The above figures are calculated assuming the national average value (announced by the Ministry of Health, Labour and Welfare) to be 100. (A smaller value indicates a smaller risk.)

\*<sup>2</sup> An indicator of the organization's current health degree, based on the stress response and work engagement. Expressed as a deviation value.

\*<sup>1</sup> The seminars feature panel exhibitions showing Mazda's safety chronology that summarizes past serious accident cases and safety activities that Mazda implemented so far, to help employees reflect on the Company's safety activities and past accidents, raise their awareness and obtain new knowledge, which will be helpful to safety management in the future.

\*<sup>2</sup> The training is intended to improve employees' sensitivity toward risk, through simulations of various potential risks in their workplaces.

\*<sup>3</sup> The Toyukai Cooperative Union consists of 62 vehicle parts and equipment companies that are direct or indirect trading partners with Mazda, and is a union organization that actively engages in initiatives with a constant awareness of the need to put "quality first." It was founded in 1952 by Mazda and 20 collaborating companies that have trading relationships with the Company, with the aim of promoting friendly relations among members and improving welfare, as well as developing a system for cooperating with Mazda. The Company offers advice and support to this group from a safety viewpoint by introducing safety information and inviting safety training provided by Mazda.

\*<sup>4</sup> Initiatives at Mazda Motor Corporation

\*<sup>5</sup> Activities in which all members of a workplace participate to identify points needing improvements and make proposals for improvements, and assess their working environment from a broad perspective, thereby improving it by using clear and simple procedures. Implemented since FY March 2017.

## Measures to Prevent Lifestyle-Related Diseases\*<sup>1</sup>

To alleviate and prevent lifestyle-related diseases, including metabolic syndrome, Mazda carries out various activities, such as non-smoking measures, promotion of walking, and holding seminars on these themes.

### Promotion of Non-Smoking Measures

Mazda has set a long-term target of reducing the percentage of smokers in the Company to 25%. To achieve this target, Mazda offers full individual support and promotes a nonsmoker-friendly environment. A Company-wide smoke-free day has been implemented once a month. In addition, the provision of outside smoking areas is promoted to prevent passive smoking.

### Promotion of Walking

To help employees improve their health, Mazda promotes various measures to encourage walking. These include:

- Eco-Walk Commuting Program (with allowance payments)
- "10,000-step Challenge" (with the goal of walking 10,000 steps a day), which is held for indirect employees
- Mazda Active Walking, for which tools on the Company Intranet are provided to help employees record the distance they walk

### Physical Management Seminars (Started in 2015)

Mazda holds seminars for employees of 31 years of age (in the year following the comprehensive medical checkups for those reaching the age of 30), aiming at "improving the practical skills to improve their lifestyles" and "preventing metabolic syndrome." Using external facilities, these seminars provide participants with opportunities to listen to lectures (about dietary habits) and to actually experience exercises and relaxation (these seminars are jointly held with the Mazda Health Insurance Society.)

### Encouraging Healthy Eating

Starting in FY March 2010, a new type of healthy meal that is low calorie, low salt, and uses high-fiber ingredients, is being offered as a regular part of the Company lunch menu. It is also applied to dietary instruction of specific health guidance.

## Health Maintenance and Improvement

To maintain and improve the health of its employees, Mazda conducts health checkups, and promotes measures to prevent and mitigate mental health problems and lifestyle-related diseases. Companywide health improvement activities are under way emphasizing the reduction of health risks, by providing guidance and education based on the results of health checkups, taking aging countermeasures, supporting related activities at domestic Group companies, and offering health maintenance support for employees dispatched to other companies overseas. Mazda was selected as one of the Excellent Enterprises of Health & Productivity Management in the large enterprise category (White 500), under the Certified Health and Productivity Management Organization Recognition Program, which is jointly run by the Ministry of Economy, Trade and Industry and Nippon Kenko Kaigi, for the third consecutive year since the inception of the Program in 2017.

## Health Checkups\*<sup>1</sup>

In addition to legally prescribed health checkups for all employees, Mazda carries out comprehensive medical checkups\*<sup>2</sup> covering a variety of areas for employees when they reach the ages of 25, 30, and 35, and when they pass the age of 40. Furthermore, the Company conducts complete physical checkups, \*<sup>3</sup> including gastroscopy and abdominal ultrasonography, for employees when they reach the ages of 50, 54, and 58. Based on the results of these health checkups, Company doctors determine if employees can continue to work or not. Mazda also promotes employees' health by offering personal health guidance and education by Company doctors and health advisors.

## Health Risk Measures\*<sup>1</sup>

The business climate has undergone various changes, including the globalization of workplaces and an increase in the number of people who are continuously employed after retirement. Giving consideration to these changes, Mazda strives to establish a system to appropriately assess and deal with the health risk of employees,\*<sup>4</sup> from the perspectives of risk prevention and management.

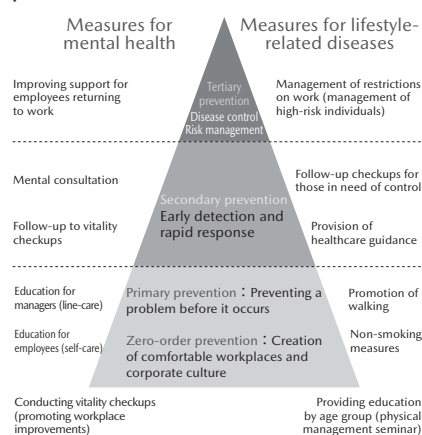
### Measures for Employees at High Health Risk

Mazda has established a system to take appropriate measures for employees at high health risk for heart diseases and cerebrovascular diseases. The Company also promotes activities to clarify the assessment indexes, such as the process of determining high-risk individuals by multiple Company doctors based on relevant data, and to establish a follow-up system to care for high-risk individuals after their health checkups, through collaboration among the person in question, the Company doctor and other members of the workplace.

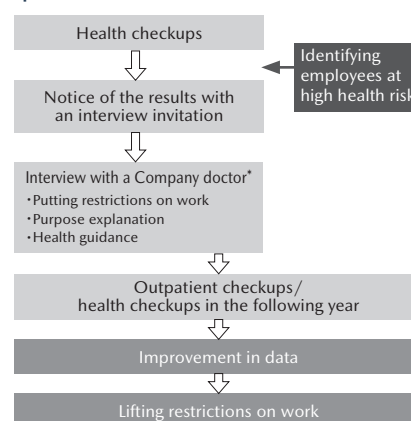
## Data on Measures to Prevent Lifestyle-Related Diseases

		(Non-consolidated)		
		FY March 2017	FY March 2018	FY March 2019
Non-smoking promotion activities	Percentage of employees who smoke	29.9%	29.2%	29.2%
	Number of employees receiving nicotine patches / guidance	18	9	9
	Number of participants in the "10,000-steps Challenge" / Percentage of employees who achieved 10,000 steps per day	9,659 / 42.6%	9,330 / 39.7%	9,477 / 41.3%
Walking activities	Number of participants in Mazda Active Walking	5,709	5,654	5,684
	•Number of employees who completed the Smile Course (2,000 km/year)	144	136	173
	•Number of employees who completed the Steady Course (2,500 km/year)	606	584	527
	•Number of employees who completed the Speedy Course (3,000 km/year)	119	116	110

## Measures for Health Risk



## Healthcare Guidance Data



\* After the interview results are confirmed by the employee, these results are also reported to the employee's manager.

		(Non-consolidated)		
		FY March 2017	FY March 2018	FY March 2019
Personal guidance on the basis of health checkup results (including specific health guidance)		1,393	1,258	1,738

\*<sup>1</sup> Initiatives at Mazda Motor Corporation

\*<sup>2</sup> Checkup items: Height, chest circumference, chest X-ray, blood test, urinalysis, electrocardiogram, etc.

\*<sup>3</sup> For employees who reach the age of 30, 35, and 40-and-above, breast cancer and uterine cancer examinations are available with comprehensive medical checkups upon request. Checkups of the brain, the lungs, etc. are offered as paid options.

\*<sup>4</sup> Example) Vaccinations against infectious diseases (including hepatitis A and tetanus) for employees dispatched to other companies overseas

# HUMAN RIGHTS

## Basic Approach

Mazda respects for human rights as fundamental to its corporate activities. Mazda believes that a friendly, productive workplace in which employees respect the dignity and individuality of their coworkers is essential. Such a workplace harnesses the capabilities of its employees and is a source of great strength for the organization. With this in mind, Mazda adopted the Human Rights Declaration in November 2000. The declaration states that Mazda must never tolerate human rights violations of any kind, including discrimination or bullying on the basis of race, nationality, faith, gender, social status, family origin, age, mental or physical disability, sexual orientation, or gender identity. It also sets forth that Mazda is determined to eliminate human rights violations from business activities both inside and outside the Company.

Based on the notion that there is no end to human rights efforts, the Company continues its initiatives with the ultimate goal of zero problems.

Mazda recognizes that, from the perspective of human rights due diligence<sup>\*1</sup>, a system and mechanism to grasp the activity status and to identify, report, correct and follow-up actual and potential negative impacts are required. The scope of human rights activities has been expanded to include domestic and overseas Group companies as well as suppliers, with the following efforts being conducted.

## Rules / Guidelines

One of the five principles of behavior stipulated in the Mazda Corporate Ethics Code of Conduct is "to comply with laws and regulations, company rules, common sense and sound practice in international society." Mazda has striven to increase employee awareness of its fundamental approach to respect for human rights, by further clarifying Company policies and standards of behavior among employees, in the light of the basic principles of the United Nations Universal Declaration of Human Rights, the United Nations Guiding Principles on Business and Human Rights, and the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work.

Specifically, Mazda established the Guidelines on Eliminating Sexual Harassment in 1999 and the Rules to Eliminate Human Rights Violations in 2000, prohibiting any activity that may infringe on an employee's human rights, and created a list of rules and guidelines to ensure a good working environment. In general, these rules and guidelines will be reviewed, with consideration to internal and external circumstances at the time, and if necessary, will be revised accordingly. The most recent revisions were made in compliance with the revised Equal Employment Opportunity Law for Men and Women and the revised Child Care and Family Care Leave Act, both of which came into effect in January 2017. Specifically, in 2017, Mazda revised the Rules to Eliminate Human Rights Violations and formulated the Guidelines to Eliminate Human Rights Violations.<sup>\*2</sup>

In these rules and guidelines, the Company stipulates that inappropriate behavior regarding respect for the human rights of sexual minority or LGBT people, or pregnancy, childbirth, childcare or elderly care leave, constitutes harassment and violates Mazda working regulations. These revised rules and guidelines have been posted on the Company's Intranet, to make them known to everyone in Mazda.

## Systems for Promoting Human Rights

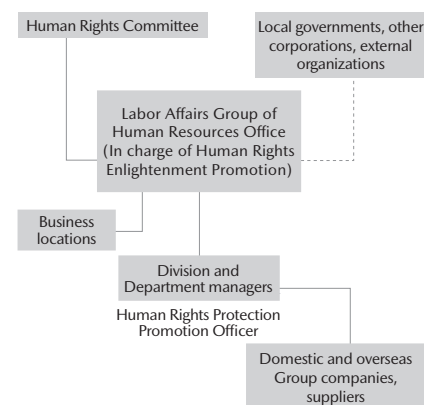
The Human Rights Committee, comprising executive officers and division general managers, deliberates on human rights activities, and based on their decisions the Human Resources Office promotes human rights education activities and resolves issues throughout the Group. Each division manager leads the division's activities as the human rights promotion officer at Mazda Motor Corporation, while the person in charge of human rights leads activities at each Mazda business location as well as at Group companies in Japan and overseas. Exchanges of opinions among Group companies take place on a regular basis. Serious human rights violations within the Group are reported to Mazda Motor Corporation human resources officer or other senior executives, providing a framework that enables the implementation of Group-wide solutions. Once a year, the Global Employee survey is conducted to check the progress in human rights initiatives and confirm whether there is any problem to be addressed or not. The results of the survey are fed back to each management and improvement measures are taken as needed. As for suppliers, Mazda seeks to establish a supply chain in which suppliers are also required to fulfill their social responsibilities in the area of respect for human rights, based on the Mazda Supplier CSR Guidelines (see p. 117).

a

### a Human Rights Declaration (November 2000)

Mazda will strive to become the leading company in Japan for respecting human rights and for the ethical treatment of its employees.

### b Human Rights Promotion System



### c Global Employee Survey (Positive Answer Percentage)

	(Non-consolidated) FY March 2019
I understand my company's basic philosophy and policy for human rights. (Local item)	85%*
My company takes appropriate action if there is a violation of human rights. (Local item)	78%*

\* Percentage of positive responses from indirect employees (The survey was conducted on both direct and indirect employees.)

<sup>\*1</sup> Due diligence is the comprehensive, proactive process to identify the actual and potential negative social, environmental and economic impacts of an organization's decisions and activities over the entire life cycle of a project or organizational activity, with the aim of avoiding or mitigating negative impacts (cited from ISO 26000).

<sup>\*2</sup> Renamed from the Guidelines on Eliminating Sexual Harassment established in 1999, after adding contents other than those regarding sexual harassment.

## Activities at Group Companies in Japan and Overseas

In line with its "ONE MAZDA" concept, Mazda is committed to promoting human rights activities in its Group companies. Based on the Mazda Human Rights Declaration's basic principles and with reference to the Rules to Eliminate Human Rights Violations, the Guidelines to Eliminate Human Rights Violations, Mazda Group companies are maintaining a set of rules and guidelines that take into account the conditions in each country where they are applied. Through these efforts, the Company strives to protect human rights at all companies throughout the Group. There is also regular information exchange between human rights officers at Mazda Motor Corporation and each Group company. Depending on the circumstances of the particular company, Mazda Motor Corporation may also take steps such as providing training/education tools or dispatching instructors. Since FY March 2017, Mazda support Group companies in establishing a system for human rights training, and providing materials of Mazda's Human Rights Meetings to Group companies.

In case problems arising at Group companies, Mazda accepts reports through the pertinent superiors, but in cases where this is difficult, accepts direct reporting from employees via the Human Rights Counseling Desk, the Female Employee Counseling Desk, the Mazda Global Hotline (see p. 114).

## Human Rights Counseling by Dedicated Counselors

Mazda has established a Human Rights Counseling Desk and a Female Employee Counseling Desk to appropriately respond human rights consultations from employees, through providing advices and, supporting early relief from human rights violations.

Mazda has set out regulations mandating strict confidentiality, guaranteeing immunity from reprisals, and ensuring that no disadvantage will accrue to employees who request consultations. Counseling is offered in various forms, such as face-to-face, by telephone, or by e-mail. Mazda promptly responds to consultations, with the goal of rapidly improving the work environment for the affected employee, and offers the necessary support to ensure respect for human rights throughout the entire workplace, through the above-mentioned counseling desks. For example, these desks offer advice on workplace culture improvement to the employee's supervisor, and provide counseling and advice for the employees and other persons concerned.

These counseling desks are managed by the Human Resources Office, and following set protocol, all received cases are followed up until they are resolved. To prevent similar cases from occurring, the counseling desks investigate all the facts through working in collaboration with related divisions/departments, in sufficient consideration to the intention of the employees who have requested consultations.

## Initiatives to Eliminate Human Rights Violations

Mazda carries out various initiatives to eliminate human rights violations. In case a problem involving human rights violations occurs, the Company discloses the case on the intranet as an example of disciplinary action, and conducts educational and awareness raising activities in order to prevent a recurrence. Mazda records the results of handling these cases and manages in accordance with the stipulated procedure, and reports to the Human Rights Committee. These records are used to formulate more effective Companywide policies and to prevent the recurrence of similar problems. At the meeting of the Human Rights Committee held at the end of FY March 2019, members held discussions based on issues that had occurred in the same fiscal year, to decide the themes for FY March 2020 activities. The selected themes were "improving the quality of dialogue to secure honest communication while paying mutual respect" and "further promoting understanding of diversity of people, including sexual minorities."



## Training and Educational Activities

To raise awareness of human rights, Mazda requires all executive officers and employees to consider human rights issues by participating in training programs and educational activities.

Mazda gauges the status of employees' human rights awareness based on the results of questions related to employee human rights included in the Global Employee Survey (see p. 87). These results are referred to during revisions of activities and improvement measures.

In March 2008, Mazda became the first corporation in Japan to be awarded the Human Rights Merit Award by Japan's Ministry of Justice and the National Federation of Consultative Assemblies of Civil Liberties Commissioners.

### Human Rights Training\*<sup>1</sup>

#### ■ Collective training

Mazda holds obligatory human rights training programs for employees when they newly join the Company and they are promoted in rank or position. The Company also holds event-based training such as human rights lectures for executive officers and senior managers. Moreover, the Company also holds training programs by department that are customized to each department in response to its specific needs.

In FY March 2017, Mazda started to organize training programs and lectures to promote understanding of sexual minority (LGBT) issues.

- Human rights mini-lectures and other information offered via the in-house intranet Mazda conducted activities to raise human rights awareness by human rights mini-lectures through intranet, and e-learning programs and to ensure that all employees can share recognition regarding power harassment and sexual harassment.

### President's Message During Human Rights Week\*<sup>1</sup>

The Company president delivers to all employees a message on the importance of respect for human rights every year during Human Rights Week, in connection with Human Rights Day on December 10.

### Human Rights Meetings\*<sup>1</sup>

Mazda held regular meetings (four times a year for plant workers, twice a year for office workers) at each workplace themed on familiar topics, allowing employees to develop awareness for human rights on a daily basis.

### Other Human Rights Education Activities\*<sup>1</sup>

Mazda distributes Human Rights Card upon hiring, and holding of Human Rights Slogan Competition, etc.

## Collaborating with External Organizations and Contributing to Local Communities

Mazda actively collaborates with local governments, companies and other external organizations to implement human rights protection activities for local communities.

Other efforts towards promoting respect for human rights include social contributions on a global basis, such as participating in human rights events in regional communities, exchanging opinions with human rights organizations, adopting measures against poverty, supporting an HIV/AIDS care facility, and supporting education for ethnic minority groups.\*<sup>2</sup>

d

### d Themes of Human Rights Mini-Lectures (Examples)

- Sexual diversity (LGBT)
- Power harassment
- Sexual harassment
- Various issues and challenges (regarding women, people with special needs, nationality/race, the elderly, [HIV-] infected persons, etc.)

\*<sup>1</sup> Initiatives at Mazda Motor Corporation

\*<sup>2</sup> <https://www.mazda.com/en/csr/social/>



# SOCIAL CONTRIBUTIONS

Mazda is fulfilling its responsibilities as a good corporate citizen through ongoing involvement in socially beneficial activities tailored to the needs of local communities.

Social contribution activities (in Japan and overseas) are introduced under “Social Contribution Initiatives” on the official website.  
(<https://www.mazda.com/en/csr/social/>)

## CONTENTS

### 100 Social Contributions

#### CSR Targets for FY March 2020

(Self-assessment key ○ : Accomplished, △ : Nearly accomplished, × : Not accomplished)

Items	FY March 2019 targets	FY March 2019 results	Self-assessment	FY March 2020 targets	ISO 26000 core subjects
Corporate citizenship activities	① Implement programs based on Mazda's basic policy on initiatives and each region's local community contribution policy. ② Continue to implement the PDCA cycle (to make efforts to resolve social issues) based on the program effect evaluation index (the Mazda Social Contribution Prize.)	① Continued or newly launched more than 550 activities. ② Continued to implement the PDCA (plan-do-check-act) cycle.	○	① Implement programs based on Mazda's basic policy on initiatives and each region's local community contribution policy. ② Continue to implement the PDCA cycle (to make efforts to resolve social issues) based on the program effect evaluation index (the Mazda Social Contribution Prize.)	6.8 Community involvement and development
Disclosure of results regarding community involvement and development	Further promote active disclosure of social contribution activities.	•Changed the media for disseminating information on social contribution activities (websites and annual reports.) •Disclosed social contribution activities in the Sustainability Report, the Social Contribution Report, and on SNS sites, etc.	○	•Continue active disclosure of social contribution activities.	6.8 Community involvement and development

# SOCIAL CONTRIBUTIONS

## Basic Policy on Initiatives

### Basic Principles

As a company engaged in global business, Mazda is fulfilling its responsibilities as a good corporate citizen through ongoing involvement in socially beneficial activities tailored to the needs of local communities, in order to ensure that its business activities contribute to the building of a sustainable society.

### Plans for Future Activities

- Proactive, ongoing responses to social needs through the core business activities of the Mazda Group in Japan and overseas
- In collaboration with local communities, contribute to the development of a sustainable society through activities tailored to the needs of communities
- Emphasize and provide support for self-motivated volunteer activities by employees, and incorporate diverse values to foster a flexible and vibrant corporate climate
- Proactively disclose the details of activities and engage in a dialogue with society

### Three Pillars

Mazda promotes activities that are strongly rooted in local communities. Its social contribution activities are underpinned by the three pillars of environmental and safety performance, human resources development, and community contributions (see pp. 102-103).

a

## a Three Pillars in Basic Policy on Social Contribution Initiatives



## Promotion Framework

b

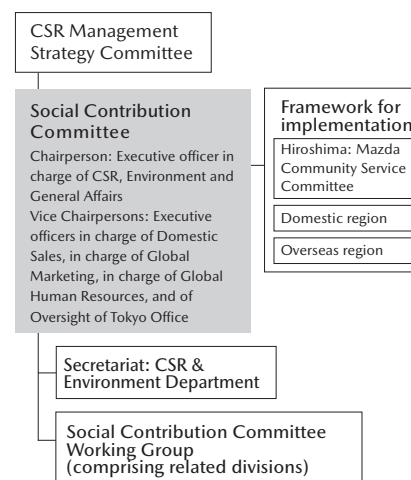
## b Promotion Framework

In May 2010, Mazda established the Social Contribution Committee. The role of this committee, which meets regularly (twice a year), is to discuss issues facing the entire Mazda Group and share information, in line with the social contribution policy and the CSR targets (see pp. 20, 28, 34, 40, 51, 84, 99, 105) decided by the CSR Management Strategy Committee (see p. 22).

