

FY2018 Review of the Sixth Toyota Environmental Action Plan

Area	FY2018 Results Overview	
Low Carbon (Climate Change, CO ₂)		<p>Challenge 1 : By improving environmental performance and expanding vehicle lineups, we reduced global average CO₂ emissions from new vehicles during operation by 13.7% compared to 2010. We achieved the 2020 sales target for next-generation vehicles (1.5 million units per year) ahead of original plan early by improving environmental performance and expanding the lineup of hybrid electric vehicles (HEVs). We also sold 50,000 Prius PHVs in 2017 and started selling the fuel cell electric vehicle (FCEV) bus, SORA. We established a new company with Mazda Motor Corporation and Denso Corporation for joint development of battery electric vehicles (BEVs) and began concrete collaboration.</p>
		<p>Challenge 2 : In the area of product development, we conducted life cycle assessment using Eco-VAS¹ of seven vehicle models sold in Japan. CO₂ emissions from the new Camry were cut by 19% compared to the previous model. In the area of logistics, we promoted activities to reduce CO₂ emissions with a focus on improving transportation efficiency.</p> <p>¹ Eco-VAS (Eco-Vehicle Assessment System): Comprehensive environmental impact assessment system throughout the entire vehicle development process based on the concept of life cycle assessment (LCA) from vehicle production and use to disposal stages. The aim of Eco-VAS is to serve as a valuable environmental management tool for chief engineers.</p>
		<p>Challenge 3 : To reduce CO₂ emissions in production, we achieved cumulative results through comprehensive daily <i>kaizen</i>. We expanded reduction effects globally through <i>yokoten</i>² of best practices and actively developed innovative technologies both in Japan and overseas aiming for further drastic reductions. We are introducing renewable energy on a large scale, and the number of introduction sites and the amount of electricity generated increased steadily.</p> <p>² <i>Yokoten</i> refers to sharing of improvement practices, know-how, non-compliance and other information within the All-Toyota Group</p>
Recycling (Resources, Water)		<p>Challenge 4 : To reduce water usage, we undertook proactive measures including introduction of reduction technologies at plants around the world and implementation of daily water-saving efforts. At water usage challenge-focused plants, we analyzed local water situations and other data, through the discussions with local communities. With regard to water quality, we took into consideration the impact of Toyota's water discharge on local water environment and selected challenge-focused plants.</p>
		<p>Challenge 5 : In the area of production, we continued daily measures to reduce waste such as reducing the volume of sludge. In logistics, we introduced simplified and returnable³ packaging and wrapping materials, leading to a steady reduction in the amount of waste and the material used in packaging and wrapping. With regard to resource recycling, we deployed the "Waste oil, fluid, CFC/HFC proper Treatment Manual" on dismantling End-of-life vehicles overseas. We also completed responses to the law and regulation on proper treatment utilizing existing facilities in Vietnam, and, in Thailand, completed the launch of a model facility for proper treatment of End-of-life vehicles first ever in Southeast Asia. We continued the reuse and recycling of all recovered batteries and started its globalization in preparation for growing use of electrified vehicles in the future.</p> <p>³ Returnable: To enable used packaging materials to be returned to original shipping points for reuse</p>
Harmony with Nature		<p>Challenge 6 : In the Toyota Green Wave Project, afforestation at plants as a part of sustainable plant activities was expanded to the Plant in Harmony with Nature Project, and activities at model plants in Japan started. The All-Toyota Harmony with Nature Working Group increased the number of activities by individual companies, raised employees awareness, and expanded Group-connecting activities. The Toyota Today for Tomorrow Project continued support for maintenance of the IUCN Red List of Threatened Species™ (IUCN⁴ Red List) as well as steady ecosystem conservation efforts and measures for ensuring sustainable natural rubber production in Southeast Asia by WWF⁵, and a certain degree of progress was made. The Toyota ESD Project continued environmental education with a focus on children, who will become the leaders of tomorrow. The cumulative number of visitors to the Forest of Toyota reached 170,000 and the number of visitors to the Toyota Shirakawa-Go Eco-Institute reached 209,000.</p> <p>⁴ IUCN (International Union for Conservation of Nature): Founded in 1948 through an international initiative, International Union for Conservation of Nature is a global nature conservation network comprising nations, government agencies, and non-governmental organizations</p> <p>⁵ WWF: World Wide Fund for Nature</p>
Management	Environmental Management	<p>Environmental non-compliance issues and complaints that occurred were minor incidents. In response to these incidents, we developed preventive countermeasures and implemented comprehensive <i>yokoten</i> of these measures. We started to commend suppliers that made significant contributions. In the sales and service fields, we promoted the formulation of regional environmental guidelines and their deployment to distributors and dealers. We worked to improve information disclosures, and the Environmental Report 2017 received the Excellent Environmental Report Prize of the 21st Environmental Communication Awards.</p>

Editorial Policy	Contents	Overview of Toyota Motor Corporation	Corporate Principles/CSR Structure	Society	Environment	Governance	CSR Data			
Toyota Environmental Challenge 2050	2030 Milestone	FY2018 Review of the Sixth Toyota Environmental Action Plan	Challenge 1	Challenge 2	Challenge 3	Challenge 4	Challenge 5	Challenge 6	Environmental Management	Environmental Data

FY2018 Review of the Sixth Toyota Environmental Action Plan (Details)

✓✓ : Steady progress toward FY2021 target
✓ : Issues exist, but FY2021 target is expected to be met
 — : FY2021 target is not expected to be met

	Action Items	Specific Actions and Goals	FY2018 Results	Evaluation	Page																														
Low Carbon (Climate Change, CO ₂)	(1) New Vehicle Zero CO ₂ Emissions Challenge																																		
