

# Social and Environmental Report 2012

# MITSUBISHI MOTORS CORPORATION



Drive@earth



# Note to Readers

Corporate Philosophy (formulated in January 2005)

"We are committed to providing the utmost driving pleasure and safety for our valued customers and our community. On these commitments we will never compromise. This is the Mitsubishi Motors way."

### **Customer-centric approach**

Mitsubishi Motors will give the highest priority to earning the satisfaction of its customers, and by doing so will become a company that enjoys the trust and confidence of the community at large. To this end, Mitsubishi Motors will do its utmost to tackle environmental issues, to raise the level of passenger and road safety and to address other issues of concern to car owners and the general public.

## A clear direction for the development and manufacturing of Mitsubishi Motors vehicles

The cars that Mitsubishi Motors will manufacture will embody two major concepts: "driving pleasure" and "safety." Mitsubishi Motors will manufacture cars that deliver superior driving performance and superior levels of safety and durability, and therefore those who use them will enjoy peace of mind.

## Going the extra mile

Mitsubishi Motors will pay close attention to even the smallest details in the belief that this approach will lead customers to discover new value in their cars, giving them a richer and more rewarding driving experience.

### Importance of continuity

Mitsubishi Motors will continue to manufacture distinctive cars with the passion and conviction to overcome all challenges.

# About the 2012 Mitsubishi Motors Social and Environmental Report

Mitsubishi Motors Corp. (MMC) published an environmental sustainability report for six years from its inaugural publication in September 1999 through 2004. In 2005, the title was changed to the Mitsubishi Motors Social and Environmental Report to reflect a sharper focus on the reporting of matters related to the social aspects of MMC's activities.

The aim of this report is to provide readers with a full and honest account of MMC's environmental and social activities, and to deepen readers' understanding of MMC's initiatives in these areas

# Scope of Report

- Reported Activities
  - Social and environmental activities: Focusing on MMC, the report describes the activities of the Group companies in Japan and some overseas Group companies.
  - Corporate data: The report provides financial and accounting data of MMC, consolidated subsidiaries and affiliates.
- Reporting Period April 1, 2011-March 31, 2012 (The report also includes some recent information from April 2012 onward)
- Publication Date August 2012 (last published August 2011)

# Persistence and Commitment to Serve Society's Needs

Pioneering electric vehicles (EV), towards a sustainable future for everyone. As a leading company in EVs, Mitsubishi Motors Corporation made much progress in the 2011 fiscal year; through development and sales of EVs, the pillar of Mitsubishi Motors' environmental solutions.

In last year's Social and Environmental Report I spoke about many things, focusing on the Great East Japan Earthquake, the possibility of using electric vehicles as a power source, new electric models, and future "smart grids." Let me update you on those and more.

First, we added the MINICAB-MiEV mini-commercial EV to go along with the i-MiEV in Japan. The MINICAB-MiEV went on sale with some trim models costing less than two million yen after incentives. In addition, we split the i-MiEV into two models: one with a shorter range which realized my dream of an i-MiEV for less than two million yen (after incentives), and an extended-range version that can run 180 kilometers on one charge. As I mentioned in last year's Report, the experience of the Great East Japan Earthquake, the nuclear reactor incident, and subsequent power shortage taught us that electric vehicles could be very useful in times of disaster. Our commitment to make electric vehicles function as a power source to respond to Japan's call for a new power infrastructure following the Great East Japan Earthquake has resulted in the MiEV Power Box, which went on sale in April 2012. The MiEV Power Box can simply be taken out of the car, plugged in, and can supply enough electricity to power large appliances. In addition, as a pioneer in electric vehicles with a country wanting a new power infrastructure, we are responding by pioneering "smart grid" research by testing our own smart grid we have already built at our Nagoya Plant. "Smart grids" hold possibilities for far more efficient power distribution than conventional power grids and are seen as a potential next-generation power grid.

In the 2012 fiscal year, we will continue to press on with electric vehicle technology, including adding a plug-in hybrid system derived from our state-of-the-art electric vehicle technology to the new Outlander SUV, and are on schedule to release an electric mini-truck. Further on, we will continue to develop and bring to market new vehicles powered by partial- or all-electric systems and work to promote their popularization.

At the same time we are working hard on increasing the fuel efficiency of internal combustion engine vehicles, to comply with consumer needs. An example of this is the Mirage compact hatchback that we launched in Japan in August 2012. The Mirage is our "global strategic vehicle," and in fact the Japanese version achieves fuel efficiency on par with hybrids. As of August 2012, the Mirage is the most fuel-efficient gasoline registered\*1 car in Japan, excluding hybrids. The Thai-produced Mirage made its debut in Thailand in March of this year, and so far has been an overwhelming success with orders far exceeding expectations. We hope the Mirage has similar success when launched in ASEAN countries and in Europe. In addition, we have launched an "eco-SUV," with top-of-class fuel efficiency and low CO2 emissions like the Mirage has—the new Outlander mentioned previously—in Russia in August 2012. The new Outlander will then be successively rolled out into other countries and regions throughout the globe.

\*1 A "standard" car under Japanese law, excluding minicars.

Looking back on the past fiscal year, it was an incredibly difficult year. The operating environment for the automobile industry worsened with natural disasters like the Great East Japan Earthquake and the catastrophic flooding in Thailand, along with financial woes such as the historically strong yen and the Eurozone debt crises. However, I have learned something profound as our company unified to overcome these setbacks. In particular, the persistence of whom I call in Japanese gembaryoku—those Mitsubishi Motors employees on the front lines, in their local areas—who are essential to our core business of making automobiles. In addition, I was reminded again of the



importance of being able to adapt and evolve to meet the conditions of a changing and adverse operating environment.

In this difficult operating environment, there were some who said our financial goals for the 2011 fiscal year (the first year of the JUMP 2013 mid-term business plan) could not be met. However, with the entire company committed toward achieving those goals, Mitsubishi Motors did indeed meet its financial goals for the fiscal year. We expect the current difficult operating environment will continue through the 2012 fiscal year; however, Mitsubishi Motors will work with further resolve to realize the "Growth and Leap Forward" as laid out in JUMP 2013. This will be done by focusing our operating resources in emerging markets and on environmental initiatives. By doing so, we will be able to launch new products that meet the needs of each country or region, and set up a cost structure that can maintain our competitiveness even in times of a very strong yen.

In conclusion, Mitsubishi Motors continues its support of those still living in the disaster-stricken areas hit by the Great East Japan Earthquake by participating in Project YUI. A consortium of the public and private sectors in Japan, Project YUI gives support to employees of any organization who volunteer to help in the disaster areas. As a participant, Mitsubishi Motors encourages its employees to volunteer under Project YUI. There is only so much a company can do to help; however, moving forward Mitsubishi Motors will continue various similar activities to aid the restoration of the disaster-hit areas.

All of us at Mitsubishi Motors will give 100% towards contributing to our environment and community in order to meet the expectations of our stakeholders. Moving forward, I sincerely ask for your unwavering support and guidance.

masupo Osamu Masuko

President

# CSR Promotion

## MMC's Approach to CSR Activities

At MMC, we work to ensure compliance with business ethics, considering societal norms as well as laws and ordinances, international rules and internal regulations.

Based on this corporate ethics, we implement our corporate philosophy, and continue contributing to society and the environment by fulfilling our stakeholders' expectation and demands to gain trust in MMC; thus, we strive to build "a sustainable future in harmony with society and the earth through the cars."

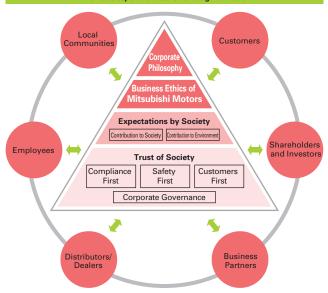
In our new mid-term business plan, "Jump 2013", covering fiscal 2011 through 2013, MMC made the following commitment to CSR, which forms the basis for its business operations: continue to actively engage in activities that enhance "trust of society" and meet "expectation by society."

Going forward, MMC will continue to pursue activities that strongly focus on symbiotic relationships with society such as those that raise awareness about compliance, strengthen corporate governance, and contribute to the environment and society.

### Mitsubishi Motors Corporation's CSR Activities

Continually contribute to both society and the environment by fulfilling expectations and demands of our stakeholders to win trust in MMC by implementing our Corporate Philosophy.

### Towards a sustainable future in harmony with society and the earth through the cars



# Working With Customers

## **Communication With Customers**

MMC aims to improve customer satisfaction through its Customer Service Center, which opened in 1968. Here, customers can receive a variety of consultations based on the principles of speed, accuracy, kindness and sincerity. In fiscal 2011, we received about 60,000 inquiries, opinions, suggestions, etc.

### **Customer Feedback**

When we receive customers' opinions, we pass them on to the related MMC departments so as to improve our current and future products and services from the customers' viewpoint.

When we receive information about automobiles' defects, we use it in considering whether to implement a recall campaign.

