TOYOTA MOTOR CORPORATION

Respect for the Planet

—Toyota's Environmental Initiatives—

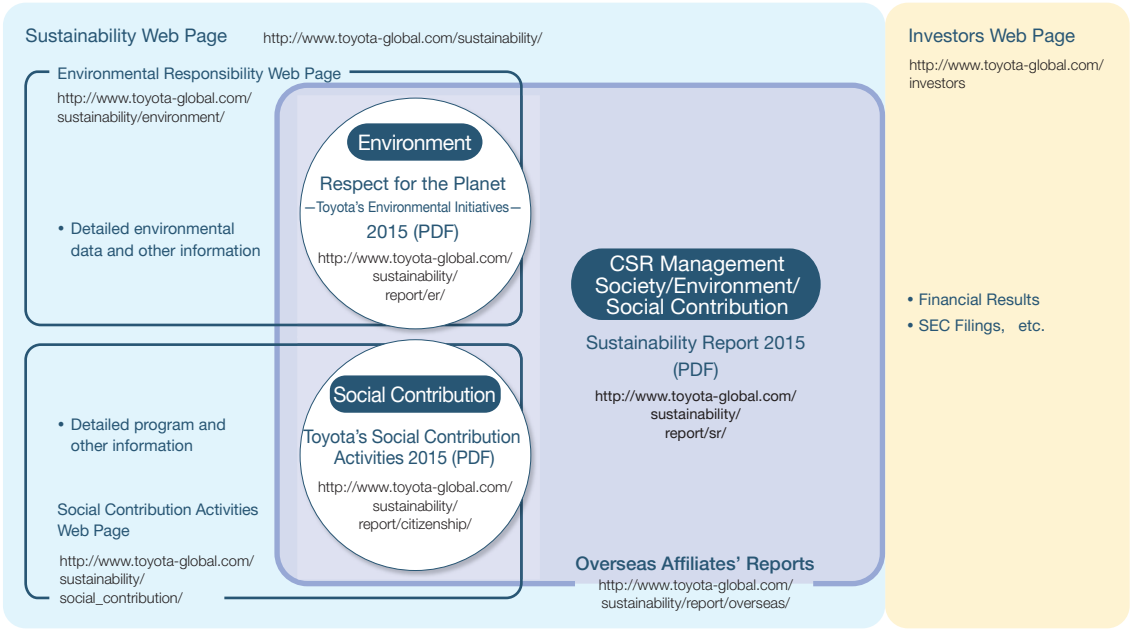
2015

Respect for the Planet —Toyota's Environmental Initiatives— 2015

Editorial Policy

The Sustainability Report 2015 summarizes and reports on Toyota's CSR management and initiatives with a focus on initiatives undertaken mainly in FY2014 in PDF format (booklet form). Information on CSR initiatives is divided into chapters, including Society, Environment, Social Contribution Activities and Governance.

We have also made available "Respect for the Planet—Toyota's Environmental Initiatives—2015 (in PDF format)," and "Toyota's Social Contribution Activities 2015 (in PDF format)," excerpted from the Sustainability Report 2015. Detailed data concerning the environment and further information on social contribution activities are available on the Sustainability page of Toyota Motor Corporation's global website.



Period Covered

The period covered in the report's data is from April 2014 to March 2015. For major ongoing initiatives, the most recent status update in 2015 has been included.

Scope of Report

Toyota Motor Corporation (TMC)'s own initiatives and examples of those of its domestic and overseas consolidated affiliates, and so on.

Overseas Affiliates' Reports

Reports are being issued in a total of 16 countries and regions (including Japan) in which Toyota overseas consolidated affiliates and other companies operate.

The information disclosed globally by these reports will cover about 88 percent of Toyota vehicles sold worldwide.


Argentina


Australia


Brazil


China


Europe


India


Indonesia


Malaysia
* Issued in the UMW Holding Report


New Zealand


North America


South Africa


The Philippines


Taiwan (Kuozui)


Taiwan (Hotai)


Thailand


Vietnam

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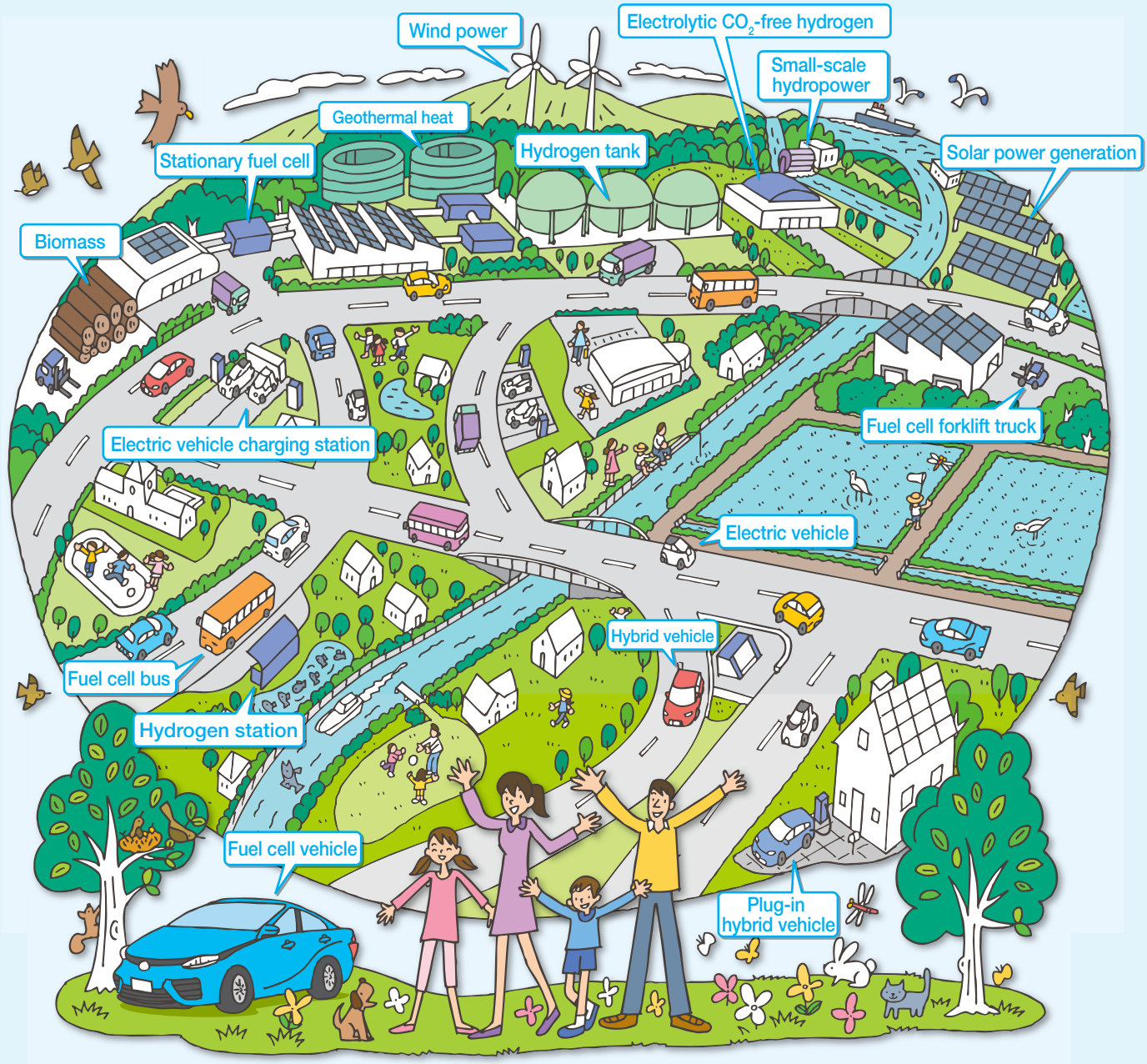


Toyota Environmental Challenge 2050

Challenge to Zero & Beyond

Aiming to Establish a Future Society in Harmony with Nature

Since its foundation, in 1937, Toyota has been consistently committed to the idea of contributing to society by manufacturing automobiles, and leading innovation through technology and creativity. This spirit of challenge that stands up to change has been handed down to us today through the company's DNA. Looking forward too, we would like to continuously contribute to society through our business activities and to carry on being a company that customers choose and that brings a smile to every customer.

We have considered the ideal form of a new mobility society and tackled serious environmental issues head-on, while positioning our contribution to the development of a sustainable society as a key challenge for management. The development of the world's first mass-produced hybrid vehicle, the Prius, and the fuel cell vehicle MIRAI, reflect this spirit of unprecedented challenge. We were able to overcome numerous difficulties and launch these cars due to the strong support we have received from many people.

Despite these energetic initiatives, the global environment remains in a critical situation. Extreme weather conditions attributed to climatic changes driven by greenhouse gases threaten our livelihood. Meanwhile, the seriousness of environmental issues is increasing over a wide area, with population growth, accompanied by water shortages and resource depletion, and degradation of biodiversity due to the fragmentation of ecosystems.

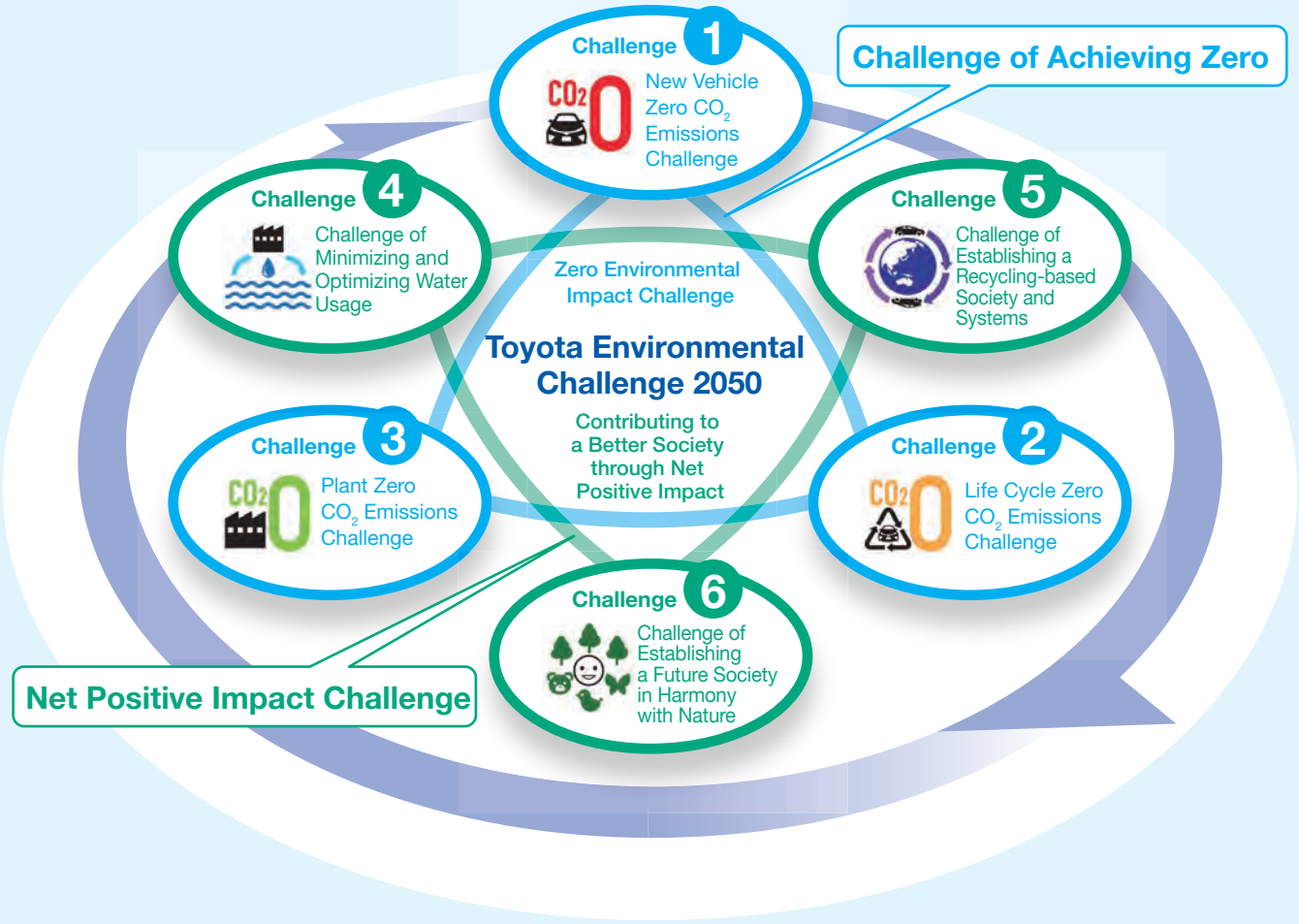
In response to the situation, we need to take on new challenges that consider the world 20 or 30 years in the future, in order to remain closely aligned with the global environment. This means not merely trying to reduce negative factors associated with automobiles as close to zero as possible, but at the same time, looking beyond zero, challenging ourselves in all-Toyota initiatives toward a net positive impact.

It also means a further strengthening of these initiatives in collaboration with all stakeholders who share our aspirations. We will consolidate new ideas, dynamism and technology to tackle together the realization of a truly sustainable society.

We have started to take on this new challenge aimed at a society where people, automobiles and nature coexist in harmony, providing a bright future for our children, with clear skies.

Six Challenges of Toyota

To move toward a net positive impact rather than just trying to reduce negative factors to zero, Toyota has set itself six challenges. All these challenges, whether in climate change or resource and water recycling, are beset with difficulties, however we are committed to continuing toward the year 2050 with steady initiatives in order to realize sustainable development together with society.



Special Feature

Toyota Environmental Challenge 2050

Challenge 1

New Vehicle Zero CO_2 Emissions Challenge

As if to demonstrate the fact of global warming, extreme weather patterns worldwide have been provoking successive disasters. If current conditions continue and increased measures are not taken to reduce greenhouse gases, it is estimated that by 2100 the world's average temperature will have risen by 3.7–4.8℃. It is further estimated that, to hold the temperature rise since before the Industrial Revolution to "below 2℃," we will not only have to reduce additional CO_2 emissions to zero, but will need to achieve an actual positive trend through absorption.* While the world is trying to move toward "below 2℃" scenario, Toyota has, under the "New Vehicle Zero CO_2 Challenge," decided to challenge itself to reduce vehicle CO_2 emissions by 90 percent in comparison with 2010 levels, by 2050. To realize this, in addition to mileage improvement of engine-driven vehicles, Toyota will promote the development of next-generation vehicles with low or zero CO_2 emissions—hybrid, plug-in hybrid, electric, and fuel cell vehicles and further accelerate the spread of these vehicles. When these eco-friendly vehicles come into widespread use, they can start making a contribution to society. Toyota will also cooperate with relevant stakeholders to provide possible support as an automobile manufacturer toward the provision of the infrastructure for widespread adoption of electric and fuel cell vehicles.

* 5th Assessment Report of IPCC Working Group III (2014)

Challenge 2

Life Cycle Zero CO_2 Emissions Challenge

By Lifecycle Zero CO_2 Emissions Challenge, we mean efforts to reduce to zero not simply the CO_2 emissions produced in traveling and manufacturing, but all CO_2 emissions including in the processes of materials production, and disposal and recycling of vehicles. For instance, there are some next-generation vehicles that do achieve reduced CO_2 emissions when driven, but actually cause increased CO_2 emissions at the material and vehicle production stages. Because of this, we will further promote environmentally friendly design such as by choosing appropriate materials. In this way, we are going to pursue "Always Better Cars." For example, we will develop and expand the use of materials with lower CO_2 emissions during production and will reduce the quantity of materials and number of parts used in a vehicle. We will also adopt more recycling and biological materials for vehicle production and enhance the initiative aimed at easy to dismantle design.

Challenge 3

Plant Zero CO_2 Emissions Challenge

Not only do vehicles emit CO_2 while traveling; CO_2 is also generated during their manufacture process. Reducing CO2 to restrain climate change is therefore also a challenge for the plants that manufacture automobiles. The two main pillars of our strategy to achieve zero CO_2 emissions at our plants are improvement of manufacturing technology and switching to different forms of energy. Taking first the manufacturing technology, we will carry out simplification and rationalization of the manufacturing process to shorten it and reduce the time, thus cutting CO_2 emissions. Improved efficiency in energy use can also reduce CO_2 emissions. We will further reduce CO_2 emissions in all process types, for instance by introducing mechanisms that do not use energy. Regarding the energy sources used, we will cut CO_2 emissions by adopting renewable energy sources such as solar and wind power, and by utilizing hydrogen energy.

Challenge 4

Challenge of Minimizing and Optimizing Water Usage

According to forecasts, the world's population will climb to 9.1 billion by 2050, demand for water will increase by 55 percent from current levels, and as a result, the percentage of the total population suffering water shortages will reach 40 percent. In automobile manufacturing, water is used in painting, forging and other processes. Therefore, even a small reduction of its impact on the water environment is important. Our two measures to achieve this are comprehensive reduction of the amount of water used and comprehensive water purification and returning it to the earth. So far, Toyota has implemented rainwater collection to reduce the amount of water used by production plants, filtering to increase the water recycling rate, and re-use of wastewater through recycling. The local water environment differs greatly depending on region. Going forward, we intend to roll out a range of measures globally to deal with the water environment in a way that is sensitive to local needs.

Challenge 5

Challenge of Establishing a Recycling-based Society and Systems

With the worldwide increase in population and the pressure for economic growth and convenient lifestyles, the consumption of resources is accelerating. If present trends continue, large-scale exploitation of natural resources will result in depletion, and appropriate disposal will be unable to keep pace with the increasing amounts of waste generated by mass consumption, resulting in environmental pollution. To improve resource efficiency toward an ideal resource-recycling based society (circular economy), initiatives are needed in four key areas: (1) utilization of eco-friendly materials; (2) making use of parts longer; (3) development of recycling technology; (4) making vehicles from the materials of end-of-life vehicles. These last two apply to the whole of the automotive industry. Toyota has been working for 40 years on the challenge of resource recycling, leading the world by developing world-first technologies and in terms of scale of operations. Going forward, by rolling out to the world the technology and systems evolved in Japan and developing them into the future, we will continue working on the challenge of establishing a recycling-based society.

Challenge 6

Challenge of Establishing a Future Society in Harmony with Nature

If humans and nature are to coexist into the future, we need to conserve forests and other rich natural systems in all regions. However, deforestation is progressing around the world, so that every year, forest equivalent to 14 percent of Japan's land area is lost. To realize our aim of "enriching lives of communities" in each region, the Toyota group companies have engaged in planting trees at plants, environmental conservation activities in their surrounding area, and environmental education. Going forward, the insights gathered so far will be used to promote activity at Group, region, and organization level. Among the variety of activities we are rolling out are the Toyota Green Wave Project, which aims to connect regions with green corridors; the Toyota Today for Tomorrow Project, providing assistance for environmental activities that connect to the world; and the Toyota ESD Project, contributing to environmental education that connects to the future. Our aim is to establish a society where humans and nature coexist in harmony.

Six Challenges and the Sixth Toyota Environmental Action Plan

Activities to be implemented in FY2016–2020 in order to meet the six challenges are outlined in the Sixth Toyota Environmental Action Plan. In formulating the plan, environmental activities were categorized according to the three priority themes of the Fifth Plan: “contribution to a low-carbon society,” “contribution to a recycling-based society,” and “environmental protection and contribution to a harmony with nature society.” Embracing these three themes, Toyota will contribute to the sustainable development of society and the planet by ensuring harmony with the global environment in its *monozukuri* (manufacturing), *kurumazukuri* (car-making) and delivery of products and services.

Relationship between the Six Challenges and the Sixth Toyota Environmental Action Plan

Themes	Six Challenges	Sixth Toyota Environmental Action Plan	
		No.	Action Items
Low Carbon (Climate Change, CO_2)	(1) New Vehicle Zero CO_2 Emissions Challenge	1	Develop technologies to achieve the best fuel efficiency performance
		2	Promote development of next-generation vehicles that use electric power, and widespread use of them according to their features
	(2) Life Cycle Zero CO_2 Emissions Challenge	3	Promote environmental management in product development (Eco Vehicle Assessment System, Eco-VAS)
		4	Practical use development of catalyst technology-based CO_2 absorption/new material creation (artificial photosynthesis, etc.)
		5	Pursue increased transport efficiency and reduce CO_2 emissions in logistics activities
		6	Contribute to local communities through the expansion of local grid energy management technologies
		7	Promote an “integrated approach” to reduce CO_2 emissions in road transport sectors
	(3) Plant Zero CO_2 Emissions Challenge	8	CO_2 emission reduction in production activities
Recycling (Resources, Water)	(4) Challenge of Minimizing and Optimizing Water Usage	9	Reduce water consumption in production activities
	(5) Challenge of Establishing a Recycling-based Society and Systems	10	Reduce consumption of dwindling natural resources through use of renewable resources and recycled materials
		11	Achieve industry-leading level in easy to dismantle design for effective resource recycling
		12	Contribute worldwide by end-of-life vehicle treatment and recycling technology developed in Japan
		13	Overseas rollout of original recycling system for end-of-life vehicle resources
		14	Reduce waste and use resources efficiently in production activities
		15	Reduce packaging materials and use resources efficiently in logistics activities
Harmony with Nature	(6) Challenge of Establishing a Future Society in Harmony with Nature	16	Promote nature conservation activity “Connecting regional conservation activities with region and community”
		17	Boost grant program for environmental activities ”Connecting nature & biodiversity conservation activity to the world”
		18	Boost contribution to environmental education “Connecting environmental activities to the future”
		19	Promote environmental contribution through biotechnology and afforestation business, automotive peripheral technology, and forest conservation activities
Environmental Management	Management	20	Promote strengthening of consolidated environmental management
		21	Reduce exhaust emissions to contribute to improvement of air quality in urban areas in each country and region
		22	Reduce VOC emissions in production activities
		23	Promote environmental activities in cooperation with business partners (suppliers)
		24	Promote environmental activities in cooperation with business partners (dealers and distributors)
		25	Further strengthen global employee education and awareness activities
		26	Enhance active disclosure of environmental information and communication

Environmental Management

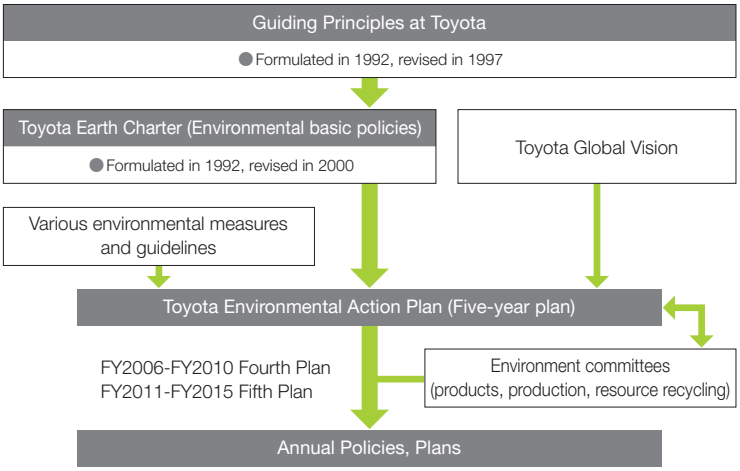
Environmental Philosophy, Policies and the Toyota Environmental Action Plan

Toyota's philosophy and policies on the environment are based on the Guiding Principles at Toyota, which were established in 1992 and revised in 1997. Policies for environmental initiatives were formulated as the Toyota Earth Charter in 1992 and then revised in 2000. This Charter is shared among 556 Toyota consolidated affiliates around the world.

