

FUJITSU LABORATORIES LTD. Sustainability Report 2015

The Fujitsu Group has a history of “making things in harmony with nature.” As a member of this group, Fujitsu Laboratories undertakes research and development that ranks environmental contributions as a priority item based on FUJITSU Way-the Fujitsu Group’s corporate philosophy-in which “contribute to society and protect the global environment” is a key corporate value.



Kawasaki Laboratories (Head Office)



Atsugi Laboratories

1. Greetings from the CEO

As the global population increases, the world is coming to face numerous and varied problems including the provision of resources, energy, and food, climate change, more frequent natural disasters, and loss of biodiversity. Under such conditions, it is hoped that the corporate world as well will pursue solutions to such complex and intertwined social and environmental problems.

As the core research and development (R&D) organization of the Fujitsu Group, leveraging our leading-edge technologies to pursue solutions to diverse social and environmental problems through the Fujitsu Group’s business activities, we Fujitsu Laboratories conduct R&D from an environmental perspective across a multitude of domains, ranging from the materials and devices used in products to facilities and system solutions. Furthermore, striving to achieve a genuine coexistence with nature, Fujitsu Laboratories promotes a variety of environmental activities, inclusive of countermeasures to address global warming.



Dr. Hideyuki Saso
CEO and Representative Director
FUJITSU LABORATORIES LTD.

2. Introduction to Fujitsu Laboratories Offices

■ Kawasaki (Head Office)

- Location: 4-1-1 Kamikodanaka, Nakahara-ku, Kawasaki, Kanagawa
- Established: 1968
- No. of employees: about 800

■ Atsugi

- Location: 10-1 Morinosato-Wakamiya, Atsugi, Kanagawa
- Established: 1983
- No. of employees: about 400

3. Green ICT Activities

■ Environmentally Conscious R&D (Promotion of Advanced Green R&D)

- To establish specific targets for putting the “Fujitsu Group Environmental Policy” into practice, the Fujitsu Group formulated the “Fujitsu Group Environmental Action Plan (Stage VII)” for the FY 2013 - 2015 period. This plan emphasizes activities centered about the three themes of “Our Society: contributions to society,” “Our Business: Fujitsu’s own business activities,” and “Continuous targets: continuous management targets.”
- Within “Our Society” Fujitsu Laboratories is promoting “advanced green R&D” with the aim of developing innovative technologies in all its R&D projects towards solutions and products that can help reduce environmental burdens.

■ FY 2014 Performance and Results

- Positioning and highlighting Our Key Green Technologies
 - To disseminate the Fujitsu Group’s advanced green ICT throughout society, promote its early deployment in businesses, and raise the awareness of researchers, we are positioning our “best-in-class” and “world-first” technologies and technologies with remarkably high environmental contribution as “key green technologies.” We are also intensifying dissemination of our technical capabilities and expertise through ongoing R&D efforts and press announcements.
 - In FY 2014, the Fujitsu Group announced 25 research and development achievements, with 18 of these being in the “Green by ICT” category (reduce environmental burdens throughout society by the use of ICT) and 7 in the “Green of ICT” category (reduce environmental burdens of ICT itself)
 - Development Achievements
 - (1) April 8, 2014
Fujitsu Develops Data-Transfer Acceleration Technology
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0408-02.html>
 - (2) April 14, 2014
Fujitsu Develops Technology Enabling High-Speed Search while Accumulating Data at 40-Gbps
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0414-02.html>
 - (3) April 15, 2014
Fujitsu Develops Platform Technology that Speeds Development of On-Site Information Exchange Services
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0415-01.htm>
 - (4) May 7, 2014
Fujitsu Laboratories Develops Trajectory-Analysis Technology for a Big Picture View of Person and Vehicle Flows
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0507-03.html>