	1. Develop technologies to achieve the best fuel efficiency performance	<ul style="list-style-type: none"> Reduce rate in average CO₂ emissions from new vehicles globally by over 22% from 2010 global level as of 2020 <ul style="list-style-type: none"> Develop high-performance powertrain through TNGA and introduce it in steps Achieve further high-performance development of HEVs and expand their deployment 	<ul style="list-style-type: none"> Reduced 13.7% in global average CO₂ emissions from new vehicles (Japan, United States, Europe, and China) in 2017 compared to 2010 Promoted initiatives toward meeting our 2020 goal by developing low-CO₂-emitting engines and transmissions through TNGA, making further improvements in the environmental performance of HEVs, and expanding the product lineup 	✓✓	90																														
	2. Promote development of next-generation vehicles using electric power and widespread adoption according to their features	<ul style="list-style-type: none"> HEV : Promote higher performance and expand the lineup to broaden consumer adoption of HEVs, aim to reach annual HEV sales of 1.5 million units and cumulative sales of 15 million units by 2020 PHEV : Establish PHEV as core electrified vehicle in support of fuel diversification and develop higher-performance PHEVs and promote widespread adoption BEV : Promote technology development for short-distance purposes in combination with low-carbon traffic systems FCEV : Promote activities to further reduce cost, achieve greater compactness and durability, and strengthen product appeal toward effective use of hydrogen as an important future energy source 	<ul style="list-style-type: none"> Accelerated development with a target of selling at least 5.5 million electrified vehicles per year (including at least 1 million BEVs and FCEVs) by 2030 (Every model will be available either as dedicated electrified model or have electric option by around 2025) HEV : Achieved the sales target for 2020 (1.5 million units/year) early by making further improvements in environmental performance and expanding the product lineup (in FY2018, the new JPN TAXI HEV was released in Japan) HEVs accounted for 40% of Toyota vehicles sold in Japan and 16% overseas PHEV : Sales of the new Prius PHV, which boasts greatly improved marketability, were approximately 50,000 units in 2017, and we are making steady efforts to promote widespread adoption FCEV : Launched new FCEV bus, "SORA," a mass-sales model We aim to sell at least 100 units, mainly in Tokyo, by 2020 BEV : Established a new company with Mazda Motor Corporation and Denso Corporation for joint development of BEVs and began concrete collaboration 	✓✓	89																														
	(2) Life Cycle Zero CO ₂ Emissions Challenge																																		
	3. Promote environmental management for product development (Eco-VAS)	<ul style="list-style-type: none"> Steadily promote environmental target management using vehicle environmental assessment (Eco-VAS) at the development stage <ul style="list-style-type: none"> Reduce life cycle environmental impact or both fully redesigned models and new models compared with previous models Disclose assessment results properly to customers on website and in product catalogues 	<ul style="list-style-type: none"> Conducted life cycle assessment using Eco-VAS of seven vehicle models including redesigned and new models in Japan Life cycle CO₂ emissions of all assessed models were reduced compared to their reference vehicles. (CO₂ emissions from the new Camry were cut by 19% compared to the 2011 model) 	✓✓	93																														
	4. Study practical use development of catalyst technology-based CO ₂ absorption and new material creation (artificial photosynthesis, etc.)	<ul style="list-style-type: none"> Develop artificial photosynthesis technologies from CO₂, water, and solar power <ul style="list-style-type: none"> Complete basic verification tests for creation of primary CO₂-absorbing material (material or fuel) using the world's most efficient photosynthetic unit in 2020 	<ul style="list-style-type: none"> Realized a formic acid synthesis reaction from just CO₂, water, and solar energy using a light absorbent material and catalyst by making use of abundant iron rust (iron oxide) 	✓✓	—																														
	5. Raise transportation efficiency and reduce CO ₂ emissions in logistics activities	<ul style="list-style-type: none"> Promote CO₂ reduction activities by further improving transportation efficiency (take comprehensive measures to reduce total distance travelled and promote further modal shift) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Region</th> <th>Item</th> <th>Base year</th> <th>Target (FY2021)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Japan</td> <td>Total emissions</td> <td>FY1991</td> <td>25% reduction</td> </tr> <tr> <td>Emissions per transportation volume</td> <td>FY2007</td> <td>14% reduction (1% reduction)</td> </tr> <tr> <td>Overseas</td> <td colspan="3">Measured performance</td> </tr> </tbody> </table>	Region	Item	Base year	Target (FY2021)	Japan	Total emissions	FY1991	25% reduction	Emissions per transportation volume	FY2007	14% reduction (1% reduction)	Overseas	Measured performance			<ul style="list-style-type: none"> Achieved the goal by promoting <i>kaizen</i> activities <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Region</th> <th>Item</th> <th>Base year</th> <th>FY2018 results</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Japan</td> <td>Total emissions</td> <td>FY1991</td> <td>35% reduction</td> </tr> <tr> <td>Emissions per transportation volume</td> <td>FY2007</td> <td>20% reduction</td> </tr> <tr> <td>Overseas</td> <td colspan="3">Measured performance</td> </tr> </tbody> </table>	Region	Item	Base year	FY2018 results	Japan	Total emissions	FY1991	35% reduction	Emissions per transportation volume	FY2007	20% reduction	Overseas	Measured performance			✓✓	94
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6. Contribute to local communities through the expansion of local grid energy management technologies	<ul style="list-style-type: none"> Establish micro-grid (F-grid) and regional optimal energy management technology and promote domestic and overseas rollout <ul style="list-style-type: none"> Verify the tests in Ohira-mura project in Tohoku and Motomachi Plant project in Toyota City Deploy technologies at other plants in Japan and countries in Asia, etc. 	<ul style="list-style-type: none"> Promoted all projects as planned <ul style="list-style-type: none"> Micro-grid (F-grid): 24% energy saving and 31% CO₂ reduction after F-grid introduction Motomachi Plant, Toyota City: Practical application of chemical thermal storage technology through NEDO verification tests in progress Other plants in Japan, Asia: Continued the collection of information (on conditions for installation, laws and regulations, etc.) 	✓✓	—																															