The details of the actual activities are considered by a Working Group comprised of related divisions. Through the activities of the committee undertaken since 2010, Mazda continues to enhance information collection and utilization from a global and Group standpoint. Individual activities are carried out based on the budget plan in each region or department.\*1

### FY March 2019 Major Results:

- Set the CSR targets and the Mazda Green Plan 2020 (social contribution) (see pp. 54-55) and took actions.
- Carried out over 550 activities\*2 in Japan and overseas\*3 (cost of social contribution activities: around 2.1 billion yen in FY March 2019).
- Established the Mazda Social Contribution Prize, selected based on evaluation indexes for social contribution programs, and continued implementing the PDCA (plan-do-check-act) cycle process (see p. 101).



## Evaluation Indexes for Social Contribution Programs

In FY March 2015, Mazda established the evaluation indexes for social contribution programs.

These indexes are used to evaluate and promote programs which resolve social issues and improve corporate values and created the PDCA (plan-do-check-act) process.

They are designed to evaluate these social contribution programs from three perspectives: effect on society; effect on the Company; and Mazda uniqueness. (To be more specific, the indexes comprise eight categories such as "the number of beneficiaries," "the number of participating employees," "conformity with the Three Pillars in Basic Policy on Social Contribution Initiatives," etc.)

\*1 In Japan, the United States, Australia, New Zealand, and South Africa, the Mazda Foundation in each country separately undertakes various activities.

\*2 Social contribution activities: Monetary donation, goods donation, facility sharing, employee participation and dispatch, voluntary programs, and support for disaster-stricken areas.

\*3 "Social Contribution Initiatives" on the official website <https://www.mazda.com/en/csr/social/>

## Establishment of the Mazda Social Contribution Prize

C

In January 2015, Mazda established the Mazda Social Contribution Prize as a commendation system to recognize outstanding social contribution activities. The objective of the prize is to raise in/external recognition of the outstanding social contribution activities and support for increasing excellent social contribution activities.

Based on the evaluation indexes for social contribution programs, members of the Social Contribution Committee Working Group, the Mazda Workers' Union and the Federation of All Mazda Workers' Unions collaborate to evaluate candidate activities. The Social Contribution Committee then selects prizewinning activities, each of which will be presented with a certificate of recognition in the name of the Company President on the anniversary of Mazda's foundation in January every year.

### ■ 5th Mazda Social Contribution Prize

The 2019 prizewinning activities were selected from the social contribution activities introduced in the Mazda Social Contribution Activities Report\*<sup>1</sup> (which covered the period from April 2017 through March 2018).

## C 5th Mazda Social Contribution Prize

	Activity name
Grand Prize	Cleaning convex traffic mirrors (Okayama Mazda, Mazda Autozam Ito)
Special Prize	Donating toys to children in Salamanca (Mazda de Mexico Vehicle Operation)
Special Prize	Collision experiment and quiz show - challenge with engineers! - (Mazda Motor Corporation, Tokyo Mazda Sales)
Special Prize for Encouragement	Co-creation seminar (Mazda Motor Corporation)

## Volunteering by Employees

Mazda offers support to help employees become actively involved in volunteer activities.

- Providing volunteer opportunities (Specialist Bank, Volunteer Center, etc.)
- Subsidizing part of the cost of activities (Mazda Flex Benefits (see p. 91), etc.)
- Enabling employees to take leave for activities (volunteer leave such as the Special Warm Heart leave system, etc.)
- Providing volunteer training opportunities

## Support for Disaster-Affected Areas

The Mazda Group provides various supports for the early recovery and restoration of areas affected by natural disasters. Mazda Head Office coordinates with its production/business sites in the affected area to provide appropriate support in case of natural disasters such as an earthquake and abnormal weather.

Recent support cases: Great East Japan Earthquake/heavy rain in July 2018/ Hokkaido Eastern Iburi Earthquake/Typhoon Jebi (No. 21)/Northern Kyushu heavy rain (Japan), hurricanes (United States), Mexico Earthquake (Mexico), flooding in Southern Thailand (Thailand), etc.

## Support through Mazda Foundations

Mazda and its Group companies have established Mazda Foundations in five countries, to promote support activities tailored to each region.

Country	Name	Support activities/objectives	Year of establishment	Amount of grants (donations) in FY March 2019
Japan	Mazda Foundation <a href="http://mzaidan.mazda.co.jp">http://mzaidan.mazda.co.jp</a> (Japanese only)	Support activities to promote science and technology and the sound development of youth.	1984	¥51.80 million
U.S.	Mazda Foundation USA (MFUS) <a href="https://www.mazdafoundation.org/">https://www.mazdafoundation.org/</a>	Provide funds to various initiatives for education, environmental conservation, social welfare, cross-cultural understanding, etc.	1990	Around US\$464,000
Australia	Mazda Foundation Australia (MFA) <a href="http://mazdafoundation.org.au/">http://mazdafoundation.org.au/</a>	Provide funds to various initiatives, including education, environmental conservation, technology promotion, and welfare.	1990	Around A\$723,000
New Zealand	Mazda Foundation New Zealand (MFNZ) <a href="https://mazdafoundation.org.nz/">https://mazdafoundation.org.nz/</a>	Provide funds to various initiatives, including education, environmental conservation, and culture.	2005	Around NZ\$ 369,000
South Africa	Mazda South Africa <a href="https://www.mazda.co.za/mazdafoundation/">https://www.mazda.co.za/mazdafoundation/</a>	Provide funds to various initiatives, including education, career development, technological development, and environmental conservation	2017	Around R8,483,000

\*1 [https://www.mazda.com/globalassets/en/assets/csr/social/library/download/2018\\_s\\_all.pdf](https://www.mazda.com/globalassets/en/assets/csr/social/library/download/2018_s_all.pdf)

## Initiatives Based on the Three Pillars

Mazda promotes activities that are strongly rooted in local communities. Its social contribution activities are underpinned by the three pillars of environmental and safety performance, human resources development, and community contributions.

### Environmental and Safety Performance

Mazda's business activities have a relationship with and impact social issues, such as global warming, energy and resource shortages, and traffic accidents. To resolve these issues, the Company attaches importance to the environmental and safety perspectives, not only in conducting its main business, but also when making social contributions.

- Hosting environmental awareness-raising programs at various events, dispatching lecturers to environmental education programs, and carrying out volunteer activities for biodiversity conservation and various other environmental protection initiatives
- Offering lectures on traffic accident issues at various events, and holding safer-driving seminars

#### [Environment]

##### Japan /

#### Raising Environmental Awareness among Children

Environmental events and on-site lectures are held to raise environmental awareness among elementary and junior high school students. In EcoPro 2018, Mazda introduced its attempts to contribute to global warming prevention, on the theme of reducing CO<sub>2</sub> emissions. The Company also held a quiz through which participating children could learn ways that vehicle users can easily cooperate in addressing the above theme, looking ahead to an automotive society in the future when they grow up.



##### New Zealand /

#### Environmental Awareness-Raising Activities

Mazda Motors of New Zealand Ltd. (MMNZ) has provided Mazda vehicles to Project Crimson Trust, to support the Trust's conservation work. The Tremendous Project, a joint project between Mazda Foundation New Zealand and the Trust, has been implemented to educate children on the importance of the environment and the country's native fauna and flora. Together with students, school staff and local residents, Mazda Group employees perform maintenance on the schoolyards and plant gardens to cultivate a variety of native species.



#### [Safety]

##### Japan /

#### Raising Traffic Safety Awareness

During the Road Safety Week, local dealerships have participated in the cleaning and inspection of convex traffic mirrors, to contribute to traffic safety. These dealerships work in collaboration with local police stations, to which the results of these activities are reported.



##### Japan /

#### Raising Driver Safety Awareness

To help drivers understand the danger of not wearing seatbelts, in cooperation with the Japan Automobile Federation (JAF), Mazda has participated in local events. At these events, explanations are given using a video, and a collision simulation is provided to participants to raise their safety awareness, aiming at increasing the rate of seatbelt use. The Company has also joined the DRIVE&LOVE, a project to encourage everyone to eliminate traffic accidents.



DRIVE&LOVE website:  
<http://drive-love.jp/concept.html>  
 (Japanese only)



## Human Resource Development

Mazda emphasizes the perspective of human resources development, based on the idea that fostering people who will be future leaders in the foundation of society and in business is important.

- Holding seminars and lectures by employees with specialized knowledge and skilled techniques such as manufacturing.
- Accepting students for internship programs, supporting to learn about vehicles using facilities in the Company, etc.

### [Human Resources Development]

#### Japan /

##### Promoting Children's Education

The Mazda Museum at Mazda Head Office (Hiroshima) has welcomed approximately 1.69 million visitors from around the world since its opening in 1994. The Museum offers exhibitions of Mazda's history, technology, etc. In addition, the Museum provides tours of Mazda's assembly line and learning opportunities about the vehicle manufacturing process, helping to augment social studies curriculums in elementary and junior high schools.

Guide to the Mazda Museum

<https://www.mazda.com/en/about/museum/>



#### China /

##### Supporting Children of the Mazda Wheat Seedling Class

Mazda Motor (China) Co., Ltd. (MCO) has provided support for children of the Mazda Wheat Seedling Class, established in 2012 through the Wheat Field Project Education Foundation, a non-governmental NPO for educational support in China. MCO has supported the class by funding for library reforms and teacher training. In addition, employees on behalf of the company have attended the graduation ceremony, and many MCO employees have donated books with their message cards to these students. Through such activities, MCO has promoted interaction with children of the Mazda Wheat Seedling Class.



## Community Contributions

Mazda promotes community contribution activities to cope with specific issues of each local community, in the countries/regions where the Company conducts its business operations.

- Making monetary/vehicle donations to charities and participating in various charitable activities
- Promoting sports and culture

### [Community Contributions]

#### Japan /

##### Donation of Vehicles

Mazda contributes to community revitalization, making effective use of the Hiroshima Municipal Baseball Stadium (Mazda Zoom-Zoom Stadium Hiroshima), for which Mazda acquired the naming rights. For each one million stadium visitors, the Company donates one Mazda vehicle to a social welfare organization.

In October 2018, the cumulative number of visitors reached 17 million, and accordingly, the 17th vehicle was donated to such an organization.



#### Europe /

##### Support for Children Who Are Unable to Live Together with Their Parents or Caregivers

Mazda Motor Europe GmbH (MME) and the national sales companies in each country are working in collaboration with local SOS Children's Village (SCV) to develop support activities. SCV is an international organization that provides support for children who are unable to live together with their parents or caregivers. These companies have provided vehicles to assist in transportation for activities and organized volunteer activities by employees, who have delivered Christmas gifts, and offered opportunities to experience indoor skiing.



### TOPICS Mazda Won the 12th Kids Design Award\*<sup>1</sup> (Designs that Develop Children's Creativity and Shape their Future)

The Mazda Specialist Bank is an organization that dispatches Mazda Group employees with specialized knowledge and skills to various events, upon request from local communities. The organization won the 12th Kids Design Award\*<sup>1</sup> (Designs that Develop Children's Creativity and Shape Their Future). The Mazda Specialist Bank was established to supply the personnel needed to assist in the preliminary round of the 12th Asian Games, held in Hiroshima City in 1994. In FY March 2018, the Bank conducted 32 activities for children, to teach sports, give lectures on work experience, and hold environmental classes (a total of 62 activities were implemented, including other activities not geared to children.)

\*1 The Kids Design Award is a commendation system to select and make widely known excellent products, spaces and services that help realize three design missions: "security and safety for kids' lives," "the development of sensitivity and creativity in kids," and "a secure environment for having and raising kids."



### Social Contributions through the Core Business Activities of the Mazda Group

Mazda promotes various initiatives to help resolve social issues, taking advantage of technologies and skills that the Company has been cultivating through its core business activities. While valuing dialogues and co-creation with its stakeholders, Mazda aims to achieve sustainable development of itself and society.

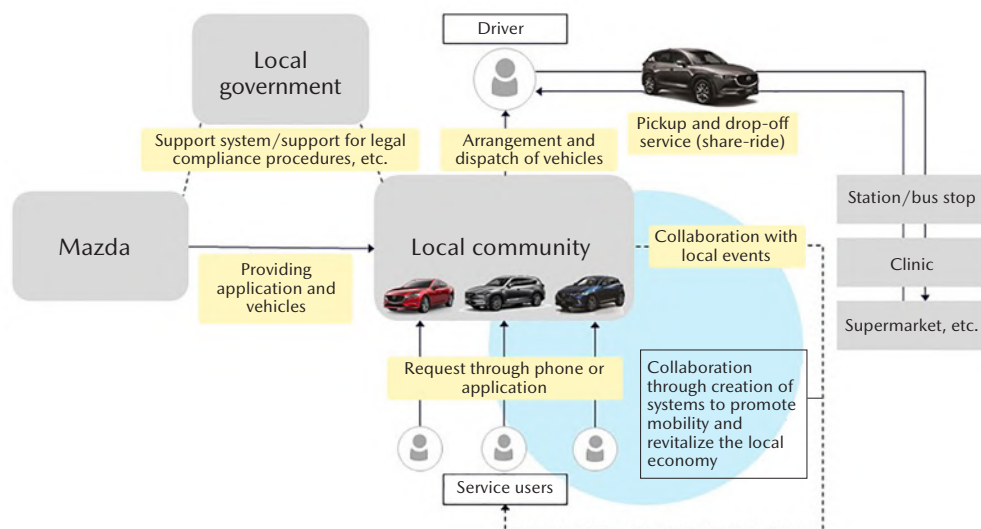
#### Testing a Shared Mobility Service Leveraging Connectivity Technologies

Mazda will leverage the car and connectivity technologies to help create a community where local residents help one another, assisted by drivers from inside and outside the community, and promote real-life discoveries, experiences and growth through human interactions. Surely that is the way to create a more human world that allows people to really experience the joy of life.

Recent years have witnessed the dilapidation of public transportation systems in depopulated areas in hilly and mountainous regions of Japan, and this has made it harder for the elderly and disabled to get around. To help resolve such social issues, in December 2018 in Miyoshi City, Hiroshima Prefecture, Mazda started testing a shared mobility service utilizing its connectivity technologies, in cooperation with local residents and prefectural and city authorities. In this testing, Mazda is in charge of developing a transportation service management system and application software for users. Through the development of this application, Mazda will improve the operational efficiency of a local mobility service operated by local residents. The Company will also contribute to initiatives to encourage participation and create added value to energize the local community, by enhancing the application content. Data obtained from this testing will be accumulated and utilized for research and development of ride-sharing services that combine the next-generation connectivity technologies and autonomous driving technologies.

Through this testing, Mazda aims to build a social contribution model that will support regional revitalization and enrich lives in the region by offering safe, secure and unrestricted mobility to people everywhere.

#### Outline of Shared Mobility Service Testing



#### Implementing Internship Programs

As an effort for human resource training through industry-academia-government collaboration, Mazda provides internships for technical college and university students. Since FY March 2016, Mazda has improved the organizational relationship with the schools to provide a program with different levels that cover students from lower grades up to the doctorate level. This is provided as a place of self-training with a focus on the foundation of innovative human resources, that is, high ambition and practical skills. Students can nurture their own ambition and dreams through the corporate ambition and philosophy, and improve their practical skills through co-creative work and practical training. 157 interns were accepted in FY March 2019.





# MANAGEMENT

Mazda has established management systems to fulfill its social responsibility throughout the Mazda Group and the entire supply chain.

## CONTENTS

106 Management  
(Corporate Governance/Internal Control/Risk Management/Compliance)

117 Implementing CSR in the Supply Chain

120 With Shareholders and Investors

## CSR Targets for FY March 2020

(Self-assessment key ○ : Accomplished, △ : Nearly accomplished, × : Not accomplished)

Items	FY March 2019 targets	FY March 2019 results	Self-assessment	FY March 2020 targets	ISO 26000 core subjects
Corporate governance	Continuously improve and strengthen corporate governance measures, in light of the purport and spirit of the Corporate Governance Code.*1	In light of the rapid changes in the business environment surrounding Mazda, Mazda decided and disclosed that it would transition to a company with an audit and supervisory committee, so that a substantial part of decision-making regarding the execution of important business would be delegated to executive directors. The objectives of the transition were to enable faster business decision-making, further enhance discussion of management strategies and strengthen supervisory functions of board of directors meetings.	○	Continuously improve and strengthen corporate governance measures, in light of the purport and spirit of the Corporate Governance Code.*1	6.2 Organizational governance
Risk management	Identify various internal and external risks and continue activities to minimize such risks. ① Improve the level of development of the risk management systems of Mazda and its Group companies, and have these systems checked and evaluated by the Risk Compliance Committee. ② Continue risk management activities based on the action plans in preparation for earthquakes and tsunami. ③ Update and enrich data for the supply chain risk management system.	① Further visualized the risks at Mazda and its Group companies, and strengthened risk management activities there, based on the mid-term action plan (for FY March 2018–2020) that was formulated at the Risk Compliance Committee meeting in FY March 2017. • Based on the results of measures to cope with risks identified by each division, established common priority issues to be addressed by the Mazda Group and took countermeasures. • Improved education programs for department managers of Mazda and its Group company officers, and established and implemented new education programs for newly appointed managers. ② Conducted risk management activities based on the action plans in preparation for earthquakes and tsunami. • Introduced a safety confirmation system company-wide, and conducted training on how to use the system. ③ Continued to operate the SCR keeper, a supply chain risk management system. In FY March 2019, production sites in Thailand (AAT and MPMT) started to operate the system. Periodic updates of data registrants and data were conducted, as planned.	①○ ②○ ③○	Identify various internal and external risks and continue activities to minimize such risks. ① Improve the level of development of the risk management systems of Mazda and its Group companies, and have these systems checked and evaluated by the Risk Compliance Committee. ② Strengthen the ability to make an appropriate initial response in the event of emergencies, such as earthquakes. ③ Update data for the supply chain risk management system. ④ Based on the experience in the heavy rain in July 2018, inspect possible supply chain risks from landslides and flooding.	6.2 Organizational governance
Information management	① Ensure information management through continuous awareness-raising activities.*2 ② Promote and strengthen information security measures.*2	①- Continued to implement an e-learning program entitled "Basic Rules for Handling Personal Information."*2 - Continued to provide education on management of confidential information and personal information for new recruits, mid-career hires, etc.*2 ② In response to the enforcement of the EU General Data Protection Regulation (GDPR), established related internal regulations and provided education for data management divisions through e-learning.*2	○	① Ensure information management through continuous awareness-raising activities.*2 ② Promote and strengthen information security measures.*2	6.6 Fair operating practices
Protection of intellectual property	Promote activities to protect and make effective use of intellectual properties. ① For the protection of Mazda's intellectual properties: Promote rights acquisition activities on a global basis. • Maintain the number of patent applications at the same level as the previous year in Japan. • File 30% or more of the patent applications made in Japan also overseas. The primary targets for the rights acquisition activities are the United States, Germany and China, which are Mazda's major overseas sales markets. ② For the protection of the intellectual properties of other parties: • Continue to strengthen awareness-raising activities aimed at protecting the intellectual properties of Mazda and other parties. • Promote the appropriate use of works belonging to other parties, in conducting communication activities.	① For the protection of Mazda's intellectual properties: • In Japan: Completed around 800 patent applications. • Overseas: Filed around 35% of the patent applications made in Japan also overseas. Completed around 900 patent applications, aiming at promoting rights acquisition activities in the United States, Germany, China and other countries. ② For the protection of the intellectual properties of other parties: • Held patent training as scheduled, with around 110 participants in the basic patent seminars, around 20 participants in the seminar on effective use of patent information, and around 210 participants in the intellectual property risk seminar. • Promotion of the appropriate use of trademarks: Added about 529 new images to the Mazda-Shared-Image-Collection.	○	Promote activities to protect and make effective use of intellectual properties. ① For protection of Mazda's intellectual properties: Promote rights acquisition activities on a global basis. • Maintain the number of patent applications at the same level as the previous year in Japan • File 30% or more of the patent applications made in Japan also overseas. The primary targets for the rights acquisition activities are the United States, Germany and China, which are Mazda's major overseas sales markets. ② For the protection of the intellectual properties of other parties: • Continue to strengthen awareness-raising activities aimed at protecting the intellectual properties of Mazda and other parties. • Promote the appropriate use of works belonging to other parties, in conducting communication activities.	6.6 Fair operating practices
Compliance	① Ensure compliance and improve the level of compliance awareness through continuous awareness-raising activities, etc.*2 ② Continue and strengthen support for Group companies through the provision of timely information, etc.	① Ensured the implementation of the awareness-raising activities.*2 • Continued to provide compliance education for new recruits, mid-career hires, etc. • Held a compliance seminar for senior executives and general managers. • Put up posters and implemented e-learning programs to make the Mazda Global Hotline, an internal reporting system, better known to everyone. ② Support for Group companies • Newly established a regular education program for officers of Group companies in Japan, to provide information on recent legal trends. • Continued to hold regular meetings among departments concerned, in order to share information on the administration of domestic and overseas affiliates and to secure consistency across the Group.	○	① Ensure compliance and improve the level of compliance awareness through continuous awareness-raising activities, etc.*2 ② Continue and strengthen support for Group companies through the provision of timely information, etc.	6.6 Fair operating practices
Fair transactions	① Based on the revised Mazda Supplier CSR Guidelines, hold discussions about conducting a questionnaire survey to understand suppliers' operation status of CSR initiatives, and about follow-up of the survey results (e.g., through study meetings, and announcement of outstanding companies.) ② Complete the activities to apply the Mazda Supplier CSR Guidelines to MPMT, the production site in Thailand, and announce the guidelines to all MPMT suppliers.	① Made a revision to the Mazda Supplier CSR Guidelines, by adding "Promotion of fair business practices," which goes beyond compliance with laws and regulations, as a compliance item. Conducted a questionnaire survey to understand the statuses of suppliers' initiatives to promote fair business practices, and held follow-up interviews with suppliers who were deemed to be in need of improvement, judging from the survey results. ② Completed the activities to apply the Mazda Supplier CSR Guidelines to MPMT, the production site in Thailand, and announced the guidelines to all MPMT suppliers.	○	① Continue to conduct a questionnaire survey about promotion of fair business practices and reform of working practices, and implement follow-up activities based on the survey results. Also, promote awareness of the Supplier CSR Guidelines among Tier 2 and lower suppliers, through Tier 1 suppliers.	6.6 Fair operating practices

\*1 Corporate governance guidelines for listed companies announced by the Tokyo Stock Exchange in June 2015.