The Toyota Global Vision announced in 2011 stresses the importance of "respect for the planet." Based on the above philosophy and policies, Toyota will aim to realize a 25 percent improvement in global average fuel efficiency by FY2015, compared to FY2005, as well as launch new and fully redesigned hybrid vehicle models in 21 vehicle series by the end of 2015.

Toyota will also proceed with the development of a wide range of technologies, including plug-in hybrids (PHVs), electric vehicles (EVs) and fuel cell vehicles (FCVs), so that customers can choose the type of eco-car best suited to their applications.

Toyota Environmental Action Plan System



Toyota Earth Charter

I. Basic Policy

1. Contribution toward a prosperous 21st century society
   Contribute toward a prosperous 21st century society. Aim for growth that is in harmony with the environment and set as a challenge the achievement of zero emissions throughout all areas of business activities.
2. Pursuit of environmental technologies
   Pursue all possible environmental technologies, developing and establishing new technologies to enable the environment and economy to coexist harmoniously.
3. Voluntary actions
   Develop a voluntary improvement plan, based on thorough preventive measures and compliance with laws, which addresses environmental issues on the global, national and regional scales and promotes continuous implementation.
4. Working in cooperation with society
   Build close and cooperative relationships with a wide spectrum of individuals and organizations involved in environmental preservation, including governments, local municipalities, related companies and industries.

II. Action Guidelines

1. Always be concerned about the environment
   Take on the challenge of achieving zero emissions at all stages, i.e., production, utilization and disposal.
   (1) Develop and provide products with top-level environmental performance
   (2) Pursue production activities that do not generate waste
   (3) Implement thorough preventive measures
   (4) Promote businesses that contribute toward environmental improvement
2. Business partners are partners in creating a better environment
   Cooperate with associated companies.
3. As a member of society
   Actively participate in social actions.
   (1) Participate in the creation of a recycling-based society
   (2) Support government environmental policies
   (3) Contribute also to non-profit activities
4. Toward better understanding
   Actively disclose information and promote environmental awareness.

III. Organization in Charge

Promotion by the Corporate Planning Meeting which consists of top management

The Fifth Toyota Environmental Action Plan

The Fifth Toyota Environmental Action Plan sets the future direction of Toyota's environmental activities, outlines the company's ideal form and defines the action plan and goals for the five-year period starting in FY2011. In developing the plan, Toyota streamlined actions from two points of view: environmental risks and business opportunities (such as penetration of eco-cars) in corporate operations and environmental initiatives expected of a company toward the decade between 2020 and 2030. The company positioned these issues under the three priority themes: of (1) contribution to a low-carbon society, (2) contribution to a recycling-based society and (3) environmental protection and contribution to a harmony with nature society. Embracing these themes, Toyota will contribute to the sustainable development of society and the world through *monozukuri* (manufacturing), *kurumazukuri* (car-making), and products and services that are in harmony with the global environment.

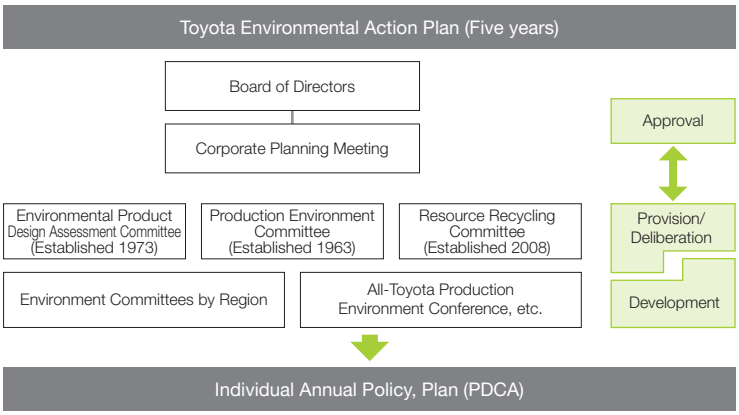
For the 24 targeted items, actions were pursued almost as planned and goals were achieved with the following results.
For further information on the FY2014 Review, please visit the following webpage

WEB http://www.toyota-global.com/sustainability/environment/data/data19.html

Promotion Structure and Framework

Since April 2015, environmental management has been discussed at the Corporate Planning Meeting, which has been set up in conjunction with organizational changes that are intended to incorporate CSR into management and raise corporate value throughout management overall. The Corporate Planning Meeting has considered growth strategies that incorporate the value that Toyota provides with regard to a variety of social issues. Through the following three existing committees—the Environmental Product Design Assessment Committee, the Production Environment Committee, and the Resource Recycling Committee—issues and response policies in all areas are investigated, and all relevant divisions are liaised with to promote companywide initiatives.

Organization Framework
(As of June 30, 2015)



Promotion of Global Environmental Management

Toyota positions the environment as a key management issue and has formed and promoted activities through a promotion structure for global environment management. From the standpoint of "more Toyota people should take the initiative in concern for the environment," the scope of our programs covers not only consolidated subsidiaries, but also voluntarily participating non-consolidated affiliate companies and production companies, for a total of 556 firms. This total covers almost 100 percent of the number of vehicles produced and approximately 90 percent of the number of vehicles sold.

Promotion Structure for Global Environmental Management

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Scope of Companies Subject to Consolidated EMS

Toyota's consolidated environmental management system (EMS) covers a total of 556 companies. This includes not only all financially consolidated subsidiaries, but also major production companies, overseas distributors and other companies not subject to consolidated accounting.

Specifically, companies subject to consolidated EMS fall into the following four major categories: (1) 164 subsidiaries which are financially consolidated and under the direct control of Toyota Motor Corporation (TMC); (2) 51 major production companies and overseas distributors that are not subject to consolidated accounting; (3) one organization from other types of businesses; (4) 340 subsidiaries that are financially consolidated and under the indirect control of TMC (managed via consolidated subsidiaries).

Organization/Structure

1. Jointly adopt the Toyota Earth Charter and draft individual environmental policies
2. In production, set quantitative goals and follow up on those goals
3. In sales, create an environmental management system, carry out environmental communication and other initiatives
4. Implement top level environmental responses based on actual conditions in each country and region

* TMC's requirements to companies not subject to consolidated accounting may vary according to region and the nature of business

Main Companies Subject to Consolidated EMS

European affiliates that have voluntarily participated

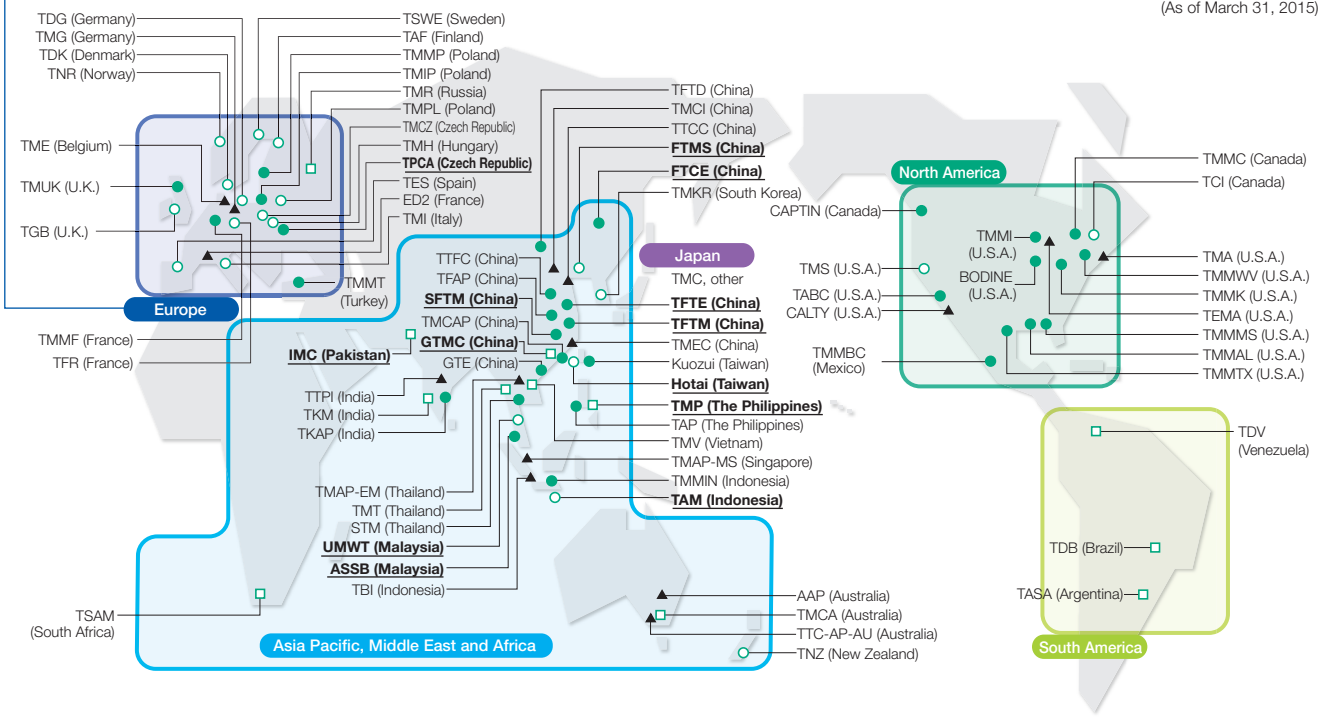
Toyota Hellas (Greece) **Toyota Ireland (Ireland)** **Louwman & Parqui (The Netherlands)**
Toyota AG (Switzerland) **Toyota SA (Turkey)** **Other 10 companies**

Fifteen non-consolidated distributors in Europe are voluntarily implementing EMS, including acquisition of ISO certification, with TME support.

● Production companies ○ Sales companies
□ Production/Sales companies ▲ Other types of businesses (regional manufacturing headquarters, etc.)

* Companies whose names are not underlined are financially consolidated subsidiaries
Companies whose names are underlined and are indicated in bold are not subject to accounting

(As of March 31, 2015)



Main Companies Subject to Consolidated Environmental Management System (EMS) in Japan (Alphabetical order)

(As of March 31, 2015)

Production Companies

Group 1	Group 2	Group 3	Group 4	Group 5
·Consolidated subsidiaries ·Automotive production companies and others ·TMC secondary companies	·Companies not subject to consolidated accounting ·Main parts manufacturers ·Body manufacturers, etc.	·Consolidated subsidiaries ·Parts manufacturers	·Consolidated subsidiaries ·Various other products production companies	·Companies not subject to consolidated accounting ·Parts manufacturers
Daihatsu Motor Co., Ltd. Gifu Auto Body Co., Ltd. Hino Motors, Ltd. Toyota Auto Body Co., Ltd. Toyota Motor East Japan, Inc. Toyota Motor Hokkaido, Inc. Toyota Motor Kyushu, Inc.	Aichi Steel Corporation Aisan Industry Co., Ltd. Aisin AI Co., Ltd. Aisin AW Co., Ltd. Aisin Seiki Co., Ltd. Aisin Takaoka Co., Ltd. Denso Corporation JTEKT Corporation Tokai Rika Co., Ltd. Toyoda Gosei Co., Ltd. Toyota Boshoku Corporation Toyota Industries Corporation Toyota Tsusho Corporation	Cataler Corporation Central Motor Wheel Co., Ltd. Kyoho Machine Works, Ltd. Primearth EV Energy Co., Ltd. Toyota Home Co., Ltd. Yutaka Seimitsu Kogyo, Ltd.	Admatechs Co., Ltd. Japan Chemical Industries Co., Ltd. Shintec Hozumi Co., Ltd. Toyota Turbine and Systems Inc.	Chuoh Pack Industry Co., Ltd. Chuo Spring Co., Ltd. Fine Sinter Co., Ltd. FTS Co., Ltd. Koito Manufacturing Co., Ltd. Kyowa Leather Cloth Co., Ltd. Taiho Kogyo Co., Ltd. Toyoda Iron Works Co., Ltd. Trinity Industrial Corporation Tsuda Industries Co., Ltd.
All-Toyota Production Environment Conference Members		All-Toyota Production Environment Meeting Members		

Logistics Companies

·Consolidated subsidiaries
·Finished vehicle distribution
·Parts distribution

Aichi Rikuun Co., Ltd.
Tobishima Logistics Service, Inc.
Toyofuji Shipping Co., Ltd.
Toyota Transportation Co., Ltd.

All-Toyota Logistics Environment Conference Members

Sales Companies

Tokyo Toyopet Motor Sales Co., Ltd.
Toyota Tokyo Parts Distributor Co., Ltd.
Toyota Tokyo Rental & Leasing Co., Ltd.

Total 32 companies

Other Businesses

TACTI Corporation
Toyota Central R&D Labs., Inc.
Toyota Enterprises Inc.
Toyota Modellista International Corporation
Toyota Technocraft Co., Ltd.
and others

Total 46 companies

*Including one company not subject to consolidated accounting

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Major Initiatives during FY2014

Management: Strengthen and Further Promote Consolidated Environmental Management

Action Policies and Results of Major Affiliates Implementing Consolidated Environmental Management in FY2014

		FY2014 Action Policies and Activity Results			FY2015 Action Policies	
		Action Policy	Goals	Activity Results	Action Policy	Goals
Overall		●Promote environmental management through strengthened cooperation with each region	●Achieve goals in all areas	●Strengthened consolidated environmental management ●Held environment meetings in Japan and overseas ●Held Global ECO. Award ●Distributed collections of improvement activities and environmental near misses to Toyota affiliates ●Promoted activities under the Fifth Toyota Environmental Action Plan	●Continue to promote environmental management through strengthened cooperation with each region ●Promote activities under the Fifth Toyota Environmental Action Plan ●Establish goals for 2020 (Sixth Toyota Environmental Action Plan) ●Plan direction of future environmental strategy	●Achieve goals in all areas ●Formulation of roadmap
Production (84 companies)	Japan (40 companies)	●All companies to implement initiatives toward achieving FY2014 goals ●Strengthen activities to prevent recurrence of non-compliance and complaints	●Achieve goals in Japan and in all regions ●Zero non-compliance and complaints	●All companies implemented systematic measures and almost all goals were achieved ●Proactive preventive measures were implemented, but there were cases of minor non-compliance (4 instances[2] of non-compliance and 0 complaints)	●Promote sustainable plant activities ●Enhance prevention activities to achieve zero non-compliance and complaints	●Achieve FY2014 goals in Japan and in all regions ●Zero non-compliance and complaints
	Overseas (44 companies[1])					
Sales (79 companies)	Japan (32 companies)	●Provide support to the Toyota National Dealers' Advisory Council for acquisition of third-party certification of its environmental management system	●Increase the number of dealers that acquire EMS[3] certification	●Provided support for the acquisition of EMS certification; increased the number of dealers that acquired EMS certification	●Continue providing support for the acquisition of EMS certification	●Increase the number of dealers that acquire EMS certification
	Overseas (47 companies[1])	●Overseas dealers to promote environmental risk audits through DERAP[4]	●Achieve goals Percentage of dealers 80% or more	●Achieve goals Percentage of dealers: 89%	●Continue implementation	●Achieve goals Percentage of dealers: 80% or more (including new participating distributors and dealers)

The 65 other Toyota Group companies in Japan and overseas are implementing individual activities on their own initiative

[1] Includes the 12 production/sales companies
[2] 4 in Japan and 0 overseas
[3] Environmental Management System
[4] Dealer Environmental Risk Audit Program

Global ECO. Award

Background and Purpose

The Global ECO. Award began in 2006 for the purpose of promoting improvement activities of overseas affiliates and encouraging the *yokoten* (sharing) of the best improvement practices among affiliates worldwide. The process originally consisted of each affiliate selecting their best improvement practices for recognition by Toyota.

In 2011, to make the Global ECO. Award even better and to increase interest in the activities, the process was changed to screening of teams selected in each region in order to select teams with excellent practices, and then those teams present their practices in Japan for selection of the final winners.

In addition, the Award for Affiliates with the Best Performance was established to recognize the affiliate with the greatest outcomes from the improvement activities. This award was presented for the third time in 2014.

Award Categories

Category	Award for On-site *Kaizen* Activity	Award for Affiliates with the Best Performance
Field	・Production/Production Affiliate (Plant) ・Logistics/Administration, Production and Logistics Affiliate	・Production/ Production Affiliate (Plant)

FY2014 Initiatives

Award for On-site *Kaizen* Activity

In FY2014, five finalists out of 12 teams selected from six regions around the world were invited to give their presentations in Japan. In a very close race, the Toyota Motor Manufacturing France S.A.S. (TMMF) team won the Platinum Award. The finalists and their presentations were: TMMF with achieving high wastewater recycling ratio in pursuit of the "Zero purchased industrial water" goal; TMMK with reducing the amount of oil by adopting the oil misting for electrode shaping machines which leads to a reduction in the energy use; CAPTIN with reducing the use of energy in its aluminum wheel casting process; GTMC with reducing waste by decreasing the amount of wastewater sludge it generates; and TMMIN with improving logistic efficiency via integration of delivery routes. These practices served as examples of excellent achievements through tremendous efforts to resolve very important issues each affiliate encountered.

At the award ceremony, Shigeki Terashi, who was the Senior Managing Officer and Executive in charge of the Environmental Affairs Division, commented that "Despite the tougher global circumstances for environmental management, further efforts to expand Toyota's capabilities, such as via global *kaizen* initiatives, are required in order to keep demonstrating Toyota's uniqueness to the world. Under such circumstances, I urge you continue working on initiatives as *kaizen* leaders while supporting the growth of your junior colleagues," expressing his respect and encouragement to the teams.

On-site *Kaizen* Recipients	
Platinum Award	TMMF (France)
Gold Award	TMMK (U.S.A.) CAPTIN (Canada) GTMC (China) TMMIN (Indonesia)

Affiliate Award Recipients	
Platinum Award	TMMBC (Mexico) TMP (The Philippines) TKAP (India)

Then Senior Managing Officer Shigeki Terashi with TMMF members, winners of the Platinum Award

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Status of ISO 14001 Certification

Production, and production/sales companies both in Japan and overseas have been working to renew their ISO 14001 certification and striving daily to maintain and improve their environmental management systems.

Number of ISO Certified Toyota Group Companies in Japan and Overseas

	Production companies	Production/ Sales companies	Sales companies/ Other businesses
Japan	39	–	10
Overseas	32	12	19

Focus

Toward Enhanced Energy Management, Acquisition of Automobile Manufacturing Industry's First ISO 50001 External Certification in Japan

Global warming is becoming ever more severe, and in the midst of a changing environment, Toyota is also expected to make further efforts to reduce CO_2 emissions. Toyota has introduced an energy management system based on international ISO 50001 standards as a measure for more efficient CO_2 reduction and has acquired external certification. The chair of the Manufacturing Environment Committee, that considers the company's CO_2 emissions company-wide, set a major policy aimed at creating a non-regressing mechanism for greater CO_2 reductions, with strong leadership in minimization of energy use, incorporating strengths of the ISO 50001 not found in the ISO 14001. Based on this, a working team was formed to create this mechanism, holding deeper discussions on methods to enhance Toyota's original energy management continuously.

In concrete terms, the mechanism consists of an energy management team led by a company-wide energy management office, which strongly promotes improvement of energy management, builds a system that helps the PDCA cycle run reliably, standardizes measurement classifications, promotes efforts to make energy data more transparent, and endeavors to propose and support efficient countermeasures. Toyota will expand the results and know-how gained through this effort, sharing them with its plants and production engineering divisions, promoting further energy reduction activities, and accelerating its efforts toward zero emissions.

ISO50001 Certification issuance ceremony

Management: Promote Environmental Management in Product Development through Eco-VAS

LCA of New and Fully Redesigned Models in All Six Vehicle Series

Purpose

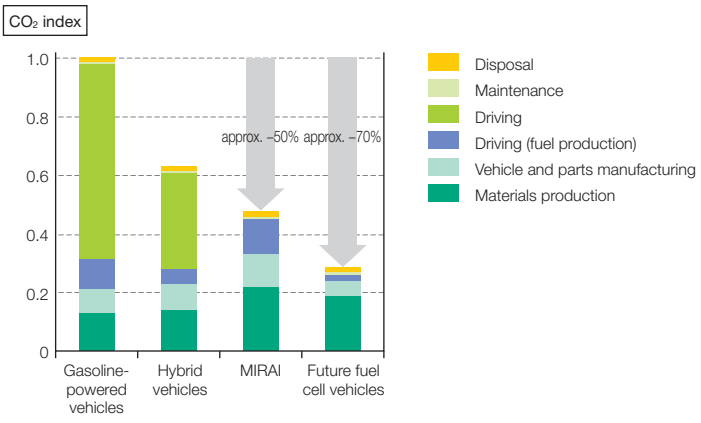
The Eco-Vehicle Assessment System (Eco-VAS) is a comprehensive environmental impact assessment system that allows systematic assessment of a vehicle's impact on the environment over the entire lifecycle from vehicle production and use to disposal stages. Toyota uses Eco-VAS to conduct lifecycle assessment (LCA) of a vehicle's total environmental impact from the materials manufacturing, vehicle manufacturing, driving and maintenance stages through to the disposal stage.