7. Promote an integrated approach to reduce CO ₂ emissions in road traffic sectors	<ul style="list-style-type: none"> Contribute to realization of smart mobility society through IT and ITS technologies <ul style="list-style-type: none"> Based on the verification tests results of next-generation transportation system Ha:mo in Japan and France, which we use ultra-compact BEVs, aim to deploy technologies in other regions and establish business models, considering the Olympic Games Tokyo 2020 and Paralympic Games 	<ul style="list-style-type: none"> In Toyota City and Okinawa, shifted to commercialization by local operating companies Implemented improvement of profitability and systems, and functional development in Tokyo and Okayama under demonstration phase toward building sustainable business operation models 	✓✓	—																															

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	7. Promote an integrated approach to reduce CO ₂ emissions in road traffic sectors	<ul style="list-style-type: none"> Actively participate in integrated traffic flow improvement project for establishment of a low-carbon mobility society <ul style="list-style-type: none"> Establish WBCSD/SMP 2.0 Sathorn Model and formulate roadmap for Bangkok rollout Promote adoption of eco-driving globally <ul style="list-style-type: none"> Promote eco-driving globally among customers and employees 	<ul style="list-style-type: none"> In February 2017, the Thai National Transport Policy Board (chaired by Deputy Prime Minister Somkid Jatusriptak) approved a roadmap for implementation of the Sathorn model in Bangkok, and the result was reported to the Council of Ministers (Prime Minister Prayut Chan-o-cha) in April. Took the following initiatives: <ul style="list-style-type: none"> Continued to promote customer education activities, such as eco-driving advice through dealers and eco-driving support through rental & leasing shops Raised employees awareness regarding eco-driving by displaying posters that use animals to convey a strong message, distributing pamphlets, and holding internal lectures presented by outside speakers 	✓✓	—																																					
<ul style="list-style-type: none"> Promote activities to reduce CO₂ emissions through the development and deployment of low-CO₂ production technologies and daily <i>kaizen</i> <ul style="list-style-type: none"> Pursue further productivity and include offices and other sites in rollout of activities Utilize clean energies in accordance with the particular conditions of each country and region <ul style="list-style-type: none"> Promote introduction in stages toward FY2021 Manage greenhouse gases (GHG) emissions from sources other than energy sources <table border="1"> <thead> <tr> <th>Region</th> <th>Item</th> <th>Base year</th> <th>Target (FY2021)</th> </tr> </thead> <tbody> <tr> <td>Global*</td> <td>Emissions per vehicle</td> <td>FY2002</td> <td>39% reduction</td> </tr> <tr> <td rowspan="2">TMC</td> <td>Emissions per vehicle</td> <td>FY2002</td> <td>48% reduction</td> </tr> <tr> <td>Total emissions</td> <td>1991</td> <td>28% reduction</td> </tr> <tr> <td>Overseas</td> <td colspan="3">Promote regional No. 1 reduction activities</td> </tr> </tbody> </table> <p>* TMC + worldwide consolidated subsidiaries (manufacturing)</p>		Region	Item	Base year		Target (FY2021)	Global*	Emissions per vehicle	FY2002	39% reduction	TMC	Emissions per vehicle	FY2002	48% reduction	Total emissions	1991	28% reduction	Overseas	Promote regional No. 1 reduction activities			<ul style="list-style-type: none"> Promoted technological development and steadily introduced developed technologies toward achieving the FY2021 goals Accelerated shop-oriented daily <i>kaizen</i> activities for each process Promoted the introduction of renewable energy <table border="1"> <thead> <tr> <th>Region</th> <th>Item</th> <th>Base year</th> <th>FY2018 results</th> </tr> </thead> <tbody> <tr> <td>Global</td> <td>Emissions per vehicle</td> <td>FY2002</td> <td>35% reduction</td> </tr> <tr> <td rowspan="2">TMC</td> <td>Emissions per vehicle</td> <td>FY2002</td> <td>46% reduction</td> </tr> <tr> <td>Total emissions</td> <td>1991</td> <td>45% reduction</td> </tr> <tr> <td>Overseas</td> <td colspan="3">Implemented reduction scenarios that match local situations</td> </tr> </tbody> </table>	Region	Item	Base year	FY2018 results	Global	Emissions per vehicle	FY2002	35% reduction	TMC	Emissions per vehicle	FY2002	46% reduction	Total emissions	1991	45% reduction	Overseas	Implemented reduction scenarios that match local situations			✓✓
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	8. Reduce CO ₂ emissions in production activities	<ul style="list-style-type: none"> Promote activities to reduce CO₂ emissions through the development and deployment of low-CO₂ production technologies and daily <i>kaizen</i> <ul style="list-style-type: none"> Pursue further productivity and include offices and other sites in rollout of activities Utilize clean energies in accordance with the particular conditions of each country and region <ul style="list-style-type: none"> Promote introduction in stages toward FY2021 Manage greenhouse gases (GHG) emissions from sources other than energy sources <table border="1"> <thead> <tr> <th>Region</th> <th>Item</th> <th>Base year</th> <th>Target (FY2021)</th> </tr> </thead> <tbody> <tr> <td>Global*</td> <td>Emissions per vehicle</td> <td>FY2002</td> <td>39% reduction</td> </tr> <tr> <td rowspan="2">TMC</td> <td>Emissions per vehicle</td> <td>FY2002</td> <td>48% reduction</td> </tr> <tr> <td>Total emissions</td> <td>1991</td> <td>28% reduction</td> </tr> <tr> <td>Overseas</td> <td colspan="3">Promote regional No. 1 reduction activities</td> </tr> </tbody> </table> <p>* TMC + worldwide consolidated subsidiaries (manufacturing)</p>	Region	Item	Base year	Target (FY2021)	Global*	Emissions per vehicle	FY2002	39% reduction	TMC	Emissions per vehicle	FY2002	48% reduction	Total emissions	1991	28% reduction	Overseas	Promote regional No. 1 reduction activities			<ul style="list-style-type: none"> Promoted technological