\*2 Initiatives at Mazda Motor Corporation (FY March 2019 results, and FY March 2020 targets.)

# MANAGEMENT

Mazda is working to enhance corporate governance and strengthen internal control in order to improve the transparency of management and expedite decision-making.

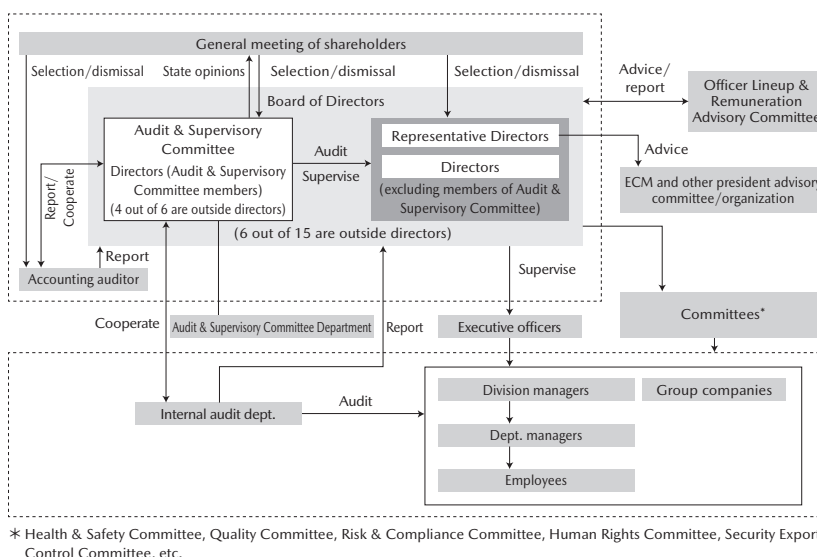
## Corporate Governance

a b

Mazda respects the purport of the Corporate Governance Code formulated by the Tokyo Stock Exchange and, while working to build a good relationship with its stakeholders, including shareholders, customers, suppliers, the local community and its employees, the Company strives to sustain growth and enhance its corporate value over the medium and long term through transparent, fair, prompt and decisive decision-making and to continue to enhance its corporate governance.

The Company's surrounding business environment is undergoing rapid changes. In order to enable faster business decision-making, further enhance discussion of management strategies and strengthen supervisory functions of board of directors meetings, the Company transitioned to a company with an audit and supervisory committee through a resolution at the 153rd Ordinary General Meeting of Shareholders held on June 26, 2019.

### a Corporate Governance Framework



\* Health & Safety Committee, Quality Committee, Risk & Compliance Committee, Human Rights Committee, Security Export Control Committee, etc.

### b For detailed information, please see the following.

■ Corporate Governance Report  
<https://www.mazda.com/en/investors/library/governance/>

■ Annual Report 2019  
<https://www.mazda.com/en/investors/library/annual/>

- Officers' areas of responsibility, profiles, etc. (pp. 34-35)
- Officers' compensation/Audit fees (p. 30)

■ Company Outline  
<https://www.mazda.com/en/about/profile/executive/>  
 • Officers' areas of responsibility

■ Securities Report (Japanese only)  
[https://www.mazda.com/globalassets/ja/assets/investors/library/s-report/files/f\\_repo190627.pdf](https://www.mazda.com/globalassets/ja/assets/investors/library/s-report/files/f_repo190627.pdf)  
 • Corporate governance, etc. (pp. 30-44)

## Corporate Governance Framework

C

### Board of Directors

The Company's Board of Directors deliberates and makes decisions on items related to the execution of important business, such as management strategy and basic management policies, and supervises the execution of individual directors' duties.

In addition, in order to facilitate quick and flexible decision-making, based on the Articles of Incorporation, a substantial part of decision-making regarding the execution of important business will be delegated to management, and executive directors including and below the president to whom authority has been delegated based on the Company's rules of administrative authority will make decisions regarding these matters.

The board is made up of 15 directors, six of whom are highly independent outside directors.

### Audit & Supervisory Committee

The Company's Audit & Supervisory Committee audits the board of directors' decision-making process and business execution through the execution of voting rights at board of directors' meetings and the execution of its right to state opinions on the personnel changes and remuneration of directors (excluding directors who are Audit & Supervisory Committee Members) at the general meeting of shareholders. The Audit & Supervisory Committee is made up of six members, four of whom are highly independent outside directors.

### Accounting Auditor

Accounting audits are conducted by KPMG AZSA LLC.

### C Numbers of Directors in Board of Directors and Audits & Supervisory Committee

Directors*	Number	9 (Inside Directors: 7, Outside Directors: 2), including 1 female director
Directors who are members of the Audit & Supervisory Committee	Number	6 (Inside Directors: 2, Outside Directors: 4), including 1 female director
Total number of Directors	Number	15 (Inside Directors: 9, Outside Directors: 6), including 2 female directors
	Ratio of Outside Directors	40%
	Ratio of Female Directors	13.3%

\* Excluding directors who are members of the Audit & Supervisory Committee.

### Executive Officer System

Mazda has also introduced an executive officer system. By separating execution and management, the effectiveness of the oversight of the board of directors is enhanced, and decision-making is speeded up through expanded debate by the board of directors and by delegating authority to executive officers. In this way, the Company is working to further managerial efficiency.

### Officer Lineup & Remuneration Advisory Committee

The Company established the Officer Lineup & Remuneration Advisory Committee, made up of three representative directors and six outside directors and chaired by a representative director, as an advisory body to the board of directors. The committee reports to the board of directors the results of its deliberation on matters such as officer lineup and policies regarding the selection and training of directors, as well as remuneration payment policies and the remuneration system and process based on those policies, which contribute to the Company's sustainable growth and raising of corporate value in the medium and long term. The policies for the nomination, appointment and dismissal of officers, and the policies and procedures for determining their remuneration are disclosed in the Corporate Governance Report.

### Executive Committee Meetings, etc.

In addition to the general meeting of shareholders and meetings of the Board of Directors, the Audit & Supervisory Board and other bodies designated by law, Mazda holds executive committee meetings to report information necessary for debate on important company-wide policies and initiatives and business management as well as advisory bodies, to contribute to decisions by the president.

### Support System for Outside Directors

Mazda provides explanations of matters to be brought before the board of directors as necessary so that outside directors can freely state their opinions at board meetings and so that outside directors can easily participate in decision-making. The Company also arranges for outside officers to interview executive officers and provides opportunities for them to inspect facilities and participate in events both inside and outside the Company.

Audit & Supervisory Committee Members (full-time) offer observations based on information they have acquired or opinions they have formed through their attendance at important internal meetings or through their audit activities. The departments concerned work together to provide information based on the opinions of the outside directors and to support them.

## Analysis and Evaluation of the Effectiveness of the Board of Directors

Mazda analyzes and evaluates the effectiveness of the Board of Directors in order to steadily advance measures for the further enhancement of the board's efficiency. In this initiative, based on a survey prepared by the board's secretariat, all of the directors and members of the Audit & Supervisory Board evaluate the board's effectiveness. After the results are compiled by the secretariat, an analysis of the current situation is shared at a board meeting, and the ideal to be pursued and improvements are discussed.

In FY March 2019, it was found that members of the Board of Directors were properly involved in determining the Company's business strategy and share an understanding of its content, that outside directors and corporate auditors expressed their opinions from an independent perspective after gaining an understanding of the Company's situation by receiving explanations of resolutions in advance and other forms of support, and that the oversight function of the execution of operations was ensured.

Based on the previous survey (FY2017), although initiatives to strengthen monitoring of the business strategy and other important matters and to enhance debate on risks and profitability resulted in definite improvement, the need for further improvements was recognized.

The Company will analyze and evaluate the board's effectiveness annually and continue to make improvements in order to enhance corporate value over the medium and long term.

## Cooperation among Parties Responsible for Auditing

Full-time auditors (Audit & Supervisory Board members [full time], after June 26, 2019), the auditing company, and the Mazda's auditing department hold three kinds of meetings on a regular basis to improve the quality of auditing and to deepen their mutual understanding by exchanging information on audit plans and results.

### d Status of cooperation

- Meeting between Audit & Supervisory Board members (full time) and the auditing company
- Meeting between Audit & Supervisory Board members (full time) and the Mazda's auditing department
- Three-party meeting among Audit & Supervisory Board members (full time), the auditing company, and the Mazda's auditing department

## Governance for Group Companies

In the Mazda Group, each Group company has established a corporate governance framework with the aim of enhancing cooperation between Mazda and the Group companies.

### Japan

Group companies in Japan set the corporate auditors who audit directors' execution of their duties. Through the Group Audit & Supervisory Board Members' Meetings attended by the Audit & Supervisory Board members (full time) of the Group's large companies and the appointment of each Group company's part-time corporate auditors from among Mazda middle managers, Mazda aims to strengthen ties between Mazda and its Group companies.

### Overseas

Many overseas Group companies hold meetings of the Audit Committee.\*<sup>1</sup> Members participating in these meetings are executives and internal auditing-related departments of each overseas Group company, Mazda's executives and internal auditing-related department, and the department in charge of each Group company. They enhance each Group company's internal control by discussing and exchanging opinions on activities related to internal control. Mazda further provides guidance and support to other overseas Group companies, to improve their internal control-related initiatives.

## Internal Auditing

Internal audits are conducted in Mazda and its Group companies in Japan and overseas, for the purpose of ensuring sound and efficient management.

The Mazda's internal auditing department is staffed with those qualified as Certified Internal Auditor (CIA), Certified Information System Auditor (CISA), etc. Members of the department are continuously encouraged to improve their auditing skills, acquire specialized qualifications, and participate in outside training programs and internal workshops.

In May 2019, the Global Internal Audit Summit was held, bringing together the parties responsible for auditing at Mazda Group's major operation bases. At the Summit, which was in its 10th round, participants shared their auditing policies and plans as well as related risks and issues. They also presented best practices at each base and discussed the promotion of the "global audit alliance," in which an auditor of an overseas Group company conducts auditing of another operation base, working together with Mazda's internal auditing-related department.

In this manner, efforts are under way to improve the quality of auditing of the entire Mazda Group and foster its greater efficiency.

## System Auditing

The Mazda's auditing department and the internal auditing departments of overseas Group companies conduct audits on overall IT control concerning financial reports and IT security for individual operations and systems, with the aim of reducing IT-related risks.

e

e Internal auditing in Group companies

- Major Group companies (North America, Europe, China, Thailand, Australia, etc.): The internal auditing department of each company conducts audits and reports the results to Mazda. To ensure high auditing quality, Mazda's auditing department conducts audits advises on annual audit plans and audit results, and provides information related to auditing, and various other supports.
- Other Group companies in Japan and overseas, and Mazda: Mazda's auditing department conducts audits.

\*<sup>1</sup> Committees are set and operated independently for each overseas group company for the purpose of gathering information and exchanging opinions on internal control.

## Internal controls

Mazda has established the Mazda Corporate Ethics Code of Conduct (see p. 114), which states action guidelines for employees, the Finance Control Guideline for global financial control, and other guidelines. Based on these guidelines, each department develops rules, procedures, manuals, etc. to promote establishment of internal control.

For Group companies, cooperative systems have been established, in accordance with the affiliates' administration rules established by Mazda. The responsible department at Mazda supports training and system improvement for each Group company.

### Internal Control Self-Diagnosis

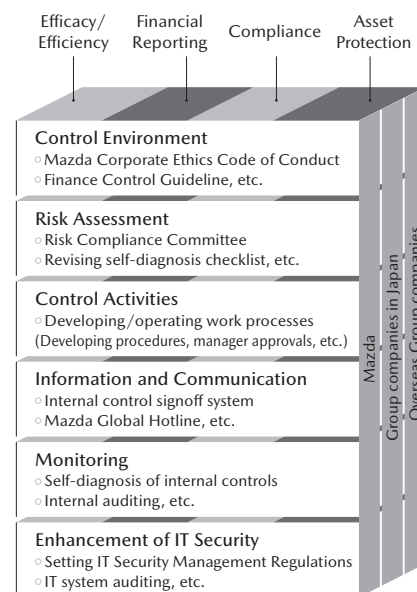
In 1998 Mazda initiated a system of self-diagnosis of internal controls for the purpose of disseminating awareness concerning internal controls. Currently, self-diagnosis is carried out at almost all Mazda Group companies in Japan and overseas. This system enables the supervisors in charge of actually developing and operating the processes and mechanisms, not third parties such as internal auditing departments or auditing companies, to evaluate internal controls using the checklist. Through this system, Mazda's departments and Mazda Group companies have proactively found inadequacies in internal controls and taken action to improve them.

Mazda's internal auditing department reviews the procedure for self-diagnosis and provides advices for necessary improvements while ensuring that any newly found risks would be reflected in the checklist, so as to always ensure proper and effective diagnosis.

### Implementation of Internal Controls Signoff System

From FY March 2007 Mazda has introduced the signoff system, in which top management of Mazda's each department and each Group company ensure internal controls by "signing off" after identifying inadequacies in controls and confirming the status of correction thereof through auditing and self-diagnosis. The Mazda Internal Controls Report is prepared based on the contents of these signoffs. From FY March 2010, for the purpose of early discovery of inadequacies at each department or Group company, a new system of quarterly reporting has been implemented whereby inadequacies found are reported to the Mazda's auditing department on a quarterly basis. For each inadequacy reported, the deadline and responsible person for improvement are determined to facilitate speedy improvement.

## Mazda Internal Controls



## Risk Management

g h

Mazda makes continuous efforts to identify and reduce various internal and external risks in accordance with the Basic Policy on Risk Management, Risk Management Regulations, and other related internal regulations, so as to ensure continuous and stable progress of business activities. Among the risks identified, considering the level of importance, individual business risks are managed by the department in charge of that business area while company-wide risks are handled by departments that carry out business on a company-wide basis. These departments manage the risks appropriately, following the PDCA cycle.

In the event of an emergency, such as a natural disaster or situation that creates serious managerial consequences, Mazda takes appropriate measures in reference to its internal regulations, including establishing an emergency response taskforce when necessary. In line with the medium-term action plan established in FY March 2017, the Risk Compliance Committee has worked to further clarify the risks in the Company and its Group companies and to strengthen risk management. The committee has also ascertained the progress of these activities on a half-yearly basis. Its initiatives are periodically reported to the Board of Directors. In FY March 2019, as in the previous year, the committee selected the common key issues to be addressed across the Mazda Group, from among the risks identified by each division, based on the confirmed results of the said risk management. Then, measures were put in place to deal with these key issues. Moreover, the committee enhanced education programs for division general managers as well as managers of Group companies. Mazda is presently upgrading and expanding its business continuity plan (BCP) to avoid suspension of business that would extensively impact society.

### Basic Policies of Risk Management

#### Concept

With the advance of IT and globalization and the growing awareness of environmental issues and compliance with the law, the environment surrounding the company's activities is rapidly changing, and it can be expected to change even further in the future. In order to realize this "Corporate Vision," it is necessary to specifically address these changes in the environment and minimize the potential risks that threaten to interfere with the continuous, safe furtherance of our business activities. The company must also create a system that will allow a rapid recovery when abnormal or emergency circumstances occur and gain the strong trust from our customers, shareholders and the community. The entire Mazda Group shall address risk management and work toward becoming a company that can truly be trusted.

#### Goals

In the following ways, Mazda shall strive for Enhancement of Corporate Value and Harmony with the Community thereby realizing the company's "Corporate Vision."

1. Ensure the health and safety of all those who make up the Mazda Group as well as local citizens
2. Maintain and increase the trust from the community
3. Make appropriate use of the tangible and intangible corporate assets of the Mazda Group
4. Secure interests of the stakeholders, earn their trust and meet their expectations
5. Support the functions of the organization and seek a rapid restoration of business activities at the time of abnormal circumstances or emergencies

#### Action Plan

All corporate officers and all employees shall have responsibility for carrying out risk management based on the awareness that risk exists in every facet of business activities. Risk management shall be addressed from all angles at every stage of operations.

#### Methods

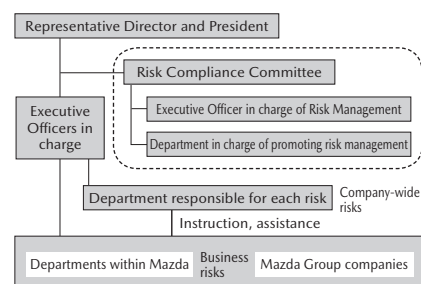
Risk management activities shall be divided into two types:

1. Continuous efforts to prevent and mitigate potential risks existing in everyday duties and the promotion of the proactive use of these activities (risk management)
2. Minimization of damage resulting from crisis and rapid recovery (crisis management)

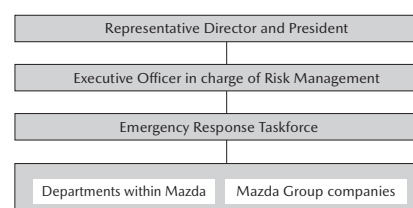
#### Scope of Application

1. Shall include the control of all types of business risk.
2. Shall apply to the entire Mazda Group including subsidiaries and related companies.

### g Risk Management Structure in Normal Times



### h Emergency Risk Management Structure



For incidents that fall outside the scope of existing risk management organizations and require a coordinated interdepartmental response, the executive officer in charge of risk management will consult with the president, establish an emergency response taskforce, and appoint a general manager for this taskforce.

#### ■ Annual Report 2019

<https://www.mazda.com/en/investors/library/annual/>

• Business risk (pp. 41-43)



## Response to Accidents and Other Emergencies

Mazda has been systematically working to enhance both the “hardware” and “software” aspects of emergency readiness, in preparation for major earthquakes such as the expected Nankai Trough Earthquake and tsunamis associated with them. Examples of such “hardware” and “software” measures include quake-proofing buildings and facilities, and raising embankments, as well as maintaining emergency-contact networks and organizing self-disaster-defense teams.

Meanwhile, disaster drills are held annually both jointly with fire authorities and solely by Mazda’s self-disaster-defense teams, based on lessons learned from the Great East Japan Earthquake and other earthquakes that occurred in various parts of Japan. Mazda also introduced a system to confirm employees’ safety in the event of a large-scale disaster.

In FY March 2019, the Company established a system for faster initial response in an emergency, with the aims of protecting human life and minimizing disaster damage, based on the experience in the heavy rain in July 2018. Mazda also further strengthened its collaboration system with local communities for disaster control, through the dispatching of fire engines in the case of fire in the surrounding region and provision of drinking water, work gloves, and other relief supplies to the affected areas.

## Information Security

Personal information and other important information are appropriately managed and protected based on the established information management policies and internal regulations, so as to ensure information security.

To raise employees’ awareness about information security, Mazda requires its employees to execute training on the management of confidential information, protection of personal information, and IT security. When newly joining the Company, management of confidential information is covered in the introduction program, while e-learning is used for personal information protection and IT security training. Other continuous education efforts are also available, including an Intranet site dedicated to information and knowledge on information security. For companies in the Mazda Group, Mazda provides guidelines and educational tools regarding information security, realizing a group-wide effort to ensure information security.

### IT Security Management Rules

The IT security policy based on the BS 7799\*<sup>1</sup> framework has been established as IT security management rules, under which the mechanisms for security control and monitoring that should be incorporated into IT systems are determined. Whether such mechanisms are properly installed and operated is confirmed on both a regular and random basis.

## i Number of participants in drills at Mazda Head Office

Drill for disaster response, firefighting and first aid (using AED) in preparation for an earthquake, tidal wave, etc.

	FY March 2017	FY March 2018	FY March 2019
Participants	19,021	19,289	18,900

\*1 Standards on information security management established by the British Standards Institution (BSI), on which ISO/IEC27001 & 27002, the current international standards for information security management, are based.

## Protection of Personal Information

Mazda rigorously protects personal information in line with its own Personal Information Protection Policy.

Handling rules are set out in order to ensure appropriate management of personal information, regular examination of management records for retained personal data is taken, and management statuses are checked once a year. In cases in which the handling of personal information is entrusted to outside parties, such contractors are carefully selected based on a checklist which determined the necessary items including security management. The Mazda Call Center responds to customers who wish to inquire about the Company's handling of personal information and those who request disclosure regarding privacy issues.

In FY March 2019, in response to the EU General Data Protection Regulation (GDPR), whose application started that year, Mazda took appropriate measures, by such means as establishing its internal regulations and providing education for data management divisions through e-learning.

### Personal Information Protection Policy

The Company endeavors to adequately protect the personal information of its customers, business partners, employees and other parties in accordance with laws and regulations on the protection of personal information and the basic guidelines described below.

1. Mazda shall establish Regulations for the Protection of Personal Information, to be adhered to by all parties that handle personal information.
2. Mazda shall put in place a presiding supervisor for the management of personal information, and provide corresponding educational activities for its employees (directors, employees, part-time workers, temporary agency workers, etc.) and other related persons.
3. Mazda shall acquire personal information through appropriate means. When collecting personal information, Mazda shall either inform that person of the purposes of use and its contact address, or announce such information by a well-recognized method or methods (such as through a website).
4. At Mazda, personal information shall only be utilized by those who have been authorized to manage such data, to the extent disclosed to the parties concerned or publicly announced, and within the scope necessary.
5. Mazda shall take all necessary measures required by law, including obtaining consent from the relevant party, for the provision of such personal information to a third party.
6. If Mazda assigns a third party to any business relating to personal information, the Company shall make an appropriate selection of the assignee for such business, and take all necessary measures required by law, such as conducting necessary and adequate supervision.
7. If Mazda receives any claim for disclosure, correction, suspension, or elimination of all or any part of the personal information retained by the Company, Mazda shall react appropriately in accordance with laws after the Company confirms that said claim was made by the relevant party.
8. Mazda shall ensure reasonable security measures, and continuously improve such measures to prevent illegal access, loss, destruction, falsification, and/or leakage of personal information.

## Basic Policy on Intellectual Property

Mazda's overall vision for intellectual property is to use intellectual property as a management resource in support of its business management and enterprise activities, based on respect for its own and others' intellectual property. Based on this vision, Mazda has established an Intellectual Property Committee to discuss and decide key items regarding intellectual property. The committee is comprised of division general managers from related divisions and chaired by an executive officer responsible for intellectual property issues. Also, the invention incentive system increases motivation for inventions among employees working at the forefront of research and development. For its Group companies in Japan and overseas, Mazda supports them in developing/ implementing policies and establishing systems for handling intellectual property, with the aim of enhancing the intellectual property management functions of the entire Mazda Group.