Since the system allows targets to be set from the initial stages of development to achieve steady improvements in environmental performance, Toyota's chief engineer establishes targets and scenarios to achieve them in relation to environmental performance criteria in the planning and development stage, and then follows up at points throughout the development process to ensure that targets are steadily being met.

Progress in FY2014

Toyota conducted LCA on new and fully redesigned models of six vehicle series (Esquire, MIRAI, Alphard, Vellfire, Lexus RC, Lexus NX).

LCA for the MIRAI



The MIRAI has the potential to achieve much lower life-time environmental burden compared to gasoline-powered and hybrid vehicles, depending on its hydrogen production techniques. Significant reduction can be achieved if an efficient means of hydrogen production using renewable energy sources becomes available in the future.

Toyota uses a comprehensive evaluation technique called "LCA" (Life Cycle Assessment), whereby a vehicle's impact on the environment are measured at all stages, from resource extraction to disposal and recycling. Evaluations are based on the assumption that each vehicle travels 100,000 km over a 10-year period under the JC08 test cycle.

LCA results are shown as an index. The environmental burden of the hydrogen used by a fuel cell vehicle differs according to the production method. Current emission figures of "Driving (fuel production)" for fuel cell vehicles are calculated based on the assumption that they use hydrogen obtained as a by-product of the sodium hydroxide production process.

The result of MIRAI's Comparative Life Cycle Assessment (comparison of Gasoline, Hybrid and MIRAI) was certified by TÜV Rheinland, in accordance with ISO14040/14044 standards.

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Continue Activities Focusing on Planting Trees at Plants

Purpose

Since 2007, Toyota has been pursuing sustainable plant activities, positioning the Prius-producing Tsutsumi Plant as a model plant, to bring the concept of sustainability into *monozukuri*. With the concept of "a plant that fully utilizes natural resources while operating in harmony with the natural environment," efforts are underway towards reducing energy consumption, switching energy sources, enhancing communication with local communities, and protecting ecosystems.

Concept Underlying Sustainable Plant Activities

Aiming to become a plant that fully utilizes natural resources while operating in harmony with the natural environment

Reducing energy consumption:
Development and introduction of low CO^2-emitting production technologies and *kaizen* activities

Switching energy sources:
Utilization of renewable energy (solar, etc.)

Community involvement and ecosystem conservation:
"Green for Tomorrow"—tree planting activity at plants

Activities to increase employee environmental awareness

Progress in FY2014

Tree planting activities have been held at the Teiho Plant, TMEC (China), the Kinuura Plant and the Honsha Plant as part of afforestation activities at plant sites. About 9,000 tree seedlings were planted by 1,500 participants, including employees and their families and local residents.

Starting from the Tsutsumi Plant in 2008, Toyota Motor Corporation has reached its original goal of holding tree planting activities at all 12 of its manufacturing plants. It has planted a total of 110,000 trees in Japan and 745,000 overseas.

 Tsutsumi Plant Total trees planted: 52,060	 Kinuura Plant Total trees planted: 8,250	 Kamigo Plant Total trees planted: 1,503
 Takaoka Plant Total trees planted: 2,430	 Shimoyama Plant Total trees planted: 5,000	 Hirose Plant Total trees planted: 3,360
 Tahara Plant Total trees planted: 5,240	 Miyoshi Plant Total trees planted: 670	 Teiho Plant Total trees planted: 3,160
 Motomachi Plant Total trees planted: 13,628	 Myochi Plant Total trees planted: 3,876	 Honsha Plant Total trees planted: 632

Focus

Forestation Project at the R&D Center in China

Tree-planting was conducted at the R&D Center of Toyota Motor Engineering & Manufacturing (China) Co., Ltd. (TMEC) in Changshu City, Jiangsu Province on April 13, 2015. There was a huge turnout of about 900 participants, including center employees, Changshu government officials and students from nearby elementary schools and universities. They all worked together, carefully planting about 7,000 trees one by one. After the planting, participants were invited to the facilities, deepening their understanding of TMEC.


Tree planting at TMEC on April 13

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Focus

San Bernardo Reborn Project

The San Bernardo Plant of Toyota do Brasil LTDA. (TDB), located in the suburbs of Sao Paulo, is Toyota's oldest overseas plant, established in 1958. The San Bernardo Project is an initiative to revitalize this plant, the origin of TDB. This project is built upon four pillars: Eco Company; Innovative Company; Competitive Company; and Friendly Company. On this basis, TDB aims to become the most eco-friendly company in Brazil through implementation of the sustainability projects below and by actively making important environmental commitments.

Reborn Project ceremony

- Obtaining 100% of its electricity from renewable sources
- Reusing rainwater (already partially implemented) and recycling industrial water (scheduled for 2017)
- Promoting zero landfill waste and waste reduction
- Establishing greenery/green belts in the plant site that are in harmony with the local environment
- Encouraging other stakeholders (dealers and suppliers) to take environmental preservation actions

Management: Promote Environmental Activities in Cooperation with Business Partners

Promoting Dealer Environmental Initiatives

At CSR workshops held by the Toyota National Dealers' Advisory Council (TNDAC), all Toyota dealers have come together to promote voluntary activities based on the Toyota Dealer CSR Guidelines set forth in 2005. To further promote these initiatives, they called for increased acquisition of third-party certification of environmental management systems to accelerate the development of people and the creation of environmentally-friendly dealerships, and to bolster the level of trust from customers. As part of such efforts, a dozen Toyota dealers acquired certification under "Eco-Action 21 (EA21)" guidelines issued by the Ministry of Environment to encourage and evaluate environmental activities of all businesses, institutions, schools, and public facilities. They received their certificates at the presentation event arranged by the EA21 Secretariat and were registered as EA21-certified organizations.

Award ceremony for Toyota Corolla Aichi

Number of Overseas Dealers Who Achieved DERAP Goals Increases

Toyota continues the Dealer Environmental Risk Audit Program (DERAP) to reduce environmental risks at overseas dealer service shops. These audits are aimed at establishing a framework to deal with five fundamental environmental requirements including the proper management of waste and treatment of wastewater.

In FY2014, 60 distributors and 3,464 dealers from 57 countries worldwide participated in the program, representing an increase of 5 distributors and 126 dealers compared to FY2013. Of that total number, 89 percent of participating dealers satisfied the five requirements. From the global perspective, there are still many Toyota distributors and dealers not participating, so Toyota will continue to encourage even greater participation going forward, and to support those participating companies in their activities.

Focus

Recycling of Wastewater and Rainwater at Toyota South Africa Motors (TSAM) Dealers

Amid an increasing water scarcity problem developing in South Africa year by year, laws and regulations on water use are under review. Under these circumstances, TSAM has been encouraging the affiliated dealers to implement water recycling activities since 2008. Some dealers have already installed five water storage tanks or solar-powered water purification system, which enable to store 100,000 liters of water allowing them to wash vehicles for up to 200 days by recycling discharged water and rain water. TSAM recognizes excellent dealer's great contributions to the environmental activities every year to motivate them in the region and addresses enhancement of their environmental activity level.

Recycling of wastewater and rainwater at some dealers

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Management: Legal Compliance Activities

Achieving Zero Non-compliance and Complaints

In FY2014, we were able to achieve zero non-compliance and complaints for the first time in four years.

One major activity was the creation of a *Collection of Focal Points for Facilities and Management toward Complete Elimination of Wastewater Non-compliance* based on the non-compliance near misses and near complaints* that had occurred in the past 10 years. We distributed this throughout the Toyota Group, utilizing it for prevention activities in educational platforms such as the Environmental Month and wastewater treatment seminars. With remote facilities that are difficult to monitor constantly, such as employee dormitories, company-owned employee housing, and recreational facilities, employees responsible for environmental issues at Toyota headquarters visit and check these facilities all over Japan, identifying potential risks and implementing risk-reduction measures.

* Non-compliance near misses and near complaints: Cases that pose high potential risks although they did not result in incidents

Reporting and Storing Electrical Devices Containing PCBs

Since FY2005, Toyota has been using outside subcontractors to process electrical devices containing polychlorinated biphenyl (PCB). To date, 4,918 transformers and condensers have already been processed. The remaining 329 units will continue to be handled on an outsourcing basis in FY2015 and beyond.

Groundwater-related Measures

In 1997, Toyota completed the implementation of measures to prevent outflow of groundwater at six production plants. Toyota is continuing groundwater remediation using pump and aeration treatment and reports on the levels of trichloroethylene to the government as well as to local councils in the surrounding communities.

Trichloroethylene Levels

Plant	Levels in Groundwater
Head Office	Less than 0.002–1.06
Motomachi	Less than 0.002–0.19
Kamigo	Less than 0.002–0.16
Takaoka	Less than 0.002–0.36
Miyoshi	Less than 0.002–0.15
Tsutsumi	Less than 0.002–0.36

Environmental standards: 0.03
Unit: mg/L

Note 1: Measurements are taken at all Toyota Motor Corporation plants
Note 2: Has not been detected in plants other than those listed
Note 3: The level has a range since each plant includes multiple measurement points

Management: Eco-factory Activities

Eco-factory Activities Implemented at Eight Plants

Toyota continues with eco-factory activities for plants being newly constructed and being enhanced in capacity to ensure that its factories set the highest worldwide standards for environmental consideration and sustainability. Activities include on-site verification of environmental solutions incorporated into each phase—namely planning, engineering, trial production and full-scale operation—and, should a failure be discovered, the problem is corrected and environmental measures are reliably incorporated.

Progress in FY2014

Eco-factory activities were continued at a total of eight plants in North America, Indonesia, Thailand, Brazil, and China.

Eco-factory Activities

	North America		Indonesia	Thailand	Brazil	China		
	TMMMS	TMMAL	TMMIN new engine plant	STM Plant No.2	TDB new engine plant	SFTM Chang-chun New Plant	TMCAP	GTE
Planning stage								
Audits of facility specifications								
On-site audit								
Compliance and risk evaluation			16	15	16		15	15
Performance evaluation (CO_2, VOC, etc.)			17		17		16	

: Capability enhancement projects (from FY2012)
: Implementation completed in FY2014
: Implementation completed by FY2013
Numbers indicate planned year of implementation

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Focus: Examples of Plant Environmental Protection Activities

Efforts to Reduce CO_2 Emissions at Miyoshi Plant

The Miyoshi Plant manufactures drive-line components, including drive shafts and propeller shafts, as well as cold-forged and sintered engine parts. Initiatives established to reduce energy usage through equipment consolidation[1] and process step reduction are described below.

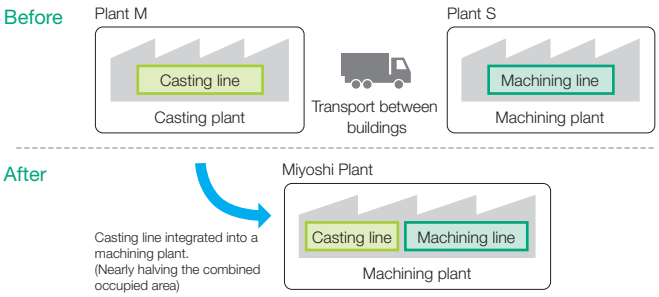
In the heat treatment process, which uses a lot of energy, we successfully reduced the number of carburizing furnaces from 10 to 8 by standardizing the types of quenching oils and implementing an innovative measure to increase the number of component pallets that can be accommodated. We expect to further reduce the number of carburizing furnaces to six by the end of FY2015. Likewise, on the propeller shaft production line, we are consolidating equipment according to production fluctuations.

On the turbocharger production line, which commenced manufacturing in 2014, we connected the casting line, which was previously housed in a separate building, directly to the machining line by improving the work method and adopting compact equipment. As a result, we reduced energy consumption in both the production and logistic processes.

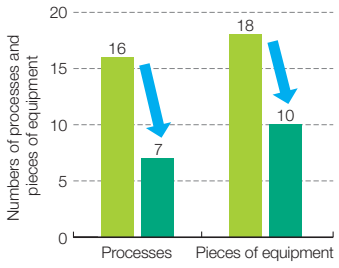
Meanwhile, on the drive shaft production line, we began operating an innovative line[2] in April 2015 with the goal of reducing parts costs. We almost halved the process steps and pieces of equipment by improving the processing method and consolidating processes, and as a result, expect to reduce annual CO_2 emissions by approximately 30 tons.

[1] Consolidation: Grouping together multiple lines and pieces of equipment with low operation rates according to production fluctuations, in order to improve operation rates
[2] Innovative line: Production line designed to reduce cost by incorporating revolutionary machining technologies, with the goal of improving cost competitiveness

Integration of casting and machining processes in the turbocharger production line



Reduction in the processes and of equipment through the adoption of innovative lines



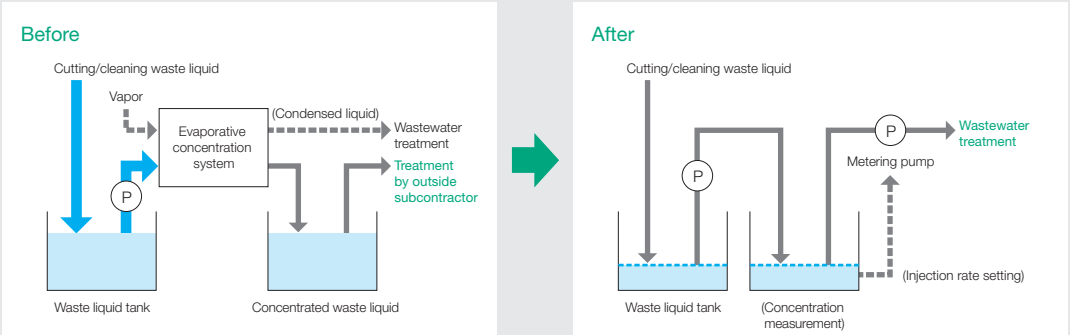
Efforts to Reduce Waste Volume at Shimoyama Plant

The Shimoyama Plant which assembles engines and produces exhaust system parts, is proactively promoting *kaizen* in its daily waste-reduction activities. An initiative to reduce the volume of concentrated waste liquid that must be processed outside the plant has produced tangible results in recent years and is described below.

Until recently, because the generated volume of cutting/cleaning liquid discarded after machining was so large, waste liquid could not be treated in-house due to the capacity of the wastewater treatment facility, requiring the liquid to be first reduced in volume by approximately 90% by an evaporative concentration system then sent to an outside subcontractor for processing (thus generating waste).

In FY2013, the Shimoyama Plant began a trial to determine whether the waste liquid could be processed in the in-house wastewater treatment facility. By measuring the volume of original liquid and the Chemical Oxygen Demand (COD) of the waste liquid, using a metering pump to control the injection rate to a constant level, and also extending the service life of the coolant, we managed to reduce the volume of waste liquid generated. Our in-house treatment facility has enabled us to directly process waste liquid and this method has formally adopted since April 2014.

As a result, we eliminated operation of the evaporative concentration system, thereby reducing steam and energy usage.



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Contribution to a Low Carbon Society

Basic Approach to a Low Carbon Society

The Intergovernmental Panel on Climate Change (IPCC) published its latest Fifth Assessment Report in installments between September 2013 and April 2014, covering scientific assessments, climate change-related impacts, adaptation and vulnerability, and measures to mitigate climate change.

The report states that (1) warming of the climate system is unequivocal, (2) it is virtually certain that the upper ocean has warmed, and (3) it is extremely likely that human activities have been the main cause of the observed warming since the mid-20th century. The impact of global warming is not limited to increases in average temperatures but, as shown in the diagrams, also includes a range of potential risks associated with climate change globally.

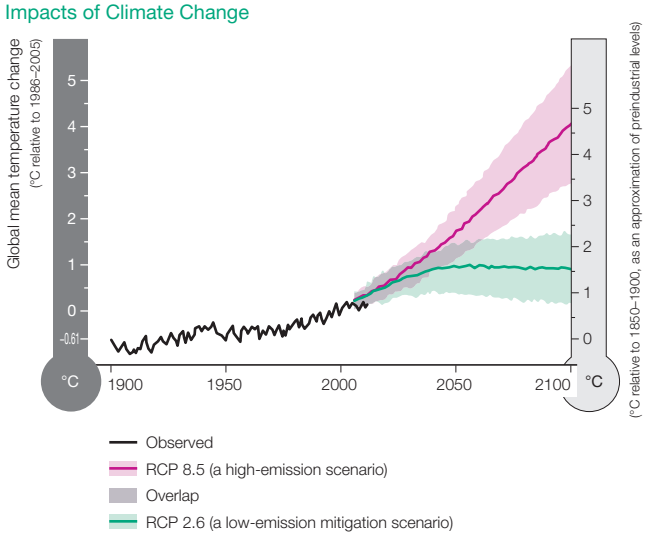
Examples of such weather events are increased frequency of heavy precipitation events and increased maximum wind velocity associated with tropical cyclone activity. Evidence of change is already being felt in Japan, such as sudden downpours causing extensive damage, and record amounts of heavy precipitation.

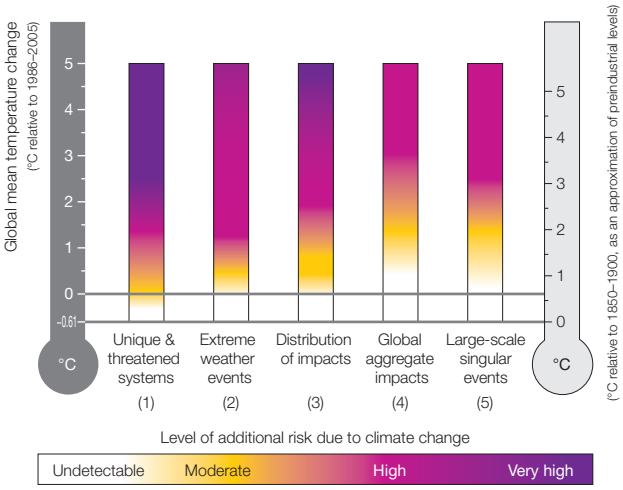
When floods and other natural disasters occur, caused by typhoons and heavy rain thought to be the result of climate change, they have the potential to cause damage or delays to Toyota's business operations, including the procurement of raw materials, parts and other materials for the manufacture of Toyota products in the main markets where Toyota manufactures, distributes and sells products.

Climate change also increases the occurrence of droughts and it impacts biological diversity and agricultural production. To prevent such a situation, the entire world must commit to building a low carbon society with a lower level of CO_2 emissions.

Toyota positions taking action to reduce further global warming as a top priority management issue, and is working to reduce greenhouse gas emissions at all stages of the vehicle lifecycle, including development, design, production, logistics, and sales, as well as in all of Toyota's business areas.

Impacts of Climate Change





Example of potential risks:

(1) Impacts on vulnerable systems (Arctic-sea-ice and coral-reef systems)
(2) Events such as extreme precipitation, extreme heat and coastal flooding
(3) Uneven distribution of impacts in each country and region
(4) Impacts on biodiversity and the overall global economy
(5) Large-scale and irreversible changes (sea level rises due to loss of the Greenland ice sheet, and ecosystem changes)

Source: (Ministry of the Environment, Japan) IPCC, 2014: Summary for Policymakers.
Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change

Toyota's Basic Stance regarding Issues Related to Energy, Climate Change and Global Warming

Development and Design

- Development of next-generation vehicles focusing on fuel efficiency improvements, and hybrid and plug-in hybrid vehicles

Production

- Promote activities to reduce CO_2 emissions through development and introduction of innovative low CO_2-emitting production technologies, and daily improvement activities
- Utilize renewable energies considering characteristics of each country and/or region
- Management of GHG emissions from sources other than energy sources

Logistics

- Promote CO_2 reduction activities by further improving transport efficiency

Sales

- Conform to the Energy Savings Act and reduce per-unit energy at the annual rate of 1%

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Major Initiatives during FY2014

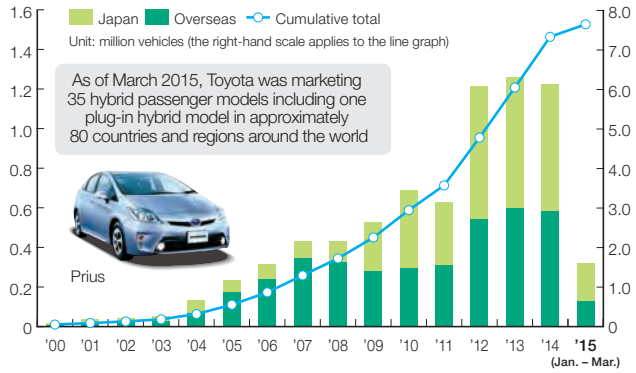
Promoting Development of Next-Generation Cars and Widespread Use of Their Features

Worldwide Sales of Toyota Hybrids Top 7.65 Million Units

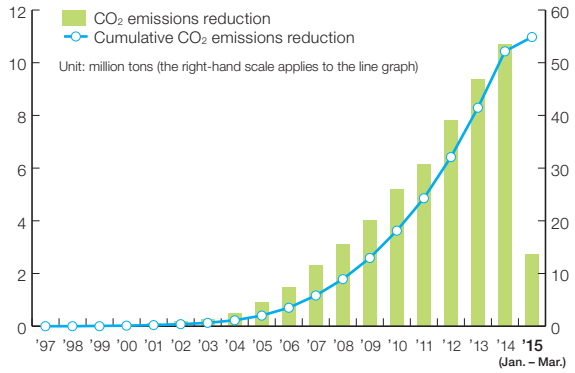
Since launching the Prius—the world's first mass-produced hybrid passenger vehicle—in December 1997, Toyota has received tremendous support from consumers, with cumulative global sales reaching 7.65 million units as of March 31, 2015.