We record all customer phone calls to the center and use a selection of the recordings as material for our employee training program to enhance the "Customer First" spirit. In fiscal 2011, as many as 600 employees participated in the program held at the head office and the three key plants.



### Communication Through the Corporate Website

MMC has prepared an inquiries webpage on its website for customers who use the Internet. We have set up a section with frequently asked questions that enables customers themselves to find out the answers to their questions—we update this section constantly. In fiscal 2011, compared to fiscal 2010 there was a rapid increase in the number of views of the maintenance section and the section about how to cope with an emergency. As a result, we are now examining how to

increase the information available. Also, we have set up an access point to receive inquiries by email, thereby improving the convenience of the MMC Customer Service Center as it can be available outside the office hours of the toll-free phone number service.



For more details, refer to the MMC website. [In Japanese only]

http://www.mitsubishi-motors.co.jp/ reference/index.html

# **MMC's Environmental Initiatives**

In January 2011 MMC formulated its Environment Initiative Program 2015 to pursue interim targets toward achieving the objectives of MMC's Environmental Vision 2020. We are actively pursuing our environmental conservation initiatives on an integrated, Group-wide basis.

The MMC Environmental Policy that underpins corporate management's environmental conservation initiatives

### **Basic Policy**

Mitsubishi Motors recognizes that protection of the global environment is a priority for humankind and as such makes the follow-

- 1. Taking a global perspective, we are committed to harnessing all our resources to achieve continuous reductions in the environmental impact of all our corporate activities, spanning development, procurement, production, sales, and after-sales servicing of vehicles
- 2. As a good corporate citizen, we are committed to take actions that protect the environment at the level of local communities and society as a whole.

### **Behavioral Standards**

- 1. We will endeavor to protect the environment by forecasting and assessing the environmental impact of our products at all stages in their life cycle. Priority is given to the following areas:
  - Prevention of global warming by reducing emissions of greenhouse gases
  - Prevention of pollution by restricting emissions of substances harmful to the environment
  - Reduction of waste and maximizing efficient use of resources by promoting conservation of resources and recycling.
- 2. We will endeavor to improve our environment management practices as part of ongoing efforts to ameliorate the impact on the environment.
- 3. We will comply with environmental regulations and agreements, and will work to protect the environment by establishing voluntary management targets.
- 4. We will encourage our affiliates and suppliers, both in Japan and overseas, to cooperate in working to protect the environment.
- 5. We will actively disclose environment-related information and will seek the understanding of local communities and of society at large.

## **Major Environmental Targets**

	Environment Initiative Program 2015	Environmental Vision 2020			
CO <sub>2</sub> emissions	25% reduction 50				
(vehicle-produced)	Compared to FY2005 Global average for all new vehicles				
Electric-powered	5% or more	20% or more			
vehicles*1 production ratio	Compared to FY2005				
Production CO <sub>2</sub> emissions	15% reduction	20% reduction			
Froduction CO2 emissions	Compared to FY2005	Per production vehicle			

<sup>\*1</sup> Flectric-powered vehicles: These vehicles run on electric power that has been stored in batteries which are charged from the outside. They include EVs (electric vehicles) and PHEVs (Mitsubishi plug-in hybrid EVs).

# Reflecting on the Mitsubishi Motors Environment Initiative Program 2015



Automobiles are lifestyle essentials that contribute greatly to society through their convenience, but they also inevitably affect the environment. MMC strives to minimize the impact of its business activities on the environment, and as an automaker, we believe that we are bound by a strong social responsibility to do so.

We are fulfilling this responsibility by developing EV technologies that help substantially reduce CO2 emissions and by endeavoring to enhance the fuel consumption of gasoline- and diesel-power vehicles. At the same time, we are doing our utmost to lower CO2 emissions by streamlining our vehicle production facilities.

The Mitsubishi Motors Group Environmental Vision 2020, which we unveiled in June 2009, expresses a policy of "Pioneering electric vehicles (EV), towards a sustainable future for everyone." We then formulated the Mitsubishi Motors Environment Initiative Program 2015, which we launched in fiscal 2011, to pursue interim targets toward achieving the objectives of this policy. During an active year, we launched the environmentally friendly MINICAB-MiEV, strove to reduce CO<sub>2</sub> emissions through our business activities, and set up a testing facility and conducted smart grid demonstrations. We believe that it is vital for us to undertake initiatives to swiftly and steadily resolve each of these numerous challenges, including addressing biodiversity and engaging in global environmental efforts.

Looking ahead, we remain united in endeavoring companywide to achieve the goals of the Mitsubishi Motors Environment Initiative Program 2015.

Masao Omichi Chief Environmental Strategy Officer

# **Mitsubishi Motors Environment Initiative Program 2015**

## 1. Products and Technology

Category	Initiative	FY2015 target (Specific initiatives and targets*1)
Prevention of global warming	(1) Reduction of vehicular running CO <sub>2</sub> emissions	■ 25% global average reduction of vehicle-running CO₂ emissions (against 2005)
	(2) Enhancement of electric powered vehicle (EV/PHEV)*2 product lineup and expansion of sales territory	■ Launch of commercial mini electric vehicle (EV) in the Japan market in 2011 ■ Launch of plug-in hybrid vehicles in Japan, the United States and Europe from 2012 ■ EV/PHEV production ratio of at least 5%
	(3) Development of new technologies to improve performance of EV/PHEV	<ul> <li>Improvement of battery energy density</li> <li>Development of smaller, lighter-weight parts and components for EV/PHEV, as well as integrating functions of those parts</li> </ul>
	(4) Development and deployment of "Green Technologies"	■ New launch of hybrid vehicle ■ Improvement of gasoline engines and clean diesel engines (expanded utilization of idling stop mechanism, next-generation MIVEC*³ etc.)
Recycling and resource conservation	(5) Development of new technologies and enhancement of organizations and systems for the recycling and reuse of EV/PHEV	For used drive batteries: Development of recycling technology; Creation of recycling systems and organizations; Development of secondary utilization technologies and businesses
	(6) Development and commercialization of less resource- intensive materials	Expanded application of "Green Plastic" (plant-based plastics)
	(7) Improvement of recycling efficiency of used automobiles and their parts	■ Used automobile recycling efficiency*4: at least 96% ■ Dealer repair/replacement bumper recovery rate: at least 60%
Prevention of environmental pollution	(8) Expanded deployment of low-emissions gas vehicles	■ Japan: Continue to expand deployment of 4 star-rated low-emission vehicles, Europe: Early adaptation to EURO6 ■ USA: Adaptation to LEVIII*5, Emerging countries: Promotion of EURO3-5 vehicles
	(9) Reduction of hazardous substances in products	Formulation and expansion of common global hazardous substance management standards

<sup>\*1:</sup> All targets are for FY2015 unless specifically noted otherwise. \*2: Electric-powered vehicles comprise electric vehicles (EV) and plug-in hybrid vehicles (PHEV).

## 2. Business Activities

Category	Initiative	FY2015 target (Specific initiatives and targets*1)
Production and logistics	(10) Reduction of unit CO <sub>2</sub> emissions in production	■ 15% reduction in CO₂ emissions per production vehicle at Japanese and international plants (compared to FY2005)
	(11) Reduction of unit CO <sub>2</sub> emissions in logistics	■ Reduction in CO₂ emissions per unit of transportation (compared to FY2006) Procurement logistics: –36%; transportation of completed vehicle, etc.: –9%
	(12) Resource conservation and recycling in production	■ 45% reduction of externally disposed waste per production vehicle at Japanese plants (compared to FY2005)
	(13) Resource conservation and recycling in logistics	■ 52% reduction in steel used per unit shipment volume at knock down (KD)* <sup>6</sup> plants in Japan (compared to FY2006)
	(14) Reduction of hazardous substances generated in production	Reduction of VOC* <sup>7</sup> per unit painting area to less than 35 g/m <sup>2</sup> (body and bumper painting) in Japanese plants
	(15) Establishment and enforcement of environmental standards in production	Establishment of environmental guidelines for plants, evaluation and improvement of plant environmental performance
Development, sales, servicing and offices	(16) Reduction of unit CO <sub>2</sub> emissions in non-production facilities	■ 5% reduction in unit CO₂ emissions at Japanese facilities (development facilities, parts centers etc.) (compared to FY2010)
	(17) Reduction of unit CO <sub>2</sub> emissions at non-production affiliates	■ 5% reduction in unit CO₂ emissions at Japanese affiliates (7 companies) (compared to FY2010) ■ 2–5% reduction in unit CO₂ emissions and international affiliates (9 companies) (compared to FY2010)
	(18) Establishment and enforcement of environmental standards in sales and servicing	Establishment of environmental guidelines for dealers, evaluation and improvement of dealership and service center environmental performance
Collaborative activities with suppliers	(19) Enhanced management of hazardous substances in the supply chain	■ Improved coordination of the supply chain to enhance management at the supplier level of hazardous substances in products and materials
	(20) Promotion of energy and resource conservation at suppliers	Creation of systems and organizations to improve collaborative activities with suppliers
	(21) Global deployment of green purchasing guidelines	■ Deployment of green purchasing guidelines to the suppliers of international plants

<sup>\*6:</sup> Knockdown vehicles are those exported as parts for assembly at local plants.