### j Invention and device awards

Once a year on Mazda's foundation day, certificates of commendation, commemorative medals, prize money, etc. are presented to the selected recipients through the manager of their department. No limit is set for the amount of prize money, so that inventors are fully rewarded for their contribution.

## Protection of Intellectual Property and Intellectual Property Risk Management

Mazda's dedicated Intellectual Property Department leads Company activities regarding intellectual properties so as not to infringe upon the intellectual property rights of other companies, and conducts strategic activities aimed at fiercely protecting, accumulating, and making optimal use of the intellectual properties generated through these in-house activities.

1. Exhaustively uncovers and globally obtains rights concerning intellectual properties created by its business activities, including new technologies, markings, model names and vehicle designs, and protects Mazda technologies and the Mazda brand.
2. Takes steps to exhaustively investigate as well as prevent and solve any problems regarding intellectual properties that may obstruct business activities in each domain, such as infringement of other parties' patent rights; trademark rights, design rights and copyrights; and violations of the Unfair Competition Prevention Act.

To avoid patent litigation driven by patent trolls,\*<sup>1</sup> which has been increasing mainly in the United States, Mazda joined the License on Transfer Network\*<sup>2</sup> in 2015. The Company also participated in 2017 in the Open Invention Network (OIN), in which all members agree that there should be no patent conflict around LINUX and related technology. The aim of this participation was to reduce the risks regarding LINUX-related patents, which have been on the rise as the use of LINUX-based OS becomes widespread in the automotive industry.

### Awareness-Raising Activities

k

The Mazda Corporate Ethics Code of Conduct (see p. 114) stipulates "Protect confidential information. Never infringe on any intellectual property rights, whether belonging to Mazda or another party," so as to clearly convey a relevant code of conduct to all employees and guide their behavior. The Intellectual Property Department is responsible for the overall management of intellectual property, and also regularly conducts awareness-raising activities to instill respect for intellectual property law. Based on periodic review of risks according to changes in the external environment, the Department offers awareness-raising programs tailored to the management level and position of each employee and executive in Mazda and each Mazda Group company at home and overseas, and to the type of intellectual property in question.

In addition, to prevent intellectual property-related problems, intellectual education is provided with particular focus on the risks involved in joint development, thereby promoting information sharing and awareness raising.

### k Examples of awareness-raising activities

- Preparing manuals for creating and publishing materials
- Developing Mazda-Shared Image-Collection, which collects communication materials that involve no risks of intellectual property infringements

### Brand Protection (Measures against Imitation Products)

To protect customers, Mazda implements activities to eliminate the risk posed to customers by the purchase of imitation products. These activities are aimed at supporting and improving the strength of the Mazda brand and its trustworthiness, as a brand that continues to be relied on by customers.

[Details of Activities]

1. Mazda develops and implements its own measures against the sale of imitation products.
2. Mazda actively participates in programs organized by the private and public sectors against imitations.
3. Mazda appoints permanent staff from among the members most knowledgeable in intellectual property issues to liaise with countries and regions that are major sources of imitation products. Working with government and other agencies tasked with exposing imitation products, these staff members work to devise measures to stem the flow of such products.

\*1 A patent troll is an organization or group that is not engaged in technology development itself but acquires patents for technologies developed by others, for the purpose of demanding unreasonably high patent royalties or settlement money from third parties that use the relevant technologies.

\*2 A patent association established in July 2014 by Canon Inc., Google LLC. and some other companies. If a member company sells a patent it owns to an external organization, group, or individual, the license for the patent will be automatically granted to other member companies. (If a patent troll obtains a patent of a member company, Mazda cannot be charged a patent royalty by the patent troll.)

## Compliance

At Mazda the concept of compliance applies not only to laws and regulations, but also includes adherence to other rules such as internal guidelines and societal norms and expectations. Business operations are conducted in accordance with the Mazda Corporate Ethics Code of Conduct to ensure fair and honest practice. To promote highly transparent and fair transactions with all partner companies, Mazda established the Guidelines on Entertainment and Gifts, which prohibit bribery, receiving unjust benefits, etc. These guidelines are revised as needed to cope with changes in the social environment, social needs, etc.

Overseas as well, Mazda not only complies with international regulations and the laws of each country and region, but also respects local history, culture, and customs.

The Global Employee Engagement Survey, which includes a questionnaire concerning compliance, is conducted to check the employees' degree of understanding of compliance.

### Outline of the Mazda Corporate Ethics Code of Conduct

#### Five principles of "faithful" behavior

1. To comply with laws and regulations, company rules, common sense and sound practice in international society.
2. To be fair and even-handed.
3. To fulfill the company's social responsibilities.
4. To fulfill your own duties truthfully.
5. To be honest.

#### Guidelines

1. Comply with laws and regulations and the company rules. In a situation where such rules are not clearly defined, make a judgment considering their spirit.
2. Treat employees, customers and clients fairly and justly. Do not obtain from or give anybody an unjust benefit and/or favor taking advantage of your business position.
3. Make distinctions between public and private affairs, and never pocket or abuse the company assets.
4. Keep confidential information. Never infringe on any intellectual property rights, whether it belongs to Mazda or another party.
5. Seek to develop, manufacture and sell products taking human safety and the environment into consideration.
6. Act with a view to seeking sound profit.
7. Respect human rights and human dignity.
8. State the truth honestly and timely in reporting internally and/or to the public.

## Mazda Global Hotline

The Company has established the Mazda Global Hotline, as an in-house system to receive reports regarding non-compliance and other issues. With its contact points set up both inside the Company and outside (attorney's office), the hotline enables Mazda Group employees to choose a contact point to submit their reports to either under their real names or anonymously. The content of these reports is carefully handled, and the whistleblowers' confidentiality is completely protected. In so doing, Mazda takes sufficient follow-up measures to ensure that those who make reports to the hotline or who cooperate in an investigation will not be subject to unfavorable treatment.

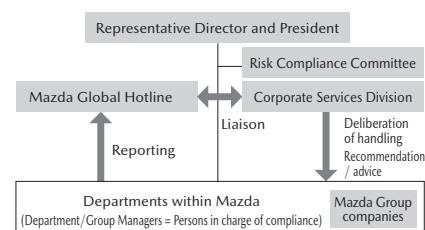
The Company has distributed the Compliance Card with the contact information to all employees at Mazda Motor Corporation, on the occasion of compliance education. In FY March 2019, as part of its efforts to make the hotline better known to everyone, Mazda put up posters and implemented e-learning programs.

The Mazda Global Hotline is also introduced to suppliers so that they can report the questions arose from any transaction.

The hotline received total of 51 reports, including consultation, in FY March 2019.

In addition, Mazda has set up several contact points to provide various consultations for employees. These contact points aid in the early detection and appropriate handling of important compliance-related information. The critical cases are reported to the management.

### Compliance Promotion System



### Global Employee Engagement Survey Percentage of positive responses

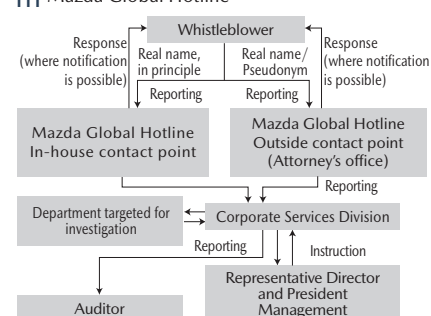
(Consolidated)

	FY March 2019
Legal and company policy compliance is strictly observed in this company.	77%

### Overview of Compliance Activities

- 1997 Ethics Committee established under the direct supervision of the president
- 1998 Mazda Corporate Ethics Code of Conduct established. Guidelines on Entertainment and Gifts established
- 1999 Ethics Advisory Office established
- 2002 Compliance Seminar held for executives and middle managers (once a year in principle)
- 2005 A mandatory e-learning course held for all indirect employees Ethics Questionnaire conducted targeting executives and employees  
A wallet-size "Compliance Card" is distributed to every employees in the Mazda Group.
- 2007 The Mazda Global Hotline established
- 2008 Distribution of "Learning from Other Companies" and "Compliance Communications" started on the Company Intranet  
The Ethics Committee reorganized to Risk Compliance Committee
- 2013 Compliance Card revised and disseminated through the Mazda Global Hotline
- 2017 Distribution of "Let's Learn Together about Compliance!" started on the Company Intranet

### m Mazda Global Hotline



### n Various Contact Points



## Compliance Education

Mazda believes that mere adherence to laws and regulations is not enough; it is important to have each and every employee understand the essence of such laws and regulations and to practice integrity.

Various compliance education activities are organized in line with the changes in the social environment and social needs. The content of voluntary learning opportunities using e-learning is also being enhanced.

Moreover, the Company uses its Intranet to raise employee awareness of compliance issues. For example, Mazda distributes a case study series entitled “Learning from Other Companies’ Case Examples,” which highlights problems and best practices at other companies relating to compliance and risk management. Such information is also shared with Mazda Group companies, who apply it in their own compliance education activities.

Continued initiatives targeting executives and middle managers of Mazda as well as Group company executives are also taking place to reemphasize the importance of compliance through compliance seminars taught by internal and external lecturers, and timely provision of information.

- Themes of “Learning from Other Companies’ Case Examples,” “Let’s Learn Together about Compliance!” and “e-Learning” (Example)

- Agreement
- Copyright
- Insider Stock Trading
- Personal Information
- Act on Subcontracting
- Security Control
- Act against Unjustifiable Premiums and Misleading Representations
- Ordinances on Exclusion of Violence Group
- Anti-Monopoly Act
- Unfair Competition Prevention Act (including bribery of national civil servants)
- Security Export Control
- Non-Disclosure Agreement
- Outsourcing Agreement
- And others

## Enhancing Global Tax Compliance

The Mazda Group handles tax affairs with integrity, in keeping with the Mazda Corporate Ethics Code of Conduct and other relevant rules and regulations.

It is an important duty as a good corporate citizen to pay taxes in an appropriate and timely manner, in accordance with followings: international rules, each country’s laws and regulations, and the Company’s Finance Control Guidelines. With this in mind, Mazda contributes to social development in each country, by voluntarily fulfilling its tax obligations.

The Mazda Group understands the purport of the Base Erosion and Profit Shifting (BEPS) projects, which are promoted by the OECD and the G20 countries.

The Group will not engage in tax-evasion behaviors through the abuse of tax havens, but will sincerely cooperate in implementing information disclosure in response to requests from the tax authorities of each country, to ensure tax transparency. Particularly in its global business operations, Mazda is well aware of the importance of transfer pricing taxation as a means of determining proper profit-sharing among Group companies in the respective countries. By promoting active dialogue with tax authorities through effective use of Advance Pricing Arrangement, the Mazda Group is committed to transparent and fair transfer pricing. The Group will continue to establish trusted relationships with the tax authorities in each country and enhance tax compliance from a global standpoint, while taking into account changes in the social environment and needs regarding tax affairs.

## Supporting Enhancement of Compliance at Dealerships in Japan

To support transparent management throughout all Mazda Group companies, Mazda systematically promotes the strengthening of compliance among its dealers in Japan based on the principle as compliance being the base for building the brand.

### Specific initiatives:

- CSR Committee meetings are convened in conjunction with the Mazda Dealership Association in Japan in order to discuss basic policies and measures related to compliance and internal controls, and request the promotion of compliance to all Mazda dealerships in Japan at every opportunity, such as during the conferences for dealership representatives.
- At regular training sessions for representatives from dealerships in Japan, their awareness is raised to fully implement measures to find inadequacies in compliance and internal controls and prevent recurrence of similar problems. They also share examples of these inadequacies with related parties, and carry out relevant investigations.
- Questions encompassing risks concerning standard business process and laws particular to dealerships in Japan as well as internal control were added to the Self Diagnosis Checklist on Internal Controls, which is deployed throughout the Mazda Group. It supports the promotion of dealership management in compliance with related laws and improvement of work efficiency. The Self-Diagnosis Checklist reflects examples of dealerships' activities. It is intended to promptly share best practices and risks with related parties and to promote more practical self-diagnosis. Since FY March 2019, a briefing session has been held, in order to promote internal control self-diagnosis activities at more dealerships.
- The CSR site has been opened on the intranet used by all dealerships in Japan, in order to promote understanding of compliance and internal controls among dealership employees. The site provides the standard operating procedures that define the basic business operations to be performed by dealerships, as well as education tools, such as one-point lessons on compliance concerning near-at-hand case studies and specialized e-learning programs.
- For immediate reporting of problems regarding compliance, internal controls, human rights and other CSR-related issues, an in-house consultation contact point has been set up at each dealership in Japan, and effective use of the Mazda Global Hotline reporting system has been brought back to attention.



# IMPLEMENTING CSR IN THE SUPPLY CHAIN

## Working with Mazda's Suppliers

Mazda carries out a wide variety of activities in order to achieve mutual growth and prosperity with suppliers and dealerships, both in Japan and overseas. In line with its basic purchasing policy, Mazda is making efforts to build open business relationships and ensure fair and even-handed dealings with its suppliers both in Japan and overseas, while extending opportunities to businesses throughout the world, regardless of nationality, scale or history of transactions with the Company. Upon receiving a request to start business with Mazda, Mazda assesses the company in question in a fair and even-handed manner according to its in-house criteria for evaluation of suppliers, and determines the feasibility of a business partnership.

In addition, Mazda bases its assessments of business dealings with its suppliers on a comprehensive evaluation that covers not only quality, technical strengths, pricing, delivery time and management approach, but also the corporate compliance structure and CSR initiatives, including environmental protection activities (see p. 118). Mazda has conducted questionnaire surveys of its suppliers on an as-needed basis, aiming to understand and evaluate the status of their CSR implementation in more detail (see p. 118). Also, concerted efforts are under way between Mazda and its suppliers to establish risk management systems that ensure business continuity and stable development, so as to avoid suspension of business that would extensively impact society (see p. 119). In addition to proactively offering opportunities for communication, Mazda provides supports in various forms to suppliers to ensure that the Company can promote CSR initiatives and risk management in close concert with them (see p. 119).

## Promoting CSR Initiatives in Partnership with Its Suppliers

### Promoting Suppliers' CSR Initiatives and Deployment of the Mazda Supplier CSR Guidelines

The Company stipulated the Mazda Supplier CSR Guidelines, based on Mazda's basic approach on CSR initiatives and with reference to the CSR Guidelines of the Japan Automobile Manufacturers Association. The Guidelines outline CSR areas and items that are closely related to the purchasing area. In the Guidelines, CSR activities are categorized into six areas: Customer Satisfaction (Safety/Quality), Environment, Social Contribution, Respect for People (Human Rights/Work), Compliance, and Information Disclosure. The Guidelines request that all Mazda suppliers comply with the guidelines in these areas. The Mazda Green Purchasing Guidelines (see p. 59) are separately created to indicate the Company's approach on the environmental protection area in more detail, and Mazda requests that suppliers observe these guidelines. The Company also conducts periodic surveys of suppliers to confirm their compliance status (see p. 118).

**Customer Satisfaction (Safety/Quality):** Suppliers are requested to abide by the guidelines regarding products and services that meet the needs of consumers and customers, sharing appropriate information about products and services, safe products and services, quality products and services, etc.

**Environment:** Suppliers are requested to abide by the guidelines regarding environmental management / greenhouse gas reduction / air, water and soil pollution prevention / resource conservation and waste reduction / chemical management / ecosystem conservation, etc.

**Social Contribution:** Suppliers are requested to make social contributions proactively and continuously at home and abroad to meet the needs of each region, thereby fulfilling their responsibilities as a good corporate citizen.

**Respect for People (Human Rights/Work):** Suppliers are requested to abide by the guidelines regarding abolition of discrimination / respect for people / prohibition of child labor / prohibition of forced labor / non-use of conflict materials\*<sup>1</sup> (see p. 118) / wages / working hours / dialogue with employees / safe and healthy working environment, etc.

**Compliance:** Suppliers are requested to abide by the guidelines regarding regulation compliance / competition law compliance / promotion of fair business practices (added in FY March 2019) / corruption prevention / confidential information management and protection / export management / intellectual property protection, etc.

**Information Disclosure:** Suppliers are requested to disclose information to their stakeholders in a timely and appropriate manner, and make efforts to maintain and develop mutual understanding and trustful relationships with stakeholders through open and fair-minded communication.

#### Basic Purchasing Policy

Mazda will, in the fullest sense of coexistence and mutual prosperity, engage in research and production for improved competitiveness. The Company will build open and fair business relationships to ensure sustainable growth and raise its level of contributions for social and economic development. (1994)

#### Number of Suppliers (As of March 31, 2019)

Automotive parts	543
Materials, etc.	148
Equipment and tools	396
Total	1,087

#### a Measures for Supplier Support

- Co-creation and technology exchange with suppliers, aimed at improving their competitiveness
- Cooperating with suppliers in improving their product quality
- Adoption of the Milk-Run system (Mazda has shifted from the conventional system, with delivery of parts by each supplier, to the Milk-Run system (MRS) (see p. 72), in which Mazda trucks stop at multiple suppliers to collect parts.
- Provision of advice on joint subscription systems for product liability insurance, which reduces manufacturers' liability risks for parts.
- Provision of information on third-party exhibitions and conventions to showcase the latest technologies and manufacturing methods

#### b Mazda Supplier CSR Guidelines

[https://www.mazda.com/globalassets/en/assets/csr/csr\\_vision/distributor/supplier\\_csr\\_guideline\\_e.pdf](https://www.mazda.com/globalassets/en/assets/csr/csr_vision/distributor/supplier_csr_guideline_e.pdf)

#### c Mazda Green Purchasing Guidelines

[https://www.mazda.com/globalassets/en/assets/csr/csr\\_vision/distributor/greenpurchasing\\_guideline\\_e.pdf](https://www.mazda.com/globalassets/en/assets/csr/csr_vision/distributor/greenpurchasing_guideline_e.pdf)

\*1 Conflict minerals: Minerals and their derivative metals designated by Financial Regulatory Reform Article 1502 that are sourced from and used as financial sources for armed groups in conflict-affected regions in the Democratic Republic of Congo or adjoining countries (Regulated minerals: tantalum, tin, tungsten, gold). Under this act, listed US companies are obliged to report that no conflict materials are used in their products.

## Example of CSR Initiatives in Cooperation with Suppliers

### Respect for People: Activities to Address Problems regarding Conflict Minerals

Mazda considers that among crucial social problems in the supply chain are human rights violations and illegal extraction in disputed regions and issues regarding conflict minerals\*<sup>1</sup>, which may be used as financial sources by armed groups.

To ensure that conflict minerals and other materials that may cause social problems are not used, the Mazda Supplier CSR Guidelines clearly state Mazda's policy, and the Company requires all suppliers to comply with it. In FY March 2019, Mazda conducted a survey on conflict minerals, targeting about 300 suppliers of the parts and materials of vehicles to be supplied to companies to which Mazda vehicles are delivered, in response to the request. The survey was carried out using the format designated by the Electronic Industry Citizenship Coalition (EICC) (now the Responsible Business Alliance [RBA]).

### Compliance: Promotion of Fair Business Practices

Mazda promotes fair business practices to ensure that both the Company and its suppliers have fair dealings under clear standards with a common recognition to strengthen their global competitiveness through mutual collaboration. Based on the Guidelines for Appropriate Transactions in the Automobile Industry, which was formulated at the initiative of the Ministry of Economy, Trade and Industry, Mazda carries out various activities, including the formulation of the Promotion Manual for Appropriate Purchasing, education for those engaged in procurement operations at Mazda, and information provision to suppliers through the website and briefing sessions.

## The Supplier Evaluation System

When starting business with a new supplier, related departments coordinate together to confirm the supplier's quality control system, research & development system, technological capabilities, financial conditions, and CSR initiatives, in order to evaluate whether or not the supplier is compliant with the procurement/selection policies of the Mazda Group. For each long-term supplier, Mazda conducts not only an evaluation based on the quality, cost and delivery time of the procured goods or services, but also a comprehensive evaluation of the entire business including the quality control system, research & development system, technological capabilities, and the status of its CSR initiatives. For the supplier quality control system, Mazda employs a system that enables continuous grasping of issues, evaluation of the situation, and provision of guidance for improvement by receiving daily reports on product quality as well as voluntary audit results, and when a supplier is in need of quality improvement, conducts quality auditing that involves on-site confirmation of actual products at both domestic and overseas sites. Also, Mazda comprehensively evaluates its suppliers every year (271 suppliers in 2018) from the perspectives of quality, pricing, delivery time, etc., in order to build more positive business relationships with them, and passes the results of these evaluations back to the suppliers. Outstanding suppliers are recognized with awards. The Company has also introduced CSR-based evaluation, giving special awards to suppliers that have made outstanding proposals on weight trimming, which greatly affects environmental performance such as fuel efficiency.

## Questionnaire Survey for Suppliers

Mazda has conducted questionnaire surveys of its suppliers since FY March 2014, aiming to understand and evaluate the status of their CSR implementation. The survey results confirm that these suppliers have appropriately implemented CSR initiatives and established their own CSR promotion systems. In FY March 2019, a questionnaire survey was carried out about compliance (fair business practices) and labor practices (reform of working practices), in view of the growing social awareness of these matters. The survey was targeted at approximately 60 local manufacturers, a major percentage of whose sales consisted of products delivered to Mazda. The survey results showed that a progress has been made since FY March 2018. After analyzing these results, the Company held individual interviews with companies deemed to be in need of further improvement, in order to offer them cooperation in devising improvement methods.

Using these surveys, the Company checked each supplier's recognition of the Mazda Supplier CSR Guidelines, and confirmed that all the suppliers surveyed were aware of these guidelines.

### d In-House Education to Ensure Fair Transactions

The following educational initiatives are conducted for those engaging in procurement operations in order to realize fair and equal transactions.

- Administering comprehension tests on promotion of fair business practices (including Subcontractors Act)
- Education on financial control
- Posting of guides and process rules regarding fair business practices and compliance on the Purchasing Division website on the Intranet
- Participation in the fair trade promotion seminar hosted by the Small and Medium Enterprise Agency

### e Evaluation System

Evaluation items when starting business with a new supplier

Quality management system, research & development system, technological capacity, production and delivery capacity, financial conditions, CSR initiatives, etc.