- (5) May 8, 2014
Fujitsu and MIT Develop On-Demand Transport Service Technology to Support User Needs and Increase Service Operator Profits
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0508-01.html>
- (6) May 13, 2014
Fujitsu Develops Technology to Recognize Patient Status Using a Camera
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0513-02.html>
- (7) June 5, 2014
Fujitsu Develops Cluster-Based Distributed Controller Technology to Implement Failure-Tolerant Wide-Area Software-Defined Networking
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0605-01.html>
- (8) June 10, 2014
Sales starting of Web server evaluation system "NXS-WAG/G"
<http://jp.fujitsu.com/group/qnet/release/2014/0610.html> (Japanese edition)
- (9) June 10, 2014
Fujitsu Laboratories Develops Lane-Departure Warning Technology Using Wide-Angle Camera
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0610-01.html>
- (10) June 11, 2014
Announcement of new "iNetSec" series of products for enhanced network security
<http://www.pfu.fujitsu.com/news/2014/new140611.html> (Japanese edition)
- (11) June 13, 2014
Fujitsu Laboratories Develops Record-Breaking 56 Gbps Receiver Circuit for Communications between CPUs
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0613-01.html>
- (12) July 15, 2014
Fujitsu Laboratories Develops Technology to Reduce Network Switches in Cluster Supercomputers by 40%
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0715-02.html>
- (13) September 9, 2014
Fujitsu Laboratories Develops World's First Software to Automate Production-Line Image Recognition
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0909-01.html>
- (14) September 16, 2014
Fujitsu Laboratories Develops WAN Acceleration Technology that can Adapt to Combined Communications Networks
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/0916-01.html>
- (15) October 8, 2014
Fujitsu Laboratories Develops Lower-Cost Millimeter-Wave Radar for Automobiles
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/1008-01.html>
- (16) November 11, 2014
Fujitsu Laboratories and The Australian National University Propose New Strategies to manage Native Forests
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/1111-01.html>
- (17) December 5, 2014
Fujitsu Laboratories Develops Sensing Middleware to Simplify Development of Low-Power Sensing Applications
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/1205-01.html>
- (18) December 10, 2014
Fujitsu Laboratories Develops Industry's First Bio-Derived, Water-based Paint
<http://www.fujitsu.com/global/about/resources/news/press-releases/2014/1210-01.html>
- (19) December 11, 2014
Release of tool for assessing regional characteristics for application to Linked Open Data technology
<http://pr.fujitsu.com/jp/news/2014/12/11.html> (Japanese edition)
- (20) January 13, 2015
Fujitsu Laboratories Develops Ring-Type Wearable Device Capable of Text Input by Fingertip
<http://www.fujitsu.com/global/about/resources/news/press-releases/2015/0113-01.html>
- (21) February 10, 2015
Fujitsu Develops Technology for Low-Cost Detection of Potential Sewer System Overflows
<http://www.fujitsu.com/global/about/resources/news/press-releases/2015/0210-03.html>

- (22) February 23, 2015
Fujitsu, PETRA, and NEDO Achieve World's Lowest Energy Requirements of 5 mW per 1Gbps for High-Speed Inter-Processor Data Transmissions
<http://www.fujitsu.com/global/about/resources/news/press-releases/2015/0223-02.html>
- (23) March 6, 2015
Fujitsu Develops Industry's First Technology to Recognize Flow of People from Low Resolution Imaging
<http://www.fujitsu.com/global/about/resources/news/press-releases/2015/0306-02.html>
- (24) March 9, 2015
PWRI and Fujitsu Develop Technology that Automatically Adjusts Parameters of Flood Forecasting Simulators
<http://www.fujitsu.com/global/about/resources/news/press-releases/2015/0309-02.html>
- (25) March 10, 2015
Fujitsu Develops Technology for early detection of irregularities in motor functions using a sensory smart house
<http://www.fujitsu.com/global/about/resources/news/press-releases/2015/0310-02.html>