development and steadily introduced developed technologies toward achieving the FY2021 goals Accelerated shop-oriented daily <i>kaizen</i> activities for each process Promoted the introduction of renewable energy <table border="1"> <thead> <tr> <th>Region</th> <th>Item</th> <th>Base year</th> <th>FY2018 results</th> </tr> </thead> <tbody> <tr> <td>Global</td> <td>Emissions per vehicle</td> <td>FY2002</td> <td>35% reduction</td> </tr> <tr> <td rowspan="2">TMC</td> <td>Emissions per vehicle</td> <td>FY2002</td> <td>46% reduction</td> </tr> <tr> <td>Total emissions</td> <td>1991</td> <td>45% reduction</td> </tr> <tr> <td>Overseas</td> <td colspan="3">Implemented reduction scenarios that match local situations</td> </tr> </tbody> </table>	Region	Item	Base year	FY2018 results	Global	Emissions per vehicle	FY2002	35% reduction	TMC	Emissions per vehicle	FY2002	46% reduction	Total emissions	1991	45% reduction	Overseas	Implemented reduction scenarios that match local situations			✓✓
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Recycling (Resources, Water)	(4) Challenge of Minimizing and Optimizing Water Usage																																									
	9. Reduce water usage in production activities	<ul style="list-style-type: none"> Promote continual activities to reduce water usage in consideration of water environment in each country and region <ul style="list-style-type: none"> Introduce innovative initiatives linked with planning of new plants and production line reforms Reduce water usage through daily <i>kaizen</i> and other activities <table border="1"> <thead> <tr> <th>Region</th> <th>Item</th> <th>Base year</th> <th>Target (FY2021)</th> </tr> </thead> <tbody> <tr> <td>TMC (vehicle plants)</td> <td>Usage per vehicle</td> <td>FY2002</td> <td>12% reduction</td> </tr> <tr> <td>Overseas</td> <td colspan="3">Promote regional No. 1 reduction activities</td> </tr> </tbody> </table>	Region	Item	Base year	Target (FY2021)	TMC (vehicle plants)	Usage per vehicle	FY2002	12% reduction	Overseas	Promote regional No. 1 reduction activities			<ul style="list-style-type: none"> Promoted introduction of water usage reduction technologies as well as daily water conservation activities in domestic and overseas plants <table border="1"> <thead> <tr> <th>Region</th> <th>Item</th> <th>Base year</th> <th>FY2018 results</th> </tr> </thead> <tbody> <tr> <td>TMC (vehicle plants)</td> <td>Usage per vehicle</td> <td>FY2002</td> <td>26% reduction</td> </tr> <tr> <td>Overseas</td> <td colspan="3">Implemented reduction activities that match local situations</td> </tr> </tbody> </table>	Region	Item	Base year	FY2018 results	TMC (vehicle plants)	Usage per vehicle	FY2002	26% reduction	Overseas	Implemented reduction activities that match local situations			✓✓	104													
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Recycling (Resources, Water)	(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	<ul style="list-style-type: none"> Reduce the use of petroleum-derived Plastics <ul style="list-style-type: none"> Develop technology for recycled plastics and eco-plastics meeting quality and performance requirements Establish collection systems for used plastics Promote reuse of rare resources and use of recycled materials <ul style="list-style-type: none"> Develop CFRP recycling technologies Develop technologies for recycling and reducing use of rare earth materials 	<ul style="list-style-type: none"> Petroleum-derived plastics <ul style="list-style-type: none"> Continued trials in collaboration with dismantling companies to collect plastic from End-of-life vehicles, investigated efficient means of removing foreign materials, and took measures to develop materials that can be reused in vehicles. Continued to collect and recycle End-of-life bumpers generated through repair work at Toyota dealers Promoted reuse of rare resources and use of recycled materials <ul style="list-style-type: none"> Continued to develop technologies for recycling CFRP materials Continued to work on reducing the amount of rare earth metals used in hybrid components 	✓✓	107																																					
	11. Achieve industry-leading levels in easy-to-dismantle design for effective resource recycling	<ul style="list-style-type: none"> Maintain and improve industry-leading levels for easy-to-dismantle design <ul style="list-style-type: none"> Integrate reliable easy-to-dismantle designs into all models including next-generation vehicles (BEV, FCEV) and smart mobility vehicles Develop and integrate easy-to-dismantle designs into new technologies and new materials parts 	<ul style="list-style-type: none"> Continued to apply easy-to-dismantle designs to newly developed vehicles such as the JPN TAXI, Prius PHV, Camry, and Lexus LS 	✓✓	109																																					
	12. Contribute worldwide through End-of-life vehicle treatment and recycling technology developed in Japan	<ul style="list-style-type: none"> Deploy proper End-of-life vehicles treatment technology overseas in accordance with conditions in each country and region <ul style="list-style-type: none"> Conduct proper End-of-life vehicle treatment in accordance with local End-of-life recycling laws, while enhance initiatives in countries and regions where laws are expected to be introduced, based on the guidance Establish 100 of proper End-of-life vehicle treatment facilities (seven sites by 2020) 	<ul style="list-style-type: none"> Took the following initiatives: <ul style="list-style-type: none"> Created the "Waste oil, fluid, CFC/HFC proper Treatment Manual (Basic Edition)" on dismantling End-of-life vehicles, assuming countries and regions without sufficient dismantling facilities and equipment and deployed it overseas Completed responses to law and regulation in proper treatment of End-of-life vehicles utilizing existing facilities (Vietnam) Installed a model facility for proper treatment of End-of-life vehicles first ever in Southeast Asia (Thailand) 	✓✓	110																																					

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Recycling (Resources, Water)	(5) Challenge of Establishing a Recycling-based Society and Systems																																																																		