Toyota calculates that as of that date, Toyota hybrid vehicles have resulted in approximately 54 million fewer tons of CO_2 emissions than would have been emitted by gasoline-powered vehicles of similar size and driving performance, and have saved approximately 20 million kiloliters of gasoline compared to the amount used by gasoline-powered vehicles of similar size.

Cumulative Sales of Hybrid Vehicles



CO_2 emissions reduction effects of Toyota hybrid vehicles (Toyota calculations)

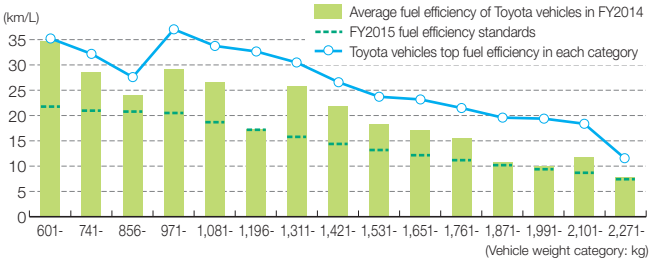


Development and Design: Develop Technologies to Achieve the Best Fuel Efficiency Performance and Meet Standards in Each Country and Region

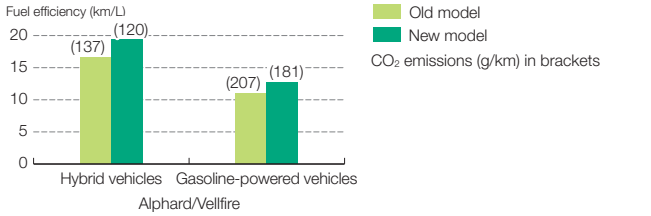
FY2015 Fuel Efficiency Standards Cleared by All 15 Vehicle Weight Categories

- In FY2014, vehicles met the FY2015 fuel efficiency standards in all 15 vehicle weight categories
- In FY2014, new vehicles and fully redesigned models of five vehicle series met the FY2015 fuel efficiency standards
- Of the vehicles manufactured by Toyota in FY2014, 91 percent achieved the fuel efficiency standards for gasoline-powered passenger vehicles

Achievement of Fuel Efficiency Standards and Actual Fuel Efficiency of Toyota Vehicles in FY2014



Fuel Efficiency Comparison between Selected Old and New Models



Achievement of FY2015 Fuel Efficiency Standards in FY2014

Weight category (vehicle weight: kg)	Fuel efficiency standards (km/L)	FY2014 average fuel efficiency (km/L)	New vehicles and fully redesigned models that met the standards in FY2014
601–740	21.8	**34.8**	
741–855	21.0	**28.5**	
856–970	20.8	**24.1**	
971–1,080	20.5	**29.2**	
1,081–1,195	18.7	**26.6**	
1,196–1,310	17.2	**17.4**	
1,311–1,420	15.8	**25.9**	
1,421–1,530	14.4	**21.9**	
1,531–1,650	13.2	**18.4**	Esquire, Esquire HV
1,651–1,760	12.2	**17.2**	Esquire, RC300h, NX300h, NX200t
1,761–1,870	11.1	**15.6**	NX300h, NX200t
1,871–1,990	10.2	**10.9**	NX300h, Alphard, Vellfire
1,991–2,100	9.4	**9.9**	Alphard*, Alphard HV, Vellfire*, Vellfire HV
2,101–2,270	8.7	**11.8**	Alphard, Alphard HV, Vellfire, Vellfire HV
2,271–	7.4	**7.8**	

Note 1: The models indicated by an asterisk (*) generally meet the standards, but certain types and specifications may not
Note 2: ☐ indicates a category that has achieved the fuel efficiency standards
Note 3: Vehicles that achieved the efficiency standards before FY2013 are not included
Note 4: All fuel efficiency values are averages for vehicles that have specification values under the Japanese Ministry of Land, Infrastructure, Transport and Tourism's JC08 test cycle

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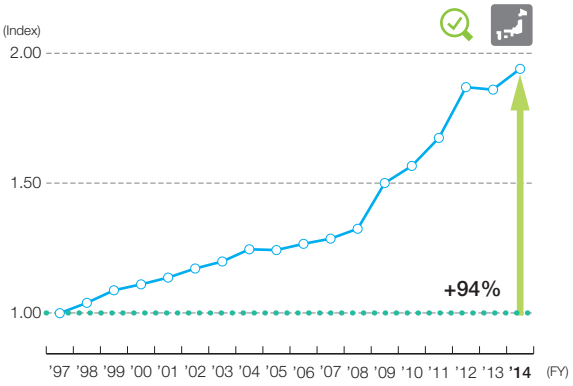
Increase in Average Fuel Efficiency

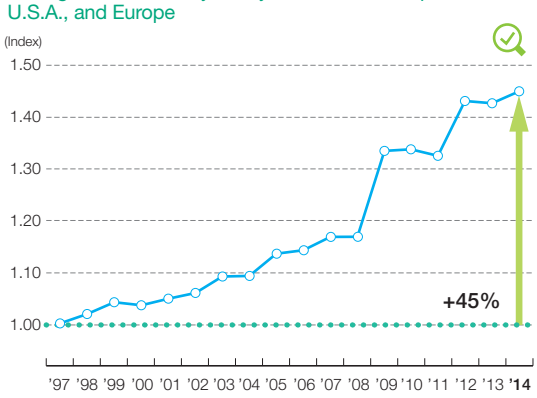
In FY2014, Toyota worked to promote its hybrid technologies, positioning them as the core technologies necessary for developing various types of eco-cars.

In Japan, Toyota launched hybrid versions of the Esquire, Alphard, Vellfire, Lexus RC, and Lexus NX. The number of hybrid vehicles as a percentage of all Toyota vehicles has been increasing, greatly contributing to improvements in Toyota's average fuel efficiency. Toyota also took other fuel efficiency improvement measures, such as improving the powertrain efficiency of vehicles equipped with conventional engines. As a result, the combined average fuel efficiency index of passenger cars in Japan, the United States, and Europe saw steady improvement.

Average Fuel Efficiency of Toyota Vehicles in Japan



Average Fuel Efficiency of Toyota Vehicles in Japan, U.S.A., and Europe



Focus

Development of Direct-injection Turbo Engines with Drastically Improved Thermal Efficiency and Powerful Acceleration

To help reduce fossil fuel consumption, Toyota is also working to improve the fuel efficiency of vehicles with conventional powertrains, which still account for the majority of vehicles sold.

It developed a new 1.2-liter direct-injection turbo engine, which achieves both drastically improved thermal efficiency and superb driving performance capable of powerful acceleration, and installed it in the Auris launched in April 2015. To develop the new turbo engine, Toyota added its supercharging technology to the technologies it has nurtured for developing engines specific to hybrid vehicles as well as conventional engines, creating a supercharged engine with world-leading thermal efficiency. Furthermore, a 2.0-liter engine with high thermal and fuel efficiency is installed in the Lexus NX, launched in July 2014. By adding a supercharged engine that also achieves superb driving performance to the group of these engines with high thermal and fuel efficiency, Toyota has expanded its portfolio of environment-friendly vehicles that meet the diverse needs of consumers. These engines with high thermal and fuel efficiency were first installed in the Passo and Vitz launched in 2014 and have already been installed in a total of eight models as of April 2015. Toyota plans to add six more models by the end of FY2015 to market a total of 14 models globally.

Auris

Technologies Used in the Supercharged Gasoline Engine with High Thermal and Fuel Efficiency

		Technology used in HVs	Technology refined with previous model engines	Technology incorporated as supercharging (New technologies)
Improved combustion	Rapid combustion		●	●
	Higher compression ratio	●	●	
Loss reduction	Reduced pumping loss			
	• Atkinson cycle	●		●
	• Supercharged			●
	Low friction	●	●	

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Focus

Aiming to be a Pioneer in the Realization of a Hydrogen Energy Society with Popularization of FCVs

The MIRAI, the world's first mass-produced fuel cell vehicle (FCV), made its market debut in December 2014 as the groundbreaker in the realization of a hydrogen energy society for the next 100 years of the automobile. It features high energy efficiency, with a cruising range equivalent to that of gasoline-powered vehicles, a short charging time, and emits only water during operation. The MIRAI comes with environmental technology with such a high potential that it can be called the "ultimate eco-car." Not only does it have excellent environmental performance, but it is furnished with the finest features, including a futuristic design that clearly identifies it as an FCV, and it provides an enjoyable, quiet and comfortable ride, making drivers want to keep driving. Toyota has globally popularized eco-cars since the launch of the Prius, with its pioneering hybrid technology; striving to contribute to the global environment. Now, Toyota is introducing the FCV MIRAI to the market, aiming to popularize this vehicle for the next 100 years of the automobile. The MIRAI is scheduled to be launched in the U.S. and Europe from autumn 2015.

Accelerating Infrastructure Expansion

As of mid-April 2015, 19 hydrogen fuelling stations are in operation and the government is allocating the budget to expand to 76 stations. While requests have been made for further expansion of infrastructure, the production of the MIRAI, equipped with the latest technologies, is slow, as they are carefully built to ensure each vehicle meets Toyota's strict standard, thus limiting the number of MIRAI manufactured. The FCV and its infrastructure coexist in harmony as a flower and a bee, supportive of each other. Therefore, as an automobile manufacturer, Toyota is prioritizing the marketing of the FCV, creating a favorable environment for infrastructure providers to operate their business. The expansion of hydrogen station installation has been rapidly accelerated compared with six months ago. Moving forward, Toyota hopes and believes that synergy between infrastructure providers and vehicle manufacturers increases and creates a win-win situation to establish a hydrogen-based society through our mutual relationship.


Installing FC stack and tanks


MIRAI during production


MIRAI undergoing inspection

MIRAI Receives the 24th Grand Prize for the Global Environment Award

The Grand Prize for the Global Environment Award is sponsored by the Fujisankei Communications Group and was established in 1992 to honor efforts in industrial circles, aiming at encouraging the coexistence of industrial development and environmental protection. Toyota's fuel cell vehicle (FCV), the MIRAI, received the Grand Prix Prize at the 24th Grand Prize for the Global Environment Award. The award recognized how the MIRAI contributed toward diversification of automotive fuels with its high potential as an eco-car. The prize also acknowledged its contribution to the realization of a sustainable mobility society with Toyota providing free licensing of its exclusively held fuel cell-related patents to encourage the popularization of FCVs.

At the award ceremony on April 9, 2015, Toyota Chairman Takeshi Uchiyamada commented, "With our motto 'For the next 100 years,' we created the MIRAI for our children who are our future, hoping that they will adore this vehicle."


"Global Environment Award" ceremony

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Focus

New Fuel Cell Bus to Service Route in Toyota City

Toyota Motor Corporation and Hino Motors, Ltd. have developed a new Toyota Fuel Cell System (TFCS) equipped bus as a step towards commercial operation of fuel cell buses. The new bus has serviced bus routes in Toyota City, Aichi Prefecture from January 2015. The TFCS integrates the fuel cell and hybrid vehicle technologies developed for the MIRAI fuel cell vehicle. The new fuel cell bus is equipped with eight high-pressure hydrogen tanks as well as two fuel cell stacks and two motors to provide increased output. The bus also features an external power supply system that was enhanced through rigorous verification testing beginning in November 2013. Verification testing is part of the public fuel cell bus road trials and emergency external power supply testing that began in FY2010. Toyota and Hino will verify the feasibility and effectiveness of the fuel cell bus through testing involving commercial operation on regular routes on public roads and will feed back the results into R&D.

Focus

Hydrogen Grid Project at Kansai International Airport

This large scale project aims to demonstrate Japan's first introduction of hydrogen energy to airport facilities, with the support of the Ministry of Environment, taking advantage of the system of Comprehensive Special Zones for International Competitiveness.

The project introduces fuel cell (FC) forklifts, maintains a hydrogen refill facility, and establishes a system that serves as a model for the future full-scale hydrogen energy society during its three year period from FY2014 to FY2016.

The New Kansai International Airport Co., Ltd. will promote the practical use of hydrogen energy as part of the Smart Island Vision, with Toyota Industries Corporation to develop and provide FC forklifts, Iwatani Corporation to build and provide hydrogen infrastructure, and Toyota Motor Corporation to provide technologies including fuel cells.

In February 2015, the first phase of the demonstration was commenced at the international cargo area with one FC forklift. Practical FC forklifts equipped with fuel cell technologies installed in the MIRAI are planned to be deployed during FY2015.

The first phase of the demonstration beginning from FY2015 starts with a small-scale high-pressure hydrogen gas station. The full introduction of FC forklifts will take place in the latter half of 2016 in line with the development of a large-scale liquid hydrogen station.

The FCV MIRAI has joined this Hydrogen Grid Project and is already in operation. This MIRAI is also expected to serve as an airport maintenance vehicle to perform tasks such as runway checks and aviation lighting checks.

Small-scale high-pressure hydrogen gas station
(Photo provided courtesy of New Kansai International Airport Co., Ltd.)

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Focus

Responses to Scope 3

Scope 3 is a new standard established to encourage corporations to visualize and account for indirect greenhouse gas emissions from the value chain that occur outside their own company and consolidated companies (purchased goods and services, transportation, business travel, employee commuting, use of sold products, etc.).

Toyota has assessed emissions from 14 of the 15 categories.

Details of the 15 Categories Specified in Scope 3

Value Chain	Category	Item	Assessment
Upstream	1	Purchased goods and services	✓
	2	Capital goods	✓
	3	Fuel- and energy-related activities (not included in scope 1 or scope 2)	✓
	4	Upstream transportation and distribution	✓
	5	Waste generated in operations	✓
	6	Business travel	✓
	7	Employee commuting	✓
	8	Upstream leased assets	✓
Downstream	9	Downstream transportation and distribution	✓
	10	Processing of sold products	✓
	11	Use of sold products	✓
	12	End-of-life treatment of sold products	✓
	13	Downstream leased assets	✓
	14	Franchises	-
	15	Investments	✓

Note: “Franchises” is not applicable

Production and Logistics: Thoroughly Conduct Activities Aimed at Saving Energy and Reduce the Volume of GHG Emissions in Production Activities

Continuing to Conduct Activities Aimed at Reducing CO_2 Emissions in Production Activities

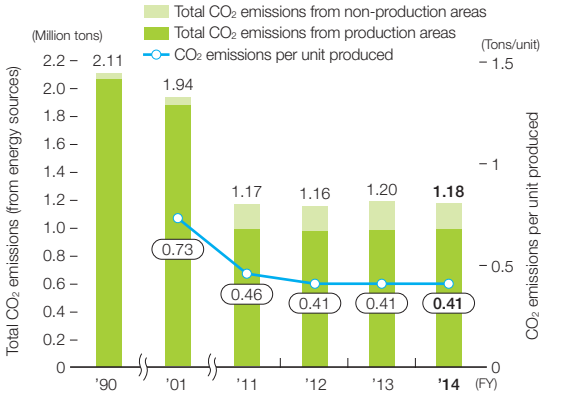
Toyota Motor Corporation (TMC) has set CO_2 emissions reduction goals that include both production bases and non-production bases such as offices.

In FY2014, installation of efficient air-conditioning units and chillers resulted in annual CO_2 emissions of 1.18 million tons (44 percent lower than the FY1990 level), and 0.41 tons of CO_2 emissions per unit produced.

To achieve Toyota's global five-year plan targets, we are promoting reduction of CO_2 emissions, with the adoption of innovative technologies at the launch of new plants and production lines. For example, at the new Changchun plant of Sichuan FAW Toyota Motor Co., Ltd. (China), innovative technology has been introduced, including simplification of the line, and the three-wet paint process. Other initiatives include implementation of steamless and airless processes.

As a result, in FY2014, the CO_2 emissions per unit produced were 0.75 tons (0.5 percent lower than the FY2013 level) and annual CO_2 emissions were 7.79 million tons (0.6 percent lower than the FY2013 level).

Trends in Total CO_2 Emissions (from Energy Sources) and CO_2 Emissions per Unit Produced at TMC

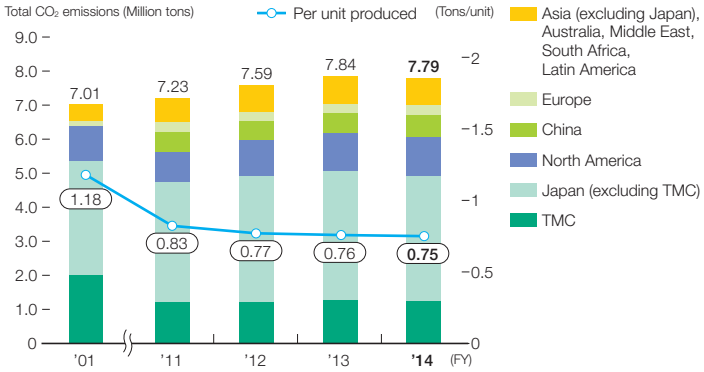


Note 1: For facilities in non-production areas for which FY1990 emissions data is not available, the oldest subsequent data available is used for the graph

Note 2: Until FY2011, the total CO_2 emissions volume included emissions from production and non-production divisions (excluding the Toyota Biotechnology & Afforestation Laboratory and employee benefit facilities) Beginning in FY2012, the Laboratory was included as a non-production division

Note 3: The CO_2 emissions were calculated using the Nippon Keidanren's FY1990 CO_2 conversion coefficient. For more information on the conversion coefficient, please visit the webpage below: http://www.toyota-global.com/sustainability/environment/data/data28.html

Trends in Global CO_2 Emissions (from Energy Sources) and CO_2 Emissions per Unit Produced (Stationary Sources such as Plants and Offices)



*TMC and 120 companies (consolidated subsidiaries and other companies in Japan and overseas)
Japan: Companies listed in Groups 1-5 on page 11-03 (including sub-subsidiaries; excluding Toyota Tsusho)
Overseas: Production companies and production/sales companies listed on page 11-03 (excluding TMCAP in China)

Note 1: Companies for which FY2001 emissions volumes could not be determined, the oldest subsequent data is used

Note 2: The CO_2 emissions were calculated using the Greenhouse Gas (GHG) Protocol CO_2 conversion coefficient. For more information on the conversion coefficient, please visit the webpage below: http://www.toyota-global.com/sustainability/environment/data/data28.html

Calorific Energy Use Ratio at TMC

Promoting the Use of Renewable Energy

In March 2008, the Toyota Tsutsumi Plant installed a photovoltaic system rated at 2,000 kW (sufficient to provide power for some 500 households). During FY2014, the system generated 1,903 MWh of electricity.

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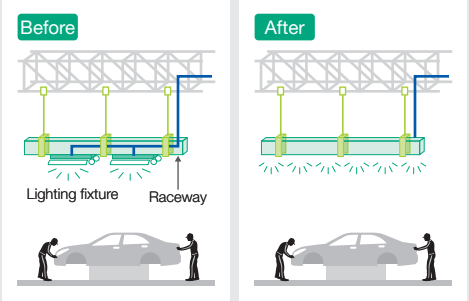
Focus: Example of Improvement in Energy Saving

Development of Low-cost LED Lights

LED lights are environmentally superior products because they save energy and do not contain mercury. However, since they are more expensive than fluorescent bulbs, it takes longer to recoup the initial investment at plants. Therefore, Toyota worked with an LED lighting fixture maker to develop products that utilizing the LED's flexibility in shape.

Integrating the newly developed LED lights into plant raceways has made installation easier and has reduced the initial investment. We plan to install the new LED lights when a production process is renewed.

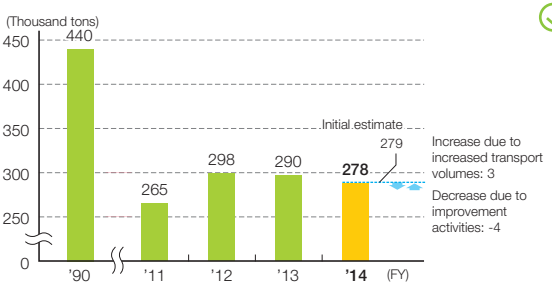


Production and Logistics: Pursue Increased Transport Efficiency and Reduce CO_2 Emissions in Logistics Activities

Continuing to Conduct Activities Aimed at Reducing CO_2 Emissions

In FY2014, Toyota Motor Corporation (TMC) implemented various initiatives, including activities to increase the loading efficiency of trucks, modal shifts, and ongoing fuel-efficiency improvement activities with logistics partners. Through these activities, CO_2 emissions were reduced by 4,000 tons more than the initial estimate, but changes including an increase in long-haul transportation resulted in total CO_2 emissions of 278,000 tons. CO_2 emissions per ton-kilometer (the transport of one ton of goods over a distance of one kilometer) were 109.6 g-CO_2/tkm.