## 3. Collaboration With Society and Stronger Base of Implementation

Category	Initiative	FY2015 target (Specific initiatives and targets*1)
Collaboration for the spread of EV/PHEV	(22) Collaboration with government and other industries for the enhancement of the charging infrastructure	■ Collaboration with "EV/PHV Towns" for the enhancement of the charging infrastructure  Collaboration with the CHAdeMO Association*9 for the enhancement of the recharging infrastructure and promotion of international standardization
	(23) Research into Smart Grids and other strategies for utilizing electric vehicles	Participation in field testing for the commercialization of Smart Grids
Biodiversity	(24) Promotion of activities under the Basic Guidelines for the Preservation of Biodiversity	■ Monitoring and analysis of the impact of business activities on biodiversity
Strengthening of environmental management	(25) Promotion of environmental management that is integrated with affiliates	Creation of integrated environmental management systems in collaboration with Japanese and overseas affiliates
	(26) Expanded application of LCA*® in product development	■ Strengthening of systems to evaluate lifecycle CO₂ emissions in new vehicle development
	(27) Enhancement of environmental information disclosure and environmental communications	Enhancement of information disclosure in environmental accounting, etc., presented in environmental reports and on the website     Promotion of environmental communications with stakeholders
	(28) Promotion of systematic environmental education	Promotion of environmental education by job grade and business unit

<sup>\*8:</sup> LCA stands for Life Cycle Assessment, which is a technique for calculating the environmental burden of a product from manufacturing to disposal.

Mitsubishi Motors (MMC) started its Environment Initiative Program 2015, a 5-year plan, to make its Environmental Vision 2020 a reality, and the entire Group pushed ahead to achieve the program's targets, while MMC formed collaborations with each Group company.

In fiscal 2011, the first fiscal year of the program, MMC achieved most of its targets.

Evaluation  $\bigcirc$ :Achieved  $\triangle$ :Some progress  $\times$ :Unachieved targets

FY2011 target	FY2011 results		FY2012 target	Refe to
Improvement of fuel consumption in new vehicle development	Made progress as planned in countries that are going to introduce fuel consumption regulations (appropriate levels)	0	Recognition of projected compatibility with fuel consumption regulations	P.3 We P.4
<ul> <li>Launching of MINICAB-MiEV</li> <li>Development of plug-in hybrid vehicles (PHEVs) for market launch from 2012</li> </ul>	Launched MINICAB-MiEV in Japan as planned     Reviews occurred of some development plans	Δ	<ul> <li>◆ Deployment of i-MiEV in all regions of the U.S.</li> <li>◆ Launching of PHEVs in each market</li> </ul>	P.8 P.3 W.
Improvement of performance of inverters and motors	Development proceeded almost as planned	0	Development of mass-production design of inverters with double output density and deployment in new vehicles	-
■ Market launch of next-generation MIVEC engine	Made progress in line with development schedule (launching of next-generation MIVEC engine vehicle)	0	<ul> <li>Market launching of eco drive support system</li> <li>Weight saving in new vehicles</li> </ul>	We P.4
■ Building of recycling system for traction batteries in North America	Started preparation of recycling scheme in North America with MMNA as contact point	0	Development of extraction technology for positive-electrode material for traction batteries, and of commercial plants	We P.5
■ Development of low-cost plant-based materials	Conducted commercialization of biomass phenolic molding material	0	Completion of development of low-cost plant-based materials	T-
Recycling efficiency: at least 96% Bumper recovery rate: at least 54%	<ul><li>Recycling efficiency: at least 99%</li><li>Bumper recovery rate: at least 56.5%</li></ul>	0	Recycling efficiency: at least 96% Bumper recovery rate: at least 55.5%	We P.5
■ Promotion of exhaust gas regulations compatibility in new vehicle development in each country	Achieved development targets for vehicles developed for Europe     Launched as planned vehicles scheduled for commercialization	0	◆ Confirmation of ☆☆☆☆ vehicle launching in Japan ◆ Confirmation of progress made with low exhaust gas compatibility of new vehicles appearing since FY2013	We P.5
■ Elimination/reduction of 4 heavy metal substances in line with EU/South Korean regulations for new vehicles	Confirmed compatibility of vehicles for EU with regulations from EU directives about hazardous substances (4 heavy metal substances). No revision to South Korean regulations	0	◆ Elimination/reduction of 4 heavy metal substances in line with EU/South Korean regulations for new vehicles	W.

- \*3: MIVEC stands for Mitsubishi Innovative Valve timing Electronic Control system.

  \*4: Based on calculation methods used in the 3rd joint meeting of the Industrial Structure Council and Central Environmental Council on May 22, 2003

  \*5: Abbreviation for Low Emission Vehicle

	FY2011 target	FY2011 results		FY2012 target	Refer to
	$\blacksquare$ 2% reduction in CO <sub>2</sub> emissions per production vehicle (compared to FY2005)	Achieved fiscal year target with 8.7% reduction (429 kg/ vehicle)	0	♦ 7% reduction in CO₂ emissions per production vehicle (compared to FY2005)	P.33 Web P.48
	■ Reduction in CO₂ emissions per unit of transporta- tion (compared to FY2006) Procurement logistics: -32%; transportation of completed vehicles, etc.: -5%	Achieved targets of procurement logistics: -35%; transportation of completed vehicles, etc.: -10%	0	Reduction in CO <sub>2</sub> emissions per unit of transportation (compared to FY2006) Procurement logistics: –33%; transportation of completed vehicle, etc.: –6%	P.33 Web P.49
	■ 45% reduction of externally-disposed waste per production vehicle (compared to FY2005)	Achieved target with 47% reduction	0	<ul> <li>45% reduction of externally disposed waste per production vehicle (compared to FY2005)</li> </ul>	Web P.52
	■ 45% reduction in steel used per unit shipment volume (compared to FY2006)	Achieved target with 46% reduction	0	48% reduction in steel used per unit shipment volume (compared to FY2006)	Web P.52
	■ Reduction of VOC per unit painting area to less than 38 g/m² (body and bumper painting)	Achieved target with 34.6 g/m²	0	Reduction of VOC per unit painting area to less than 36 g/m² (body and bumper painting)	Web P.51
	Setting of target bases and evaluation standards through guideline formulation and team activities	Postponed guideline formulation until after next fiscal year out of consideration of compatibility with laws	_	(Suspended until the building of a system in compliance with environmental laws has been completed to some extent)	
	$\blacksquare$ 1% reduction in unit $CO_2$ emissions (compared to FY2010)	Achieved target with 1%~23% reduction	0	♠ Reduction in unit CO₂ emissions (compared to FY2010) General administration facilities: -5%; other facilities: -2%	Web P.39
	■ In Japan, 1% reduction in unit CO₂ emissions at sales subsidiaries (5) and at parts dealerships (2) (compared to FY2010) ■ Maintaining or 1% reduction of CO₂ emissions (compared to FY2010)	In Japan, achieved targets with 9.7% reduction at sales subsidiaries (5) and at parts dealerships (2) (compared to FY2010)     Did not achieve targets of a 2.7% ~3.2% increase at 2 companies among 9 overseas companies	Δ	<ul> <li>♠ In Japan, 2% reduction in unit CO₂ emissions at sales subsidiaries (5) and at parts dealerships (2) (compared to FY2010)</li> <li>♦ 0.8%~8.9% reduction in CO₂ emissions (compared to FY2010)</li> </ul>	Web P.41
	<ul> <li>Conduct surveys of actual status of environmental activities at dealerships</li> </ul>	Conducted surveys about status of compliance with anti- pollution laws at dealerships	0	Advancement of activities to formulate dealership guidelines	Web P.41
	Auditing of management system for hazardous substances at business partners (36 companies)	Audited 36 companies as planned	0	<ul> <li>Auditing of system for hazardous substances at business partners (35 companies)</li> </ul>	P.19
	Advancement of energy-saving and resource-saving activities at business partners	Gathered information for monitoring from business partners doing target activities, and created pilot operation process proposal	0	Implementing pilot operation for monitoring energy-saving activities at business partners	P.19
·	Following up of operational status of green purchasing guidelines	Issued revised Japanese-version green procurement guidelines, and completed evaluation of business partner MMTh (Thailand)	0	♠ Implementing operational follow-ups for guidelines at each overseas affiliate	P.19