Evaluation items for long-term suppliers

Quality management system, research & development system, technological capacity, production and delivery capacity, financial conditions; quality, pricing, delivery time of goods or services procured, and other items in the Supplier CSR Guidelines (see p. 117)

\*1 Conflict minerals: Minerals and their derivative metals designated by Financial Regulatory Reform Article 1502 that are sourced from and used as financial sources for armed groups in conflict-affected regions in the Democratic Republic of Congo or adjoining countries (Regulated minerals: tantalum, tin, tungsten, gold). Under this act, listed US companies are obliged to report that no conflict materials are used in their products.

## Risk Management in Collaboration with Suppliers

### Upgrading and Expanding the Business Continuity Plan (BCP)

In the light of risk management, Mazda works together with its suppliers to upgrade and expand its business continuity plan (BCP) in order to avoid suspension of business that would extensively impact society. The Company has introduced the “SCR Keeper,”<sup>\*1</sup> a supply chain risk management system, to accelerate its initial response in the event of a disaster by promptly and thoroughly grasping information on the situation of operation sites. Also, initiatives are under way to promote disaster prevention and mitigation activities. Mazda had already completed risk inspections and made provisions against the expected Nankai Trough Earthquake and other large earthquakes. However, based on the experience in the heavy rain in July 2018, the Company started to further advance its disaster preparedness, including the inspection of supply chain risks with its scope of application broadened to cover heavy rain-related risks, and reinforcement of disaster prevention and mitigation measures in operation sites at high risk. Mazda will continue to enhance its BCP in cooperation with its suppliers.

## Communicating with Suppliers

### Information Exchange and Dialogues with Suppliers

f g

Mazda proactively offers opportunities for communication with suppliers, to ensure that the Company can work in close concert with them. Seeing all the suppliers as its important business partners, the Company takes steps to promptly brief suppliers on medium- to long-term business strategies and on matters related to sales and production, and arranges opportunities for information exchange and dialogues on a regular basis.

As part of such efforts, Mazda organizes an annual seminar with the aim of enhancing awareness of environmental and other CSR initiatives.

The Company also maintains close liaisons with supplier-managed purchasing cooperative organizations.<sup>\*2</sup> For example, staffs from member companies visit each other's offices in order to exchange examples of successful approaches and practices through subcommittee activities. In FY March 2019, 127 companies conducted a total of 59 activities.

#### Major Channels of Communication with Supplier

Target participants		Frequency	Aims/content
Roundtable Conference with Supplier Management	Executive-level management at major suppliers	Once a year	<ul style="list-style-type: none"> <li>• Mazda's president and CEO explains Mazda's current status, the problems the Company faces and its policies, after which the general manager of the Purchasing Division explains Mazda's purchasing policies in order to heighten participants' understanding of Mazda and gain their cooperation.</li> <li>• This conference also deepens friendly ties between Mazda and its suppliers.</li> </ul>
Supplier Meeting	Representatives of frontline business divisions and departments at major suppliers	Once a year	<ul style="list-style-type: none"> <li>• Mazda's specific purchasing policies are explained to representatives of frontline business divisions at suppliers, based on the explanation given at the roundtable conference by the general manager of the Purchasing Division. This helps to promote a better understanding of Mazda and provides useful input for the work that suppliers do.</li> </ul>
Supplier Communication Meeting	Representatives of frontline business divisions and departments at major suppliers	Once a month	<ul style="list-style-type: none"> <li>• To facilitate smoother collaboration with its suppliers, Mazda provides them with information, such as topics concerning daily operations between Mazda and its suppliers (including CSR), production/sales status, quality status of purchased materials, pilot construction schedules for newly developed models, and mass-production implementation schedules for new models.</li> </ul>
Other	—	As needed	<ul style="list-style-type: none"> <li>• Mazda also employs a range of other communication channels, by using the in-house “Mazda Technical Review”, highlighting new technologies and research.</li> </ul>

f Lecture at Supplier Communication Meeting “Mazda's CSR initiatives” (November 2018)



g Purchasing Cooperative Organizations\* (As of March 31, 2019)

Parts suppliers	Yokokai	169
Materials suppliers (Raw materials, equipment, molds, etc.)	Yoshinkai	80

\* An autonomous management organization, comprising suppliers that have a certain degree of transaction with Mazda, with the purpose of strengthening relationships between Mazda and its suppliers as well as promoting mutual growth and prosperity.

<sup>\*1</sup> Supply Chain Resiliency system  
This is a system combining map data with the earthquake information by the Meteorological Agency, with which the seismic intensity of the registered production sites can be found quickly in the event of an earthquake.

<sup>\*2</sup> Yokokai member companies: 169 parts suppliers, Yoshinkai member companies: 80 material suppliers  
The procurement amount from member companies of Yokokai and Yoshinkai accounts for about 90% of the whole.

# WITH SHAREHOLDERS AND INVESTORS

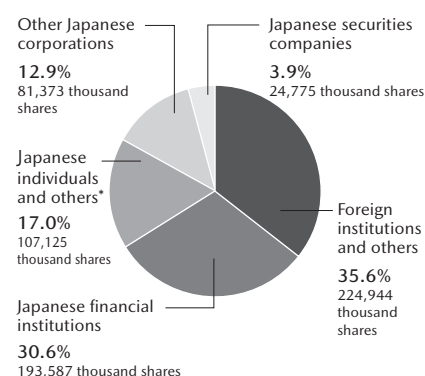
## Dialogue with Shareholders and Investors

For continued growth and enhancement of corporate value over the medium and long terms, Mazda engages in a variety of investor relations initiatives in keeping with its policy of timely and appropriate disclosure of information and with constructive dialogue. In addition to general shareholders' meetings, the Company holds frequent meetings with its shareholders and investors, providing quarterly announcements to explain its business results and other activities. The Company is working to increase opportunities for dialogue in such ways as holding business briefings for institutional investors, individual investors, and domestic and overseas securities analysts.

Mazda's official website provides information such as the schedule for general shareholders' meetings and financial results announcements, performance/financial data, notices of the general meetings of shareholders (business reports), shareholders reports (Japanese only), summary of financial results, briefing materials for the financial results, Securities Report (Japanese only), annual report, Cooperate Governance Report. Mazda strives for highly transparent and fair disclosure. Mazda is planning to apply International Financial Reporting Standards (IFRS), in order to enhance the international comparability of its financial information, quality of Group management and corporate governance. Mazda will decide the appropriate timing of IFRS application, observing the trend of the adoption among Japanese companies as well as the domestic and overseas economic situations.

a

a Breakdown of Shareholders by Type  
(as of March 31, 2019)



\* Treasury stock is included in Japanese individuals and others

## Management Conditions and Dividends for FY March 2019

b

The operating environment for the Mazda Group in FY March 2019—the year ended March 31, 2019—showed a gradual recovery trend as a whole despite factors clouding the outlook, including trade friction among leading economies and issues surrounding the United Kingdom's departure from the European Union ("Brexit"). Against this backdrop, the Mazda Group made efforts to offer attractive products that provide driving pleasure and outstanding environmental and safety performance in this fiscal year, the last year of its Structural Reform Stage 2 medium-term business plan. At the same time, the Group worked to further improve its brand value with the aim of realizing qualitative growth in all areas of its business. This fiscal year, the Company launched the Mazda3 as the first of its new-generation products, starting to sell the model in North America. Also, Mazda's second new-generation model, the CX-30, compact crossover SUV, made its world premiere at the Geneva International Motor Show in March 2019. On the production front, Mazda resumed two-shift (day and night) operations at the Hofu Plant No.2 in August 2018, bringing all vehicle production sites in Japan onto a two-shift operations schedule, thereby realizing a more efficient production system that can flexibly respond to demand. Meanwhile, preparations are well under way to start operations of Mazda Toyota Manufacturing, U.S.A., Inc., a joint venture production company in the United States, in 2021. On the research and development front, in October 2018, Mazda announced its technology strategy for electrification and connectivity as a concrete initiative to realize its "Sustainable Zoom-Zoom 2030" long-term vision for technology development. In the area of these new technologies as well, the Mazda Group remains committed to embodying the spirit of "never stop challenging" in pursuit of driving pleasure, based on Mazda's unique human-centered development philosophy. Mazda promotes various initiatives aiming at becoming a brand with which customers feel an emotional connection that is the strongest in the world.

In this fiscal year, global sales volume declined 4.2% year on year, to 1,561 thousand units. By market, sales volume rose in Japan and the ASEAN region but fell in China, the United States, and Australia. By model, sales remained brisk for crossover SUVs including the CX-5 and the CX-8. Net sales totaled 3,564.7 billion yen, an increase of 90.7 billion yen from the previous fiscal year, mainly supported by growth in wholesales. Operating income declined 63.4 billion yen to 83.0 billion yen. The decline reflected such factors as increased marketing expenses due to intensifying competition and the impact of yen appreciation, all of which outweighed the benefits of increased wholesales and cost-improvement initiatives. Ordinary income fell 55.3 billion yen to 116.8 billion yen. Net income attributable to owners of the parent declined 48.6 billion yen to 63.5 billion yen.

With regard to the dividend for the fiscal year ended March 31, 2019, we plan to declare. The Company paid a dividend of 35 yen per share (comprising an interim dividend of 15 yen and a year-end dividend of 20 yen) for FY March 2019.

b Management Conditions

(consolidated /billion yen)

	FY March 2017	FY March 2018	FY March 2019
Net sales	3,214.4	3,474.0	3,564.7
Operating income	125.7	146.4	83.0
Net income attributable to owners of the parent company	93.8	112.1	63.5
Capital investment	94.4	104.1	119.7
R & D costs	126.9	136.0	134.7
Total assets	2,524.6	2,724.1	2,871.0
Equity	1,039.4	1,192.9	1,218.7

(thousand units)

	FY March 2017	FY March 2018	FY March 2019
Total	1,559	1,631	1,561
Japan	203	210	215
North America	429	435	421
Europe	262	269	270
China	292	322	247
Others	373	394	409

Investor Relations (includes financial results, annual reports)  
<https://www.mazda.com/en/investors/>

# INNOVATION

Mazda has been committed to manufacturing unique cars that fascinate people with the pleasure of driving, brightening customers' lives through car ownership, and offering cars that are sustainable for the earth and society. To this end, the Company has been developing unique technologies and enhancing cooperation with business partners, universities and research institutions, and administrative organs.

## Mazda-unique Innovation

With the aim of developing innovative vehicles that exceed the expectations of its stakeholders, Mazda has promoted company-wide efforts to review the vehicle-manufacturing processes from scratch. In FY March 2019, these efforts were highly appreciated both inside and outside Japan.

### Innovation in Base Technologies "Skyactiv Technology" a

Mazda engages in research and development with the aim of creating the most functional products with the maximum efficiency. Skyactiv Technology,<sup>\*1</sup> which the Company began introducing in models in 2011, achieved comprehensive improvements in base technologies, such as improving the efficiency of powertrain components including the engine and transmission, reducing vehicle body weight, and improving aerodynamics. In 2019, the Company will introduce cars equipped with the Skyactiv-X (see p. 9), which is set to become the world's first<sup>\*2</sup> commercial new-generation gasoline engine to use compression ignition, and the new-generation Skyactiv-Vehicle Architecture.

#### a SKYACTIV TECHNOLOGY

Name	Features
SKYACTIV-G	Highly efficient direct-injection gasoline engine
SKYACTIV-D	Highly efficient clean diesel engine
SKYACTIV-X	New-generation gasoline engine
SKYACTIV-DRIVE	Highly efficient automatic transmission
SKYACTIV-MT	Highly efficient manual transmission
SKYACTIV-VEHICLE ARCHITECTURE	New-generation vehicle structural technologies
SKYACTIV-VEHICLE DYNAMICS	New-generation vehicle dynamics control technologies

### Skyactiv-Vehicle Architecture New-Generation Vehicle Structural Technologies b

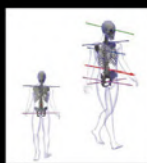
Skyactiv-Vehicle Architecture was developed and enhanced focus on the human-centered design philosophy to leverage the human body's inherent ability to balance itself. Mazda reviewed every component and function -- seats, body, chassis, NVH performance, etc. -- approaching development and commercial implementation from a viewpoint of total vehicle optimization. (An example is the seats, which are designed to keep the pelvis upright, maintaining the spine's natural "S" curve). This also improves the body's balance for driving operations and enhances the ultimate *jimba-ittai* feeling, allowing the driver to control the car easily.

#### b A seat that keeps the pelvis upright to maintain the spine's natural "S" curve

**Ideal condition in a car seat**

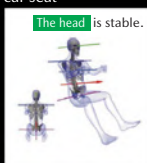
The dynamic balancing capability can be demonstrated as in the case of walking.

While walking



The pelvis is positioned in the opposite direction from the upper part of the body.

Ideal condition in a car seat



The head is stable.

•The seat keeps The pelvis upright to maintain the spine's "S" curvature.  
 •The seat transmits the force from the road surface to The pelvis and causes The pelvis to move regularly, continuously, and smoothly.

■ Ideal condition while walking and in a car seat

<sup>\*1</sup> It covers all Mazda's base technologies such as the engine, transmission, chassis and body.

<sup>\*2</sup> As of August 2017, according to in-house investigation.



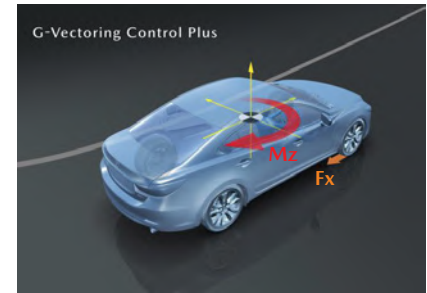
## Skyactiv-Vehicle Dynamics Improves Comfort, Handling, and Stability

Mazda has been pushing ahead with the development of Skyactiv-Vehicle Dynamics, a series of new-generation vehicle dynamics control technologies. These technologies provide integrated control of the engine, transmission, chassis and body to enhance the car's *Jinba-ittai* driving feel—a sense of connectedness between the car and the driver.

In July 2016, the Company released the first technology in the Skyactiv-Vehicle Dynamics series, G-Vectoring Control (GVC),\*<sup>1</sup> which was followed by the second technology, G-Vectoring Control Plus (GVC Plus), introduced in October 2018. GVC Plus uses the brakes to add direct yaw moment control. As the driver steers out of a corner by returning the steering wheel to the center position, GVC Plus applies a light braking force to the outer wheels, providing a stabilizing moment that helps restore the vehicle to straight line running. The system realizes consistently smooth transitions between yaw, roll and pitch even under high cornering forces, improving the vehicle's ability to accurately track sudden steering inputs and crisply exit corners. In addition to improving handling in emergency collision avoidance maneuvers, GVC Plus offers a reassuring feeling of control when changing lanes on the highway and when driving on snow or other slippery road surfaces.

C

C G-Vectoring Control Plus (GVC Plus) operation image\*



\* Mz: restoring moment, Fx: braking force

## Design Theme, Kodo— Soul of Motion

Since 2010, Mazda has striven to create cars that embody the dynamic beauty of life through application of its Kodo—Soul of Motion design philosophy. To maintain and further deepen value, the Company has been pursuing the expression of a new elegance based on Japanese aesthetics characterized by a beauty that is subtle and restrained yet rich and abundant. This more mature form of Kodo focuses on a “less is more” aesthetic that cherishes space and eliminates non-essential elements to create simplicity of form. The challenge then is to bring the car to life via carefully honed reflections on the body surface. The Company is reinterpreting the very essence of Japanese aesthetics, a subdued beauty cultivated since ancient times. The goal is to create an elegant and refined look with a sense of vitality that makes Mazda cars truly come alive.

d

d Mazda Vision Coupe design vision model (released in October 2017)



## Monotsukuri Innovation

Looking five to 10 years into the future, Mazda has implemented *Monotsukuri* Innovation for efficiently developing and manufacturing products. Shared development methods and manufacturing processes are made possible by using bundled product planning for models to be introduced in the future, spanning market segments and model classes.

Optimized structures for each function are shared across all car lines and laterally spread to each car line based on bundled product planning. A flexible production system is used to produce products engineered based on a common architecture concept in a highly efficient and flexible manner. Mazda is aiming to raise operational efficiency by building a flexible production process that can handle changes in volumes and can quickly introduce new models with a minimum of investment.

Through *Monotsukuri* Innovation, the Company's products since the CX-5, launched in 2012, and Skyactiv Technology have achieved improved efficiency in terms of both product development and manufacturing facility investment as well as significant improvements in vehicle costs. Through design based on common architecture under *Monotsukuri* Innovation, Mazda is able to promptly apply the latest technologies and designs to all of its products. In new-generation technology development, the Company is working to enhance the efficiency of development processes through bundled planning and computer modeling-based development.

\*<sup>1</sup> The world's first control system to vary engine torque in response to steering inputs in order to provide integrated control of lateral and longitudinal acceleration forces and optimize the vertical load on each wheel for smooth and efficient vehicle motion. (As of June 2016 for mass production vehicles, according to in-house investigation)

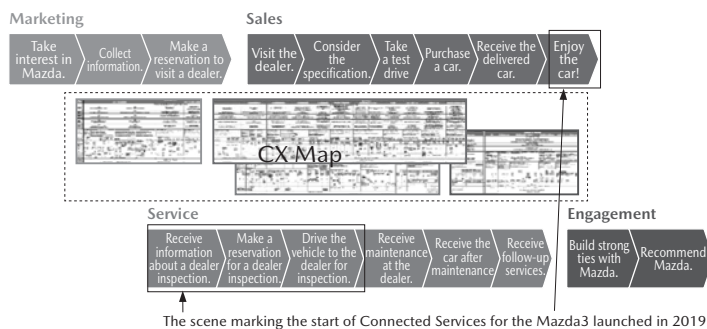


## Mazda Digital Innovation (MDI)

Since 1996, Mazda has been pushing ahead with the Mazda Digital Innovation (MDI), an initiative aimed at reforming work processes by introducing the latest IT technologies. In April 2016 MDI Phase 2 began, in response to the advancement of IT technologies such as IoT and AI and the diversification of customer needs. The Company has been committed to operational reforms capitalizing on state-of-the-art IT technologies, based on innovation through the CX Map, which depicts the Ideal Customer Experience (CX) as a flow of Marketing Sales Service Engagement. In September 2019, Mazda launched new connected services for Mazda3 users in Japan. The Company continues working to realize a customer experience that meet the needs of various customers, offering them not only peace of mind and satisfaction but also excitement.

### Global Master CX Map depicting the Ideal Customer Experience (CX)

The CX Map specifies the ideal CX. To achieve the ideal scenes, ideal operation using state-of-the-art technologies and data is defined in detail.



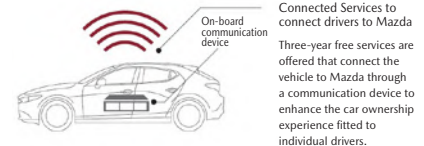
### Connected Services Available for Mazda3

Mazda3, launched in May 2019 in Japan, is newly equipped with an on-board communication device that enables customers to access Connected Services through the MyMazda smartphone app, thereby offering greater convenience and emergency notification services. Connected Services support customers 24 hours a day in various situations to help them feel safer and to give them peace of mind, even if an unexpected problem occurs, such as a serious traffic accident or a breakdown. Connected Services also make customers' car ownership experience more convenient by allowing them to connect with their cars via their smartphones.

Connected Services are intended to provide customers with the following three types of value: 1) peace of mind, 2) comfort, and 3) handheld connectivity.

1. Peace of mind: Even if the driver loses consciousness in an accident, a Connected Services operator will call the emergency services (Mazda Emergency Call). In the event of a breakdown, the operator can monitor the data on the failure and the vehicle location, based on which a smooth response will be made to assist the customer (Mazda Advice Call).
2. Comfort: If a customer is found to have forgotten to lock the car door, the MyMazda smartphone app will notify him/her of the unlocked status so that he/she can lock the door from far. The MyMazda app also makes it easier for customers to find where their vehicle is located even in a large suburban parking lot, using the app's function to identify the vehicle location (Car Finder).
3. Handheld connectivity: Before going for a weekend drive, customers can check the details of the desired destination and set their routes using the MyMazda smartphone app. While enjoying making the driving plan together with their friends, customers can send the data on the destination and routes to their vehicle in advance. So, they can just get into the car and make a smooth start to their trip with excitement.

### On-board communication device

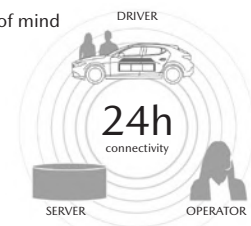


#### CONNECTED CAR

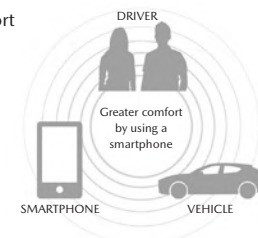
Since Mazda3 comes equipped with the on-board communication device as standard,\* the vehicle is connected to the network in various situations 24 hours a day.