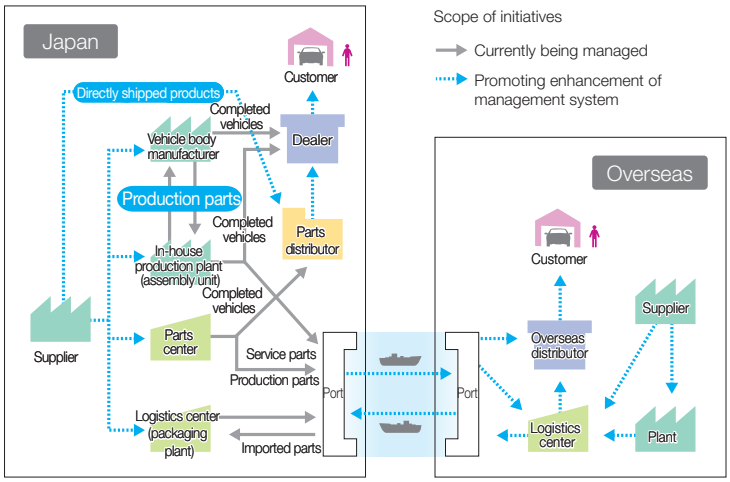
Trends in CO_2 Emissions from TMC Logistics Operations (Japan)



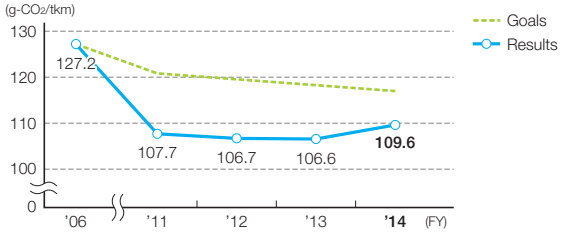
Note 1: Past figures have been revised retroactively due to changes made from FY2014 to the calculation method for some production parts and service parts (CO_2 emitted during transport of special shipment products has been excluded)

Note 2: The CO_2 conversion coefficient was calculated based on the "Guidelines on Disclosure of CO_2 Emissions from Transportation & Distribution (version 3.0)" issued by the Japanese Ministry of Economy, Trade and Industry and the Ministry of Land, Infrastructure, Transport and Tourism, etc. For more information on the conversion coefficient, please visit the webpage below:
http://www.toyota-global.com/sustainability/environment/data/data28.html

Scope of CO_2 Emissions Calculations from TMC Logistics Operations



Trends in CO_2 Emissions per Ton-kilometer from TMC Logistics Operations (Japan)



Note: For transport of production parts in Kyushu, past figures have been revised retroactively due to changes made from FY2014 to the unit calculation method

Results of Activities to Reduce CO_2 Emissions

Improvement item	Product	Details of activity	Reduction volume (thousand tons)
Reduction in total transport distance	Completed vehicles	Shifting from domestic vessels to oceangoing vessels and from land transport to sea transport, etc.	2.5
	Production parts	Reduction in the number of special shipments from Toyota Kyushu in conjunction with the switch to one-shift operation, joint shipments, etc.	0.6
	Service parts	Improved handling of empty pallets, increased loading efficiency, etc.	0.4
Total			3.5

Assessment of CO_2 Emissions and Implementation of Reduction Activities Worldwide

In FY2007, Toyota began assessment of CO_2 emissions from overseas worksites. Since FY2013, reduction targets were set for each country/region and activities are being implemented based on annually disclosed global guidelines.

Toyota is also making preparations for disclosing the volume of CO_2 emitted from overseas worksites in FY2016 (to be disclosed from FY2017 report).

section

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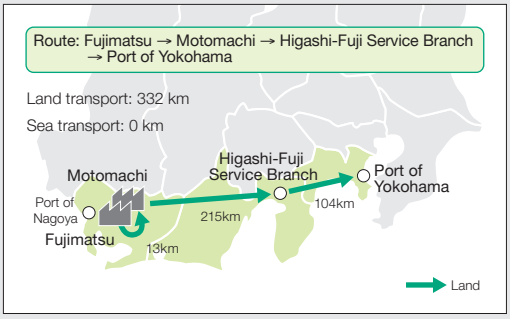
Focus: Example of Reductions in CO_2 Emissions in the Logistics Area

Reassessment of Transport Mode Utilizing the Yokosuka Yard

Vehicles produced in the Toyota District to be sold by dealers in Tokyo used to be temporarily stored at the Higashi-Fuji Service Branch. The Yokosuka Yard became available in January 2015, and some of these vehicles were moved there from February. As a result, some of the vehicles that were previously shipped on land via the Higashi-Fuji Service Branch were switched to marine transport, leaving the Port of Nagoya and arriving at the Port of Yokohama.

This change reduced the annual CO_2 emissions by 384 tons, and as a secondary effect, increased effective utilization of the crowded space at the Port of Yokohama.

Before



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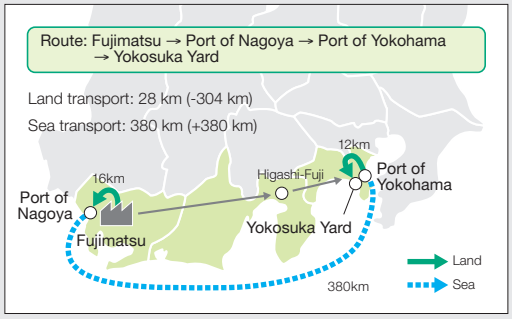
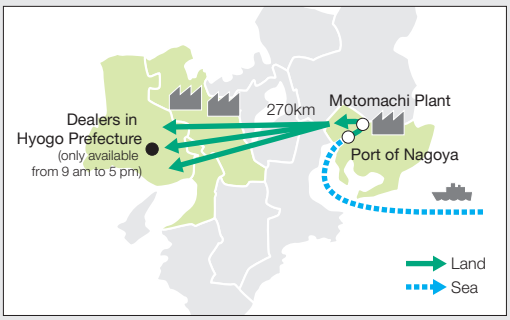


Change in the Relay Point for Vehicles to be Sold by Dealers in Kansai

Vehicles to be sold by dealers in Kansai used to be shipped via the Motomachi Plant, including those produced at distant plants and unloaded at the Port of Nagoya. This shipment method did not always work for dealers, which only accept vehicles between 9:00 am and 5:00 pm and not on holidays (Tuesdays).

To improve the transport operation by shortening the previous shipment route that went from the Port of Nagoya via the Motomachi Plant, we secured a yard that could accept shipments around the clock at the Kobe Port Island, which is close to dealers in Kansai. This allows vehicles to be shipped directly from the Port of Nagoya to this yard. This improvement shortened the shipment route, thereby reducing annual CO_2 emissions by 78 tons.

Before



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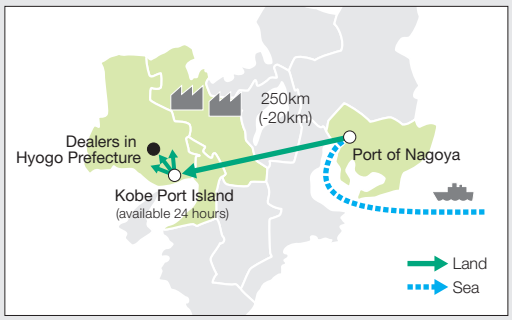
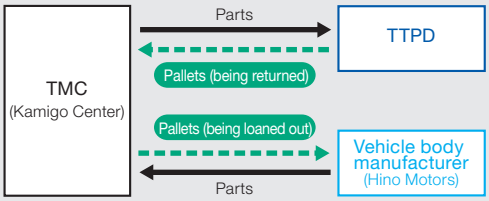


Simplification of Empty Pallet Shipment Routes

The Kamigo Center used to ship parts to and receive empty pallets from the Toyota Tokyo Parts Distribution Co., Ltd. (TTPD) while receiving parts from and lending empty pallets to Hino Motors, Ltd. As a result, two locations were using shipping services, respectively, only to return empty pallets. Therefore, with cooperation from both TTPD and Hino Motors, the two shipment routes were consolidated into one, and TTPD began shipping its empty pallets directly to Hino Motors in September 2014. This simplification is expected to reduce CO_2 emissions from shipments by 3.9 tons each month.

Before



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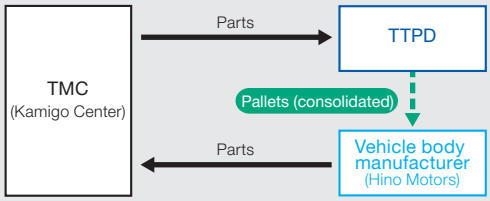

Defining the Future Mobility Society through WBCSD

The World Business Council for Sustainable Development (WBCSD), headquartered in Geneva, is made up of approximately 200 member companies from a wide range of industries all over the world. It carries out surveys and offers advice based on the three pillars of economic growth, environmental protection and social development in its aim of sustainable development. Following its founding in linkage with the Rio de Janeiro Earth Summit of 1992, the WBCSD has devised an environmental management system (ISO 14000) and the concept of eco-efficiency, and is considered to be a leading business advocate on sustainable development.

As a member since the establishment of the organization, Toyota has taken part in a variety of projects such as the Sustainable Mobility Project. Fifteen participating companies including Toyota launched the WBCSD Sustainable Mobility Project 2.0 (SMP 2.0) in 2013. Six model cities from around the world including a city in Thailand were selected, and roadmaps for sustainable mobility are being created in collaboration with various stakeholders.

World Business Council for Sustainable Development

Focus

Toyota Motor Foundation to Provide Grant to WBCSD Project to Mitigate Traffic Congestion in Bangkok, Thailand

Bangkok is one of the six cities in the WBCSD Sustainable Mobility Project 2.0 (SMP 2.0). Toyota, in cooperation with the Thai Ministry of Transport, the Bangkok Metropolitan Administration, the Royal Thai Police, Thai businesses, and SMP 2.0 member companies has been launched with the aim of alleviating traffic congestion by building a multi-modal society, which will link public transportation, cars, and people 5 to 15 years in the future when Bangkok's elevated railways and subways are greatly expanded.

The project aims to formulate a feasible roadmap through a large-scale social experiment concerning reforming the behavior patterns of municipal residents and transportation management, first focusing on Sathorn Road, one of Bangkok's most congested roads, then applying the outcomes across the city. The project has been selected as a grant recipient of the Toyota Mobility Foundation, a general incorporated foundation established in August 2014 whose aim is to globally assist non-profit organizations, research institutions, and other organizations that are working to develop a better mobile society, in collaboration with Chulalongkorn University. They are striving to create a model that will contribute to alleviating traffic congestion, through the cooperation of the private sector, government and citizens.

- Target: Sathon District, Bangkok City, Thailand
- Grant period: April 2015 to December 2016
- Grant amount (expected): 110 million Thai baht (equivalent to 400 million Japanese yen)
- Major initiatives
  - Develop a sustainable operation scheme for a shuttle bus system and a Park & Ride program to help control transportation demand
  - Encourage people to change their behavioral patterns, develop an information system that makes the benefits of transportation means diversification visible
  - Run traffic simulations to identify traffic bottlenecks and evaluate countermeasures
  - Optimize traffic signal cycles in collaboration with the local police

Morning traffic congestion in Sathon District, Thailand

For further details on the Toyota Mobility Foundation, see Special Feature 02 in Sustainability Report 2015: Toyota's Social Contribution (p. 03-11)

Focus

Yellowstone National Park Shifting to Sustainable Power

At the Lamar Buffalo Ranch Field Campus in Yellowstone National Park, an innovative distributed energy system is now online that combines solar power generation with reclaimed Camry Hybrid battery packs. Announced in June 2014, the partnership between Toyota, Indy Power Systems, Sharp USA, Patriot Solar, the US National Park Service, and the Yellowstone Park Foundation is an innovative effort to extend the useful life of hybrid vehicle batteries while providing sustainable power generation for one of the most remote, pristine areas in the United States.

Power generated by solar panels will be stored in 208 Camry Hybrid nickel-metal hydride battery packs collected from Toyota dealers all over the U.S. In 2016, micro-hydro turbine systems are scheduled to be integrated into the power mix. Hybrid batteries typically reach the end of their usable life in automobile-grade applications with significant remaining power storage capacity. Between Toyota's robust hybrid battery recycling program and the Yellowstone project's actions to extend the useful life of batteries, the useful life of these batteries is expected to be nearly doubled.

Solar panels

Reclaimed Camry Hybrid nickel-metal hydride battery packs

Focus

Karawang Plant in Indonesia Wins a First Place ASEAN Energy Award in the Large Industry Category

The Karawang Plant of PT Toyota Motor Manufacturing Indonesia (TMMIN) won first place in the Large Industry Category of the ASEAN Energy Award 2014 given to plants that excel in the energy conservation field. The award ceremony was held in Laos in September 2014. The Karawang Plant was nominated as the Indonesian representative for the ASEAN Award after winning first place in Indonesia in the Energy Conservation Category in 2013. The Plant reduced its energy use per vehicle by 43% and its total CO_2 emissions by 805,000 tons in the 4-year period from 2009 to 2013.

Award ceremony in Laos

The Plant aims to continuously maintain and further strengthen its energy conservation activities through improvement activities and sharing of its practices with other affiliates.

Key Points and Activities Recognized for the Award

Sustainability	• Involvement of top management and all employees in energy-saving activities • Awareness-building through in-house environmental education, energy patrols, etc.
Replicability	• Practices and management measures, such as visualization of energy savings activities and implementation of the PDCA cycle • Reduction in natural gas usage through the use of solar cells for lighting and the utilization of waste heat, and use of renewable energy
Originality	• Utilization of rainwater using water-collecting wells • Reduction in power consumption by changing the installation angle of air-conditioning outdoor units

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Focus

Verification Project to Popularize Natural Gas Vehicles in Indonesia

Indonesian government policy is aimed at promoting expanded use of natural gas in the transportation sector. To achieve this goal, the government needs to introduce reliable cars that run on compressed natural gas (CNG), ensure the stable supply of high-quality gas fuels, and achieve economic benefits and convenience for users.

To resolve these issues, Japan's New Energy and Industrial Technology Development Organization (NEDO), which is cooperating with the Indonesian government, has subcontracted its Verification Project for Maintaining and Verifying a Sustainable Environment, Including Infrastructure Development for Popularizing CNG Vehicles to Toyota Tsusho Corporation, Toho Gas Engineering Co., Ltd., Hino Motors, Ltd. and Toyota Motor Corporation. The project will last for three years from 2015 to 2018 with plans to proceed in the following three main areas: constructing and managing CNG stations in the central area of Jakarta and industrial parks located in the outskirts of Jakarta, studying the feasibility of using CNG in the transport trucks that operate between industrial parks and official government vehicles, and supporting the introduction of CNG specifications and vehicle safety standards.

By supporting systems and designs that will help popularize CNG vehicles in Indonesia, and spreading safe and high-quality fuel supply systems, this project is expected to help build a better automobile society.

At a workshop held in April 2015

Contribution to a Recycling-based Society

Basic Approach to a Recycling-based Society

The Earth's resources are limited, yet consumption continues to grow as populations increase, emerging nations grow economically and living standards improve.

Of the mineral resources required to produce industrial products, there are concerns in particular about the potential near-future depletion of some of the unevenly distributed rare metals and other resources essential for the production of auto parts, with price volatility linked to social trends. Additionally, the increasing production of agricultural produce accompanying population growth is driving up water usage, which some say is the No. 1 strategic resource of the twenty-first century. In emerging nations, population growth in particular is causing shortages of safe water supplies.

The other side of the resources problem is the issue of waste. Proceeding with source reduction measures to make more effective use of resources can reduce waste. Currently however, there is a shortage of treatment plants, while illegal dumping, transboundary movement of hazardous waste and other issues are occurring, and countries around the world are therefore facing a range of problems. Various initiatives are required to solve this waste problem, including the 3Rs (Reduce, Reuse, and Recycle) initiative for resources, and appropriate disposal of waste.

Since the 1970s, Toyota has been taking initiatives toward developing methods of effectively recycling the earth's limited resources embedded in end-of-life vehicles, rather than simply discarding them. These initiatives have now expanded to include not only the disposal stage, but also the vehicle design stage and the entire vehicle lifecycle, and have resulted in the building of a vehicle-to-vehicle recycling value chain, a model recycling-based social system in Japan. Furthermore, in response to the recent expansion in sales of its hybrid vehicles, Toyota has already developed several world-first initiatives, including establishing a battery-to-battery recycling network for end-of-life batteries—which are expected to increase in volume in the future—and a vehicle-to-vehicle recycling system and efficient dismantling technologies for the magnets containing neodymium, dysprosium and other rare-earth metals. In this way, Toyota will continue promoting cutting-edge initiatives in the field of resource recycling as well.

Major Producing Countries of Non-Ferrous Metals

Resource	Major resource producing countries (2014)						Total share of top 3 countries
	1st		2nd		3rd		
Rare Earth	China	85%	United States	6%	India	3%	94%
Vanadium	China	53%	South Africa	27%	Russia	19%	99%
Platinum	South Africa	68%	Russia	16%	Zimbabwe	7%	91%
Tungsten	China	83%	Russia	4%	Canada	3%	90%
Molybdenum	China	38%	United States	25%	Chile	15%	77%
Lithium	Australia	36%	Chile	36%	China	14%	86%
Indium*	China	51%	South Korea	18%	Japan	9%	78%
Cobalt	DR Congo	50%	China	6%	Canada	6%	63%
Manganese	South Africa	26%	China	18%	Australia	17%	61%
Nickel	Philippines	18%	Russia	11%	Indonesia	10%	39%

* Indium is not measured as the amount of mineral ore production, but as the amount of unprocessed indium produced as a by-product

Source: U.S. Geological Survey, Mineral Commodity Summaries, 2015

Medium- to Long-term 3Rs (Reduce, Reuse, and Recycle) Initiative Focused on End-of-life Vehicles

Stage 1 Past

Became the first automaker in the world to begin taking actions in preparation for the era of automobile mass production and disposal

- 1970: Established Toyota Metal Co., Ltd., an end-of-life vehicles shredding company (first in the world)
- 1973: Established Toyota Chemical Engineering Co., Ltd. to process and recycle lubricants and other materials used at Toyota production plants
- 1985: Established Toyotsu Recycle Corporation, a collection company for catalytic converters (recovery of precious metals) used in vehicles

Stage 2 Present

Proposing a model social system by constructing a value chain

- Disposal stage: Compliance with End-of-Life Vehicle Recycling Law; Recycling of rare metals and earths
- Design and development stages: Ecological Plastic; Easy to Dismantle Mark

Toyota Recycling Vision

- Sales stage: Bumper recycling; Used parts sales system
- Production and logistics stages: Simplification of packaging containers and switch to returnable containers

Stage 3 Leading the Way to the Future

Evolving the 3Rs initiative for rare metals, etc. and spreading it from Japan to the rest of the world

- 2010: Started the world's first "battery-to-battery" business to recover nickel and other metals from end-of-life batteries
- 2012: Started recycling the rare earth magnets from end-of-life hybrid motors
- 2013: Started reusing batteries from end-of-life hybrid vehicles as stationary storage batteries and providing them to Toyota dealers (first in the world)
- 2014: Started vehicle-to-vehicle recycling of copper resources in wiring harnesses

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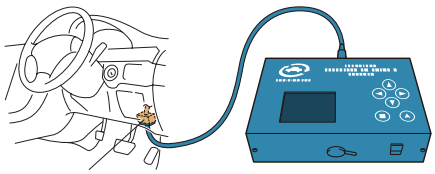
Major Initiatives during FY2014

Design and Development: Further Promotion of Design for Recycling to Encourage Effective Use of Resources

Incorporating Initiatives to Improve Vehicle Dismantlability into Designs

To promote resource recycling for end-of-life vehicles, Toyota has developed structural designs that make it easy to dismantle and separate parts, based on surveys of actual conditions at dismantling companies, and is actively adopting these designs for new models.

In response to the establishment of ISO standards for simultaneous disposition of airbags in June 2012, Toyota began adopting ISO standards in all its new models and vehicles undergoing complete redesign, starting with the Voxy/Noah launched in January 2014, thereby improving work efficiency.



OBD connector　　ISO-compliant disposition tool

While the position of the dedicated connector differs depending on the model, the standardized OBD connector located inside the dashboard can now be used for simultaneous activation of airbags

Development and Utilization of Plant-derived Ecological Plastic

Toyota has developed Ecological Plastic,* a plastic derived from plant material, for the world's first automotive application.

As a result, Toyota successfully used Ecological Plastic to cover 80 percent of the total interior surface area of the new SAI model launched in August 2013. Toyota also used recycled plastic materials extensively in the SAI, thereby achieving the goal of its Toyota Recycle Vision—establish a technology that enables 20 percent usage of ecological plastics and recycled resin materials in resin parts by 2015—ahead of schedule.

* This type of plastic is derived from plants that absorb CO_2 while growing. Its usage eliminates the CO_2 emitted during petroleum resource drilling and helps reduce the usage of petroleum resources.

Ecological Plastic Parts Used in the SAI

Material type	Plant-derived raw material	Applications
Injection-molding material	Polylactic acid (PLA)	Toolbox, cowl side trim, door scuff plate, finish plate
Base material	Polylactic acid (PLA) and kenaf fiber	Door trim ornament
Foam	Polyol derived from castor oil	Driver's seat cushion pad
Covering material	Plant-derived polyester	Ceiling, front pillar garnish, center pillar garnish, rear pillar garnish, sun visor
	Polylactic acid (PLA)	Trunk door trim, trunk trim, front/side/mat, rear light service hole cover
	Plant-derived polyethylene terephthalate (PET)	Seat covering, floor carpet, package tray trim

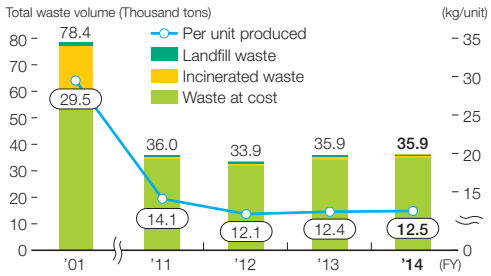
Production and Logistics: Reduce the Waste Volume and Use Resources Effectively in Production and Logistics Stages

Continuing to Conduct Activities Aimed at Reducing Waste Volume

In FY2014, Toyota Motor Corporation (TMC) continued implementing waste reduction measures such as sludge volume reduction. The total waste volume was 35,900 tons (down by 0.2 percent from the FY2013 level). On the other hand, because of a decrease in the number of vehicles produced in Japan (by 1.1 percent from the FY2013 level), the waste volume per unit produced was 12.5 kg (up by 0.9 percent from the FY2013 level).