FY2011 target	FY2011 results		FY2012 target	Refer   to
■ Increase of 160 charging stations to enhance charging infrastructure (cumulative 250 stations)	Unachieved targets (–71 charging stations) by 89 charging stations (cumulative 179)	×	Expansion of number of quick-charging stations Japan: 71 (cumulative 250); North America: 10	_
■ Development of discharging function for EVs	Completed verification testing facility, and started data collection	0	Achievement of EV charging management system at Keihanna, a smart grid demonstration trial city	P.5
Implementing surveys of peripheral ecosystems at business sites	Created draft plan for implementing surveys, but surveys not conducted	×	Preparation to do surveys of peripheral ecosystems	Web P.45
<ul> <li>Implementing evaluation of compliance with environmental laws at affiliates</li> <li>Deployment of environmental IT system at overseas affiliates</li> </ul>	Conducted evaluations of affiliates' compliance with environmental laws at 4 locations     Completed introduction of environmental IT system (in operation from FY2012)	0	Introduction of unit CO <sub>2</sub> emissions management at international affiliates     Formulation of in-house sales company guidelines "Support of domestic marketing"	Web P.39
Examination of design guidelines for improving LCA evaluation results	Calculated lifecycle CO <sub>2</sub> of gasoline vehicles and EVs, and examined direction of design guidelines to improve LCA evaluation results	0	♦ Implementation of LCA for electric vehicles	Web P.45
Promotion of environmental communication with government agencies, local authorities, local communities, business partners, external groups and companies	Communication with advanced companies was conducted, but communication with government agencies and external groups was inadequate	×	Strengthening of communication (transmission ability) through societal and environmental reports     Expansion of environmental communication with external groups, etc.	Web P.42
Introduction of education about the Environment Management System (EMS) and also environmental laws in the training for newly appointed supervisors	Basic environmental education was conducted through training for promoted personnel at each level	0	Implementation and evaluation of systematic environmental education	Web P.42

<sup>\*9:</sup> The CHAdeMO Association works to increase the locations where EVs can be quickly charged and promotes the standardization of charging methods, both of which are indispensable for the popularization of EVs.

# Preventing Global Warming

Preventing global warming is a top priority for countries worldwide. MMC is working to cut CO2 emissions in all aspects of its operations. We do this not just through our products, notably by enhancing the fuel efficiency of gasoline-powered vehicles and selling EVs, but also in our operations in the areas of production, distribution, and sales.

### Reducing CO<sub>2</sub> Emissions During Production

### Fiscal 2011 Targets

■ 2% reduction compared to fiscal 2005 in CO<sub>2</sub> emissions per production vehicle at Japanese and international plants

### Results of Fiscal 2011 Initiatives

In fiscal 2011, MMC lowered its total CO<sub>2</sub> emissions by 2.4% from a year earlier on the strength of companywide electricity consumption reductions and other energy-saving efforts. Another factor was requests to reduce electricity usage at peak times because power supplies were tight.

We reduced CO<sub>2</sub> emissions per vehicle by 8.7% compared to fiscal 2005 levels (from 470 kilograms per vehicle, to 429

We undertook the following key initiatives to reduce electric power consumption.

- 1. Lowering electricity consumption of air-conditioners We maintained air-conditioner temperatures at 28 and switched to energy-saving models.
- 2. Changing operating hours and holidays to save energy We made Thursday and Friday into holidays during the summer, temporarily suspended our production operations, and changed employees' break times on production lines.
- 3. Using a demand monitoring system to monitor peak power
  - consumption
- 4. Using energysaving lighting and office equipment



During the summer, employees engaged in production operations worked on Saturday and Sunday

Development and design

**Production** 

### Reducing CO<sub>2</sub> Emissions in Products

### Fiscal 2011 Targets

- Pursued fuel efficiency improvements in new vehicle development
- Launched the MINICAB-MiEV and pushed ahead with the development of developing plug-in hybrid vehicles (PHEVs)
- Commercialized the next-generation MIVEC engine

### Results of Fiscal 2011 Initiatives

### \* Improved i-MiEV Performance

In July 2009, we domestically launched the next-generation i-MiEV electric vehicle, which emits no CO2 emissions during driving. We launched the higher-level "G" version in July 2011. The regenerative braking system\*2 incorporates the improved MiEV OS (MiEV Operation System) integrated vehicle management system that increases the single charge cruising range by about 20% when using a traction battery of the same capacity as previously.

# \* Reducing CO<sub>2</sub> Emissions From Commercial EVs During

We launched the MINICAB-MiEV minicar-class light commercial electric vehicle in December 2011.

The MINICAB-MiEV exploits technologies and know-how from the development of the i-MiEV, as well as from customer usage conditions and needs that were identified by a

testing program. The MINICAB-MiEV helps reduce CO<sub>2</sub> emissions during driving by combining EV capabilities and the driving performance and utility of commercial vehicles.



MINICAB-MiEV minicar-class light commer-

### \* Plug-in Hybrid Vehicles Expand New Possibilities of **Automobiles**

Hybrid cars, which combine electric motors and engines, generate far lower CO2 emissions during driving than conventional gasoline-powered vehicles.

<sup>\*1</sup> Unit CO2 emissions: Amount of CO2 emissions (kilogram-CO2) per unit of transportation (1,000 tons-kilometer) [Amount of CO2 emissions (kilogram-CO2)/Unit of transportation (1,000 tons-kilometer)]

<sup>\*2</sup> Braking pedal-linked regenerative braking: This system strongly recovers kinetic energy when the driver applies the brake pedal.

### Reducing CO<sub>2</sub> Emissions in Transportation

### Fiscal 2011 Targets

Compared to fiscal 2006, 32% reduction in unit CO2 emissions\*1 in procurement logistics, and 5% reduction in transportation of completed vehicles, etc.

### Results of Fiscal 2011 Initiatives

We implemented various initiatives to reduce emissions. We shortened transportation distances by procuring production parts locally and improved load ratios by improving the transportation loading arrangement and packing format. We also increased fuel efficiency through eco-driving practices for engine and knockdown component transportation vehicles. We thus reduced unit CO<sub>2</sub> emissions by 35% compared to fiscal 2006 in procurement logistics, and by 10% in the transportation of completed vehicles and other related operations. We reduced CO<sub>2</sub> emissions by 1,500 tons better than expected, to 17,400 tons.

### ■ Trend of Unit CO₂ Emissions\*¹ (kg-CO<sub>2</sub> per 1,000 ton-kilometers) 400 **Procurement logistics** 313 300 252 35% reduction 205 200 100 2007 2008 2009 2010 2011 [Fiscal year]

### ■ Results of Fiscal 2011 CO<sub>2</sub> Emission Reduction Initiatives

Initiative	Details	Reduction impact	Total impact
Improved distribution routing	Shortened transportation distances by locally procuring production parts for the Mizushima Plant	△705t	
Load ratio	Improved load arrangement and packing format for transportation of production parts	△231t	↑ 1 400±
improvements	Increased load ratios for transporting spare parts		△1,498t
Improved fuel	Improved the fuel efficiency of engine transportation vehicles	△562t	
efficiency	Improved the fuel efficiency of knock- down component transportation vehicles	△3021	

**Distribution** 

Sales and after service

**Products (customers)** 

We developed the electric vehicle-derived Mitsubishi Plug-in Hybrid EV System. It possesses the Twin Motor 4WD system, which employs front and rear 60-kilowatt motors. We also created a large-capacity lithium-ion traction battery for the MIVEC engine that generates power and supports driving power. The high-capacity battery, built into the system, itself provides a range of at least 50 kilometers, which effectively achieves electric vehicle performance for most daily driving. Extensively integrated control of EV components and the engine suppresses CO2 emissions and results in a lower fuel consumption.

This system delivers a combined fuel consumption rate\*3 of more than 60 kilometers per liter, ensuring outstanding environmental performance while providing a cruising range exceeding 800 kilometers, which is comparable to that of a conventional gasoline-powered vehicle.

An Engine that Supports Eco-Driving "Eco Support" \*4 MMC developed the new MIVEC engine and the Auto Stop and Go idling stop system (AS&G).

The maximum output and torque of the new MIVEC engine nearly match the levels of conventional engines. The engine also employs a continuously variable valve mechanism that

constantly changes the intake valve timing and the exhaust valve lift. By providing precise adjustments with the intake valve of the amounts of air needed for combustion, the mechanism reduces air intake pumping losses and enhances fuel economy, lowering CO2 emissions.

With the Auto Stop and Go idling stop system, the engine stops automatically when the vehicle stops after pressing the brake pedal, thereby suppressing fuel consumption and CO<sub>2</sub> emissions. The new Mirage launched in August 2012 surpasses Japan's fuel efficiency standard for 2015 by 20%.



The new Mirage

<sup>\*3</sup> Combined fuel consumption rate: This representative figure is calculated by combining the fuel consumption rate from plug-in driving (using power from an external charge) with the fuel consumption rate from hybrid driving.

<sup>\*4</sup> Eco support: The generic term for powertrain technologies that contribute to improved fuel consumption.

Feature 1: EVs—Offering Expectations of Becoming Part of Social Infrastructure



"M-tech Labo" installed at the Okazaki Works of the Nagoya Plant

More than three years have passed since the July 2009 launch of the new-generation i-MiEV electric vehicle. During that time, we have promoted the adoption of EVs in Japan and overseas. In December 2011, we expanded our lineup through the addition of the commercial minicar-class MINICAB-MiEV.