\* Excluding 1.5 L gasoline-powered models

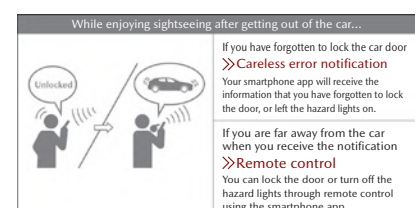
### Peace of mind



### Comfort



### Careless error notification & remote control



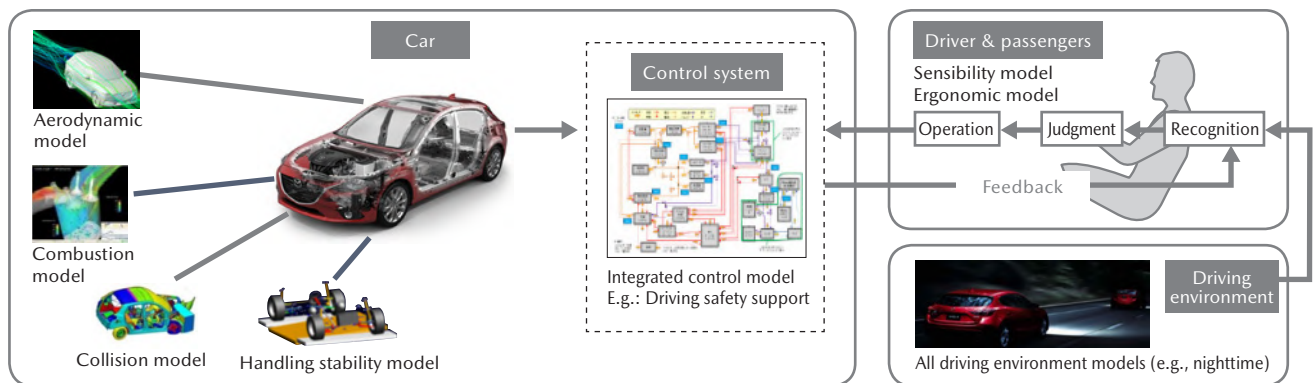
## Model-Based Development (MBD)

e

Cars are being called on to provide increasingly advanced and diverse functions, while vehicle architecture and control systems are becoming more and more complex. Model-based development, which uses computers to efficiently replicate development processes, is essential to keep developing complex systems quickly and with limited resources. Model-based development involves creating computer models of the vehicle, control systems, drivers, passengers, driving environments and other development subjects, and conducting development via thorough computer simulation. It is an efficient method of optimization. By carrying out model-based powertrain and vehicle development through simulations from design to vehicle evaluation, Mazda strives to reduce the number of prototype parts and actual unit verification, in order to develop complex, highly sophisticated technologies and products with minimum resources while also ensuring quality.

### e Model-Based Development

A technique to develop outstanding products by modeling (quantifying) and connecting all four elements of (1) the car, (2) control systems, (3) the driver & passengers, and (4) the environment without using an actual vehicle



### TOPICS EV C.A. Spirit Corporation

In September 2017, Mazda, Denso Corporation, and Toyota Motor Corporation signed a contract to jointly develop basic structural technologies for electric vehicles (EVs), and established a new company EV C.A. Spirit as a joint development center. Other automakers who share the same vision have participated in and have been jointly developing fundamental EV technologies. To ensure flexible and rapid response to market trends, research of the optimum performance and functions of EVs capable of covering a wide variety of vehicle segments and types is undertaken through bundled planning and common architecture at EV C.A. Spirit. At the same time, computer modeling-based development is used to realize efficient product development at each company.



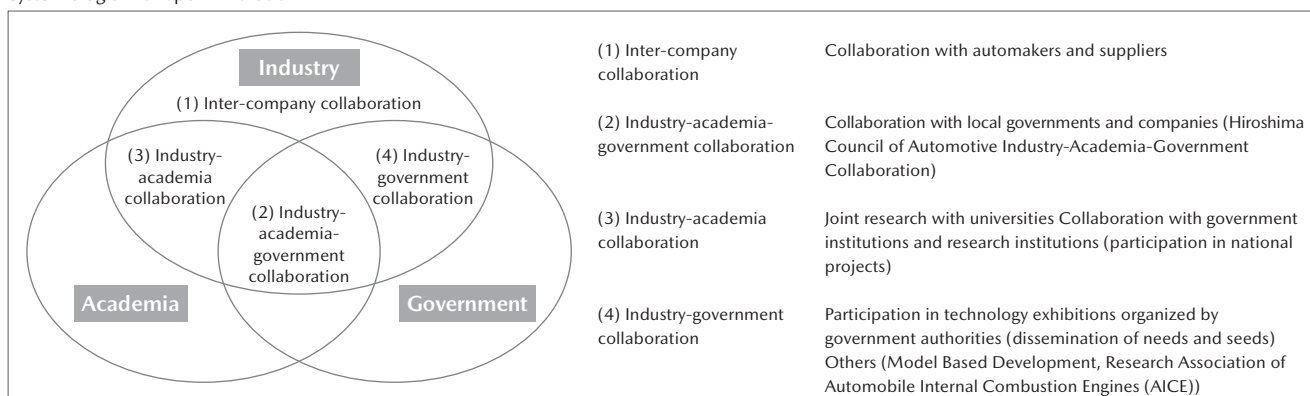
<https://www.ev-cas.co.jp/>

## Open innovation

Mazda has promoted collaboration with companies, universities and government authorities, aiming to efficiently resolve business issues by obtaining new knowledge from outside the Company and to achieve the sustainable growth of society and businesses (open innovation).

The business environment in which companies operate is becoming increasingly competitive due to stricter environmental and safety regulations, new competitors from other industries, and diversification of the mobility business. Through open innovation, the Company will achieve the growth of the Mazda Group and contribute to society, thereby fulfilling the Corporate Vision.

System diagram of open innovation



## f Objectives of opening innovation

### [Contribution to society]

- Achieve a sustainable society, advance *monotsukuri* or product development and manufacturing (share knowledge and skills), and enhance regional empowerment

### [Achieve the growth of the Mazda Group]

- Improve engineering capabilities, improve the brand value, and increase R&D efficiency

## (1) Inter-company collaboration

Mazda has been promoting inter-company collaboration with other automakers and suppliers to enhance their manufacturing and engineering capabilities and create synergies.

## Collaboration with partners who work with Mazda

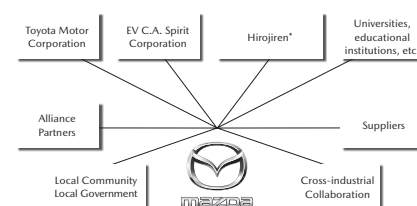
While working hard together with its partners to realize our shared dreams, the Company wants to enable them to feel proud of their connection with Mazda, and emotionally attached to the brand. This will turn Mazda into the brand it wants it to be, connected to all stakeholders, including customers, by the strongest of bonds. On the basis of mutual trust with Toyota Motor Corporation and other partners, the Company plans to promote active collaboration.

[Collaboration examples] (For examples in the environmental area, see p.65.)

March 2019: Participated in D-Call Net<sup>\*1</sup>

June 2019: Concluded a capital and business partnership agreement with MONET Technologies Inc.<sup>\*2</sup>

## g Partnership strategies



\* Hiroshima Council of Automotive Industry-Academia-Government Collaboration

<sup>\*1</sup> An advanced automatic collision notification system that uses vehicle connectivity technology. Participating enterprises are: the certified non-profit organization Emergency Medical Network of Helicopter and Hospital (HEM-Net), Subaru Corporation, Toyota Motor Corporation, Nissan Motor Corporation, Honda Motor Co., Ltd., Mazda Motor Corporation, Japan Mayday Service Co., Ltd., Bosch Service Solutions GmbH, and Premier Aid Inc.

<sup>\*2</sup> A company that works to create an environment to promote MaaS (Mobility-as-a-Service), aiming to encourage the widespread use of next-generation mobility services and to resolve Japan's social mobility issues. The MONET shareholder structure and investment ratios are as follows: SoftBank Corp. (35.2%), Toyota Motor Corporation (34.8%), Hino Motors, Ltd. (10.0%), Honda Motor Co., Ltd. (10.0%), Isuzu Motors Limited (2.0%), Suzuki Motor Corporation (2.0%),\* Subaru Corporation (2.0%), Daihatsu Motor Co., Ltd. (2.0%), and Mazda Motor Corporation (2.0%).

## TOPICS New Joint Plant, Mazda Toyota Manufacturing, U.S.A., Inc.

In November 2018, Mazda held a ground-breaking ceremony to mark the start of construction of a joint venture facility being built by Mazda Toyota Manufacturing, U.S.A., Inc. (MTMUS). This plant is scheduled to begin operations in 2021. In April 2019, a ceremony was held commemorating the placement of the first steel column. Preparations are going smoothly, with major construction work of the plant buildings and related infrastructure already under way.

In July 2019, MTMUS announced that it aims to achieve at least 20 percent total diversity spend with certified minority- and women-owned business enterprises (MBE/WBE) on plant construction. MTMUS aims not only to produce high-quality cars but also to create a plant that employees will be proud to work at, and contribute to the further development of the local economy and the automotive industry.

\* Mazda Toyota Manufacturing, U.S.A., Inc. is a new joint venture production company for complete vehicles, established by Mazda Motor Corporation and Toyota Motor Corporation in Huntsville, Alabama, the United States.

## Activities to Improve Manufacturing Capabilities in Collaboration with Local Suppliers

Mazda is rolling out its J-ABC (Jiba ["local"] Achieve Best Cost) program for local suppliers in and around Hiroshima Prefecture starting in 2004. Under this program, Mazda staff visit suppliers' plants and use the approach employed in Mazda production systems as a basis for identifying wasteful, unnatural or problematic manufacturing processes. The Company then works cooperatively with the suppliers to formulate and implement countermeasures. This program is also expected to enhance potential for improvement at manufacturing sites in connection with Mazda's *Monotsukuri* Innovation activities (see p. 122).

It has helped increase productivity and reduced production costs by around 3 billion yen per year, while also contributing to reduce environmental impact through energy and resource conservation.

Results of J-ABC activities for FY March 2019

Case Example	Objective	Initiative	Results for FY March 2019
Cooperative Improvement Efforts	Improving operation rates, shortening cycle times, improving logistics operations (started in 2004)	A total of around 2,000 visits to 51 plants at 24 companies were carried out to implement cooperative improvement activities.	Held 54 results-reporting meetings Promoted a shift from site-based activities to company-wide activities.
J-ABC Karakuri <sup>®</sup> *1 Kaizen Dojo	Fostering high levels of creativity and making work more fun without incurring additional costs (launched in 2006)	Offered practical programs such as lectures and on-site guidance meetings to improve the ability to devise mechanisms for increased productivity.	11 participants from nine companies successfully completed the program. The Master Trainer qualification system introduced in 2016, to qualify leaders within local suppliers. Outstanding works are proactively submitted to the Mazda Hiroshima Plant Karakuri Exhibition and Karakuri Kaizen <sup>®</sup> Mechanism Exhibition.
J-ABC Maintenance Workshop	Preventing facility stoppages and drops in production capability (launched in 2010)	Practical programs such as lectures and on-site guidance meetings were offered to improve the ability to both detect and properly respond to irregularities.	Held twice a year in the Hiroshima and Hofu districts, with two members from two companies successfully completing the program in 2018. Under the leadership those who have completed the program with the help by their plant managers, self-motivating maintenance initiatives took place at 18 plants.
J-ABC Conference	To encourage study through the sharing of J-ABC activity policy and outstanding activity examples (started in 2005)	Held for all participating companies, providing a venue for presentations, awards, and other events.	The 2018 conference was postponed due to the heavy rain in July 2018, and was held on March 1, 2019. The morning session (in which messages were delivered, the policy was explained, and outstanding activities were presented and commended) was attended by a total of 450 participants, with 400 participants from 61 local suppliers and 50 participants from Mazda. In the afternoon session (in which outstanding activity examples were presented, and karakuri, or self-motivating maintenance initiatives, were exhibited), 12 examples, seven works, and three activities were presented and introduced.

\*1 Karakuri Kaizen<sup>®</sup> is a registered trademark of the Japan Institute of Plant Maintenance.

## Activities to Improve Manufacturing Capabilities in Collaboration with Overseas Production Sites and their Local Suppliers

As the importance of overseas production sites increases along with its attempt to establish a global production footprint, Mazda is promoting activities to improve manufacturing capabilities, with a view to improving quality and productivity jointly with local suppliers. While paying respect to the differences in national characters and cultures and understanding the key points necessary to promote continuous improvement activities at worksites, the Company employs the know-how obtained through the J-ABC activities. The Company has also established a system to develop leaders at both local production sites and suppliers in promoting activities to support improvement of suppliers. Mazda will continue to expand the activities in cooperation with its suppliers.

### A-ABC activities in Thailand

In 2013, Mazda launched the A-ABC (ASEAN Achieve Best Cost) program at AutoAlliance (Thailand) Co., Ltd. (AAT), starting with five local suppliers. As of June 2019, 11 sites of ten suppliers are implementing activities under the A-ABC program. Mazda has organized a team of its employees to promote the program at AAT, where three promotion leaders and two advisors are working together with the local suppliers. This program is designed to have each supplier envision an ideal, understand and analyze the present situation, develop and implement measures for improvement toward realizing said ideal, and finally report the results. It is carried out twice a year. The A-ABC conference is held annually, to promote communications and information exchange among participants, and to commend outstanding activities. In January 2018, AAT declared that it would implement "integrated scheduled production," a lean manufacturing process that ensures the scheduled operation of production lines to deliver high-quality products to customers in the shortest lead time. Under this production system, AAT encourages its suppliers to supply parts in a timely manner, to reduce lead time.

### M-ABC activities in Mexico

Mazda de Mexico Vehicle Operation (MMVO) launched the M-ABC (Mexico Achieve Best Cost) program in 2015, starting with two local suppliers. As of June 2019, six suppliers are implementing activities under the A-ABC program. Mazda has organized a team of its employees to promote the program at MMVO, where one team leader and three promotion leaders are working together with the local suppliers. Similar to the A-ABC program, the program is designed to have each supplier envision an ideal, and activities are carried out twice a year. The members first address themes related to stable quality and stable supply of production lines, and gradually move to issues related to productivity and quality improvement and lead time reduction.

Local promotion members are called national staff. National staff members are encouraged to autonomously and independently operate the program. To this end, Japanese management of MMVO and its suppliers are making joint efforts to facilitate autonomous operation.

h A-ABC activity



i M-ABC activity



## (2) Industry-academia-government collaboration

Mazda, in establishing the Industry-Academia-Government Collaboration Secretariat, has promoted collaboration with local companies, universities and government authorities. Through collaboration among government, academia and industry, the Company has contributed to the local community in terms of developing new creative technologies and nurturing human resources capable of bringing about innovation.

### Hiroshima Council of Automotive Industry-Academia-Government Collaboration

As a company which has its research & development and production facilities mainly in Hiroshima Prefecture, Mazda believes that cooperation with local business and industry is very important. Under this belief, Mazda is collaborating with the Chugoku Bureau of Economy, Trade and Industry, Hiroshima Prefecture, Hiroshima City, Hiroshima Industrial Promotion Organization, and Hiroshima University to support local automobile-related companies and promote innovation and the vitalization of the region. Toward achieving the 2030 Industry-Academia-Government Collaboration Vision established in 2015, various initiatives are implemented, such as creating new frameworks to support local businesses, investigating next-generation automotive societies, and raising awareness in society. In FY March 2019, a research program proposed by Hiroshima Prefecture was selected to receive a subsidy under the Cabinet Office's Project for Revitalization of Local Universities and Regional Industries.\*<sup>1</sup> As part of the program, the Digital Monozukuri (Manufacturing) Education Research Center was established in Hiroshima University. The center started R&D activities to create innovative multi-functional composite materials and a smart system using data-driven control technology and sensing technologies, with a view to social implementation of these inventions.

Digital Monozukuri (Manufacturing) Education Research Center



#### The 2030 Industry-Academia-Government Collaboration Vision

- Transform Hiroshima into a hub that attracts people seeking innovative automotive technologies and dynamic car culture, and a place that continually produces technologies that amaze the world.
- Industry, government and education sectors work together to nurture human resources capable of innovation across all generations, and enliven the region through *Monotsukuri* (product development and manufacturing).
- Develop Hiroshima's unique Industry-Academia-Government Collaboration into a leading model for "regional empowerment" in Japan, serving also as a benchmark for the rest of the world.

\*1 Hiroshima Prefecture Special Committee to Promote the Project for Revitalization of Local Universities and Regional Industries was set up. (Chairperson: Hidehiko Yuzaki, Governor of Hiroshima Prefecture, Project manager: Masamichi Kogai, Representative Director and Chairman on the Board, Mazda Motor Corporation)

#### Major initiatives

	Initiative	Details and results
Supporting suppliers' personnel recruitment	Exhibiting vehicles and parts at career seminars, and proposing/implementing booth layout according to the vehicle supply chain (February 2019)	To support suppliers' recruitment activities, displayed Mazda vehicles and parts at career seminars, and proposed and demonstrated a booth layout that can effectively show how suppliers are connected to mass produced vehicles (highly appreciated by the participating suppliers).
Co-creation and technology exchange with suppliers	(1) Local companies co-creation subcommittee (2) Industry-academia collaboration subcommittee (3) Administrative organs collaboration subcommittee	(1) NVH performance assessment of a benchmark vehicle, and research on a lightweight frame structure (2) Innovation training (3) Review of the creation of collaboration synergies and the next-generation vision
Studies on future energies	The Energy Work Group held "Symposium on Next-Generation Liquid Fuel for Automobiles 2018" (June 2018)	Focusing on biomass-derived, carbon-neutral liquid fuel, known as a future energy source for automobiles, experts in each of the industry, government, and academia sectors explained its potentials and practical applications, to think about energy in the future.
Research and development of internal combustion engines	Applying the combustion research results to product development	The combustion research results achieved through the Hiroshima University-Mazda joint study course were utilized in the development of the next-generation Skyactiv-X gasoline engine.
Research and development in KANSEI (sensibility) field	(1) Sensibility-based <i>monotsukuri</i> (product development and manufacturing) in collaboration with local communities (2) Joint research on sensibilities with local suppliers (3) Overall coordination of sensibility activities by relevant local groups	(1) Started the sensibility innovation practical course and the needs-seeds matching meeting under the auspices of the Council for the Promotion of Innovation with KANSEI (Hiroshima Prefecture). (2) Experiments were conducted on general subjects, using real-time saliency mapping (a method of assessing where human eyes are focused on) of car interior parts, to utilize the results for clarifying the sensitivity of drivers to the parts. (3) A sensibility monitor program was started to obtain reliable data.
Human resources development in Model-Based Development (MBD)* <sup>1</sup> field	Aiming to enhance the research & development capabilities of local companies, opening basic courses for the development of human resources with MBD/CAE abilities	MBD/CAE training courses were planned and organized for all manufacturing companies, including both auto suppliers and non-automobile industries, in collaboration with the Hiroshima Digital Innovation Center. In the past three years since FY March 2017, a cumulative total of 2,700 individuals participated in the training. Of these training courses, the MBD process training course was certified as a Course on IT-Skill Training to Meet the Era of the Fourth Industrial Revolution by the Ministry of Economy, Trade and Industry.

\*1 Model Based Development: development process employing simulation technologies.



### (3) Industry-academia collaboration

Mazda has a system to efficiently offer advanced training through collaboration with educational institutions such as universities and research institutions.

#### Participating in World-Leading National Projects and Joint Studies

Mazda participates in world-leading national projects and joint studies with external research institutions, with the aim of solving social problems facing the automobile industry.

Relevant government institutions/organizations	Project name	Outline
Ministry of Economy, Trade and Industry / New Energy and Industrial Technology Development Organization / Innovative Structural Materials Association	Development of Innovative New Structural Materials Technology <a href="http://isma.jp/en/">http://isma.jp/en/</a>	Research and development on structural materials, bonding technology, etc., to fundamentally reduce the weight of automobiles and other transportation equipment, for the purpose of reducing CO <sub>2</sub> emissions
Ministry of Economy, Trade and Industry / New Energy and Industrial Technology Development Organization / Thermal Management Materials and Technology Research Association	Research and development on innovative technology to utilize unused thermal energy <a href="http://www.thermat.jp/english/">http://www.thermat.jp/english/</a>	Research on technology to make use unused energy* <sup>1</sup> released as thermal energy into the atmosphere

\*<sup>1</sup> In Japan, refers to the energy consumed in the living environment, industry, and transportation fields and released as unused heat energy into the atmosphere

#### Collaboration with Universities

Through enhancing collaboration with universities in various fields, Mazda aims to solve a broader range of issues from a wider perspective, thereby contributing to society.

University	Collaboration outline	Measures and activities
Hiroshima University	<p>Next-generation automotive technology joint study course (since April 2015) Mazda has set up five joint study courses with the university (e.g., an internal combustion engine lab, the Algae Energy Creation Lab) to find solutions to long-term technological issues and to develop human resources to implement the solutions. Industry-academia collaboration activities have been promoted to enable Hiroshima to lead Japan in <i>Monozukuri</i> (product development and manufacturing) through human resources development and research and development based on Model-Based Research (MBR) and Model-Based Development (MBD).</p> <p>Comprehensive collaboration agreement (since February 2011) Through collaboration in broad areas, from technologies related to research and development and production to social science fields such as planning, management, and marketing, proactively conducting joint research from exploring research themes to finding solutions. Also cooperating in examining the ideal form of internship, and deciding the method of accepting interns and setting themes for human resources development.</p> <p>Regional empowerment and open innovation Mazda contributes to regional empowerment and human resources development of the Chugoku region and Hiroshima Prefecture, and to global sustainable development goals (SDGs) through collaboration with Hiroshima University and local communities and participation in national projects, etc.</p>	<p>Opened next-generation automotive technology joint-study course (in FY March 2016)</p> <ul style="list-style-type: none"> <li>• Internal combustion engine lab (opened in April 2015)</li> <li>• Aerodynamics lab (opened in July 2016)</li> <li>• Advanced materials lab (opened in October 2016)</li> <li>• Algae energy creation Lab (opened in April 2017)(see p. 65)</li> <li>• Model based development lab (opened in April 2019)</li> </ul> <p>Regional empowerment and open innovation</p> <ul style="list-style-type: none"> <li>• Participated in the Co-Creation Consortiums in the Material Model Based Research Division and the Data-Driven Smart System Division of the Digital Monozukuri (Manufacturing) Education Research Center (see p. 127).</li> </ul>
Hiroshima City University	<p>Mazda and Hiroshima City University Faculty of Arts Co-Creation Seminar (since May 2017) Set up a co-creation seminar with the university, aiming to develop human resources who are capable of creating new manufacturing for a new era, and make Hiroshima a place to generate human resources for manufacturing that Hiroshima can boast to the world.</p>	<p>In FY March 2019, held a co-creation seminar that conducted formative activities on the theme "Elegant Form."</p>
Kyushu University	<p>Establishment of a joint research department (since August 2017) Mazda has set up a joint research department with the university to find solutions to long-term technological issues and to develop human resources to implement the solutions.</p> <p>Inter-organizational collaboration regarding next-generation automotive technologies (since May 2011) Mazda has been working together with the university to reinforce research and development projects and to encourage academic research and education activities.</p>	<p>Opened the Mazda Next-generation Energy Storage Joint Research Department (in August 2017).</p>
Kindai University	<p>Agreement concerning comprehensive research collaboration (since December 2012) Cooperating in bolstering cutting-edge research development and in strengthening the technological capabilities of local industries.</p>	<p>Research Collaboration Promotion Committee</p> <ul style="list-style-type: none"> <li>• Held meetings to discuss the progress of joint research projects and specific measures to strengthen cooperation.</li> </ul>
University of Hyogo	<p>Concluded an agreement on joint research using Spring-8, a large synchrotron radiation facility (May 2016) Cooperating in the development of innovative materials and product development technologies using radiation analysis techniques.</p>	<ul style="list-style-type: none"> <li>• Set up an experimental station dedicated to research into applications of advanced analytical techniques.</li> </ul>
Tokyo Institute of Technology	<p>Industry Liaison Member (since August 2013) Technology transfer through joint research, for the purpose of improving the quality of research and education and promoting application of research and education results. Contributing to the creation of new industries and promotion of innovation.</p> <p>Automotive technology course (from September to November 2018) Mazda held automotive technology classes for third-year undergraduate students of the Department of Mechanical Engineering, School of Engineering.</p>	<p>Industry Liaison Member (since August 2013)</p> <ul style="list-style-type: none"> <li>• Searched for research seeds and arranged matching them with the development needs.</li> <li>• Participated in technology exchange seminars and hosted inhouse seminars by faculty members.</li> <li>• Implemented joint study on algae energy.</li> </ul> <p>Automotive technology course (from September to November 2018)</p> <ul style="list-style-type: none"> <li>• Several (eight) developers served as specially-appointed lecturers to present and explain the latest vehicle development technologies in the classes.</li> </ul>



#### (4) Industry-government collaboration

Mazda efficiently promotes cutting-edge joint research and shares needs and seeds with customers through collaboration with government authorities.