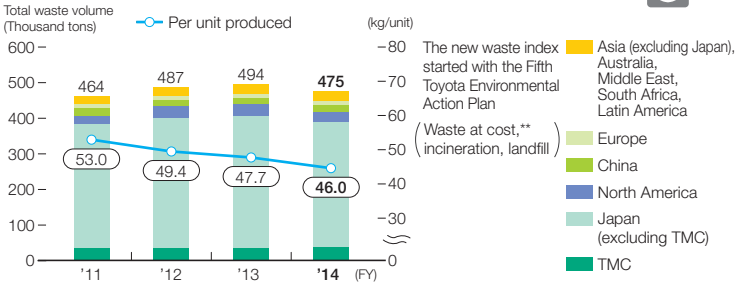
On the global level, Toyota is engaging in ongoing waste reduction activities, in coordination with diligent cost cutting. As a result, in FY2014, waste volume per unit produced was 46.0 kg (down by 3.7 percent from the FY2013 level) and the total volume of waste was 475,000 tons (down by 3.8 percent from the FY2013 level).

Total Waste Volume and Waste Volume per Unit Produced at TMC



Note 1: The total waste volume includes both production and non-production divisions (excluding employee benefit facilities)
Note 2: The total waste volume in production divisions covers the waste generated as a result of production activities
Note 3: Waste at cost: Waste that is recycled for a fee

Global Waste Volumes and Waste Volume per Unit Produced



* TMC and 120 companies (consolidated subsidiaries and other companies in Japan and overseas)
Japan: Companies listed in Groups 1-5 on page 11-03 (including sub-subsidiaries; excluding Toyota Tsusho)
Overseas: Production companies and production/sales companies listed on page 11-03 (excluding TMCAP in China)
** Waste at cost: Waste that is recycled for a fee

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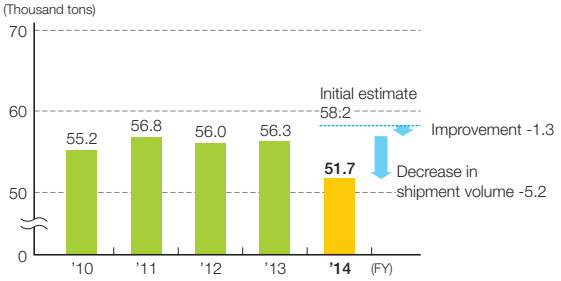
Continuing to Conduct Activities Aimed at Reducing Packaging and Wrapping Material Use

In order to reduce the use of packaging and wrapping materials, Toyota Motor Corporation (TMC) continued implementing measures that included simplifying wrapping specifications and expanding the use of returnable shipping containers. As a result of these measures, usage decreased by 1,300 tons. Together with the impact of a decrease in shipment volume and other factors, total usage was reduced to 51,700 tons. Usage of packaging and wrapping material per shipment unit was 6.98 kg/m³.

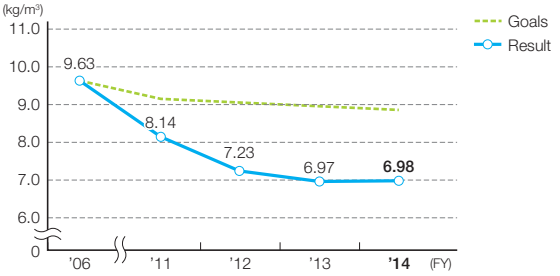
In FY2008, TMC began implementing measures to grasp the usage volume of packaging and wrapping material at affiliates worldwide. Assessments for all regions, excluding North America, have almost been completed. Because it has been difficult to assess the usage at suppliers in North America, TMC is currently reviewing the assessment method.

Usage of Packaging and Wrapping Materials by TMC (Japan)



Note: Past figures have been revised retroactively due to changes made from FY2014 to the calculation method, excluding packaging materials used for special shipment products

Usage of Packaging and Wrapping Material per Shipment Unit by TMC (Japan)



Note: Errors in previously published totals data have been corrected retroactively

Results of Activities to Reduce Usage of Packaging and Wrapping Material

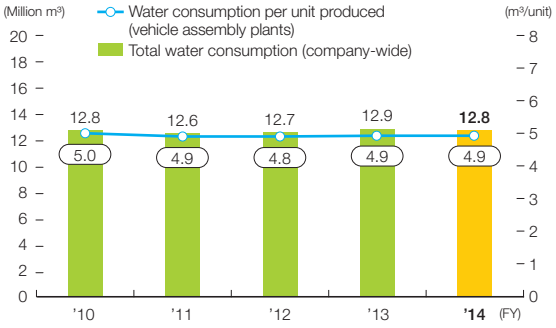
Improvement item	Products	Main details of activity	Reduction volume (thousand tons)
Simplification of specifications	Service parts	Increasing lean specifications for wrapping	0.7
		Changing packaging specifications, reuse etc.	0.1
	Production parts	Improvement of parts quantity per box, simplification of packaging specifications	0.2
Use of returnable containers	Service parts	Expanding the use of returnable containers	0.1
	Production parts	Expanding the use of returnable containers	0.2
Total			1.3

Continuing to Conduct Activities Aimed at Reducing Water Consumption

TMC continued activities to reduce water consumption in FY2014, for example, reducing steam usage in production processes. As a result, total water consumption was 12.8 million m³ (a decrease of 0.9 percent from FY2013). Water consumption per unit produced was 4.9 m³, a decrease of 1.0 percent from FY2013.

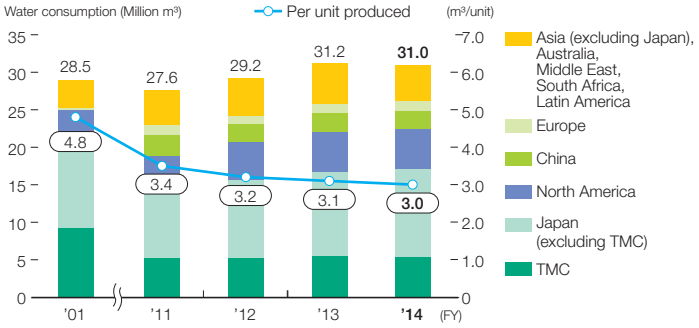
On the global level, Toyota is engaging in steady water conservation activities in response to the situation with the water environment in each country and region. As a result of initiatives including promotion of water recycling particularly in regions with scarce water resources, water consumption per unit produced was 3.0 m³ (a decrease of 2.9 percent from FY2013) and total water consumption was 31.0 million m³ (a decrease of 1.2 percent from FY2013).

Total Water Consumption and Consumption per Unit Produced at TMC



Note 1: The total water consumption includes both production and non-production divisions (excluding employee benefit facilities)
Note 2: Water consumption per unit produced indicates the consumption per unit produced at vehicle assembly plants

Global Water Consumption at Vehicle Assembly Plants and Consumption per Unit Produced



Note 1: TMC's assembly plants and 37 companies (consolidated subsidiaries and other companies in Japan and overseas)
Note 2: Companies added to the scope of calculation in FY2013

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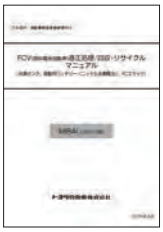
Sales and Recycling: Strengthen Measures to Promote the Effective Use of Resources

Steady Progress in Recycling at Dealers and Parts Distributors

Promoting the Collection and Recycling of Damaged and Removed Parts

Toyota dealers and parts distributors nationwide are promoting recycling as much as possible in their use stage of vehicles through initiatives including the collection of damaged and removed parts such as bumpers and lead from wheel balance weights, using tanker trucks in order to reduce drums for transporting oil and promoting the sales of used parts.

Before commercially launching the FCV MIRAI in December 2014, Toyota had established conditions that would enable automobile dismantlers to safely and effectively process and recycle its end-of-life batteries, hydrogen tanks, etc. As part of this process, Toyota created the *Manual for Proper Disposal, Collection and Recycling of FCVs*.



Manual for Proper Disposal, Collection and Recycling of FCVs

Focus

Supporting Dismantlers in Parallel with Development of Technologies for Properly Processing FCV Hydrogen Tanks

In addition to thoroughly explaining the process to automobile dismantlers by providing them with the *Manual for Proper Disposal, Collection and Recycling of FCVs*, Toyota is developing technologies for properly processing FCV hydrogen tanks. For now, to support the market, Toyota has formed teams that assist dismantlers, bringing provisional dismantling tools and teaching dismantlers all the necessary technical steps, from removing the hydrogen gas to pulverizing gas containers.

Promoting the Recycling of End-of-life Batteries

Since launching the Prius—the world's first mass-produced hybrid passenger vehicle—in December 1997, Toyota has built its own recovery network to collect end-of-life hybrid vehicle (HV) batteries to be recycled. As of March 31, 2015, Toyota has collected approximately 42,000 end-of-life HV batteries and is recycling all of them.

HV batteries contain precious resources such as nickel, cobalt, and rare earth elements. Toyota is developing the world's first vehicle-to-vehicle recycling technologies to enable these precious resources to be reused in new batteries.

Because it is expected that tens of thousands of end-of-life HV batteries will be generated by the middle of the 2020s, Toyota has also developed the world's first technologies for reusing those HV batteries. The batteries are reused as replacement batteries or as stationary storage batteries in photovoltaic power generation systems.

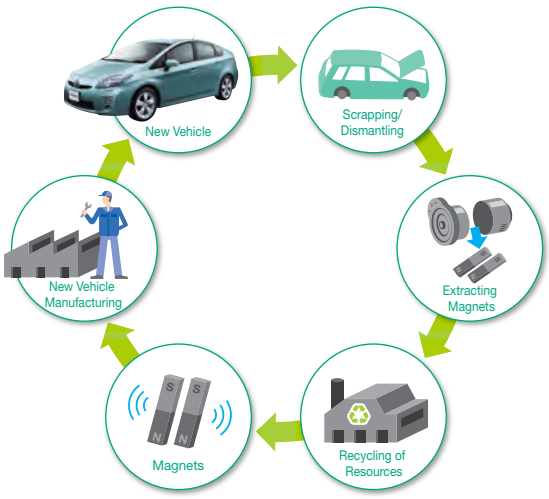
Toyota further plans to promote the skillful reuse of batteries from end-of-life vehicles as part of measures to utilize renewable energy in an environmentally considerate manner. When even these reused batteries finally reach the end of their use cycle, their metal parts are recycled into new batteries again.

Recovery of Neodymium and Dysprosium from HV Motors

Neodymium and dysprosium, two types of rare-earth elements, are used to make magnets. Toyota is working on the research and development of a motor that uses as little as possible of these rare-earth elements and is also developing vehicle-to-vehicle recycling technologies. It is collaborating with magnet manufacturers to launch a world-first recycling system for extracting neodymium and dysprosium from end-of-life HV motors to be reprocessed back into new magnets.

In FY2012 and FY2013, Toyota affiliates Toyota Metal Co., Ltd. and Toyotsu Recycle Corporation received support from the New Energy and Industrial Technology Development Organization to conduct a verification project. They have now installed equipment for separating magnets from motors and have developed related recycling technologies. Since February 2012, a total of 17 tons of magnets had been collected.

Toyota's Goal of Vehicle-to-Vehicle Magnet Recycling



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Vehicle-to-Vehicle Recycling of Copper Resources in Wiring Harnesses

Copper is used in power transmission and other wiring, but roughly 40 years' worth of mineable copper resources remain worldwide and demand for wiring in emerging nations is increasing. In addition, large amounts of copper are used in the motors of hybrid and other next-generation vehicles, which are expected to become increasingly popular going forward.

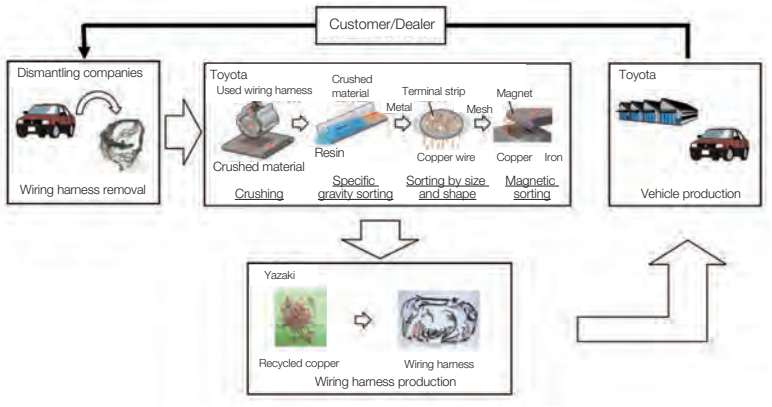
For these reasons, recycling the copper used in wiring harnesses has become a critical issue for the automotive industry. Toyota has therefore collaborated with Yazaki Corporation, Toyota Tsusho Corporation and seven of Toyota Tsusho's dismantling partners in the Chubu region of Japan to develop vehicle-to-vehicle recycling technologies.

In 2011 Toyota developed the world's first mechanical sorting method that can prevent contamination from minute impurities. Trial production involving small amounts of recycled copper began at Toyota's Honsha Plant in 2013, with the prospect of being able to stably produce copper with a purity of 99.96 percent being evident in March 2014. Since April 2013, a cumulative total of 80 tons of wiring harness has been collected.

The Seven Dismantling Companies in the Chubu Region of Japan (in random order)

Company name	Location
New Iwata Corporation	Ichinomiya City, Aichi Prefecture
Johoku Jidosya Kogyo Co., Ltd.	Kasugai City, Aichi Prefecture
Auto Recycle Sanri	Toyota City, Aichi Prefecture
Morita Sharyo Corporation	Handa City, Aichi Prefecture
Yamauchi Shouten Co., Ltd.	Inazawa City, Aichi Prefecture
Kobayashi-shouten Inc.	Tsu City, Mie Prefecture
Marudai Sangyo Corporation	Ina City, Nagano Prefecture

Flow of Vehicle-to-Vehicle Recycling

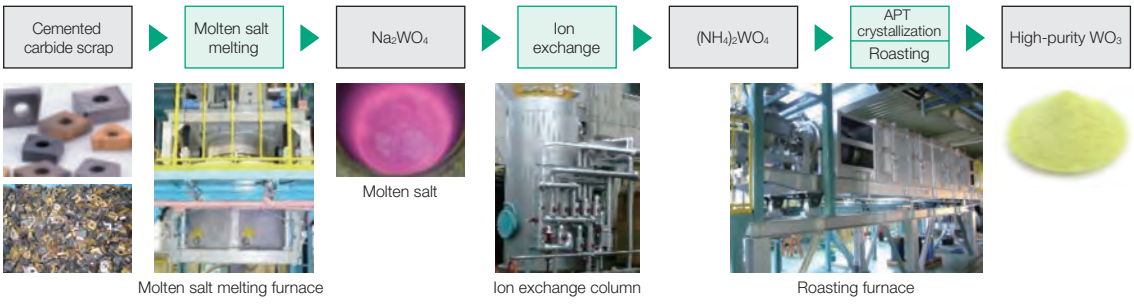


Tungsten Recycling

In order to reduce the impact automobiles have on the environment, the entire Toyota Group has been actively developing recycling technologies and building a collection system. More recently, the Group has been working on recycling nickel-metal hydride batteries used in hybrid vehicles, as well as rare metals.

Additionally, in an effort to recycle rare metals used in products other than vehicles, Toyota collaborated with Sumitomo Electric Industries, Ltd. in 2010 to establish a business venture involving a system for recycling tungsten, which is used in cemented carbide tools, etc. One hundred percent of the tungsten used in Japan is imported and 80 percent of cutting tips of cemented carbide tools use tungsten. By sorting and collecting end-of-life cemented carbide tools generated at Toyota plants, the venture recovers and re-uses 100 percent of the tungsten they contain. By the end of March 2015, approximately 116 tons of tungsten had been recycled.

Tungsten Recycling Flow

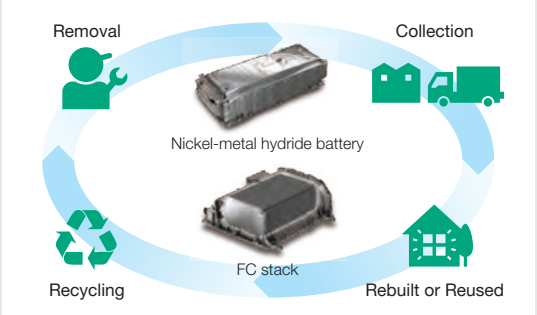


Focus

Established FC Stack Collection and Recycling Framework to Recycle Rare Metals

The FC stack installed in the MIRAI uses rare metals such as platinum. Therefore, in conjunction with the launch of the MIRAI in December 2014, Toyota established the world's first FC stack collection/recycling framework, thereby expanding the resource recycling circle.

FC Stack Collection and Recycling Framework



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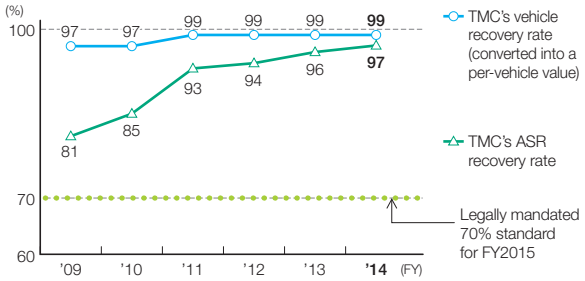
Ensuring Compliance with the End-of-life Vehicle Recycling Law in Japan

Toyota has been steadily working with dismantling and recycling companies to ensure compliance with the Japanese End-of-life Vehicle (ELV) Recycling Law that went into effect in January 2005. Toyota collects and treats CFCs/HFCs, recycles/recovers airbags and automobile shredder residue (ASR[1]) from end-of-life vehicles.

In FY2014, the ASR recovery rate was 97 percent and the vehicle recycling rate[2] converted into a per-vehicle value, reached 99 percent.

[1] Residue after vehicles are shredded
[2] Calculated by adding to the percentage recycled and recovered up to the dismantling and shredding processes (approximately 83%, quoted from the April 2003 joint council report) the remaining ASR rate of 17% × ASR recovering rate of 97%

Toyota Motor Corporation's (TMC) Vehicle Recovery Rate[2] and ASR Recovery Rate in Japan



Compliance with End-of-life Vehicle Recycling Laws Overseas

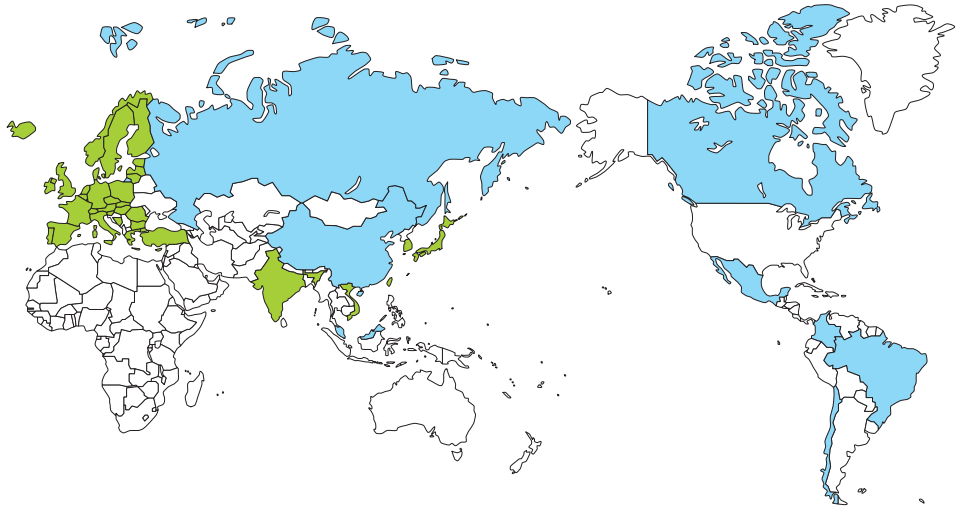
All EU member states have established vehicle recycling laws based on the EU ELV Directive enacted in 2000, and as of January 2007 automakers started to take back end-of-life vehicles (ELVs) in most member states. In cooperation with Toyota Motor Europe (TME) and distributors in Europe, TMC completed the construction of ELV collection networks in 28 EU member states.

In China, the Recycling Working Group, under the Toyota China Environment Committee, is working closely with local affiliates to promote compliance activities with local automobile recycling laws through measures such as ascertaining regulatory trends and surveying local infrastructure conditions. At the end of February 2014, a plant was opened in Beijing with 32 percent investment by Toyota Tsusho Group, with the goal of becoming a model dismantling plant for ELVs in China. It processed approximately 10,000 vehicles in FY2014. In the future, similar plants are planned for other areas of China in step with progress in the establishment of applicable laws in Chinese society, such as enforcement of automobile recycling laws.

Legislation Status

Status	Country/Region	Legend
Enacted	EU, EFTA*, Japan, Taiwan, South Korea, Turkey, India, and Vietnam	
Under study	Russia, Malaysia, Singapore, China, Canada, Mexico, Brazil, Chile, and Colombia	

* Switzerland, Norway, Iceland, and Liechtenstein



Focus

Toyota Motor Manufacturing France (TMMF): In Pursuit of Zero Purchased Industrial Water

A Continuous Effort to Reduce Purchased Industrial Water

Industrial water is used for all production processes in vehicle manufacturing. Next to energy and waste, it is one of the biggest environmental impacts the automotive industry has. TMMF, home of the new generation Yaris and Yaris Hybrid, serves as an overseas model for "sustainable plant" activities with regard to purchased industrial water use for vehicle production.

A couple of years ago, TMMF took a close look at how much they could reduce water consumption without affecting vehicle quality. Thanks to strong collaboration within the different shops at the plant, they reduced industrial purchased water from 3,000 liter/vehicle to 1,689 liter/vehicle.

Then, the teams at TMMF started wondering if some of the wastewater could be recycled instead of using fresh industrial water. So they embarked into looking at the quality of the discharge water and seeing how it could be recycled. By changing some processes this led to a further reduction achieving 1,362 liters.

TMMF

Collecting Rainwater in Pursuit of Zero Purchased Industrial Water

In the spirit of continuous improvement, TMMF next looked into using rainwater instead of industrial water. Averaging 172 days of rain, they thought it would make sense to capture some of this rain. By investing in a rainwater collector, purchased industrial water fell to 789 liter/vehicle.