■ Creation of Green Solutions

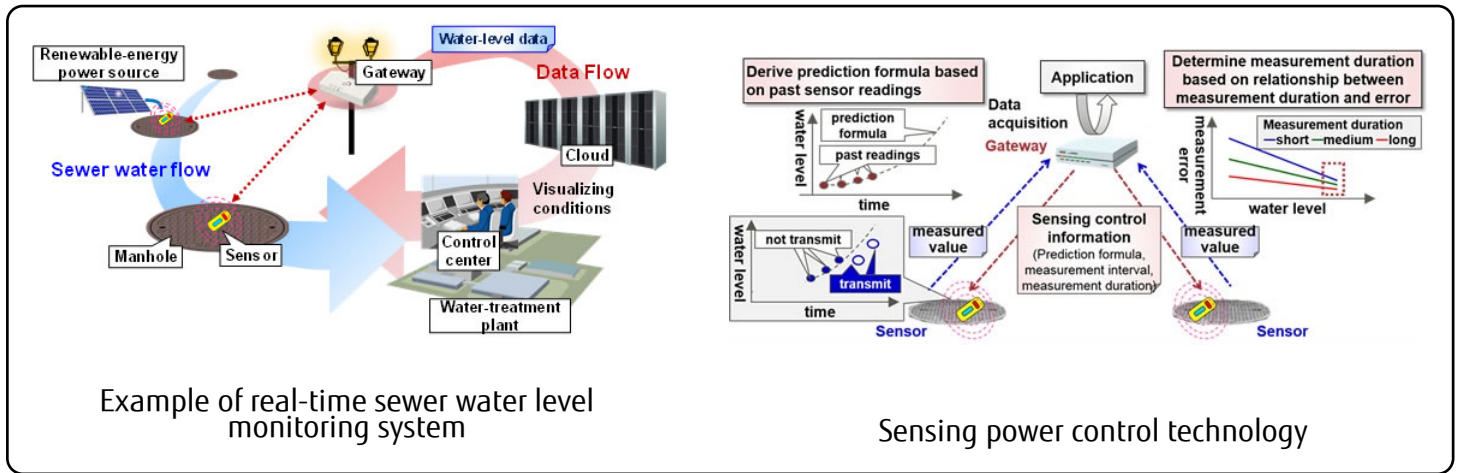
- Social innovation, which links and applies different types of information originating from the corporate world, the government, individuals, sensors, etc., has a core role in Fujitsu's long-term strategy. In the domain of social innovation, Fujitsu Laboratories is researching and developing green solutions as well as platform technologies for integrating the data that supports those green solutions. It is also intensifying dissemination of those solutions and technologies throughout society.
- Examples of green solutions (environment, disaster prevention)
 - (1) Release of tool for discovering regional characteristics for application to Linked Open Data (LOD) technology (announced on December 11, 2014)
 - Enables the customer to grasp regional characteristics from multiple perspectives and to contribute to regional revitalization and improved public services
 - Facilitates the handling and complex analysis of diverse regional data and the creation of new services through the application of LOD technology



Web site (top page)

Example of regional data analysis

- (2) Development of a smart sensing system for detecting risk in the social infrastructure (announced on February 10, 2015)
 - Enables signs of sewage flooding due to torrential rainfall or other causes to be detected at low cost (90% reduction over conventional method)
 - Features control technology for optimal measurement of risk from changing sewage water level and reduces power consumption by about 70%



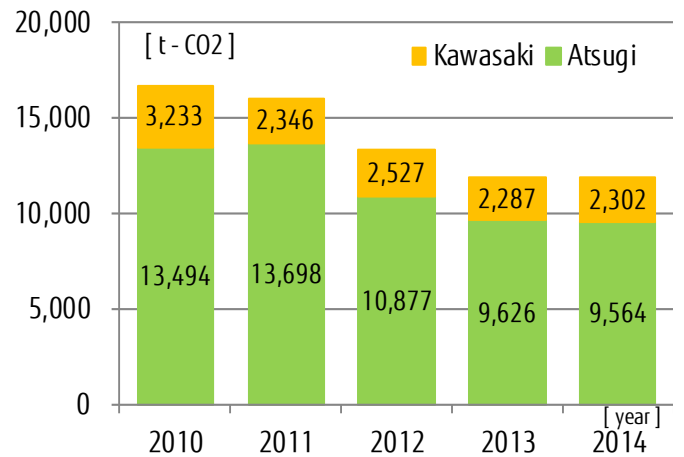
4. Environmental Activities

Countermeasures to Global Warming

- Reduction of energy use and CO2 emissions

To minimize the generation of CO2, Fujitsu Laboratories is promoting energy-saving activities to reduce energy usage at its Kawasaki and Atsugi locations.