##### Business Matching Meetings for Suppliers and Universities (Collaboration with Administrative Organs)

Mazda organizes business-matching meetings in collaboration with the local administrative organs, in which information on technological needs and seeds was exchanged between suppliers, universities and public research institutes.

##### FY March 2019 activities

1. Toyama Next-Generation Automotive New Technologies and New Engineering Solutions Exhibition and Business Meeting in Mazda, organized by the Toyama Prefecture and Toyama New Industry Organization
2. Gifu-Mie-Aichi New Technologies and New Engineering Solutions Exhibition and Business Meeting in Mazda, organized by the Gifu Economic and Industrial Promotion Center, the Mie Industry and Enterprise Support Center, and the Aichi Small Business Support Center

##### Promotion of model distribution in the automotive industry

Mazda has participated in the Study Group for Ideal Approaches to Model Utilization in the Automobile Industry organized by the Ministry of Economy, Trade and Industry since its launch in November 2015. The Company works on initiatives with other automakers and parts manufacturers to spread Model Based Development (MBD), a development technique to achieve the advanced development and performance assessment process for automobiles through virtual simulation. In April 2018, the Company agreed on the Enrichment of SURIAWASE 2.0\*<sup>1</sup> for the Automobile Industry (an industry-academia-government joint strategy project policy), and announced that the Company would continue with the initiatives to enrich MBD and harmonization areas, etc. In addition, Mazda formulated the guidelines for smoothly promoting model distribution between companies, based on the results of activities implemented by the study group thus far. In December 2018, the study group and ProSTEPivip,\*<sup>2</sup> an international standardization organization, jointly announced these guidelines to the world, as international rules originating from Japan.

In this study group, the Company takes full advantage of its knowledge of virtual simulation and unique MBD that have been refined through Mazda Digital Innovation (MDI) (see p. 123) to contribute to activities for increasing the global competitiveness of the Japanese automotive industry.

##### Basic and Applied Research on Technologies for Internal Combustion Engines and Cleaner Exhaust Emissions

Mazda participates in the Research Association of Automobile Internal Combustion Engines (AICE\*<sup>3</sup>), a new joint research organization in the Japanese automobile industry. AICE was established on April 1, 2014, with the support of the Ministry of Economy, Trade and Industry to enable automobile manufacturers to conduct basic and applied studies jointly with universities and research institutions on themes common to automobile manufacturers, and to use the research results to accelerate their in-house development activities. Taking advantage of its participation in AICE, Mazda is promoting its development of technologies for internal combustion engines and cleaner exhaust gases, with a view to achieving improved fuel economy and reduced exhaust emissions. Beginning in April 2019, the Company has expanded the scope of its development efforts to include mechanical resistance reduction and heat management technologies.

\*<sup>1</sup> SURIAWASE 2.0 is an initiative to enhance the harmonization of development processes by taking advantage of an MBD process that uses virtual simulations instead of physical machines across entire supply chains in Japan. A Study Group for Ideal Approaches to Model Utilization in the Automobile Industry was organized in November 2015 by the Ministry of Economy, Trade and Industry, to further enhance the international competitiveness of the automotive industry.  
[http://www.meti.go.jp/english/press/2017/0331\\_004.html](http://www.meti.go.jp/english/press/2017/0331_004.html)  
[http://www.meti.go.jp/english/press/2018/0404\\_001.html](http://www.meti.go.jp/english/press/2018/0404_001.html)

\*<sup>2</sup> An international standardization organization based in Germany. Its membership comprises 185 companies, primarily automakers in Europe, the United States and Japan, as well as airlines and software companies. ProSTEPivip works to develop and promote international rules regarding CAD and MBD.

\*<sup>3</sup> Research Association of Automobile Internal Combustion Engines, participated in by nine Japanese auto manufacturers and two organizations (as of April 2015)

# 1920

## HISTORY OF MAZDA

### Corporate

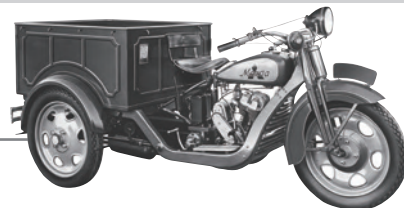
### Product\*

1930

- 1920.1 Toyo Cork Kogyo Co., Ltd is founded
- 1921.3 Jujiro Matsuda becomes president
- 1927.9 Company becomes Toyo Kogyo Co., Ltd



1920-



1931.10

Production of 3-wheel truck "Mazda-go DA model," Mazda's first automobile, begins

1940

- 1930.9 New plant is constructed in Hiroshima (Aki-gun, Fuchu-cho)
- 1932 Export of 3-wheel trucks begins
- 1936.4 Caravan of 3-wheeled trucks from Kagoshima to Tokyo (advertising campaign)
- 1936.4 New logo is introduced



1936.4-

1950

- 1945.8 Mazda loans part of Head Office building to Hiroshima prefectural government, court, news media, etc. Regarding the Hiroshima prefectural government all functions are temporarily transferred there (until July 1946)
- 1945.12 Production of 3-wheel trucks suspended since August 1945 resumes
- 1949.8 3-wheeled truck exports restart



1951-

1950.6

4-wheel light truck "CA model" is launched



1960

- 1961.7 Mazda enters into technical cooperation with NSU/Wankel on rotary engines
- 1963.3 Cumulative domestic production reaches 1 million vehicles
- 1965.5 Miyoshi Proving Ground is completed
- 1966.11 Operations at new passenger car plant (Ujina) in Hiroshima begin
- 1967.3 Full-scale exports to the European market begin



- 1960.5 "R360 Coupe," Mazda's first passenger car is launched
- 1963.10 The first "Familia" is launched
- 1967.5 "Cosmo Sport (110s)" Mazda's first rotary engine vehicle is launched



- 1962.2 The first "Carol" is launched
- 1966.5 The first "Bongo" is launched
- 1966.8 The first "Luce" is launched



1970

- 1970.4 Exports to the U.S. begin
- 1970.11 Kouhei Matsuda becomes president
- 1975.1 New logo is introduced
- 1977.12 Yoshiki Yamasaki becomes president
- 1979.6 Cumulative domestic production reaches 10 million vehicles
- 1979.11 Ford Motor Company and Mazda enter into a capital tie-up



1975.1-

- 1970.5 The first "Capella (RX-2)" is launched
- 1975.10 The first "Cosmo" is launched



- 1971.8 The first "Titan" is launched
- 1978.3 The first "Savanna RX-7 (RX-7)" is launched



- 1971.9 The first "Savanna (RX-3)" is launched



1980

- 1981.12 Operations at Hofu Transmission Plant (Nakanoseki district) begin
- 1982.9 Operations of manufacturing passenger car at Hofu plant (Nishinoura district) begin
- 1984.5 Company is renamed as Mazda Motor Corporation
- 1984.10 Mazda Foundation is established
- 1984.11 Kenichi Yamamoto becomes president
- 1985.1 Mazda Motor Manufacturing (USA) Corporation (MMUC), now Auto Alliance International (AAI), is established (-2012.8)
- 1987.4 Cumulative domestic production reaches 20 million vehicles
- 1987.6 New research center is opened in Yokohama, Japan (the current Mazda R&D Center Yokohama)
- 1987.12 Norimasa Furuta becomes president
- 1988.4 Mazda Technical College is established
- 1988.5 Mazda Research and Development Center is established in Irvine, CA (U.S.)

- 1980.6 "Familia (GLC/323)" is fully redesigned (Receives the "1980-1981 Car of the Year Japan")



- 1982.9 "Capella (Telstar)" is fully redesigned (Receives the "1982-1983 Car of the Year Japan")



- 1989.9 The first "Roadster (MX-5)" is launched



1990

- 1990.1 Hokkaido Kenbuchi Proving Ground for cold-weather testing is completed
- 1990.5 European R&D Representative Office (MRE) is completed
- 1991.12 Yoshihiro Wada becomes president
- 1995.4 Cumulative domestic production reaches 30 million vehicles
- 1995.11 Mazda and Ford jointly establish Auto Alliance (Thailand) Company Limited (AAT), a joint venture production company
- 1996.3 Mazda website is opened
- 1996.6 Henry D.G. Wallace becomes president
- 1997.6 New logo is introduced
- 1997.11 James E. Miller becomes president
- 1999.12 Mark Fields becomes president



1997.6-

- 1991.6 Mazda 787B wins the 59th Le Mans 24-Hour Endurance Race, claiming the first ever victory for a Japanese automobile



- 1996.8 The first "Demio (Mazda2)" is launched (Receives the "1996-1997 RJC New Car of the Year")



- 1990.1 The first "MPV" is launched
- 1991.12 "RX-7" is fully redesigned (Receives the "1991-1992 RJC New Car of the Year")



- 1999.4 The first "Premacy (Mazda5)" is launched



\* Launching date is based on Japanese market

2000

Corporate	
2000.11	Mid-term plan "Millennium Plan" is announced
2002.1	Nakasatsunai Proving Ground is completed
2002.4	New brand statement "Zoom-Zoom" is introduced
2002.6	Lewis Booth becomes president and CEO
2003.1	Production of "Mazda6" commences at FAW Car Company in China
2003.8	Hisakazu Imaki becomes president and CEO
2004.11	Mid-term plan "Mazda Momentum" is announced
2005.8	China Engineering Support Center is opened
2006.5	Mine Proving Ground is completed
2007.3	Mid-term plan "Mazda Advancement Plan" is announced
2007.3	Long-term vision for technology development: "Sustainable Zoom-Zoom" is announced
2007.4	Changan Ford Mazda Engine Co., Ltd. (CFME, now CME) in China commences operation
2007.7	Cumulative domestic production reaches 40 million vehicles
2007.10	Changan Ford Mazda Automobile Nanjin Co., Ltd. (CFMA, now CMA) commences operation
2008.11	Takashi Yamanouchi becomes president and CEO

Product*	
2000.7	"Roadster (MX-5)" is recognized by the Guinness Book of Records as the world's largest production of lightweight open two-seater sports car
2003.4	"RX-8" is launched (Receives the "2004 RJC Car of The Year")
2005.8	"Roadster (MX-5)" is fully redesigned (Receives the "2005-2006 Car of The Year Japan")
2006.3	Global presentation of the first "BT-50" at Bangkok International Motor Show
2006.12	"CX-7" is launched
2009.3	Leasing of hydrogen vehicle, "Premacy Hydrogen RE Hybrid", is started
2002.5	The first "Atenza (Mazda6)" is launched (Receives the "2003 RJC Car of the Year")
2003.10	The first "Axela (Mazda3)" is launched
2006.2	Leasing of hydrogen vehicle, "RX-8 Hydrogen RE", is started
2006.10	Production of the first "CX-9" commences
2007.7	"Demio (Mazda2)" is fully redesigned (Receives the "2008 RJC Car of the Year" and the "2008 World Car of the Year")
2008.7	"Biante" is launched

2010

2010.4	"Framework for Medium- and Long-term Initiatives" is announced
2012.2	"Structural Reform Plan" is announced
2012.9	Mazda and Sollers establish Mazda Sollers(MSMR), a joint venture production company in Russia
2012.9	Mazda and Bermaz establish Mazda Malaysia(MMSB), a joint venture company
2013.1	Business agreement is concluded for the development and production of Fiat brand two-seater convertible sports car
2013.6	Masamichi Kogai becomes president and CEO
2014.1	Operations at the production facility Mazda de Mexico Vehicle Operation (MMVO) a joint venture with Sumitomo Corporation in Mexico are started
2015.1	Operations at transmission plant in Thailand, Mazda Powertrain Manufacturing (Thailand) (MPMT) are started
2015.4	"Structural Reform Stage 2" is announced
2015.4	New Corporate Vision is established
2017.8	Agreement is entered into with Toyota on business and capital tie-up
2017.8	Long-term vision for technology development "Sustainable Zoom-Zoom 2030" is announced
2018.3	Mazda and Toyota establish a joint-venture company "Mazda Toyota Manufacturing U.S.A"
2018.5	Cumulative domestic production reaches 50 million vehicles
2018.6	Akira Marumoto becomes president and CEO

2010.10	Next-generation Skyactiv Technology is announced
2012.11	"Atenza (Mazda6)" featuring a series of the advanced safety technologies i-Activsense is fully redesigned (Receives the "2014 RJC Car of the Year")
2013.6	Commenced public road test of leased hydrogen vehicles, "Premacy Hydrogen RE Range Extender EV"
2013.11	"Axela (Mazda3)" is fully redesigned
2015.2	"CX-3" is launched
2015.5	"Roadster (MX-5)" is fully redesigned (Receives the "2015-2016 Car of the Year Japan," the "2016 World Car of the Year," and the "2016 World Car Design of the Year")
2015.7	"Mazda BT-50" is fully redesigned and production commences in Thailand
2016.4	"CX-4" makes its world debut
2017.8	Next-generation engine "Skyactiv-X" is announced
2019.5	"Mazda3" is launched
2012.2	"CX-5" is launched (Receives the "2012-2013 Car of the Year Japan")
2014.9	"Demio (Mazda2)" is fully redesigned (Receives the "2014-2015 Car of the Year Japan")
2016.2	"CX-9" is fully redesigned and production commences
2016.7	A series of Mazda's new-generation vehicle motion control technologies "Skyactiv Vehicle Dynamics" is announced
2016.12	"CX-5" is fully redesigned
2017.12	"CX-8" is launched
2019 autumn	"CX-30" is launched

2019

\* Launching date is based on Japanese market

## Third-Party Opinion

As she did last year, Sachiko Kishimoto again shares her opinion on the CSR activities of Mazda Motor Corporation and its Group companies, after reading the Mazda Sustainability Report 2019.

**Sachiko Kishimoto**  
Executive Director  
Public Resources Foundation



With the year 2020 marking a significant milestone, the 100th anniversary of its founding, Mazda Motor Corporation has developed a mid-term management policy, in which the Company made reference to SDGs (Sustainable Development Goals) and CSR (Corporate Social Responsibility)-related investment for the first time. In terms of the integration of management policy and CSR, this can be said to be a major step forward for the Company.

It is also highly evaluated that Mazda has shown its commitment to strengthen its efforts to address climate change by expressing its willingness to support the Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD) in May 2019.

However, Mazda's efforts to contribute to SDGs as an automotive manufacturer have only just begun. I hope that more in-depth consideration will be given to this issue and more specific initiatives will be defined and implemented.

In August 2017, Mazda announced "Sustainable Zoom-Zoom 2030," a new long-term vision that looks ahead to the year 2030. Under the vision, the Company set a goal of reducing corporate average "well-to-wheel" CO<sub>2</sub> emissions to 50% of 2010 levels by 2030 with a view to achieving a 90% cut by 2050. I highly evaluate that Mazda established a specific numerical target for reduction of CO<sub>2</sub> emissions. As part of its efforts to make the energy sources closer to carbon-neutral, the Company is also enthusiastic about promoting its industry-academia-government collaboration to develop renewable bio liquid fuel made from microalgae. In the days ahead, it is expected that renewable energy sources will be introduced broadly to production sites on a full-scale basis.

To realize its goal of reducing CO<sub>2</sub> emissions, Mazda has been promoting the Building-Block Strategy, which combines optimal control technologies and effective electrification technologies in consideration of each country's or region's energy resources, regulations, power generation methods, infrastructure, and so on. It is commendable to, from the Company's unique perspective, promote the strategies

of pursuing an ideal form of internal combustion engine, combining such an ideal form of internal combustion engine with effective electrification technologies, and deploying electric vehicles and other electric drive technologies in areas that have the capability to generate clean power and/or that have established air pollution control policy. I hope that the Company's efforts to attain the target of equipping all internal combustion power vehicles with electrification technologies by 2030 will be accelerated as much as possible.

In the context of the increase in the number of elderly drivers in Japan, there has been a growing social demand for realizing a safe automobile society, free from traffic accidents. I think that the approach that pursues basic safety technologies—such as those designed to prevent drivers from mistakenly stepping on a wrong pedal by realizing an ideal pedal layout—and installs advanced safety technologies in all vehicles as standard is only possible by Mazda.

One of the major social issues facing hilly and mountainous areas in Japan is lack of means of mobility especially for elderly people due to the withdrawal of public transportation services. Freedom of mobility is a vitally important right for people. Mazda has reported that in 2018 it started demonstration tests of a shared mobility service using connectivity technologies in Miyoshi City, Hiroshima Prefecture. It is keenly expected that as part of the Company's CSR activity, this project will eventually contribute to developing a ride-sharing service by, for example, combining connectivity technologies with autonomous driving technologies.

Mazda is a unique global company that has taken root in the Hiroshima region. The Company rolled out its J-ABC (Jiba ["local"] Achieve Best Cost) program for local suppliers in and around Hiroshima Prefecture, starting in 2004. This initiative has contributed not only to cutting production costs but also to reducing environmental impact, such as energy saving and resource saving. As the importance of overseas production sites increases, Mazda is also expected to further promote its activities to support improvement of suppliers.



## Third-Party Verification

The Mazda Sustainability Report 2019 [In-Depth Version] was assured by third parties to improve the reliability of the data disclosed in the report. The amounts of GHG emissions, water use and waste emissions disclosed in the Mazda Sustainability Report 2019 [In-Depth Version] are those verified in “FY2018 Scope 1 & 2 GHG emissions Calculation Report”, “FY2018 Scope 3 GHG emissions Calculation Report”, “FY2018 Water Use Report” and “FY2018 Waste Emissions Report”.



No.1811003644

### Independent Verification Report

#### To: Mazda Motor Corporation

##### 1. Objective and Scope

Japan Quality Assurance Organization (hereafter “JQA”) was engaged by Mazda Motor Corporation (hereafter “the Company”) to provide an independent verification on “FY2018 Scope 1 & 2 GHG emissions Calculation Report”, “FY2018 Scope 3 GHG emissions Calculation Report”, “FY2018 Water Use Report” and “FY2018 Waste Emissions Report” (hereafter “the Reports”). The content of our verification was to express our conclusion, based on our verification procedures, on whether the statement of information regarding GHG emissions, water use and waste emissions in the Reports were correctly measured and calculated, in accordance with the “Scope 1 & 2 GHG Emissions Calculation Manual (MBSAZ-ND00014, dated June 5, 2019)”, “Scope 3 GHG Emissions Calculation Manual (MBSAZ-ND00017, dated June 3, 2019)”, “Water Use Calculation Manual (MBSAZ-ND00015, dated June 7, 2019)” and “Waste Emissions Calculation Manual (MBSAZ-ND00016, dated June 5, 2019)” (hereafter “the Rules”). The purpose of the verification is to evaluate the Reports objectively and to enhance the credibility of the Reports.

\*The fiscal year 2018 of Mazda Motor Corporation ended on March 31, 2019.

##### 2. Procedures Performed

JQA conducted verification in accordance with “ISO 14064-3” for GHG emissions and with “ISAE3000” for water use and waste emissions, respectively. The scope of this verification assignment covers energy-derived CO<sub>2</sub> emissions from Scope 1, 2 and four categories of Scope 3 (Category 3, 5, 6 and 7) as GHG emissions, water use and waste emissions. The verification was conducted to a limited level of assurance and quantitative materiality was set at 5 percent each of the total emissions and total amount of water use in the Reports. The organizational boundaries of this verification include following four domestic production sites of Mazda Motor Corporation: Hiroshima Plant, Miyoshi Plant, Nishinoura district and Nakanoseki district of Hofu Plant, and following five overseas production sites: AutoAlliance (Thailand) Co., Ltd., Changan Mazda Engine Co., Ltd., Changan Mazda Automobile Co., Ltd., Mazda Powertrain Manufacturing (Thailand) Co., Ltd. and Mazda Motor Manufacturing de Mexico, S.A. de C.V. The overseas boundaries data exclude water use and waste emissions.

Our verification procedures included:

- Visiting two domestic sites of Hiroshima Plant and Miyoshi Plant for on-site verification except for Scope 3
- On-site assessment to check the report scope and boundaries; monitoring points of energy use, water use and waste discharge; monitoring and calculation system; and activity data. The number and location of sampling sites for on-site assessment were selected by the Company.
- Visiting Mazda Head Office for validation of the Rules and verification of Scope 3. Checking calculation scenario and allocation method for Scope 3; monitoring and calculation system; and emission data.