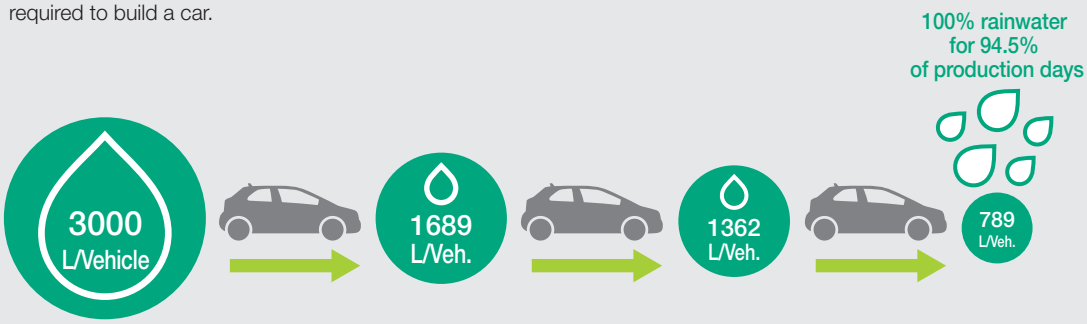
With this, TMMF had already positioned itself as a benchmark for Toyota Manufacturing worldwide with regard to water use. However, TMMF still wanted to pursue their ultimate goal: "Zero Purchased Industrial Water" for vehicle production. Having had excellent experience with the first rainwater collector, TMMF invested in a second water collector, but this was still not enough.

The only way to challenge Zero Purchased Industrial Water was to further increase wastewater recycling. However, in 2014, recycling levels went down, due to one of the wastewater quality parameters being constantly above normal. In true Toyota Way style, a systematic analysis was done to find the root cause of this, the relevant shops worked together to bring the quality parameters back to normal in order to increase the recycling rates. Proudly, TMMF had an amazing result of only 12 days of purchased industrial water. That is to say that no purchased industrial water was necessary for 94.5% of the total production days.

For this journey and its outstanding achievement for water management in 2014, Toyota Motor Corporation awarded TMMF the Platinum Award for On-site *Kaizen* Activity.

TMMF continues to work hard to further reduce the water required to build a car.


TMMF members, winners of the Platinum Award for On-site *Kaizen* Activity



Environmental Protection and Contribution to a Harmony with Nature Society

Basic Approach to Environmental Protection and Contribution to a Harmony with Nature Society

Modern society is built upon the bedrock of our natural environment, cultivated by and inherited from our ancestors. To be able to pass this beautiful, rich natural environment to our children, we must do all we can to solve air pollution and other issues. We must also protect the biodiversity cultivated in our natural environment, formed and evolved over our long history.

Toyota is implementing various environmental protection measures, including measures to reduce exhaust gas emissions and manage the usage of chemical substances. It is also aware of the critical need for nature and biodiversity conservation, and is engaged in contributing to a society in harmony with nature through its automotive business and social contribution activities.

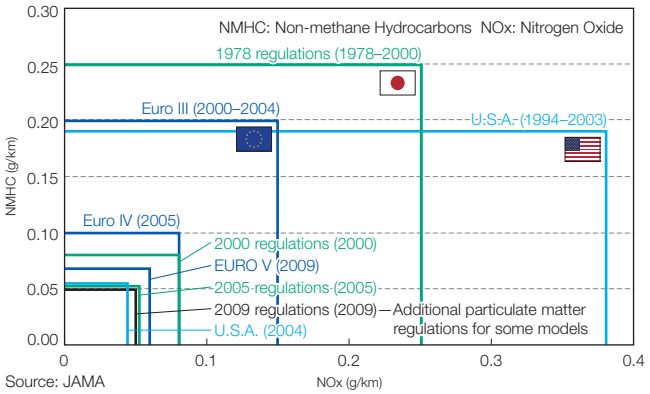
Although Toyota has continued to improve the air pollution situation in Japan and has greatly reduced exhaust gas emissions from vehicles, the company is still working hard to develop low-emission technologies, which it is expanding globally, and to reduce Volatile Organic Compounds (VOCs).

In relation to Substances of Concern (SOCs) Toyota is continuing to reduce the release of chemical substances, covered by the Pollutant Release and Transfer Reister Law (PRTR Law), from its plants. Additionally, in cooperation with its supply chain, Toyota is working to reduce the amount of SOCs contained in its products.

In line with guidelines compiled in 2008, Toyota is implementing concrete initiatives for biodiversity.

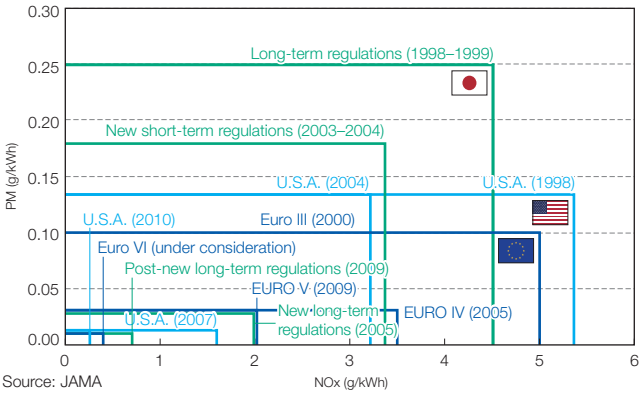
With full awareness of the history of local residents, communities and nature, and with their interaction with businesses, Toyota is promoting community contribution activities in order to help build prosperous local communities.

Emission Regulations for Gasoline-Powered Passenger Cars: Japan/U.S.A./EU Comparisons



Source: JAMA

Heavy-Duty Diesel Vehicle Emission Regulations: Japan/U.S.A./EU Comparisons



Source: JAMA

Toyota's Basic Stance toward Managing Usage of Chemical Substances

Production

Primary and secondary materials used in vehicle production

- Air Pollution Control Law
- Water Pollution Control Law
- PRTR Law, etc.

Products

Substances in products and parts

- European ELV[1] Directive and REACH[2] Regulation (SOC standards)
- JAMA voluntary commitments
  (Four SOCs: lead, mercury, cadmium and hexavalent chrome) etc.

Sales

Substances related to after-sales service

- Body paint
- Long-life Coolant (LLC), etc.

[1] End of Life Vehicles
[2] Registration, Evaluation, Authorisation and Restriction of Chemicals

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Major Initiatives during FY2014

Development and Design: Reducing Vehicle Exhaust Emissions to Improve Urban Air Quality

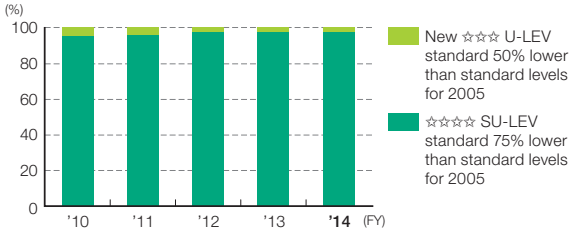
Vehicles that Meet Japanese LEV Emission Standards

In FY2014, almost 100 percent of Toyota vehicles produced were certified as meeting the Ultra-Low Emission Vehicle (U-LEV) or higher standards by the Japanese Ministry of Land, Infrastructure, Transport and Tourism.

Percentage of Total Production in FY2014 that Qualifies as LEVs Based on 2005 Exhaust Emissions Standards

Classification	Reduction level	Percentage of total production
New☆☆☆ U-LEV standard	50% lower than standard levels for 2005	2.4%
☆☆☆☆ SU-LEV standard	75% lower than standard levels for 2005	97.4%

Low-Emission Vehicles as a Percentage of Total Production in Japan



FY2014 Vehicles that Meet Japanese LEV Emissions Standards

Low-emissions level	★★★★ SU-LEV	★★★ U-LEV
Vehicle series	No. of models	No. of models
Esquire	3	0
Lexus RC	3	0
Lexus NX	4	0
Alphard	5	0
Vellfire	5	0
Total	20	0

Focus

Helping Emerging Nations in Asia Achieve Sustainable Development by Assessing the Actual Level of Their Worsening Air Pollution

As the economy of emerging nations in Asia has grown rapidly, air pollution there has become serious. In many cases, one of the causes is the fact that these nations have not sufficiently understood the actual level of air pollution and its sources, which is necessary if effective and rational air pollution countermeasures are to be developed. Therefore, Toyota Motor Corporation, in cooperation with IIASA,[1] and Toyota Central R&D Labs, started the Toyota Ozone Project (TOP) in 2008, targeting China and India. In 2013, the project was expanded in scope to include Thailand and Indonesia, continuing its activities under a new name, the Toyota Clean Air Project (TCAP).

The key steps in studying the atmosphere are: (1) collecting data such as energy usage, (2) building an emissions inventory,[2] (3) running atmosphere simulations, and (4) considering and evaluating air pollution countermeasures. IIASA and Toyota Central R&D Labs have been transferring their expertise on building emissions inventory and simulation technologies, respectively, to research institutions in the individual countries. Technological assistance for China ended in FY2014. The project activities will continue in the future with a focus on Thailand and Indonesia.

[1] International Institute of Applied Systems Analysis
[2] Database that organizes the volume of air pollutants and their sources, as well as their spatial and temporal distribution

Development and Design: Strengthen the Management of Chemical Substances Contained in Products

Management and Reduction of Four Key SOCs

All of Toyota's production affiliates in Japan and overseas are completely eliminating the use of the four key substances of concern (lead, mercury, cadmium, and hexavalent chrome). In October 2013, the United Nations adopted the Minamata Convention on Mercury, which bans the manufacture and import/export of products containing mercury as a rule beginning in 2020. However, mercury has already been eliminated from automobiles.

Status of Initiatives to Eliminate the Usage of the Four Key SOCs

Four key SOCs	All production affiliates in Japan	Major overseas plants
Lead, mercury, cadmium and hexavalent chrome	Eliminated*	Eliminated*

* Excluding uses exempt under laws and regulations in each location

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Ensuring Compliance with REACH and Other Global Regulations on Chemical Substances

Following the World Summit on Sustainable Development, held in Johannesburg in 2002, and adoption of the Strategic Approach to International Chemicals Management (SAICM), there have been an increasing number of chemical substance management regulations being implemented globally. The international trend in regulations on chemical substances is changing from one of hazard management, which focuses only on the toxicity of individual substances, to one of risk management, which takes into consideration the degree of impact on people, plants and animals. For this reason, it is now necessary to also consider in what sort of situation the chemical substances are being used. In addition to the Japanese Chemical Substances Control Law, and the European ELV Directive[1] and REACH Regulation,[2] North America and Asia are introducing their own regulations on chemical substances.

These regulations require corporations to collect information on the chemical substance content of their products and manage their supply chains. Toyota has built and is operating a chemical substance management framework in cooperation with its suppliers.

In FY2014, in view of the European REACH Regulation, Toyota strengthened its system for determining whether a substance included in the Authorization List is being used and disclosed pertinent information. It also worked to reduce the use of the substances included in the Authorization List in its vehicle parts.

[1] European directive on end-of-life vehicles
[2] European regulation on registration, evaluation, authorization and restriction of chemicals

Toyota Green Purchasing Guidelines Published around the World

Production and Logistics: Reduce Substances of Concern (SOC) in Production Activities

Reduction of VOC Emissions in Body Painting Processes

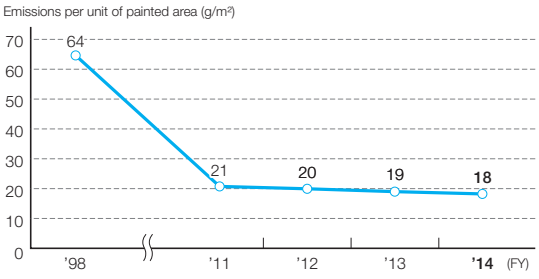
Purpose of Activities

Volatile Organic Compounds (VOCs) are one of the causes of photochemical oxidation, the cause of photochemical smog. Toyota Motor Corporation (TMC) is promoting initiatives to reduce VOCs emitted in the painting process.

Progress in FY2014

TMC has continued its efforts to limit the use of solvents in washing processes and to recapture a larger percentage of solvent, while also actively switching to water-borne paints. As a result, it has reduced total VOC emissions from TMC body paint lines to 18 g/m².

Trends in VOC Emissions Volume in TMC Vehicle Body Painting Processes (Average for All Lines)



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Promoting Measures in Accordance with the Toyota Biodiversity Guidelines

Purpose of Activities

Biodiversity delivers many benefits in the way of blessings from nature. However, some sources say approximately 40,000 species are becoming extinct annually, possibly due to overexploitation of rare species and destruction of ecosystems, including forests, posing a major threat to global biodiversity. In 1992, the United Nations Conference on Environment and Development, informally known as The Earth Summit, was held in Rio de Janeiro, Brazil, where two conventions were adopted addressing important global environmental issues: The Convention on Biological Diversity and The United Nations Framework Convention on Climate Change. In 2010, the Conference of the Parties to the Convention on Biological Diversity (COP10) was held in Nagoya city, Aichi prefecture, where parties agreed on a number of issues such as the Aichi Biodiversity Targets, common targets to halt the loss of biodiversity, and the Nagoya Protocol, providing a framework for access to genetic resources and the fair and equitable sharing of benefits arising from their utilization.

Ahead of the COP10 conference, Toyota formulated the Biodiversity Guidelines in March 2008, based on Toyota Guiding Principles, as part of activities aimed at realizing a sustainable global environment and society. The Guidelines specify our fundamental approach to support biodiversity through three initiatives: contribution through technology; collaboration and cooperation with society; and information disclosure. Based on the Guidelines, Toyota is to conduct and coordinate a range of activities towards realization of real biodiversity.

Presentations at the Eco-Products Exhibition

Progress in FY2014

In FY2014, Toyota continued to steadily implement existing initiatives with a focus on considering future-oriented initiatives, such as a long-term environmental vision and the Sixth Toyota Environmental Action Plan, and participating in the World Conference on Education for Sustainable Development (ESD) held by the United Nations Educational, Scientific and Cultural Organization (UNESCO), in November 2014.

May 2014	As in 2013, the Toyota Environmental Activities Grant Program meeting was held to exchange project results. Six environmental organizations were chosen among grantees, with major focus on environmental education and human resource development, to present their activities in anticipation of the ESD World Conference in November 2014. Individual consultations on grant application were also offered.
August 2014	Staff members of overseas affiliates who are in charge of working in harmony with nature are invited to Toyota Shirakawa-Go Eco-Institute from North and Latin America, Europe, Asia and other regions to exchange their views on global initiatives towards harmony with nature and further intra-group collaboration for the Sixth Toyota Environmental Action Plan.
November 2014	The three-day UNESCO ESD conference was held in Nagoya city, Aichi prefecture from November 10 to 12. Approximately 1,000 people from all over the world attended the conference to review the UN's past 10 years (2005–2014) of ESD activities and discuss measures to be taken starting in 2015. The Aichi-Nagoya Declaration was unanimously adopted. Toyota's activities included: exhibiting a fuel cell vehicle (FCV) at the conference venue, offering tours of the Motomachi Plant and the Forest of Toyota, collaborating with the Keidanren Committee on Nature Conservation to install an exhibit in the Keidanren booth and hold Keidanren seminars at the conference venue, and participating in seminars given by grantees of the Toyota Environmental Activities Grant Program.
December 2014	Toyota set up an exhibition booth with a presentation space at the Eco-Products Exhibition. Staff from the Forest of Toyota and the Toyota Shirakawa-Go Eco-Institute provided information on Toyota's environmental activities such as the environmental education program, and organized quiz events for around 460 attendees during the three-day event.
May 2015	The first session of the All-Toyota Working-in-Harmony-with-Nature Working Group was held on May 29. The responsible staff from approximately 20 Toyota Group companies discussed measures to strengthen collaboration, such as sharing the Toyota Biodiversity Guidelines and forming an ecosystem network in Aichi prefecture.

Main Examples of Toyota's Biodiversity Conservation Activities

Classification	Action Item	Details
Contribution through technology	Measures to help prevent further global warming	• Improved fuel efficiency on a global scale • Reduced CO_2 emissions in production and logistics activities
	Measures to reduce atmospheric pollution	• Reduced emissions of vehicle exhaust gases • Reduced VOC emissions
	Promotion of resources recycling	• Recycling of rare metals and rare earth elements • Expanded the use of recyclable materials
	Afforestation activities at plant sites	• Planted native vegetation types in Toyota plants in Japan and overseas
	Reforestation	• Developed optimal forest thinning techniques (Mie prefecture)
	Initiatives for new Toyota R&D Center site	• Engaged in conservation of habitats for rare animals and plants • Undertook environmental improvements around *yatsuda* rice paddies • Conducted maintenance of *satoyama*
Collaboration and cooperation with society	Environmental education and the protection of rare species	• Education for Sustainable Development at Toyota Shirakawa-Go Eco-Institute and Forest of Toyota • Hosted a tour of the Forest of Toyota for participants of the ESD World Conference
	Toyota Environmental Activities Grant Program	• Awarded grants to projects tackling biodiversity and/or global warming issues • Introduction of this program at environment-related events (ESD World Conference, etc.) and establishment of a small-scale grant framework in order to raise awareness and promote applications • Reportage on assistance cases in specialized environmental journals to promote the activities of support organizations
	Initiatives for new Toyota R&D Center	• Provided information to be used for local governments' environmental measures
Information disclosure via reports and the Internet	Reports and website	• Disclosed information on Toyota's environmental initiatives in the report "Respect for the Planet—Toyota's Environmental Initiatives" and on the Toyota website
	Strengthened communication with relevant organizations	• Implemented Toyota's environmental education programs and other activities at the Eco-Products Exhibition • Provided information on hands-on nature programs of the Shirakawa-Go Eco-Institute at the Junior Eco-clubs' All-Japan Festival
	Initiatives for new Toyota R&D Center	• Published reports on survey findings in academic journals and gave presentations at academic conferences

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Focus: Initiative for Conserving Biodiversity

Initiatives at the New Toyota R&D Center Promoting Harmony with the Natural Environment and Local Communities

In order to develop sustainable next-generation mobility, Toyota is proceeding with plans to construct a new R&D facility in Toyota City and Okazaki City. In pursuing this project, Toyota set out to build a technical center that operates in harmony with both the natural environment and local communities. About 60 percent of the total project site will be preserved as areas for the regeneration of forest and restoration of *yatsuda* rice paddies, and their management. Toyota is also actively sharing information that includes the status of these initiatives and the knowledge gained through them.

Site map of the new R&D Center

Progress in FY2014-(1): Wild Bird Conservation Activities—Owls Using Installed Nest Boxes

The declining number of wild birds has long been a problem of great concern and one of its causes has been the lack of tree hollows that birds can use for nesting. While many wild birds nest in tree hollows, the number of forests with large mature trees that are thick enough for hollows to form is on the decline. As a result, the nesting environment for these wild birds is considered insufficient.

Although the conservation area at the new Toyota R&D Center includes a site aimed at maintaining mature trees, it will take many years until these trees grow enough to have hollows. Therefore, as a part of wild bird conservation efforts, Toyota has been installing nest boxes as an alternative to natural hollows. In FY2012, we established a joint program with a conservation group, selecting four species of endangered birds in the area (Mandarin Duck (*Aix galericulata*), Ural Owl (*Strix uralensis*), Oriental Dollarbird (*Eurystomus orientalis*) and Eurasian Treecreeper (*Certhia familiaris*)) as the targets of our conservation efforts using nest boxes. We have been building and installing nest boxes that match the types of tree hollows utilized by each of these species. In FY2014, two pairs of Ural Owls began using nest boxes and safe fledging was confirmed. We plan to continue this activity to help conserve the wild birds in the region.


Nest box for Ural Owls and fledgling

Species targeted for conservation and reasons for their selection

Mandarin Duck
Despite the dwindling nesting habitat in the region, some individuals have been confirmed to inhabit the area surrounding the R&D Center site

Oriental Dollarbird
Although the number of breeding occurrences in the region has been extremely small, some individuals have been confirmed to inhabit the R&D Center site

Ural Owl
Despite the dwindling nesting habitat in the region, some individuals have been confirmed to inhabit the R&D Center site

Eurasian Treecreeper
Although the number of breeding occurrences has been extremely small in the region, some individuals have been confirmed to inhabit the R&D Center site

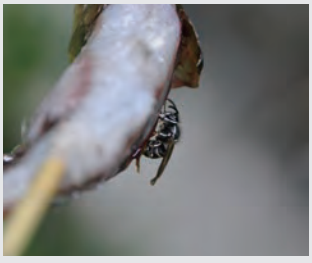
Photo courtesy of Aichi Public Enterprise Bureau

Progress in FY2014-(2): Local Junior High School Students Participate in Survey of Wasps

Wasps (*Vespula*) are prey for the crested honey buzzard, a bird of prey that is an indicator species in the *satoyama* environment surrounding the new Toyota R&D Center site. In addition, wasp pupae (locally called "*hebo*") have also been traditionally harvested and eaten in the region. With the assistance of local junior high school students and the cooperation of the Toyota Forestry Association, we set out in FY2014 to survey wasps, in order to conserve the indicator species and preserve a local cultural tradition.

In the survey, a piece of chicken tender or raw fish attached to the tip of a bamboo pole was used as bait, and participants recorded the types of wasps that landed on baits, the number of individual wasps spotted at site, and the time they were spotted flying. The participants also got to experience *hebo* hunting, in which a wasp is allowed to carry off marked bait so that the hunters can locate its nest. The junior high school students who participated in the survey offered comments such as, "I was surprised how easy it is to catch a wasp" and "I was afraid of the wasps in the beginning, but came to like it." The principal of the junior high school eagerly stated, "I hope we will continue to collaborate with each other in many ways." This joint survey will be continuously carried out in the future as part of an environmental learning program, creating summaries of the changes that occur over time and the habitat situation, which will be utilized as data for environmental conservation.


Survey of Wasps


Wasp (*Vespula shidai*) lured to a piece of raw fish

Toyota Shirakawa-Go Eco-Institute Widely Promotes Locally Rooted Environmental Education Programs that Value Nature's Wisdom

The Toyota Shirakawa-Go Eco-Institute, located in the World Heritage site Shirakawa-Go, was opened in April 2005 with the goal of promoting environmental education. The institute is managed in collaboration with the Shirakawa Village and environmental NGOs. With the aim of promoting harmonious coexistence with nature and local communities, the institute is enhancing and widely promoting locally rooted environmental programs.