	13. Expand original recycling systems for End-of-life vehicles worldwide	<ul style="list-style-type: none"> Promote advanced development of Toyota's original recycling technologies and provide support overseas Japan Enhance technologies for remanufacturing and recycling nickel-metal-hydrate batteries (lowering cost) and provide support overseas Establish technologies for remanufacturing and recycling lithium-ion batteries and provide support overseas Practical use of recycling wiring harnesses in Japan (expand scale of operations) Practical use of recycling magnets in Japan (expand scale of operations) Develop power generation and storage systems using HEV units Study and set goals for bumper collection and recycling technologies in major regions overseas 	<ul style="list-style-type: none"> Took the following initiatives: <ul style="list-style-type: none"> Since FY1997, collected a total of 98,700 batteries from End-of-life vehicles for total reuse and recycling Started measures to globalize battery recycling in preparation for the expanded use of electrified vehicles around the world in the future Continued to promote remanufacturing (examination and re-assembly) and reuse of batteries, including application of stationary storage batteries Continued to extract rare earths from magnets collected from the market for recycling and reuse as magnetic materials and so on; since FY2013, collected and recycled a cumulative 35 tons of magnets Teamed up with an electric power company to investigate large-capacity storage batteries 	✓✓	111																																																														
	14. Reduce waste and use resources efficiently in production activities	<ul style="list-style-type: none"> Promote activities to reduce waste through development and deployment of waste reduction-oriented production technologies and daily <i>kaizen</i> Promote waste reduction and efficient use of resources through improving yields and other source-oriented measures Promote activities to reduce resources loss by reducing amounts of valuables and waste generated Promote activities to reduce metal scrap generation and implement All-Toyota campaigns to effectively use resources internally <table border="1"> <thead> <tr> <th></th> <th>Scope</th> <th>Region</th> <th>Item</th> <th>Base year</th> <th>Target (FY2021)</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Waste</td> <td rowspan="2">Valuables</td> <td>Japan²</td> <td>Volume generated</td> <td colspan="2">Promote activities to reduce metal scrap generation and implement All-Toyota campaigns to effectively use resources internally</td> </tr> <tr> <td>Japan</td> <td>Waste volume generated per vehicle</td> <td>FY2002</td> <td>35% reduction</td> </tr> <tr> <td rowspan="2">Waste¹</td> <td>TMC</td> <td>Waste volume generated per vehicle</td> <td>FY2002</td> <td>63% reduction</td> </tr> <tr> <td colspan="3">Zero landfill waste³</td> <td colspan="2"></td> </tr> <tr> <td></td> <td>Overseas</td> <td colspan="4">No. 1 regionally in reduction promotion</td> </tr> </tbody> </table> <p>¹ Waste at cost, incinerated waste, landfill waste ² TMC + worldwide consolidated subsidiaries (manufacturing) ³ Zero means direct landfill waste equal to 1% or less the amount generated in FY1995</p>		Scope		Region	Item	Base year	Target (FY2021)	Waste	Valuables	Japan ²	Volume generated	Promote activities to reduce metal scrap generation and implement All-Toyota campaigns to effectively use resources internally		Japan	Waste volume generated per vehicle	FY2002	35% reduction	Waste ¹	TMC	Waste volume generated per vehicle	FY2002	63% reduction	Zero landfill waste ³						Overseas	No. 1 regionally in reduction promotion				<ul style="list-style-type: none"> Continued to reduce the dust from casting processes and reduced the volume of sludge by increasing the recycling rate <table border="1"> <thead> <tr> <th></th> <th>Scope</th> <th>Region</th> <th>Item</th> <th>Base year</th> <th>FY2018 results</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Waste</td> <td rowspan="2">Valuables</td> <td>Japan</td> <td>Volume generated</td> <td colspan="2">Promoted yield improvement and reliably collect scrap materials</td> </tr> <tr> <td>Japan</td> <td>Waste volume generated per vehicle</td> <td>FY2002</td> <td>31% reduction</td> </tr> <tr> <td rowspan="2">Waste</td> <td>TMC</td> <td>Waste volume generated per vehicle</td> <td>FY2002</td> <td>62% reduction</td> </tr> <tr> <td colspan="3">Zero landfill waste</td> <td colspan="2"></td> </tr> <tr> <td></td> <td>Overseas</td> <td colspan="4">Promoted various activities, such as reuse</td> </tr> </tbody> </table>		Scope	Region	Item	Base year	FY2018 results	Waste	Valuables	Japan	Volume generated	Promoted yield improvement and reliably collect scrap materials		Japan	Waste volume generated per vehicle	FY2002	31% reduction	Waste	TMC	Waste volume generated per vehicle	FY2002	62% reduction	Zero landfill waste						Overseas	Promoted various activities, such as reuse		
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15. Reduce packaging and wrapping materials and using resources efficiently in logistics activities	<ul style="list-style-type: none"> Promote <i>kaizen</i> with a focus on increasing use of returnable containers and reducing the amount of wrapping material (Japan) Continue <i>kaizen</i> at conventional level (down 14% from FY2007) (Overseas) Assess best practices 	<ul style="list-style-type: none"> Promoted simplified and returnable wrapping materials (Japan) Continued <i>kaizen</i> as in the past (35% reduction from FY2007) (Overseas) Assessed <i>kaizen</i> best practices 	✓✓	112																																																															
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"	<ul style="list-style-type: none"> Toyota Green Wave Project—an initiative to connect with local communities through the various activities undertaken by all Toyota companies and their global affiliates to preserve the natural environment Continue the currently sustainable plant activity and simultaneously expand the various activities of all Toyota Group companies to overseas subsidiaries, affiliates and local communities and expand the reach of activities in partnership with stakeholders 	<ul style="list-style-type: none"> Continued activities by All-Toyota Harmony with Nature Working Groups (WG) at group and other companies (23 companies) (Connecting activities) <ul style="list-style-type: none"> Expanded harmony-with-nature activities by carrying out a total of 217 activities (84% increase from the previous year) at all Toyota companies in Japan Held a joint event twice annually to strengthen group collaboration (May 2017: tree-planting festival; October 2017: riverside bamboo forest maintenance) (Enhancement of awareness) <ul style="list-style-type: none"> Distributed volume 2 of the Green Wave Project activities booklet to employees in Working Group companies and posted on the company website in June 2017 to steadily raise internal awareness of biodiversity and the activities of each company Launched a website for public in June 2018 in order to raise awareness further Commenced "Plant in Harmony with Nature" activities <ul style="list-style-type: none"> Applied the knowledge obtained through biodiversity conservation activities from the new Toyota R&D Center project to each plant implementing sustainable plant project activities, in order to improve the level of harmony-with-nature activities Commenced its activities by developing new biotope and trial survey of indicator species conducted by employees at the model plant in Japan (Tsutsumi Plant) Expanded activities at the model plant in Japan to other domestic and overseas plants 	✓✓	113																																																														