##### 3. Conclusion

Based on the procedures described above, nothing has come to our attention that caused us to believe that the statement of the information regarding the Company’s FY2018 GHG emissions, water use and waste emissions in the Report is not materially correct, or has not been prepared in accordance with the Rules.

##### 4. Consideration

The Company was responsible for preparing the Reports, and JQA’s responsibility was to conduct verification of GHG emissions, water use and waste emissions in the Reports only. There is no conflict of interest between the Company and JQA.

Sumio Asada, Board Director  
For and on behalf of Japan Quality Assurance Organization  
1-25, Kandasudacho, Chiyoda-ku, Tokyo, Japan  
June 21, 2019

## Third-Party Assurance

The Mazda Sustainability Report 2019 [In-Depth Version] was assured by third parties to improve the reliability of the data disclosed in the report.



### Independent Assurance Report

To the Representative Director, President and CEO of Mazda Motor Corporation

We were engaged by Mazda Motor Corporation (the "Company") to undertake a limited assurance engagement of the social performance indicators marked with "☑"(the "Indicators") for the period from April 1, 2018 to March 31, 2019 included in its SUSTAINABILITY REPORT 2019 (IN-DEPTH VERSION) (the "Report") for the fiscal year ended March 31, 2019.

#### The Company's Responsibility

The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria (the "Company's reporting criteria"), as described in the Report.

#### Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed. We conducted our engagement in accordance with the 'International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information' issued by the International Auditing and Assurance Standards Board. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than for, a reasonable assurance engagement. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing the Company's responsible personnel to obtain an understanding of its policy for preparing the Report and reviewing the Company's reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical procedures on the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company's reporting criteria, and recalculating the Indicators.
- Visiting the Company's headquarter selected on the basis of a risk analysis.
- Evaluating the overall presentation of the Indicators.

#### Conclusion

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Report are not prepared, in all material respects, in accordance with the Company's reporting criteria as described in the Report.

#### Our Independence and Quality Control

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

*KPMG AZSA Sustainability Co., Ltd.*

KPMG AZSA Sustainability Co., Ltd.

Osaka, Japan

November 25, 2019



## GRI Content Index

The table below shows the pages in this report containing information relevant to each of the required disclosures under the GRI Sustainability Reporting Standards and its Core option, and each of the ISO 26000 subjects.

Core option requirements	GRI Standard	Disclosures	Relevant pages/ Reason for omission in parentheses	ISO26000
	<b>102</b>	<b>GENERAL DISCLOSURES</b>		
	<b>GRI 102:</b>	<b>General Disclosures 2016</b>		
	<b>1</b>	<b>Organizational profile</b>		
✓	102-1	Name of the organization	141	—
✓	102-2	Activities, brands, products, and services	17, 141	—
✓	102-3	Location of headquarters	141	—
✓	102-4	Location of operations	16, 18-19	—
✓	102-5	Ownership and legal form	141	—
✓	102-6	Markets served	16, 17, 141	—
✓	102-7	Scale of the organization	16, 141	—
✓	102-8	Information on employees and other workers	86	6.4, 6.4.3
✓	102-9	Supply chain	117	—
✓	102-10	Significant changes to the organization and its supply chain	N/A	—
✓	102-11	Precautionary Principle or approach	110-113	6.2
✓	102-12	External initiatives	22	6.2
✓	102-13	Membership of associations	22, 127-129	6.2
	<b>2</b>	<b>Strategy</b>		
✓	102-14	Statement from senior decision-maker	4-6	6.2
	102-15	Key impacts, risks, and opportunities	23-24, 54-55	6.2
	<b>3</b>	<b>Ethics and integrity</b>		
✓	102-16	Values, principles, standards, and norms of behavior	114	—
	102-17	Mechanisms for advice and concerns about ethics	114	—
	<b>4</b>	<b>Governance</b>		
✓	102-18	Governance structure	22, 106-107	6.2
	102-19	Delegating authority	22, 106-107	—
	102-20	Executive-level responsibility for economic, environmental, and social topics	22, 106-107	—
	102-21	Consulting stakeholders on economic, environmental, and social topics	• Corporate Governance Report <sup>*1</sup>	6.2
	102-22	Composition of the highest governance body and its committees	• Securities Report <sup>*2</sup>	6.2
	102-23	Chair of the highest governance body	• Corporate Governance Report <sup>*1</sup>	6.2
	102-24	Nominating and selecting the highest governance body	107	6.2
	102-25	Conflicts of interest	• Corporate Governance Report <sup>*1</sup>	6.2
	102-26	Role of highest governance body in setting purpose, values, and strategy	• Corporate Governance Report <sup>*1</sup>	—
	102-27	Collective knowledge of highest governance body	• Corporate Governance Report <sup>*1</sup>	—
	102-28	Evaluating the highest governance body's performance	• Corporate Governance Report <sup>*1</sup>	6.2

\*1 Corporate Governance Report <https://www.mazda.com/en/investors/library/governance/>

\*2 Securities Report (Japanese only) <https://www.mazda.com/ja/investors/library/s-report/>

Core option requirements	GRI Standard	Disclosures	Relevant pages/ Reason for omission in parentheses	ISO26000
	102-29	Identifying and managing economic, environmental, and social impacts	21-25, 110	6.2
	102-30	Effectiveness of risk management processes	21-25, 110	—
	102-31	Review of economic, environmental, and social topics	21-25, 110	6.2
	102-32	Highest governance body's role in sustainability reporting	21-25	—
	102-33	Communicating critical concerns	• Corporate Governance Report <sup>*1</sup>	6.2
	102-34	Nature and total number of critical concerns	—	—
	102-35	Remuneration policies	106-107 • Corporate Governance Report <sup>*1</sup>	6.2
	102-36	Process for determining remuneration	106-107 • Corporate Governance Report <sup>*1</sup>	—
	102-37	Stakeholders' involvement in remuneration	—	6.2
	102-38	Annual total compensation ratio	• Corporate Governance Report <sup>*1</sup>	—
	102-39	Percentage increase in annual total compensation ratio	—	—
	5	<b>Stakeholder engagement</b>		
✓	102-40	List of stakeholder groups	26-27	6.2
✓	102-41	Collective bargaining agreements	92	6.3.10, 6.4 6.4.3, 6.4.4 6.4.5
✓	102-42	Identifying and selecting stakeholders	26-27	6.2
✓	102-43	Approach to stakeholder engagement	26-27	6.2, 6.7 6.7.4, 6.7.5 6.7.6, 6.7.8 6.7.9
✓	102-44	Key topics and concerns raised	25, 26, 30, 33, 37, 80, 87, 119	6.2
	6	<b>Reporting practice</b>		
✓	102-45	Entities included in the consolidated financial statements	3 • Securities Report <sup>*2</sup>	6.2
✓	102-46	Defining report content and topic Boundaries	3, 21-25	—
✓	102-47	List of material topics	23	—
✓	102-48	Restatements of information	N/A	—
✓	102-49	Changes in reporting	N/A	—
✓	102-50	Reporting period	3	—
✓	102-51	Date of most recent report	3	—
✓	102-52	Reporting cycle	3	—
✓	102-53	Contact point for questions regarding the report	142	—
✓	102-54	Claims of reporting in accordance with the GRI Standards	3, 135-140	—
✓	102-55	GRI content index	135-140	—
✓	102-56	External assurance	133, 134	7.5.3
	103	<b>Management Approach</b>		
	GRI 103:	Management Approach 2016		
	103-1	Explanation of the material topic and its Boundary	23	—
	103-2	The management approach and its components	20, 22, 28, 34, 40, 54-55, 84, 99, 105	—
	103-3	Evaluation of the management approach	20, 23, 28, 34, 40, 54-55, 84, 99, 105	—

\*1 Corporate Governance Report <https://www.mazda.com/en/investors/library/governance/>

\*2 Securities Report (Japanese only) <https://www.mazda.com/ja/investors/library/s-report/>

●: Important issues specified by Mazda

Important issues	GRI Standard	Disclosures	Relevant pages/ Reason for omission in parentheses	ISO26000
	200	<b>Economic</b>		
●	<b>GRI 201:</b>	<b>Economic Performance 2016</b>		
	201-1	Direct economic value generated and distributed	87, 101, 120	6.8, 6.8.3 6.8.7, 6.8.9
	201-2	Financial implications and other risks and opportunities due to climate change	56 • Securities Report*1	6.5.5
	201-3	Defined benefit plan obligations and other retirement plans	• Securities Report*1	—
	201-4	Financial assistance received from government	—	—
●	<b>GRI 202:</b>	<b>Market Presence 2016</b>		
	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	—	6.4.4, 6.8
	202-2	Proportion of senior management hired from the local community	85	6.8, 6.8.5 6.8.7
●	<b>GRI 203:</b>	<b>Indirect Economic Impacts 2016</b>		
	203-1	Infrastructure investments and services supported	48	6.3.9, 6.8 6.8.3, 6.8.4 6.8.5, 6.8.6 6.8.7, 6.8.9
	203-2	Significant indirect economic impacts	100-104	6.3.9, 6.6.6 6.6.7, 6.7.8 6.8, 6.8.5 6.8.6, 6.8.7 6.8.9
●	<b>GRI 204:</b>	<b>Procurement Practices 2016</b>		
	204-1	Proportion of spending on local suppliers	(Confidential information)	6.6.6, 6.8 6.8.5, 6.8.7
●	<b>GRI 205:</b>	<b>Anti-corruption 2016</b>		
	205-1	Operations assessed for risks related to corruption	—	6.6, 6.6.3
	205-2	Communication and training about anti-corruption policies and procedures	25, 114-115, 117-118	6.6, 6.6.3
	205-3	Confirmed incidents of corruption and actions taken	N/A	6.6, 6.6.3
	<b>GRI 206:</b>	<b>Anti-competitive Behavior 2016</b>		
	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	N/A	6.6, 6.6.5 6.6.7
	300	<b>Environmental</b>		
●	<b>GRI 301:</b>	<b>Materials 2016</b>		
	301-1	Materials used by weight or volume	82	6.5.4
	301-2	Recycled input materials used	77-78, 82	6.5.4
	301-3	Reclaimed products and their packaging materials	73, 77-78, 82	6.5.3, 6.5.4 6.7.5
●	<b>GRI 302:</b>	<b>Energy 2016</b>		
	302-1	Energy consumption within the organization	60, 70, 82	6.5.4
	302-2	Energy consumption outside of the organization	—	6.5.4
	302-3	Energy intensity	—	6.5.4
	302-4	Reduction of energy consumption	70	6.5.4, 6.5.5
	302-5	Reductions in energy requirements of products and services	62-64	6.5.4, 6.5.5
●	<b>GRI 303:</b>	<b>Water 2018</b>		
	303-1	Interactions with water as a shared resource	74-82	6.5.4

\*1 Securities Report (Japanese only) <https://www.mazda.com/ja/investors/library/s-report/>

Important issues	GRI Standard	Disclosures	Relevant pages/ Reason for omission in parentheses	ISO26000
	303-2	Management of water discharge-related impacts	—	6.5.4
	303-3	Water withdrawal	74, 82	6.5.4
	303-4	Water discharge	74-75, 82	6.5.4
	303-5	Water consumption	—	6.5.4
	<b>GRI 304 :</b>	<b>Biodiversity 2016</b>		
	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	—	6.5.6
	304-2	Significant impacts of activities, products, and services on biodiversity	—	6.5.6
	304-3	Habitats protected or restored	—	6.5.6
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	—	6.5.6
●	<b>GRI 305 :</b>	<b>Emissions 2016</b>		
	305-1	Direct (Scope1) GHG emissions	70, 82	6.5.5
	305-2	Energy indirect (Scope2) GHG emissions	70, 82	6.5.5
	305-3	Other indirect (Scope3) GHG emissions	82	6.5.5
	305-4	GHG emissions intensity	70	6.5.5
	305-5	Reduction of GHG emissions	70	6.5.5
	305-6	Emissions of ozone-depleting substances (ODS)	—	6.5.3, 6.5.5
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	75, 82	6.5.3
●	<b>GRI 306 :</b>	<b>Effluents and Waste 2016</b>		
	306-1	Water discharge by quality and destination	75, 82	6.5.3, 6.5.4
	306-2	Waste by type and disposal method	82	6.5.3
	306-3	Significant spills	N/A	6.5.3
	306-4	Transport of hazardous waste	—	6.5.3
	306-5	Water bodies affected by water discharges and/or runoff	—	6.5.3, 6.5.4 6.5.6
●	<b>GRI 307 :</b>	<b>Environmental Compliance 2016</b>		
	307-1	Non-compliance with environmental laws and regulations	59	4.6
●	<b>GRI 308 :</b>	<b>Supplier Environmental Assessment 2016</b>		
	308-1	New suppliers that were screened using environmental criteria	(Confidential information)	6.3.5, 6.6.6 7.3.1
	308-2	Negative environmental impacts in the supply chain and actions taken	118	6.3.5, 6.6.6 7.3.1
	400	<b>Social</b>		
●	<b>GRI 401 :</b>	<b>Employment 2016</b>		
	401-1	New employee hires and employee turnover	85-86	6.4, 6.4.3
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	—	6.4, 6.4.3 6.4.4
	401-3	Parental leave	91	6.4, 6.4.3
●	<b>GRI 402 :</b>	<b>Labor/Management Relations 2016</b>		
	402-1	Minimum notice periods regarding operational changes	92	6.4, 6.4.3 6.4.4, 6.4.5
●	<b>GRI 403 :</b>	<b>Occupational Health and Safety 2018</b>		
	403-1	Occupational health and safety management system	93	6.4, 6.4.6
	403-2	Hazard identification, risk assessment, and incident investigation	93-95	6.4, 6.4.6

Important issues	GRI Standard	Disclosures	Relevant pages/ Reason for omission in parentheses	ISO26000
	403-3	Occupational health services	94-95	6.4, 6.4.6
	403-4	Worker participation, consultation, and communication on occupational health and safety	93	6.4, 6.4.6
	403-5	Worker training on occupational health and safety	94	6.4, 6.4.6
	403-6	Promotion of worker health	95	6.4, 6.4.6
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	93	6.4, 6.4.6
	403-8	Workers covered by an occupational health and safety management system	93	6.4, 6.4.6
	403-9	Work-related injuries	93-95	6.4, 6.4.6
	403-10	Work-related ill health	93-95	6.4, 6.4.6
●	<b>GRI 404 :</b>	<b>Training and Education 2016</b>		
	404-1	Average hours of training per year per employee	88	6.4, 6.4.7
	404-2	Programs for upgrading employee skills and transition assistance programs	88	6.4, 6.4.7 6.8.5
	404-3	Percentage of employees receiving regular performance and career development reviews	89	6.4, 6.4.7
●	<b>GRI 405 :</b>	<b>Diversity and Equal Opportunity 2016</b>		
	405-1	Diversity of governance bodies and employees	86, 106	6.3.7, 6.3.10 6.4, 6.4.3
	405-2	Ratio of basic salary and remuneration of women to men	87	6.3.7, 6.3.10 6.4, 6.4.3 6.4.4
	<b>GRI 406 :</b>	<b>Non-discrimination 2016</b>		
	406-1	Incidents of discrimination and corrective actions taken	—	6.3, 6.3.6 6.3.7, 6.3.10 6.4.3
	<b>GRI 407 :</b>	<b>Freedom of Association and Collective Bargaining 2016</b>		
	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	—	6.3, 6.3.3 6.3.4, 6.3.5 6.3.8, 6.3.10 6.4.3, 6.4.5
	<b>GRI 408 :</b>	<b>Child Labor 2016</b>		
	408-1	Operations and suppliers at significant risk for incidents of child labor	96-98, 117-118	6.3, 6.3.3 6.3.4, 6.3.5 6.3.7, 6.3.10
●	<b>GRI 409 :</b>	<b>Forced or Compulsory Labor 2016</b>		
	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	96-98, 117-118	6.3, 6.3.3 6.3.4, 6.3.5 6.3.7, 6.3.10
	<b>GRI 410 :</b>	<b>Security Practices 2016</b>		
	410-1	Security personnel trained in human rights policies or procedures	—	6.3, 6.3.5 6.4.3, 6.6.6
	<b>GRI 411 :</b>	<b>Rights of Indigenous Peoples 2016</b>		
	411-1	Incidents of violations involving rights of indigenous peoples	—	6.3, 6.3.6 6.3.7, 6.3.8 6.6.7
	<b>GRI 412 :</b>	<b>Human Rights Assessment 2016</b>		
	412-1	Operations that have been subject to human rights reviews or impact assessments	96-98	6.3, 6.3.3 6.3.4, 6.3.5
	412-2	Employee training on human rights policies or procedures	96-98	6.3, 6.3.5
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	—	6.3, 6.3.3 6.3.5, 6.6.6



Important issues	GRI Standard	Disclosures	Relevant pages/ Reason for omission in parentheses	ISO26000
●	<b>GRI 413:</b>	<b>Local Communities 2016</b>		
	413-1	Operations with local community engagement, impact assessments, and development programs	104	6.3.9, 6.6.7 6.8, 6.8.5 6.8.7
	413-2	Operations with significant actual and potential negative impacts on local communities	—	6.3.9, 6.5.3 6.5.6, 6.8.9
●	<b>GRI 414:</b>	<b>Supplier Social Assessment 2016</b>		
	414-1	New suppliers that were screened using social criteria	(Confidential information)	—
	414-2	Negative social impacts in the supply chain and actions taken	—	—
	<b>GRI 415:</b>	<b>Public Policy 2016</b>		
	415-1	Political contributions	—	—
●	<b>GRI 416:</b>	<b>Customer Health and Safety 2016</b>		
	416-1	Assessment of the health and safety impacts of product and service categories	47	6.3.9, 6.6.6 6.7, 6.7.4 6.7.5
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	—	6.3.9, 6.6.6 6.7, 6.7.4 6.7.5
●	<b>GRI 417:</b>	<b>Marketing and Labeling 2016</b>		
	417-1	Requirements for product and service information and labeling	43	6.7, 6.7.3 6.7.4, 6.7.5 6.7.6, 6.7.9
	417-2	Incidents of non-compliance concerning product and service information and labeling	43	6.7, 6.7.3 6.7.4, 6.7.5 6.7.6, 6.7.9
	417-3	Incidents of non-compliance concerning marketing communications	N/A	6.7, 6.7.3 6.7.6, 6.7.9
●	<b>GRI 418:</b>	<b>Customer Privacy 2016</b>		
	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	N/A	6.7, 6.7.7
●	<b>GRI 419:</b>	<b>Socioeconomic Compliance 2016</b>		
	419-1	Non-compliance with laws and regulations in the social and economic area	N/A	6.6, 6.6.3 6.6.7, 6.8.7

## Corporate Profile (as of March 31, 2019)

Company name:	Mazda Motor Corporation	Research and development sites:	Head Office, Mazda R&D Center (Yokohama), Mazda North American Operations (USA), Mazda Motor Europe (Germany), China Engineering Support Center (China)
Founded:	January 30, 1920	Production sites:	Japan: Hiroshima Plant (Head Office, Ujina), Hofu Plant (Nishinoura, Nakanoseki), Miyoshi Plant Overseas: China, Thailand, Mexico, Vietnam <sup>*1</sup> , Malaysia <sup>*1</sup> , Russia <sup>*1</sup>
Head Office:	3-1 Shinchii, Fuchu-cho, Aki-gun, Hiroshima 730-8670, Japan	Sales companies:	Japan: 218, Overseas: 140
Main business lines:	Manufacture and sales of passenger cars and commercial vehicles	Principal products:	Four-wheeled vehicles, gasoline reciprocating engines, diesel engines, automatic and manual transmissions for vehicles
Stock information:	1,200,000,000 total shares issuable 631,803,979 total outstanding shares 149,121 shareholders		
Capital:	284 billion yen		
Employees:	Consolidated Total: 49,998		

<sup>\*1</sup> Assembly only (Volume is not disclosed).

## About Mazda

### The Origin and Meaning of "Mazda"

The Company's name, "Mazda," derives from Ahura Mazda, a god of the earliest civilizations in western Asia. The Company has interpreted Ahura Mazda, the god of wisdom, intelligence, and harmony, as a symbol of the origin of both Eastern and Western civilizations, and also as a symbol of automotive culture. It incorporates a desire to achieve world peace and the development of the automobile manufacturing industry. It also derives from the name of the Company's founder, Jujiro Matsuda.

### Mazda Corporate Mark

Mazda developed its corporate mark as a symbol for Mazda's communications in 1975. It was later positioned as an easy-to-read corporate mark, in line with the establishment of the brand symbol in 1997.

**mazda**

### Mazda Brand Symbol

The brand symbol expresses Mazda's dedication to continuous growth and improvement. It is a symbolic development of the Mazda "M," and shows the Company stretching its wings as it soars into the future (Established in June 1997).



### Mazda Brand Slogan, "Zoom-Zoom"

Mazda's creativity and innovation continuously delivers fun and exhilarating driving experiences to customers who remember the emotion of motion first felt as a child (Announced in April 2002).

## Other Information

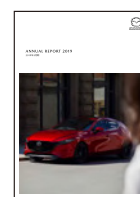
### Official websites

	URL	Content
CSR	<a href="https://www.mazda.com/en/csr/">https://www.mazda.com/en/csr/</a>	Mazda's CSR initiatives and other general information
Investor relations	<a href="https://www.mazda.com/en/investors/">https://www.mazda.com/en/investors/</a>	Financial and governance information
Company	<a href="https://www.mazda.com/en/about/">https://www.mazda.com/en/about/</a>	Overview and business/production bases of the Mazda Group
Brand	<a href="https://www.mazda.com/en/innovation/">https://www.mazda.com/en/innovation/</a>	Information on brand, technologies
News	<a href="https://www.mazda.com/en/news/">https://www.mazda.com/en/news/</a>	News releases, SNS, animations
Sales/Customer service	<a href="https://www.mazda.com/en/about/d-list/">https://www.mazda.com/en/about/d-list/</a> *	Information on products and others to customers before/after purchase

\* Choose the country/area to be searched.



**Mazda Sustainability Report 2019 [In-Depth Version]**  
<https://www.mazda.com/en/csr/report/download/>



**Annual Report 2019**  
<https://www.mazda.com/en/investors/library/annual/>



**Mazda Technical Review**  
<https://www.mazda.com/ja/innovation/technology/gihou/>  
(For English, Summary is available)

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