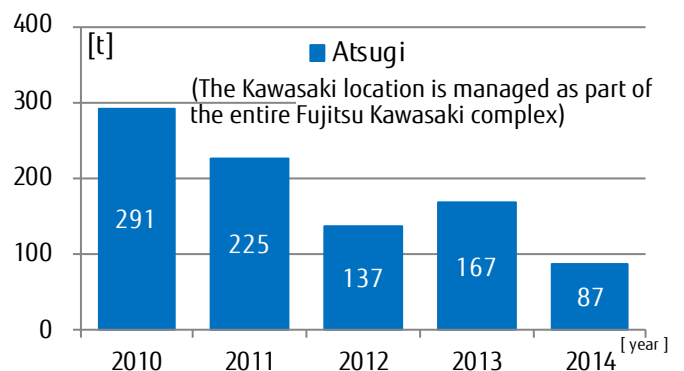
 - Cool Biz campaign (May - October)
 - Super Cool Biz (June - September)
 - Summer/winter power-saving measures (indoor-temperature management, etc.)
 - Green curtains
 - Air conditioning management
 - Facility investment (convert air conditioning exhaust fan to inverter, etc.)



Waste Reduction

- Reuse promotion

Each and every employee of Fujitsu Laboratories is well aware of the “3Rs” (Reduce, Reuse, Recycle) campaign in Japan and sorts waste appropriately. Fujitsu Laboratories strives to reuse office supplies, tools, furniture, cardboard, and packaging thrown out as waste from the workplace with the aim of minimizing wasted resources and reducing environmental burdens.



Office supplies/tools



Furniture

5. Social Contribution Activities

■ Environmental Social Contributions

■ Volunteer cleaning

- At the Kawasaki location, Fujitsu Laboratories teamed up with Fujitsu's Kawasaki Plant in December 2014 to partake in cleaning activities in the area surrounding its offices
- At the Atsugi location, Fujitsu Laboratories teams up with three neighboring firms twice a year in the spring and fall to clean up the area surrounding its offices. In the spring of 2014, Atsugi City's official mascot "Ayukoro-chan" was invited to brighten up the cleaning activities.



Goyah

■ Green curtains

- At the Kawasaki location, Fujitsu Laboratories collaborated with the Kawasaki Plant in the Green Curtain Project that lets goyahs grow along the walls of buildings as a countermeasure to global warming. The goyahs grown in this way were harvested and distributed within the company and put to good use by the employee cafeteria.



Green Curtain Project

■ Regional Social Contributions

■ Remote classes and on-site training

- Fujitsu Laboratories periodically sends out employees to public elementary and middle schools in Kawasaki City and Atsugi City as instructors to introduce Fujitsu technology in an easy-to-understand manner.
- At the request of public middle schools in Atsugi City, Fujitsu Laboratories accepted students for one-day on-site training in an initial trial. These students were able to learn about the joy and difficulty of work through valuable experiences like participating in cleanroom operations.

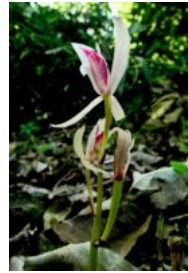
6. Biodiversity

■ Conservation of Biodiversity

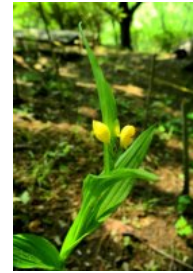
■ Preservation of endangered plants

- At the Atsugi location, Fujitsu Laboratories has been involved in ongoing tree-planting activities based on garden/park management and have maintained an on-premise greening ratio of 53%.

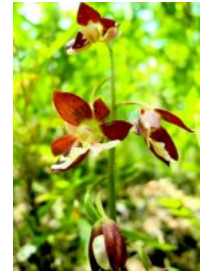
Furthermore, in the green belt, where threatened and near-threatened plants specified on the Red List of Japan's Ministry of the Environment (such as Large Root Cymbidium, Golden Orchid, and Calanthe Discolor) grow wild, their habitat has been designated as a nature preserve. Through activities such as these, Fujitsu Laboratories is making a great effort to conserve biodiversity.