17. Boost nature and biodiversity conservation grants to connect environmental activities to the world	<ul style="list-style-type: none"> Connect environmental and biodiversity conservation activities to the world through grants for those activities Toyota Today for Tomorrow Project – Strengthen grants for projects helping to solve environmental issues as a means to prioritize the environment field among social contribution activities Collaborate with global organizations and stakeholders to provide new value and extend the circle of activities globally 	<ul style="list-style-type: none"> Built cooperative relationships with international organizations and NGOs as described below and received positive feedback, in particular from government officials, experts, and NGOs Conducted the following two events in collaboration with IUCN <ul style="list-style-type: none"> Event to raise awareness of biodiversity in Asia (May, Bangkok) Red List Project progress report press conference (December, Tokyo) As a part of its support for the Red List Project, donated vehicles to BirdLife International and Conservation International. Presentation ceremonies were held in March in Vietnam and Indonesia. Seminar on natural rubber held as a part of the WWF Living Asian Forest Project (July, Tokyo) Also, social media was used to disseminate images of animals and plants that live in Living Asian Forests and scenes of activities In addition to collaborating with the major NGOs above, continued the Toyota Environmental Activities Grant Program to support small- and medium-size NGOs and NPOs 	✓✓	116																																																															

Editorial Policy	Contents	Overview of Toyota Motor Corporation	Corporate Principles/CSR Structure	Society	Environment	Governance	CSR Data			
Toyota Environmental Challenge 2050	2030 Milestone	FY2018 Review of the Sixth Toyota Environmental Action Plan	Challenge 1	Challenge 2	Challenge 3	Challenge 4	Challenge 5	Challenge 6	Environmental Management	Environmental Data

	Action Items	Specific Actions and Goals	FY2018 Results	Evaluation	Page
Harmony with Nature	(6) Challenge of Establishing a Future Society in Harmony with Nature				
	18. Boost contribution to environmental education "Connecting environmental activities to the future"	<ul style="list-style-type: none"> •Toyota ESD Project—an initiative to strengthen environmental education using regional business bases and company property, and thereby connect environmental conservation activities to the future <ul style="list-style-type: none"> —Toyota ESD Project— – Globally expand education of local residents and children using forests and green biotopes at plants, and so on – Promote development of educational programs taking advantage of the special characteristics of company-owned land (The Toyota Shirakawa-Go Eco-Institute, Forest of Toyota, Miyagawa Forest in Mie Prefecture, etc.) and promote human resources development to connect to the future 	<ul style="list-style-type: none"> •Took the following initiatives: (Employee education) <ul style="list-style-type: none"> – Same as No. 25 (Forest of Toyota) – Held hands-on nature programs for local elementary school children (6,054 children in FY2018) – The cumulative number of visitors reached 170,000 as of March 31, 2018 – Conducted lectures on development of wetland environments for dragonfly preservation and considering how people can live in harmony with them (Toyota Shirakawa-Go Eco-Institute) – The number of visitors who stayed at the Institute in FY2018 reached 16,718 – The cumulative number of visitors reached 209,000 as of March 31, 2018 – Strengthened programs for nurturing children for the future, held eight different children's camps including a new camp for junior high school students with 353 children participating (45% increase from 243 children of the previous fiscal year) (TOYOTA Mie Miyagawa Mountain Forest) – With a local NPO, conducted a course on the roles of forest management for limpid streams and the inhabiting species (New Toyota R&D Center) – Conducted a rice paddy living creature survey and charcoal making experience event for employees as an environmental education program 	✓✓	118
Harmony with Nature	19. Promote environmental contributions through biotechnology and afforestation business automotive peripheral technologies, and forest conservation activities	<ul style="list-style-type: none"> •Respond to environmental issues with bio technology <ul style="list-style-type: none"> – Promote cellulose ethanol development by further improvement of yeast ferment capacity – Contribute natural capital creation by applying to farming biomass business and agriculture area •Contribute to "Adaptation" in climate change through urban greening business and group owned technology <ul style="list-style-type: none"> – Respond to heat island (dissemination of wall greening; high efficient shading paint) <hr/> <ul style="list-style-type: none"> •Establish a model to use resources effectively in Forestry in Miyagawa, Mie Prefecture •Realize a sustainable technical center in harmony with nature and local communities at the new research and development facility currently in the planning stage 	<ul style="list-style-type: none"> •Initiatives in biomass and agriculture fields <ul style="list-style-type: none"> – Conducted verification tests at overseas cellulosic ethanol pilot plants – Expanded market acceptance of the resQ45 series, a manure composting and deodorizing material for the livestock industry* – Provided