Progress in FY2014: Program Enhancement to Provide First-Class Education and Emotional Experiences

Situated in a rich natural environment below Hakusan (Mount Haku), the Toyota Shirakawa-Go Eco-Institute offers hands-on nature programs to the children who are our future and to the Shirakawa Village's many visitors. It also conducts ecological wildlife surveys and engages in forest conservation activities. The number of people who stayed overnight in FY2014 reached its highest ever figure of 14,651. Since the institute opened in 2005, it has welcomed a total of 155,000 guests and received feedback that their stays provided them an opportunity to think about coexistence with nature and environment.

On June14, 2015, a commemorative ceremony was held to mark the 10th anniversary of its opening. The ceremony was attended by invited guests from the local community of Shirakawa Village and representatives from Toyota and other organizations, who were thanked for their day-to-day understanding and support of the institute's activity. Additionally, Director of the Institute, Toshiyuki Yamada, newly appointed in April 2015, spoke of the institute's journey over the last 10 years and the direction of its activities for the coming 10 years.

For the next 10 years, the Institute will seek to further enhance and expand its hands-on nature program to provide "First-class education and emotional experiences," a basic concept revised in 2013 to embrace increasing environmental awareness and needs of local community. Around the newly adopted theme of "shared education" in other words, growing and learning together toward the harmonious coexistence the institute will seek to move beyond its previous goal of creating opportunities to think about coexistence with nature, to provide opportunities and education to enable individuals to understand and take action toward coexistence on their own initiative. To this end the Institute strengthens its programs in hands-on environmental education as part of initiatives to step up to a new level of social contribution activity.

Key phrase of the last 10 years: Coexistence

Achievements: (1) Implementation of environmental education in the natural environment of Shirakawa Village
(2) Coexistence with the local community
(3) Operation of an environmental institute providing satisfying experiences to both children and adults

Key phrase for the next 10 years: Toward coexistence through shared education

Shared education which leads to the realization of harmonious coexistence

For children	For adults
Shared education for personal development	Spiritual relaxation and physical vitality
Genuine quality education that complements school education	Achieve a true sense of physical well-being through guided nature trails
Keywords: Hands-on experience/ challenge/awareness Camps	Keywords: Emotional experience/ enjoyment/lifestyle Long trails

A place for simultaneous realization

Hands-on experience of nature

Key Phrase Trail walking for adults. Forest play helps kids grow stronger.

Main Programs for the Future

Developing strength of character, spirit of adventure, and team spirit

Children's Camps

Children's camps consist of four different programs. The Eco-Institute Forest Camp teaches the outdoor skills of handling knives, ropes, and fire and develops creativity and resourcefulness. In the Hidden Land of Sleeping Dinosaurs Camp, children search for fossils under the guidance of experts to develop a sense of intellectual adventure. In the Togetherness Camp, children stay in a thatched-roof *gassho-zukuri* house which they build themselves, and, through contact with others, develop a sense of gratitude and consideration and a spirit of mutual help. In the Spring Forest Snow Camp, children from the city learn to develop a spirit of challenge.

Togetherness Camp

Experiencing natural wilderness and traditional culture

Shirakawa-Go and Hakusan Trekking

The Eco-Institute is surrounded by many places where trekking offers the opportunity for encounters with natural wilderness, from the World Heritage site of Shirakawa-Go to the sacred site of Hakusan. From complete beginners to experienced mountain walkers, the Institute offers trekking courses adapted to ability and preference, as well as history and culture encounter programs that tour the *gassho-zukuri* villages of the Shirakawa-Go district. The Hakusan climb for experienced walkers is a program accompanied by a certified guide from the Japan Mountain Guides Association that stretches over three days and two nights and includes an overnight stay in a mountain hut, providing a sense of achievement, spiritual relaxation, and physical well-being.

Snow trekking

Rich experiences of nature including the precious resource of primeval beech forest

Hakusan National Park and Oshirakawa

The area around Hakusan is designated a national park, and the area known as Oshirakawa on the slopes of the mountain, although not particularly well known, has one of the area's richest natural environments. With its primeval forest, including beech and Mongolian oak trees several hundred years in age, and the sights of Lake Hakusui and the majestic Shiramizu waterfall, it offers encounters with untouched, untamed nature that provide spiritual relaxation and a lesson in the importance of the natural environment.

Oshirakawa/Lake Hakusui

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Toyota Environmental Activities Grant Program

Outline and Purpose of Program

The Toyota Environmental Activities Grant Program was inaugurated in 2000, commemorating Toyota's receipt of the prestigious Global 500 Award, to further demonstrate Toyota's responsibility for the environment and sustainable development. Since then, as part of its social contribution activities, Toyota has been conducting the Grant Program to support environmental activities implemented by NPOs and other non-profit private groups.

Scope of Grant Projects

In the belief that "*monozukuri* is about developing people," Toyota is supporting the activities of non-profit organizations that promote projects to foster individuals seeking solutions of environmental issues, and to contribute to practical problem-solving for those issues (grant themes: biodiversity conservation and global warming).

Examples of Grant Recipient Projects in FY2014

Taiwan

Green Holiday in Taiwan: International Exchange Volunteer Program to Protect Swallows

Wild Bird Society of Japan

The swallow, which migrates between Japan and Southeast Asia, is a much-loved symbol of good fortune in Taiwan too. For the swallow, Taiwan is a breeding ground, a migration staging post, and an overwintering ground. Taiwan's cities are surrounded by richly verdant agricultural landscapes of the kind that were once a common sight everywhere in Japan. But here too, residential and other development has brought progressive environmental change in recent years.

Green Holiday in Taiwan is a volunteer program open to the general public in Japan. Participants join with Taiwanese NGOs and children to engage in wetland preservation activities while at the same time observing swallows. As well as promoting international cooperation to protect swallows, the program aims to preserve the biodiversity of wetlands and other familiar environments under the symbol of the swallow.

Removing duckweed to create a friendlier habitat for dragonflies and other insects that swallows feed on

Japan

Basic Research on the Raccoon, a Non-native Species that Threatens the Biodiversity of Woodland around Shrines, and Educational Activities to Promote Solutions

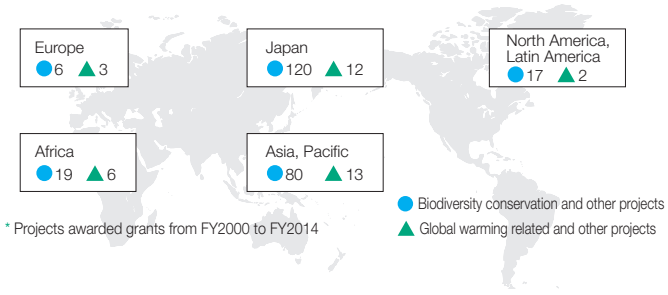
Kansai Wildlife Research Association

Although it is a non-native species, the raccoon has been found to be reproducing naturally at various sites throughout Japan, causing serious damage to agricultural crops. There is also concern over its impact on the reproductive environment of other animals, notably because it preys on unique native species. In many of the afflicted areas, however, the actual situation of the raccoon and methods of dealing with it are not understood. The conduct of a nationwide survey and the establishment of a counterstrategy are therefore urgently required. To establish the facts about the raccoon population, particularly in the vicinity of shrines and temples, and the extent of the damage, this project created a basic database and carried out analysis using a geographic information system (GIS).

The results of this multifaceted survey of the raccoon population and the relevant documentation have been presented at seminars and symposia. They have also been made available to a wide public through website presentation, offering possible solutions to the raccoon problem that is damaging the biodiversity of woodland around shrines.

Raccoons that have made their home among the rafters of a shrine building

Breakdown of Toyota Environmental Activities Grant Program Grant Recipient Projects (Totals*)



* Projects awarded grants from FY2000 to FY2014

Assistance Provided to Date

Over the 15 years since the Grant Program was established in 2000, it has provided support to 278 projects in 52 countries and regions worldwide

Country/region of implementation	Asia (excluding Japan), Pacific	North America, Latin America	Africa	Europe	Japan	Total
FY2014	7	0	1	2	11	21
Cumulative total*	93	19	25	9	132	278

* FY2000–FY2014

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Focus

Help in Protecting the Hooded Grebe in Argentina's Patagonia National Park

The Endangered Hooded Grebe

As an initiative to conserve biodiversity, Toyota Argentina S.A. (TASA) collaborated in a project to protect the hooded grebe, a species peculiar to Argentina that faces the threat of extinction.

Collaborating in the project, which contributed to promoting biodiversity and environmental conservation, furthers the aims of Toyota's environmental policy. This is because preserving the hooded grebe can be expected to help promote ecosystems and foster environmental awareness in the region. Among the other benefits expected from the project are that it will help preserve the quality of the ecosystem through nature-friendly farming techniques by improving awareness of the hooded grebe among students and farmers in the region, and that it will make this region, which contains the Patagonia National Park, one of the world's most appealing tourist destinations.

The northwestern part of Santa Cruz Province where the survey was conducted

Hilux Vehicles Provided for Scientific Survey

Designated a national park in 2014, the Patagonia National Park, where the survey was conducted, is situated in the northwestern part of Santa Cruz Province to the south of Lake Buenos Aires and the town of Los Antiguos. The park forms a plateau at an altitude of over 1,000m, reaching a height of over 2,500m at its western edge, and is home to many rare species. The number of hooded grebe is estimated at around 700–800 individuals.

TASA provided two Hilux for a scientific survey conducted by Argentinean Birds-Ornithological Society of Argentina in February 2015, which included an evaluation of the threat of extinction and an investigation to decide the best location for regeneration of the species.

Participating in the survey were 10 members of the press with 2 television cameras, and reports on the survey were featured on television, in magazines and newspapers, and elsewhere in the media.


Hooded grebe


A Hilux travels across a plateau

Appendix

Status of Major Environmental Data in Japan for FY2014

Area	Item	Key indicator (unit)		FY1990	FY1995	FY1998	FY2001	FY2012	FY2013	FY2014	Related pages
Product	Exhaust gases	Percentage of total production that achieves emission levels 50% lower than 2005 gasoline standards		—	—	—	—	2.3%	2.4%	2.4%	36
		Percentage of total production that achieves emission levels 75% lower than 2005 gasoline standards		—	—	—	—	97.4%	97.2%	97.4%	
	Clean-energy vehicles	Number of units sold	[units]	—	—	—	—	658,585	718,541	646,258	—
		Electric vehicles	[units]	—	—	—	—	19	0	0	
		Hybrid vehicles	[units]	—	—	—	—	658,517	718,497	646,250	
		CNG vehicles	[units]	—	—	—	—	49	44	8	
	Average fuel efficiency by weight category [km/L] (gasoline-powered passenger vehicles)	JC08 test-drive mode	601—740 kg	—	—	—	—	30.0	32.4	34.8	17
			741—855 kg					26.2	27.7	28.5	
			856—970 kg					20.9	20.9	24.1	
			971—1,080 kg					27.1	26.9	29.2	
			1,081—1,195 kg					24.4	25.1	26.6	
			1,196—1,310 kg					16.7	17.2	17.4	
			1,311—1,420 kg					25.9	25.9	25.9	
			1,421—1,530 kg					21.6	21.4	21.9	
			1,531—1,650 kg					14.7	16.0	18.4	
			1,651—1,760 kg					14.4	18.0	17.2	
			1,761—1,870 kg					11.7	12.8	15.6	
			1,871—1,990 kg					10.9	10.7	10.9	
			1,991—2,100 kg					10.7	9.8	9.9	
			2,101—2,270 kg					14.0	12.5	11.8	
			2,271 kg—					8.2	7.9	7.8	
Production	CO_2 (Note 1)	Total emissions volume	[calculated in CO_2 equivalent in million tons]	2.11 (Note 3)	—	—	—	1.16	1.20	1.18	22
		Emissions volume per unit produced	[calculated in CO_2 equivalent in tons/unit]	—	—	—	—	0.41	0.41	0.41	
	Substances of concern	VOC emissions volume per body area	[g/m²]	—	—	64	—	20	19	18	37
	Waste (Note 2)	Volume of waste per unit produced	[kg/unit]	—	—	—	29.5	12.1	12.4	12.5	29
Re-cycling	Recycling rate	Vehicle recycling/recovery rate	[%]	—	—	—	—	99	99	99	33

Note 1: Since non-production bases were also brought under the scope of the reduction goals in FY2005, figures include company-wide emissions from FY1990
Note 2: Zero landfill waste was achieved in FY2000 and has been maintained ever since
Note 3: Total figure for the period from January to December 1990

For information on indices other than in the environmental data listed above, please visit the following webpage

WEB http://www.toyota-global.com/sustainability/environment/data/

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Environmental Accounting

Environmental accounting at Toyota is based on a classification of environmental costs into "environmental investments"[1] and "maintenance costs."[2] Toyota also calculates the economic effects and eco-efficiency of its activities.

For details on the effects of measures implemented to reduce environmental impact, please see the section "Status of Major Environmental Data in Japan for FY2014" on page 43.

[1] Environmental costs, such as those for research and development of environmentally considerate products, whose effects are judged to extend beyond the current term into the future
[2] Environmental costs other than environmental investments

Environmental Costs

Calculation scope: Toyota Motor Corporation (unconsolidated)

Actual Results Based on Toyota's Format

(Unit: billion yen)

Classification	Item	Details	FY2012	FY2013	FY2014
Environmental investments	Research and development		270.6	303.2	353.5
	Recycling-related		0.7	0.7	0.7
	Other (social contribution, ISO certification, education and training, etc.)[3]		0.7	0.3	0.5
	Plant and equipment investment[4] (Plant and equipment investment primarily for environmental action)	Prevention of global warming	0.2	0.2	0.4
		Waste processing	0.0	0.1	0.0
		Pollution prevention, etc.	0.8	0.6	1.6
			1.0	0.9	2.0
	Expenses for environmental action included in normal plant and equipment investment		7.9	7.2	10.6
	Subtotal for environmental investments		280.9	312.3	367.3
Maintenance costs	Expenses related to environmental measures	Waste processing	1.9	2.0	2.0
		Waste water treatment	0.3	0.5	0.4
		Atmospheric pollution and odor abatement	0.9	1.0	1.3
		Global environmental preservation	0.7	0.6	0.9
	Awareness-building	Advertising, public relations, etc.	16.9	27.2	28.6
	Professional environmental staff	Personnel	2.0	2.1	2.2
	Environmental restoration	Vehicle recalls	4.6	0.0	0.0
		Soil and groundwater remediation	0.3	0.2	0.2
	Subtotal for maintenance costs		27.6	33.6	35.6
Total (as a percentage of net sales)			308.5 (3.2%)	345.9 (3.1%)	402.9 (3.6%)

FY2014 Actual Results Based on the Ministry of the Environment's Format

(Unit: billion yen)

Classification		Toyota Investment	Toyota Costs	5 body manufacturers[5] Investment	5 body manufacturers[5] Costs
1. Business area costs	(1) Pollution prevention	0.6	1.7	0.9	2.4
	(2) Global environmental conservation	11.7	0.9	2.6	0.6
	(3) Resource circulation	0.0	2.0	0.3	1.8
2. Upstream/downstream costs	Amount allocated to recycling related and industry organizations	0.0	0.8	0.0	0.1
3. Administration costs	Environmental advertisements, environmental report publication, professional environmental staff, etc.	0.0	31.0	0.1	2.1
4. Research and development costs	R&D for reducing substances of concern	0.0	353.5	0.3	35.2
5. Social activity costs	Contribution to environmental preservation organizations, etc.	0.0	0.2	0.0	0.0
6. Environmental remediation costs	Soil and groundwater remediation, etc.	0.3	0.2	0.1	0.1
Total		12.6	390.3	4.3	42.3
		402.9		46.6	

[3] The numbers for past years have been corrected to reflect a change in the calculation method made in FY2014
[4] Depreciation expenses of investments in plant and equipment are not included in these costs
Reference: FY2014 total R&D expenses: 886.2 billion yen; total investment in plant and equipment: 231.1 billion yen
[5] Five body manufacturers: Toyota Motor East Japan, Inc., Daihatsu Motor, Toyota Auto Body, Hino Motors, and Toyota Motor Kyushu (Calculations made on the basis of standards used by each company)

FY2014 Actual Results for Overseas Affiliates

(Unit: billion yen)

	Investment	Costs	Total
TMT (Thailand)	1.5	0.5	2.0
Kuozui Motors (Taiwan)	0.6	0.9	1.5

Economic Effects

Actual Effects

(Unit: billion yen)

	FY2012	FY2013	FY2014	FY2014 results for the 5 body manufacturers
Reduction in energy costs through energy saving measures	1.3	1.0	0.5	1.3
Reduction in waste processing costs	0.0	-0.2	0.1	0.0
Sales of recyclable goods	4.4	5.8	5.2	7.2
Other (income from environment related technologies, etc.)	9.5	9.8	10.1	0.0
Total	15.2	16.4	15.9	8.5

Customer Benefits: Reduction in Gasoline Consumption Due to a Switch to Hybrid Vehicles

(Unit: billion yen)

	FY2013	FY2014	Cumulative reduction since the launch of the first generation Prius in December 1997
Japan	233.5	237.9	1,040.7
Worldwide	685.6	667.4	3,257.7

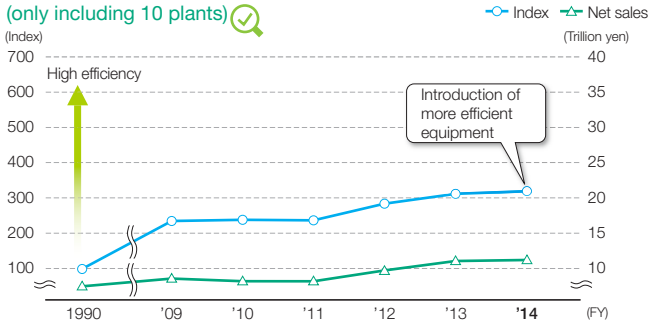
Calculation Method for Customer Benefits in Japan in FY2014

- Cumulative: Difference in average annual fuel efficiency[6] × number of vehicles owned in the particular fiscal year[7] x average annual distance traveled[8] × average gasoline price in FY2014[9]
- Fiscal year: (Difference in average annual fuel efficiency × number of vehicles owned in the particular fiscal year x average annual distance traveled × average gasoline price in FY2014)—customer benefits to FY2013

[6] Difference in fuel efficiency between hybrid vehicles on the road in the particular fiscal year and corresponding models of gasoline-powered vehicles. Fuel efficiency value based on the JC08 Japanese test mode was converted into actual fuel efficiency
[7] Of the total number of hybrid vehicles sold each year, the number of vehicles owned by each customer as estimated by Toyota based on the average vehicle age
[8] Average annual distance traveled by passenger cars according to the Japanese Ministry of Land, Infrastructure, Transport and Tourism's "Automobile Transportation Statistics": 10,000 km
[9] National average gasoline price (including consumption tax) in FY2014, according to the Oil Information Center of The Institute of Energy Economics, Japan: 158.1 yen

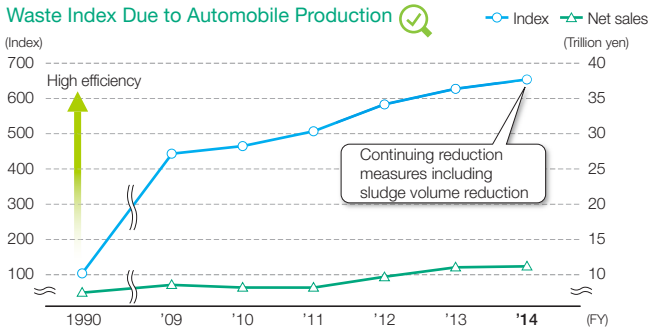
Eco-efficiency (Net Sales/Environmental Impact)

CO_2 Emissions Index Due to Automobile Production (only including 10 plants)



* The CO_2 emission index shown in the graph above is the ratio of net sales to the volume of CO_2 emissions, with a value of 100 assigned to the FY1990 level

Waste Index Due to Automobile Production



* The "waste index" shown in the graph above is the ratio of net sales to the volume of waste generated, with a value of 100 assigned to the FY1990 level

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Processing
Toyota Loops is a special-purpose subsidiary of Toyota Motor Corporation, founded to provide greater employment opportunities for people with serious disabilities. Toyota Loops handles in-house printing, intra-company mail receipt and delivery, and other such operations that were previously done inside Toyota Motor Corporation. Toyota Loops handles the printing and binding of this report.

Editing, Plate Making
This report is compiled using the Computer to Plate (CTP) system, resulting in the total elimination of film, an intermediate material, during the plate making process.

Toyota has participated in activities of the WBCSD (World Business Council for Sustainable Development) as a member of this organization.
WBCSD engages in advocacy activities aimed at realizing sustainable development based on the three pillars of economic growth, environmental protection and social development.

World Business Council for Sustainable Development

+ Education for Sustainable Development

TOYOTA MOTOR CORPORATION

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Company Outline

Name:	TOYOTA MOTOR CORPORATION
Date of establishment:	August 28, 1937
Principal operations:	Manufacturing and sales of automobiles, etc.
Capital:	397.0 billion yen
Number of shareholders:	469,914
Total number of shares issued:	3,417,997 thousand
Stock exchanges on which the shares are listed:	Japan: Tokyo, Nagoya, Osaka, Fukuoka and Sapporo Overseas: New York and London

Note: Capital amounts and number of shareholders are as of the end of March 2015.
Capital less than 0.1 billion yen is rounded off.

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Major production bases in Japan

Automobiles: Honsha Plant, Motomachi Plant, Kamigo Plant, Takaoka Plant, Miyoshi Plant, Tsutsumi Plant, Myochi Plant, Shimoyama Plant, Kinuura Plant, Tahara Plant, Teiho Plant, Hirose Plant

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