The roles and potential of EVs have gradually changed since the March 2011 Great East Japan Earthquake. EVs can store a large amount of electricity, so they can function not only as emergency power sources but also help to make up power supplies when power availability is tight. People are relying on our pioneering EVs as part of the social infrastructure.

# **Starting EV-Smart Grid Demonstration Project**

In April 2012, we completed setting up a demonstration facility called "M-tech Labo" in part of the parking lot of the Okazaki Works at the Nagoya Plant. The facility is equipped with solar batteries, wind power generator, and rechargeable batteries for EVs. This leading-edge EV recharging setup draws on clean solar and wind power. Moreover, the facility can supply electricity stored in EVs to an adjacent office building.

With power supplies tightening, we can effectively make use of electricity derived from natural energy, the output of which varies significantly. In this context, EVs are attracting attention for their role in electricity storage.

"M-tech Labo" can supply electricity from EVs or from the

recycled batteries of EVs to factories or offices during peak consumption times in order to dampen the demand peaks.

We call this new approach for electricity flows Vehicle to X (or V2X, with X being a home, factory, or office). Trials are starting with EV-based V2X as a component in "smart grids" new power networks that use digital and other technologies to conserve energy while automatically adjusting electricity supplies.

We are using "M-tech Labo" to verify the effectiveness and benefits of our system over the year through March 2013.

# **Expanding Potential for V2X**

## "MiEV Power BOX" 1500 Watt Power Feeder

To support the recovery from the Great East Japan Earthquake, MMC sent 89 i-MiEVs to the disaster-hit areas. Because the electric power network could be recovered relatively faster than other infrastructure, EVs were able to demonstrate the very useful role they could play in communications between emergency shelters and in the transportation for medical professionals during gasoline shortages.

We found that some people expressed the desire to take advantage of the large electricity capacity of EVs as emergency power sources. We responded by developing the 1500-Watt "MiEV Power Box" power feeder for rice cookers and other household appliances with large power requirements. We launched this product in April 2012.

Since the earthquake, local governments around Japan have begun looking to deploy EVs to diversify the sources of energy for automobiles during emergencies as well as to protect the environment. These local governments are preparing to use devices like the MiEV Power Box with EVs as emergency power sources.



1500-Watt "MiEV Power Box" power feeder

# **Powering Street and Traffic Lights**

In developing the "MiEV Power Box," we used a number of test models to explore various possibilities.

In December 2011, we provided four i-MiEVs for Kouto Tokyo LIGHTOPIA 2011, in Marunouchi, Tokyo, to illuminate tree lights for the enjoyment of visitors.

We conducted joint tests with the Tokyo Metropolitan Police

Department and the National Police Agency to power traffic lights with i-MiEVs as a contingency for the occurrence of massive blackouts and other emergencies. Testing confirmed that just one i-MiEV can power up to 20 LED traffic lights at an intersection—8 lights for automobiles and 12 for pedestrians.



Powering street lights



Supplying power to traffic lights (control panel shown at bottom right)



Supplying power to a rice cooker (during a disaster drill in Kawasaki)

# **Expanding Scope to Encompass Smart Houses and Smart Grids**

Beyond supplying power to household appliances and traffic lights, trials have already begun to exchange electricity with entire households by connecting EVs and home power distribution switchboards. An increasing number of households are using solar batteries or fuel cells as clean and independent distributed generation systems. We have positioned EV as a part of a Home Energy Management System that streamlines the use of power from these independent systems and from electricity supplied from the grid. We have started experiments to supply electricity from EVs to homes during the peak periods of power demand.

With hopes high for materializing Smart Grids that can ensure more efficient energy usage by entire communities, including Smart Houses, people are giving considerable attention to the ability of EVs to store electricity as part of Smart Grids.

The output of electricity generated from solar, wind, and other natural energy sources fluctuates considerably, making it necessary to store that power for more effective usage in the

future. Smart Grids will thus need high-capacity storage batteries. Also under consideration is the use of stored power from EVs to balance electricity supply and demand. It could also be possible to recycle EV batteries to store power.

In this manner, it can be understood that EVs offer tremendous potential as part of the community energy infrastructure.



Electricity discharging and charging tests for the Sharp Eco House at GREEN FRONT SAKAI

# Expanding EV Applications with the Addition of an Electric Light Commercial Vehicle

### MINICAB-MiEV Useful for Government Services and Business

In December 2011, MMC augmented the pioneering i-MiEV by introducing the MINICAB-MiEV, a minicar-class light commercial electric vehicle. There was strong anticipation from all quarters that this new model would be a "working EV." From right after the launch, this new model found applications that

included local government services, courier delivery services, and delivery services for small businesses such as dry cleaning and rice shop proprietors. Users have been very happy with the environmental and economic performances of the MINICAB-MiEV.



One example of government services (Yokohama Waterworks Bureau)



One example of delivery businesses (Yamato Transport Co., Ltd.)



One example of a business proprietor (Irikura Beikoku)

# Collaboration between Local Governments to Popularize EVs

## "E-KIZUNA" Network Expanding Nationwide

The City of Saitama is pushing ahead with its "E-KIZUNA Project" to popularize EVs. The goal is to reduce CO2 emissions from vehicles, particularly private cars. This project is promoting EVs in collaboration with residents, other local governments, and businesses, to encourage the use of EVs within and outside the city.

In November 2011, the city of Saitama held its second "E-KIZUNA Summit Forum" in Saitama. Participating were officials from 2 prefectures, 20 cities and wards, 3 government agencies, and 12 companies. They formulated and announced a declaration of seeking to "employ diverse sources of energy and revitalize the Japanese economy through bonds (the Japanese word is KIZUNA) between local governments and industries."

The third event is scheduled to be held in Hamamatsu in 2012. The E-KIZUNA movement is steadily expanding around Japan. Collaborations between local governments have started forming in the Kansai, Chugoku and Shikoku districts. Along with the efforts to popularize EVs, their usage is being boosted by the installation of quick-charge stations that expand the distances EVs can be driven.



The Second E-KIZUNA Summit Forum in Saitama in November 2011

# City of Saitama Taking the Initiative in Officially Adopting EVs for its Fleet



A MINICAB-MiEV decorated with an environmental protection poster made by an elemen-

As well as providing financial subsidies for local citizens and businesses that use EVs and for installing charging facilities, the city of Saitama has also taken the initiative in officially adopting EVs for

In fiscal 2010, the city began operating 10

i-MiEVs as crime patrol cars around the city. In fiscal 2011, the city deployed 15 MINICAB-MiEVs as official vehicles. It has decorated three of these vans with winning entries from an environmental protection poster competition held for local

fifth-grade elementary school students. The city is using these EVs in municipal work and to publicize their environmental conservation activities.

## User's Voice

### **Producing Energy Locally for Local Consumption**

I use the MINICAB-MiEV three or four times a week to drive to the main government building to discuss municipal affairs. I cover 20 kilometers daily, so there are no problems about the distance I can

At Clean Center Osaki, we generate up to 7,300 kilowatts of electricity from the heat generated in waste incineration. We charge our MINICAB-MiEVs with this electricity.

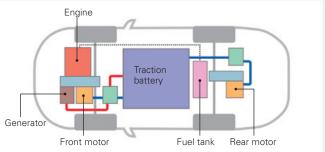
I think EV has a large potential for achieving the local production of energy for local consumption.



Mr. Takada. Clean Center Osaki, Saitama City

# Evolving EV Technology with the Mitsubishi Plug-in Hybrid EV System





Mitsubishi Plug-in Hybrid EV System

Mitsubishi Motors developed the Mitsubishi Plug-in Hybrid EV System based on EV technology with the i-MiEV and MINICAB-MiEV for meeting a variety of customer needs. This system was designed to increase driving distances and enhance driving enjoyment without compromising the key EV advantages, i.e, of environmental performance and quietness. Mitsubishi Motors plan to launch an SUV incorporating this system during fiscal year 2012.

## Improved Convenience as well as good **Environmental Performance**

The Mitsubishi Plug-in Hybrid EV System adopts a large-capacity traction battery, giving it a range of more than 50 kilometers\*1 when fully charged. That is this system can operate quietly and with zero exhaust emissions under most daily uses as EV.

This system is realized to extend the range to more than 800 kilometers\*1 with a full charge and a full gasoline tank, as the engine can generate power to charge the traction battery. This means the customer can drive more longer distances at greater convenience without worrying about battery levels. An environmentally friendly combined fuel consumption\*2 is reached more than 60 kilometers per liter\*1, as the system automatically selects the most efficient driving mode according to the road conditions.