Large Root Cymbidium



Golden Orchid

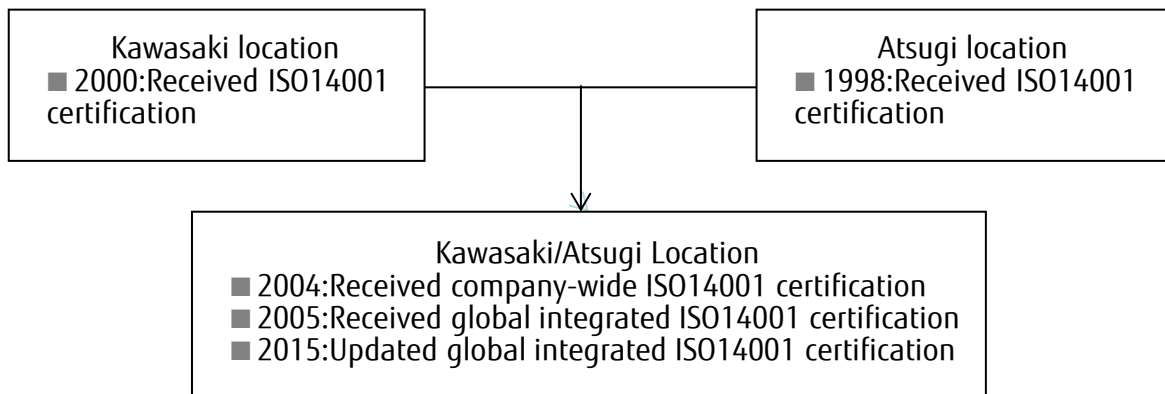


Calanthe discolor

7. Environmental Management System

■ Environmental Management System

The Fujitsu Group engages in environmental activities based on an environmental management system (EMS) conforming to the ISO14001 international standard. As a member of the Fujitsu Group, Fujitsu Laboratories operates an EMS at each of its Kawasaki and Atsugi locations and promotes activities toward the reduction of environmental burdens.



8. Environmental Policy

■ Environmental Policy (Kawasaki)

At its Kawasaki location, Fujitsu Laboratories promotes environmental activities on the basis of the Kawasaki Plant Environmental Policy* treating the Kawasaki Plant (Kawasaki Research and Manufacturing Facilities) as one organization.

* Please refer to the “Kawasaki Research and Manufacturing Facilities Sustainability Report” for details on the Environmental Policy.

URL <http://www.fujitsu.com/jp/about/resources/reports/sustainabilityreport/group/> (Japanese edition)

■ Environmental Policy (Atsugi)

The Atsugi base of Fujitsu Laboratories has established its own environmental policy in line with the Fujitsu Group Environmental Policy.

Fujitsu Laboratories at Atsugi embodies the basic philosophy of “preserving the global environment and contributing to the sustainable development of society” as set forth in the Fujitsu Group Environmental Policy. Giving due consideration to the functions of an R&D hub centered about equipment, devices, and materials used in information and communications technologies, it has established the following principles as a basis for conducting its activities.

- (1) Observe laws/regulations and agreements related to the environment and the Fujitsu Group Environmental Policy
- (2) Operate an environmental management system conforming to ISO14001 and make ongoing improvements in conjunction with changes in business activities to reduce environmental load and prevent pollution
- (3) Perform research and development to produce products that can contribute to a reduction in environmental load and improvement in eco-efficiency
- (4) Promote reductions in environmental load directly related to research and development activities
 - Promote reduced use of energy through energy rationalization
 - Maintain zero waste emission and keep down total volume of generated waste
 - Intensify management of chemical materials and preventive measures against pollution
- (5) Promote environmental social contributions and the conservation of biodiversity based on a global society
- (6) Specify clear environmental objectives, environmental targets, and action items to put these principles into practice and periodically review them to promote good environmental management activities
- (7) Ensure that this environmental policy is well known to all employees of Fujitsu Laboratories at Atsugi and release them to the general public as well

FUJITSU LABORATORIES LTD.
R&D Management Unit
4-1-1 Kamikodanaka, Nakahara-ku
Kawasaki, Kanagawa 211/8588,
Japan TEL: 044-754-2613

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