Housaku Keikaku (an agricultural IT management tool and site improvement tool) to more than 50 agricultural corporations – Concluded cooperative agreements with multiple local governments including Nagano Prefecture – Concluded licensing agreement for Toyota's proprietary GRAS-Di® DNA analysis technology, which dramatically accelerates selective varieties •Promoted urban greening initiatives <ul style="list-style-type: none"> – Promoted market acceptance of Smart Green Parking (SGP), a special urban greening material, and TM9, a low-management turf grass* * Sold by Toyota Roof Garden, a consolidated subsidiary <hr/> <ul style="list-style-type: none"> •Toyota Mie Miyagawa Mountain Forest <ul style="list-style-type: none"> – Developed educational programs using wood products and conduct the programs at Toyota facilities (Toyota Automobile Museum, MEGA Web, etc.) – Used local lumber products at Toyota facilities •New Toyota R&D Center <ul style="list-style-type: none"> – Continued steady environmental conservation activities and surveys at the development site and reported the results to the Environment Monitoring Committee (twice annually) – Worked with experts to continue activities to conserve wild birds, which are declining in number in the Mikawa District – Confirmed successful breeding of owls, as well as oriental dollarbirds, very few of which had successfully bred in the region, in the nest boxes that had been installed – Publicized the knowledge obtained through conservation activities in environmental reports (four times) and an academic society meeting (one time) 	✓✓	119
	Management	Environmental Management			
20. Strengthen consolidated environmental management		<ul style="list-style-type: none"> •Enhance activities of various environmental committees to improve environmental management activities and ensure superior environmental performance (CO₂, water, etc.) across all business activities in countries and regions around the world 	<ul style="list-style-type: none"> •Took the following initiatives: <ul style="list-style-type: none"> – Regularly held the (annual) All-Toyota Production Environment Conference and Liaison Committee (Board of Directors meeting) – Held an environmental global award ceremony (to promote <i>kaizen</i> activities at overseas affiliates) – Held the Sixth Toyota Global Environment Conference in November 2017 and discussed the Toyota Environmental Challenge 2050 and others with managers from various regions 	✓✓	123
		<ul style="list-style-type: none"> •Thoroughly comply with environmental laws and regulations and strengthen proactive prevention measures for environmental risks •Improve chemical substance management by carefully monitoring legal trends in each country and region 	<ul style="list-style-type: none"> •Took the following initiatives: <ul style="list-style-type: none"> – Held seminars targeting those responsible for environmental initiatives at Toyota Group companies in Japan – Seven instances of environmental non-compliance (1 at TMC, 3 in Japan, and 3 overseas) – All were minor non-compliance issues and complaints, and corrective measures and <i>yokoten</i> to other departments were completed 	✓	
	<ul style="list-style-type: none"> •Improve chemical substance management by carefully monitoring legal trends in each country and region 	<ul style="list-style-type: none"> •Deployed chemical substance management globally <ul style="list-style-type: none"> – Complied with Toyota standards – Ensured entry of chemical substance data into the IMDS – Audited and investigated suppliers' processes and evaluated and improved chemical substance management systems 	✓✓		

	Action Items	Specific Actions and Goals	FY2018 Results	Evaluation	Page																																												
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	21. Reduce vehicle exhaust emissions to improve urban air quality in each country and region	<ul style="list-style-type: none"> Steadily introduce low-emissions vehicles to improve urban air quality in each country and region Contribute to air quality improvement through air quality research in collaboration with research organizations in each country 	<ul style="list-style-type: none"> In response to stricter emissions regulations intended to improve the urban environment in various countries and regions, steadily introduced vehicles that satisfy those regulations 	✓✓	124																																												
	22. Reduce VOC emissions in production activities	<ul style="list-style-type: none"> Develop and deploy VOC emissions reduction technologies through reduced usage of paint and thinners in painting processes <ul style="list-style-type: none"> Promote continual reduction in VOC emissions through initiatives linked to painting equipment upgrade plans as well as daily <i>kaizen</i> <table border="1"> <thead> <tr> <th>Scope</th> <th>Region</th> <th>Item</th> <th>Target (FY2021)</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Vehicle body painting</td> <td>Japan*</td> <td>Emissions volume per area painted</td> <td>26 g/m² or less (average for all lines)</td> </tr> <tr> <td>TMC</td> <td>Emissions volume per area painted</td> <td>19 g/m² or less (average for all lines)</td> </tr> <tr> <td>Overseas</td> <td colspan="2">Promote regional No. 1 reduction activities</td> </tr> <tr> <td>Bumper painting</td> <td>TMC</td> <td>Emissions volume per area painted</td> <td>310 g/m² or less (average for all lines)</td> </tr> <tr> <td>Other painting</td> <td>Japan/overseas</td> <td colspan="2">Promote VOC emissions reduction activities</td> </tr> </tbody> </table> <p>* TMC + consolidated subsidiaries in Japan (manufacturing)</p>	Scope	Region	Item	Target (FY2021)	Vehicle body painting	Japan*	Emissions volume per area painted	26 g/m ² or less (average for all lines)	TMC	Emissions volume per area painted	19 g/m ² or less (average for all lines)	Overseas	Promote regional No. 1 reduction activities		Bumper painting	TMC	Emissions volume per area painted	310 g/m ² or less (average for all lines)	Other painting	Japan/overseas	Promote VOC emissions reduction activities		<ul style="list-style-type: none"> Continued efforts to limit the use of cleaning solvents and to increase the percentage of solvent recovery Promoted switching bumper-painting processes to water-borne paints in conjunction with facility remodeling <table border="1"> <thead> <tr> <th>Scope</th> <th>Region</th> <th>Item</th> <th>FY2018 results</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Vehicle body painting</td> <td>Japan</td> <td>Emissions volume per area painted</td> <td>21.5 g/m²</td> </tr> <tr> <td>TMC</td> <td>Emissions volume per area painted</td> <td>14.4 g/m²</td> </tr> <tr> <td>Overseas</td> <td colspan="2">Promoted coating efficiency improvement and other activities</td> </tr> <tr> <td>Bumper painting</td> <td>TMC</td> <td>Emissions volume per area painted</td> <td>176 g/m²</td> </tr> <tr> <td>Other painting</td> <td>Japan/overseas</td> <td colspan="2">Promoted painting condition optimization, and so on</td> </tr> </tbody> </table>	Scope	Region	Item	FY2018 results	Vehicle body painting	Japan	Emissions volume per area painted	21.5 g/m ²	TMC	Emissions volume per area painted	14.4 g/m ²	Overseas	Promoted coating efficiency improvement and other activities		Bumper painting	TMC	Emissions volume per area painted	176 g/m ²	Other painting	Japan/overseas	Promoted painting condition optimization, and so on		✓✓	125