A PX-MiEV II incorporating the Mitsubishi Plug-in Hybrid EV System at the Tokyo Motor Show 2011

## Operational Status in Each Driving Mode

Driving mode and status	Operational status		
EV mode  • For city driving, such as for shopping, carrying and picking up family members, or commuting.	Front motor Engine  Generator Traction battery Rea	ar motor with the	
Series Hybrid mode  • When battery level is low  • When needing strong acceleration on mountain roads or driving uphill	drive battery  Front motor Engine  Generator Traction battery Rea  Generator with the engine, and the rear and front motors thro traction battery	d driving	
Parallel Hybrid mode  • Driving at high speed	Generator Traction battery Rea Driving the front wheels direct the engine  Simultaneously operating generand assisting traction with the front motors through the drive	erators, rear and	

### **Potential as a Mobile Power Source**

Large capacity drive batteries can be used to power home appliances or as emergency electricity power sources through power outlets in the car.

A fully charged traction battery can supply around a day's worth of electricity for the average household. Moreover, if the engine is run to charge to the traction battery, then electricity can be supplied for longer periods. As a result, this car has the potential to be used as a mobile power source for outdoors activities and after disasters.

<sup>\*1</sup> Target performance in JC08 mode

<sup>\*2</sup> Typical combined plug-in fuel consumption rate during plug-in driving (driving under electric power with external charging) and hybrid fuel consumption rate during hybrid driving

# Feature 2: New-Generation Eco-Cars For The Global Market



MMC recognizes that resolving global environmental and energy issues is a key challenge for humankind. In addition to pioneering mass production and sales of EVs and developing the Mitsubishi Plug-in Hybrid EV System (PHEV), MMC has actively worked to improve the fuel efficiency of conventional gasoline-powered vehicles in order to more effectively utilize oil resources.

From summer 2012, MMC will gradually roll out its new Outlander around the world, starting with Russia. Building on an outstanding reputation for driving performance derived from the more than 600,000 current Outlanders sold worldwide to date, the new Outlander, is an "eco-SUV" that adds classleading fuel economy and low CO2 emissions..

### The New Outlander—An "Eco- SUV"

The new Outlander was built mainly with environmental performance in mind. However it still retains the exhilarating driving of the previous version, where the driver can effortlessly control the SUV to their will.

# **Impressive Environmental Performance from High** Fuel Efficiency and Low CO<sub>2</sub> Emissions

The new Outlander is available in two versions. One has a

2.0-liter, 4-cylinder, SOHC 16-valve MIVEC\*1 engine. The other version offers a 2.2-liter, 4-cylinder "clean diesel" turbocharged engine with a compression ratio of just 14.9:1. This engine complies with European



New MIVEC engine

emissions regulations as well as Japan's Post New Long Term emissions regulations. A two-wheel-drive version of this "clean diesel" vehicle with a six-speed manual gearbox will generate a target value of less than 130 grams of CO<sub>2</sub> per kilometer. This reflects such environmentally friendly features

as the Auto Stop & Go (AS&G) idling stop system, an optimized body structure, a lightweight chassis employing high tensile strength steel and improved aerodynamics. Effective fuel efficiency improvements come from MMC's first "ecomode switch," which assists the driver to drive at optimal fuel-efficiency.

## **High Safety Performance from Advanced Safety Technologies**

The new Outlander employs the Forward Collision Mitigation System (FCM), which detects obstacles in front of the vehicle and auto-



Forward Collision Mitigation System lamp within combination meter

matically brakes when necessary in order to prevent collisions. It also uses a radar-based Adaptive Cruise Control system (ACC) to maintain a sufficient distance from vehicles in front even when being driven at very low speeds. Safety is further enhanced by the Lane Departure Warning system, which sounds an alarm if the vehicle looks likely to drift outside its driving lane.

## **Looking Ahead**

After the Outlander's debut in Russia in summer 2012, the new Outlander will be successively be rolled out in Europe, Japan, Oceania, China and North America.

\*1. MIVEC: Mitsubishi Innovative Valve timing Electronic Control system. MMC's proprietary variable valve timing and lift mechanism.

Note: The above information was valid prior to the launch of the new Outlander, therefore specifications and equipment may differ.



MMC launched the new Mirage in Japan in August 2012. It is Japan's most fuel-efficient gasoline-powered registered vehicle\*1. This achievement resulted from painstaking efforts to reduce weight, and also reflects fuel-saving technologies, notably in the new MIVEC engine, which incorporates an idling stop system.

### A World-Class, New-Generation Eco-Car

The new Mirage is a world-class, new-generation eco-car that MMC developed to address environmental concerns that have emerged in light of strict fuel efficiency and exhaust emissions (CO<sub>2</sub>) regulations in advanced countries. MMC will also make this model available in emerging countries, where MMC expects demand to soar, and gradually deploy it globally thereby helping reduce air pollution while reducing CO2 emissions, considered as one cause of global warming.

# Highest Fuel Efficiency in Japan among Gasoline-Powered Registered Vehicles\*1 (*G/M* trim levels)

Massive improvements in fuel efficiency through the AS&G idling stop system and the use of such fuel-saving technologies as a lightweight body and reduced aerodynamic resistance have resulted in a fuel efficiency of 27.2 kilometers per liter in JC08 mode. This is the best figure in Japan for all registered gasoline powered vehicles\*1. Because the Mirage (G/M trim levels) surpasses Japan's fuel efficiency standards for 2015 by 20%, It (G/M trim levels) qualifies for exemptions from both automobile acquisition tax and motor vehicle tax\*2.





Emissions are 75% lower than the 2005 standard

Surpassing the 2015 fuel efficiency standard by 20%

To ensure good fuel efficiency while being driven, the Mirage employs Eco Drive Assist\*3, which has a three-level meter to make it easy for drivers to monitor fuel efficiency levels while they are driving.









Eco Drive Assist display

- Excluding minicars and hybrids, as of August 2012. Source: MMC.
- \*2 Based on Japan's preferential "eco-car" tax plan for environmentally-friendly vehicles, G and M trim levels are exempt from both automobile acquisition tax and motor vehicle tax at time of purchase (the E trim level is eligible for a 75% tax cut).
- \*3 The E grade uses an ECO lamp to indicate eco-friendly driving.

## **Creating Environmentally-Friendly Automobiles**

1) Deploying technologies to improve fuel efficiency in view of "peak oil" and use of plant-based Green Plastic to help reduce CO2 emissions.

### **Fuel Efficiency Improvement Technologies**

- 1.0-liter, 3-cylinder MIVEC engine
- AS&G idling stop mechanism (on *G* and *M* trim levels)
- Continuously Variable Transmission (CVT) with sub-geartrain
- Reduced aerodynamic resistance (an in-house-measured  $C_D$  value of 0.27 (on G and M trim levels))
- Regenerative braking system (on *G* and *M* trim levels)
- A lighter body (incorporating high tensile strength steel)
- Eco Drive Assist (on G and M trim levels)



New 1.0-liter MIVEC engine

## "Green Plastic"

Plant-based "Green Plastic" product (floor mat)



Bio polyethylene/polypropylene fiber floor mat (dealer option)

- 2) Eliminating the use of environmentally hazardous substances and recycling used vehicles.
  - Eliminating environmentally hazardous substances (using lead-free materials)
  - Employing and expanding the use of recycled materials (including for instrument panels, bumpers, and acoustically absorbent materials)

# Feature 3: Employee Participation in Corporate Citizenship Activities



Activities at a community center located among temporary residential accommodation

MMC established the Corporate Citizenship Promotion Office to conduct activities based on the Corporate Citizenship Activity Policy in collaboration with affiliated companies in Japan. "Jump 2013," a three-year mid-term business plan from 2011 to 2013, calls for "development of employee participation in social contributions." The entire MMC Group will engage in social initiatives to foster the young and contribute to the development of a healthy, sustainable society.

Since the Great East Japan Earthquake of March 11, 2011, we have been providing ongoing recovery and reconstruction support for disaster-affected communities through the MMC social contribution program. Initiatives have included enabling employees to participate in a one-week volunteer program in disaster areas and the lending out of MINICAB-MiEV vehicles.

# **Corporate Citizenship Activity Policy**

Four key themes based on MMC's corporate philosophy form the base of the company's corporate citizenship activities, abbreviated by the acronym STEP: Support for the next generation, Traffic safety, Environmental preservation, and Participation in local communities.

- 1. Support for the next generation Supporting the education of the next generation to create a prosperous future
- 2. raffic safety Contributing to traffic safety education and the spread of safe driving to strive towards a zero-accident society
- 3. Environmental preservation Contributing to preservation of our precious global environment
- 4. Participation in local communities Contributing to the revitalization and development of regional communities

# Disaster Area Support that We Can Provide Today (Project YUI)

### **♦**Assisting Directly by Visiting Affected Areas

We are in accord with the support activities of the Project YUI\* Consortium in Japan, a General Incorporated Association, which focuses on securing opportunities to learn and to play for children in areas afflicted by the Great East Japan Earthquake. We support employees participating in a oneweek volunteer program around Ishinomaki city.

Project YUI helps local schools, and assists children at "Minna no ba (the Place for Everyone)" run at community spaces in the temporary housing complexes and offers support for the reconstruction of the local community.

MMC employees participating in volunteer activities in disaster areas share their experiences and feelings through

our intranet, thereby encouraging more employees to take part in the assistance activities.