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23. Promote environmental activities in cooperation with business partners (suppliers)	<ul style="list-style-type: none"> Reinforce cooperation with suppliers to further promote environmental activities globally <ul style="list-style-type: none"> Ensure compliance with each country's laws and regulations while steadily promoting chemical substance management Pursue cooperative environmental initiatives in a broad range of areas, including CO₂ emissions reduction, resource recycling, water impact reductions, and the establishment of societies in harmony with nature 	<ul style="list-style-type: none"> Took the following initiatives: <ul style="list-style-type: none"> Requested implementation of activities (at 36 affiliates in 15 countries) based on the revised TOYOTA Green Purchasing Guidelines (January 2016) Requested suppliers in Japan to conduct self-assessments in order to ensure thorough chemical substances management, and carried out activities to enhance future initiatives Conducted similar activities at major overseas sites Continued to implement the CDP Supply Chain Program (to address climate change and the water environment) Conducted various joint studies with suppliers through various study groups and discussions Implemented company-wide environmental initiatives throughout the supply chain and commenced commendation of suppliers that made substantial contributions 	✓✓	126																																													
24. Promote environmental activities in cooperation with business partners (dealers and distributors)	<ul style="list-style-type: none"> Promote environmental management in cooperation with dealers and distributors (Japan) <ul style="list-style-type: none"> Promote environmental initiatives by adhering closely to the Toyota Dealer CSR Checklist and promote CO₂ emissions reduction, etc., by improving environmental management (Overseas) <ul style="list-style-type: none"> Promote and strengthen environmental initiatives led by each regional headquarters and distributor in each country (CO₂ reduction, etc.) Promote and strengthen Dealer Environmental Risk Audit Program (DERAP) 	<ul style="list-style-type: none"> Took the following initiatives: (Japan) <ul style="list-style-type: none"> Promoted environmental initiatives by updating the content of the Toyota Dealer CSR Checklist, and promoted CO₂ emissions reduction and others by using external environmental certification systems and improving environmental management (Overseas) <ul style="list-style-type: none"> Currently creating environmental guidelines for the sales and services fields in each region Promoted and strengthened environmental initiatives (CO₂ emissions reduction, etc.) 92 distributors and 4,296 dealers from 89 countries worldwide participated in the Dealer Environmental Risk Audit Program (DERAP), and 95% of participating dealers satisfied the five requirements (up 4% from the previous fiscal year) 	✓✓	127																																													
25. Bolster global employee education and awareness activities	<ul style="list-style-type: none"> Raise awareness of environmental conservation through global environmental education among employees <ul style="list-style-type: none"> Systemize environmental education programs conducted in cooperation with consolidated affiliates Conduct environmental education in accordance with situations in each country and region 	<ul style="list-style-type: none"> Took the following initiatives: <ul style="list-style-type: none"> During Toyota Global Environment Month, which was first introduced in 1973, conducted environmental education for employees around the world At TMC, used internal digital signage and PC screens, loaned environmental films, subsidized eco-test fees, and took other measures to raise employees awareness of the environment Continued environmental lectures conducted by outside speakers, environmental seminars for employees, and environmental education for new employees Developed an internal environmental education plan in line with the Sixth Toyota Environmental Action Plan in each country and region 	✓✓																																														
26. Enhance active disclosure of environmental information and communication	<ul style="list-style-type: none"> Enhance environmental information disclosures <ul style="list-style-type: none"> Expand business organizations subject to collection of environmental information, and creation of the system Further enhance "Environmental Report" contents Further enhance environmental communications activities in each country and region globally 	<ul style="list-style-type: none"> Took the following initiatives: <ul style="list-style-type: none"> Based on 2016 three-year plan for enhancing environmental information disclosure approved by the Production Environment Committee, continued development of a mechanism for collecting and verifying newly disclosed information Effectively described the status of progress in line with the Toyota Environmental Challenge 2050 and the Sixth Toyota Environmental Action Plan in the Environmental Report 2017 Received the Excellent Environmental Report Prize of the 21st Environmental Communication Awards Continued to produce and publicly release videos effectively spotlighting employees who are striving to carry out the Toyota Environmental Challenge 2050 TMNA produced and publicly released videos which contents are linked with its North America Environmental Report 	✓✓	128																																													