MMC will continue to collaborate with Project YUI in order to contribute to the reconstruction in the disaster-stricken areas.



Employee carrying a child at a community

### **Extracts from a Participant's Report**

I received far more than I gave in a valuable week with the local community. You have to be there to truly understand the reality. I truly want as many employees as possible to personally experience this. I cannot forget what an old lady told me at the community center. She said that: "We couldn't have come this far without the volunteers. These people from outside our community came a long way to come here and work so hard. They taught us that together we could do our best, and that made us realize that we shouldn't give up."

## **♦Lending Out MINICAB-MiEVs**

Employees participating in Project YUI told MMC management that the passenger cars used for local activities were not suitable for transporting relief supplies to schools or delivering tools to community centers. They also noted that gasoline

costs were consuming a lot of their activity budgets. MMC responded by lending out MINICAB-MiEVs to Project YUI free of charge.



The MINICAB-MiEV has proved popular among children in disaster areas

### **◆Donating Crafts Materials to Community Spaces**

Because a lottery was used to decide the temporary housing allocations in the disaster areas, some people ended up with neighbors they did not know, and would often spend the day not speaking with anyone. Project YUI started crafted circles at community spaces to break down such disconnectedness between people.

MMC asked for employee donations of craft materials to assist with this Project YUI initiative. Over two weeks, we collected 19 cardboard boxes worth of wool, needles, cloth, and other materials.



Craft materials donated by employees

### \*Project YUI

With the Ministry of Education, Culture, Sports, Science and Technology acting as an observer, the boards of education in the disaster-affected areas and more than 90 sponsoring corporations and organizations came together to form Project YUI. It has been designed to operate for three years from its establishment in May 2011, cultivating long-term support initiatives and activities through private-public collaboration.

# Aid for Flood Damage in Thailand

### **♦**Relief Money

MMC President Osamu Masuko visited Thailand and met Prime Minister Yingluck Shinawatra and Wannarat Channukul, then the Minister of Industry, to donate 12 million baht

(approximately ¥30 million) to be used for flood relief on behalf of MMC.



Donation ceremony

## **♦Providing Relief Supplies**

The MMTh Off-Road Club at Mitsubishi Motors (Thailand) Co., Ltd. (MMTh) led an in-house donation initiative for the flood victims in Thailand. It purchased emergency provisions with

the money raised, and supplied them directly to the victims.



MMTh employees distributing emergency provisions to flood victims

# **Feature 3: Employee Participation** in Corporate Citizenship Activities

# STEP Corporate Citizenship Activities

## S ~ Support for the next generation

## **♦**Automobile Information Service for Children Answers Questions on Cars

MMC supports children learning about cars. MMC provides a toll-free phone number for elementary school children to use to ask questions about cars, and also answers children's questions using a special email contact



The home page of MMC's website for children

point. Within the MMC website, a website specifically for children called Children's Car Museum enables visitors to enjoy touring a car factory or learning about electric vehicles through video and images.

# ♦ Hands-On Lesson Program Lets Kids Experience the "Real Thing"

Based on the concept of enabling children to enjoy learning by experiencing the "real thing," MMC employees visit children, mainly at elementary schools close to the various MMC business offices, to give hands-



Children listening eagerly to an explanation about the i-MiEV electric vehicle

on lessons on topics such as the environment, centered on test rides in the i-MiEV electric vehicle, and car design, with guidance from designers and modelers. In fiscal 2011, 4,554 students attended 62 courses. A cumulative total of around 17,500 children have participated in the program so far.

Also, MMC conducted EV Seminar Model Lessons at five elementary schools in Saitama City. This is part of the E-KIZUNA Project\*1 that MMC has started in cooperation with the city.

## **◆Company Learning Visits Get Students Thinking About Their Careers**

Junior high school students learn about the corporate world by visiting companies on a field trip or during integrated study time. In fiscal 2011, 50 students from 5 junior high schools visited the MMC Head Office in Tokyo. They discussed and exchanged opinions about product planning, design, the environment, electric vehicles and other topics directly with MMC employees doing actual work in those areas.

### **◆**Accepting Teachers for Private Sector Training

MMC accepted school teachers for training at its Head Office and in the Okazaki District under a program for training school teachers in order to allow them to better educate students in

the dealings of the private sector. The training covered areas that are useful for school operation and improving lessons, such as management strategy based on a corporate management philosophy and customer service.

### **◆Learning About Jobs at KidZania**

MMC has exhibited at KidZania Tokyo since October 2006 and KidZania Koshien since March 2009. At the Mitsubishi Motors Pavilion, while thinking for themselves and taking action, children can experience the



Hands-on experience of assembly at an automobile factory (Koshien)

intrinsic attractiveness and fun of automobiles and the pleasure of driving through activities at a simulated "Driver's License Testing Office," "Rent-A-Car Center," "Auto Factory" (Koshien only) and "Car Design Studio" (Tokyo only).

### T ~ Traffic safety

### **◆Car School Teaches Driving Techniques**

MMC has been running Car School as a part of its efforts to raise awareness of traffic safety. At the same time as the school helps ease students concerns and answers their questions properly, partici-



A participant tries to master the difficult maneuver of reversing into a parking space

pants study driving techniques and learn about car safety in an enjoyable manner.

## E ~ Environmental preservation

### ♦ Volunteer Employees Maintain the Pajero Forest

Volunteer employees and their families work to preserve and rejuvenate a three-hectare parcel of forest located in Hayakawa-cho, Yamanashi Prefecture. As well as clearing undergrowth and thin-



Participants help in thinning trees

ning trees, volunteers also deepened their interactions with the local community through activities such as wild-bird-house construction and making soba noodles.

# P ~ Participation in local communities

Conducting initiatives with local people in various regions

<sup>\*1.</sup> The city of Saitama is pushing ahead with its E-KIZUNA Project, a collaborative effort between residents, businesses, and government to popularize electric vehicles as part of creating a sustainable low-carbon society. The goals are to promote (1) Security-by building an EV charging safety net, (2) Satisfaction-by creating demand and providing incentives, and (3) Familiarity-through awareness raising activities closely tied to local communities.

# "Better that 100 people each take one step than one person takes 100 alone" (Mitsubishi Motors STEP Donation Program)



**©World Vision Japan** 

### Child Sponsorship

(NPO World Vision Japan)

This project seeks to give children in developing countries a chance to grow and thrive by providing support for local environmental improvement and activities to help fight poverty as needed.





Forest Building Block Project This project donates wooden building blocks in a special case shaped like a Pajero SUV to kindergartens and childcare centers in the neighborhood of MMC business sites in Japan. The aim of the project is to have children exercise their creativity through play while at the same time feeling the warmth of the wood.

# Mitsubishi Motors STEP Donation Program

Employees of the Mitsubishi Motors Group can choose to donate a fixed amount to a fund from their monthly paycheck and bonuses. The money raised is used to conduct corporate citizenship activities on a continuous basis. With more employees now participating in the scheme, in fiscal 2011 MMC could increase its support for the recovery from the Great East Japan Earthquake.

The number of projects supported by the STEP program has expanded from two that were originally introduced to five current projects.



Children's Forest Project (OISCA: The Organization for Industrial, Spiritual, and Cultural Advancement) The Children's Forest Project seeks to foster in children a love of nature and support activities that advance the greening of the earth by providing children with the hands-on opportunities to plant and care for seedlings at their schools and in surrounding areas.



**Traffic Safety Picture Book Project** This project gifted six Traffic Safety Picture Books to elementary schools and libraries in the neighborhood of MMC business sites in Japan. The books are designed to teach children about traffic safety rules and etiquette in a way that is easy to understand.



© Japan Committee for UNICEF

### **Reconstruction Support and Emergency Relief From the East Japan Earthquake and Tsunami Disaster** (Japan Committee for UNICEF)

This project supports activities conducted to help the children in the earthquake-afflicted region, in the fields of education, health and psychological care

# Turning Everyday Objects into Powerful Support (Recycling Program)

### ♦Sutenai Seikatsu program

Since 2009, MMC has been conducting a campaign to collect everyday objects like prepaid cards, postcards and stamps. MMC also holds an annual used book sale and sale of Fairtrade products, and in fiscal 2011 the venue was changed from an in-house meeting room to the MMC Head Office showroom. As a result, many people from outside MMC could also attend.

Proceeds from the sale, along with postcards and other items collected from employees, are donated to the NPO Shapla Neer ("Citizens" Committee in Japan for Overseas Support"). Through them, MMC's donations support the



Many visitors browse at the lively used book sale. (MMC Head Office showroom)

disaster-stricken region of the Great East Japan Earthquake and provide support for children working in Bangladesh and Nepal.

### **♦Support Through the Bell Mark Foundation**

In fiscal 2011, "Bell Marks" (stickers found on products sold in stores) that had been collected inside MMC were used through the Bell Mark Foundation to provide support to schools that had been affected by the Great East Japan

## ◆Support Through Recycling of Dentures, Etc.

Dentures and accessories that have been collected are recycled as precious metals through the NPO "Dentures Recycling Committee." The money gained is used by the non-profit organization Japan Committee for UNICEF to help children in need throughout the world.

# Overview of MMC's Business Development

The automotive industry has been experiencing an extremely unforgiving operating climate. In Japan, the recovery and reconstruction demand in the aftermath of the Great East Japan Earthquake lifted the economy to some extent. Overseas, growth in emerging markets was offset by slowdowns in developed markets, the protracted appreciation of the yen, and intensifying competition between manufacturers.

In these circumstances, the MMC Group will continue to implement the following core initiatives to achieve "growth and leap forward" as regards our targets in this second year of Jump 2012, our mid-term business plan.

- 1. Concentrating management resources on emerging markets and environmental initiatives
- 2. Fundamental reform of cost structure
- 3. Pursuing business alliances opportunities for profit increase
- 4. Strengthening of operating foundation

Through these core initiatives, we will introduce products that best match the needs of the markets and establish a cost structure that allows us to stay competitive even within an environment in which the yen is high, thereby increasing profits. In particular, in fiscal 2012 we launched the new Mirage and the new Outlander as global strategic models. Moreover, we also plan to launch a new Outlander with a built-in electric vehicle-derived Mitsubishi Plug-in Hybrid EV System, an original development by MMC. With these and other products, we will endeavor to expand our sales volume throughout the world. Furthermore, we have learnt from the experiences of the earthquake and flooding in Thailand that occurred in 2011, and will reinforce and re-assess the MMC management system, and strengthen our initiatives to address priority risks, including our initial responses when a disaster occurs and our business continuity plans.

#### Main bases Country Main business activities Worldwide Group company/facility ♠Tokachi Proving Ground: Otofuke-cho, Kawato-gun, Hokkaido 1 Japan Head Office: Minato-ku, Tokyo Test drives and assessment Vehicle transportation, storage and packaging, new vehicle inspection and servicing in Mitsubishi Automotive Logistics Technology Co., Ltd.: Kawasaki-shi, Kanagawa Japan @R&D Center: Okazaki-shi, Aichi Basic research, product development Nagoya Plant: Okazaki-shi, Aichi Manufacturing of automobiles Mitsubishi Automotive Engineering Co., Design and testing of vehicles Ltd.: Okazaki-shi, Aichi and parts Pajero Manufacturing Co., Ltd. (PMC): Manufacturing of automobiles Sakahogi-cho, Kamo-gun, Gifu BR&D Center: Kyoto-shi, Kyoto Powertrain research and development Powertrain Plant (Kyoto Factory): Manufacturing of engines Kyoto-shi, Kyoto Powertrain Plant (Shiga Factory): Manufacturing of engines Konan-shi, Shiga **6**Mizushima Plant and Powertrain Plant Manufacturing Japan (Mizushima Factory): Kurashiki-shi, Kanto Mitsubishi Motors Sales Co., Ltd. Sales of passenger cars and and other companies (nationwide) Mitsubishi Motors Parts Sales Co., Ltd. Sales of components and and other companies (nationwide) **2**U.S.A Mitsubishi Motors North America, Inc Production €U.S.A. Mitsubishi Motors North America, Inc. Sales of automobiles 4 Australia Mitsubishi Motors Australia Ltd. (MMAL) Sales Mitsubishi Motors (Thailand) Co., Ltd. (MMTh) 6 Thailand Production and sales Netherlands Car B V (NedCar) 6 Netherlands Production \*Production scheduled to finish at end of 2012 Importing and sales of automobile parts Netherlands Mitsubishi Motors Europe B.V. (MME)

(As of March 31, 2012)

# **Corporate Information**

# Corporate profile (as of March 31, 2012)

Mitsubishi Motors Corporation Name:

April 22, 1970 Established:

Head office: 33-8, Shiba 5-chome, Minato-ku, Tokyo 108-8410

Japan

Capitalization: ¥657,355 million

Total outstanding common stock: 5,537,956,840 shares

(including treasury stock)

Web http://www.mitsubishi-motors.co.jp/

## Mitsubishi Motors Group (as of March 31, 2012)

The Mitsubishi Motors Group comprises Mitsubishi Motors Corporation (MMC), 54 consolidated subsidiaries, 2 equity method subsidiaries, and 24 equity method affiliates. The MMC Group's main business activities are development, manufacture, sales, and financial transactions relating to automobiles and automobile components, with MMC's primary focus being on development.

### Fiscal 2011 Results

The fiscal 2011 sales volume increased 14,000 vehicles (1%) year on year to 1,001,000 vehicles\*1.

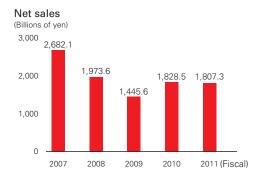
In Japan, minicars did not perform well despite a year-on-year increase in the number of registered vehicles, partly due to the reinstatement of eco-car subsidies. Segment sales decreased 12,000 vehicles (7%) year on year to 152,000 vehicles.

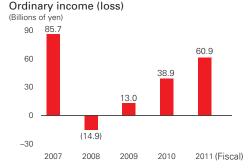
In North America, U.S. sales increased, mainly due to a robust performance by Outlander Sports (Japanese name: RVR). Segment sales rose 12,000 vehicles (13%) to 106,000 vehicles.

In Europe, the market recovery in Russia continued, with sales there increasing substantially, despite a year-on-year drop in sales in Western Europe where demand appeared to decline. Sales for the overall region were on par with the previous fiscal year at 218,000 vehicles.

In Asia and other regions, sales were underpinned by strong performances in ASEAN countries such as Thailand and Indonesia, and in Brazil and other Central and South American countries. Sales increased by 14,000 vehicles (3%) year on year to 525,000 vehicles.

As a result, net sales decreased ¥21,200 million (1%) year on year to ¥1,807,300 million, mainly due to the impact of the decline in sales volume and the yen's appreciation.





Operating income rose ¥23,400 million (58%) year on year to ¥63,700 million. Contributing to this increase were improvements in the vehicle-model composition and reductions in the cost of materials, despite the negative impact of the yen's appreciation.

Ordinary income increased ¥22,000 million (56%) to ¥60,900 million, and net income climbed ¥8,300 million (53%) year on year to ¥23,900 million.

\*1: From fiscal 2011, a new method of calculating the sales volume by only counting Mitsubishi brand vehicles was applied.

	Non-consolidated	Consolidated
Net sales	¥1,427.6 billion	¥1,807.3 billion
Operating income	¥15.1 billion	¥63.7 billion
Ordinary income	¥19.6 billion	¥60.9 billion
Net income	¥20.9 billion	¥23.9 billion
Total assets	¥973.7 billion	¥1,321.3 billion
Shareholders' equity	¥127.2 billion	¥364.0 billion
Unit sales	790,000 vehicles	1,072,000 vehicles
Unit retail sales	_	1,001,000 vehicles
Employees	12,720	30,777

For more details, refer to the Mitsubishi Motors Corporation Annual Report 2012 (scheduled to be published in September 2012)

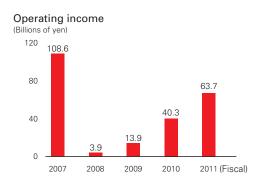
### Fiscal 2012 Business Forecasts

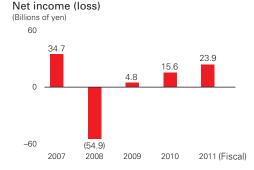
The sales volume for fiscal 2012 is projected to increase by 87,000 vehicles (9%) year on year to 1,088,000 vehicles. In addition to expected continued steady growth in ASEAN countries, Russia and other new emerging markets, benefits are expected to accrue from the launches of the new-model Mirage and the new-model Outlander, both of which will start to be steadily rolled out in countries and regions around the world.

In addition to the external profit-decreasing factors of the yen's appreciation and rising oil prices, MMC projects an increase in costs such as development expenses for future growth. Nevertheless, revenues are projected to increase on the back of steadily increasing sales volume, mainly due to the new car launches and the strengthening of robust emerging markets such as the ASEAN countries. MMC also plans to boost earnings by continuing to focus on reducing expenses and cutting costs such as materials costs.

For more details, refer to the MMC website.

http://www.mitsubishi-motors.com/publish/ir\_jp/ index.html











Silver Award

# "Environment Month" Painted **Poster Contest**

In line with the "Environment Month" of June, Mitsubishi Motors held a painted poster contest for the children of Mitsubishi Motors' personnel. The children entered paintings they had made on environmental conservation themes to be used as in-house educational posters. On this page we show the posters for which we awarded prizes.



Bronze Award



Special Prize



Special Prize



Environmental Award



Designers Award

Mitsubishi Motors Social and Environmental Report 2012 Published: September 2012

MITSUBISHI MOTORS CORPORATION Environment & Recycling Affairs Dept. 5-33-8 Shiba, Minato-ku, Tokyo 108-8410, Japan