

CSR Activities for the Future

Basic approach

To become a sustainable company while fostering and expanding a broader range of CSR activities, we began compiling a CSR activity roadmap in FY2011, which we have subsequently implemented over time. In FY2012, we chose a number of key issues based on international guidelines on corporate sustainability reporting published by the Global Reporting Initiative (GRI) as well as ISO 26000, an international standard on organizational social responsibility. We are currently working to resolve those issues.

Activity report for FY2018

Each department discussed CSR issues in line with those key issues and developed its own action program. At the end of the year, those departments then conducted self-evaluations to assess how well they had implemented their programs. (The table below outlines some of the results of that process.)

Future issues

Going forward, we plan to implement CSR activities using techniques that we consider appropriate while relying on guidance and advice from outside experts as we choose key issues and develop CSR issues and action programs.

The global business environment that characterizes the environmental and energy fields in which Takuma's business operates grows increasingly diverse day by day, and that environment remains one of intensifying competition. Our technological capabilities in the environmental and energy fields, which we have refined over many years of experience, form the basis of our CSR management as well as our greatest strength as we look to make a broad contribution to society. We will continue to draw on this strength in our activities going forward.

Sustainable Development Goals (SDGs)

Takuma is working to further progress toward the Sustainable Development Goals (SDGs) through its business activities.



Topics SDGs Initiatives

As part of a larger effort to address the Sustainable Development Goals (SDGs) by supplying environmental plants and energy plants as environmental products to customers, Takuma has launched a series of voluntary internal workshops that cut across organizational boundaries to facilitate discussions about how it can contribute to the SDGs through its business activities and in areas outside its businesses.

We look forward to pursuing the SDGs so that we can help build a sustainable society while assessing how Takuma's activities can make an even more significant contribution to the SDGs.



ISO 26000 core subjects	Key issue	CSR issue	Department	FY2018 action program	
				Action plan	Self-evaluation of results
Organizational governance	Corporate governance	Support for measures to increase the effectiveness of the Board of Directors	Planning Division	Conduct a questionnaire targeting directors in order to increase the effectiveness of the Board of Directors. Evaluate, analyze, and report on the results to facilitate useful discussions at Board of Directors meetings.	We conducted a questionnaire targeting directors and held interviews, evaluated and analyzed the results, and reported them to the Board of Directors.
	Compliance	Cultivation of a robust corporate culture	CSR Division	Share formulations of Takuma's basic approach, for example Management Principles, the Takuma Group Ethics Charter, and the Takuma Group Code of Conduct, and work to ensure that they permeate the organization and take hold.	We highlighted the Management Principles, the Takuma Group Ethics Charter, and the Takuma Group Code of Conduct in the CSR Report and in internal education and worked to ensure that they permeate the organization and take hold.
	Risk management	Risk management in times of disaster	General Affairs Division	Raise awareness among all employees of how to deal with actual disasters through drills involving Takuma's safety confirmation system.	We carried out drills involving Takuma's safety confirmation system in August 2018 and January 2019, achieving a response rate in excess of 95%.
	Employee training on social responsibility	Promotion of understanding (awareness) of social responsibility and recommendations of how employees can take the initiative to found their behavior on an awareness of social responsibility	Marketing Division	Have employees discuss what it means to take the initiative to found their behavior on an awareness of social responsibility internally in their own department in order to facilitate such conduct.	We held internal readings of the Takuma Group Ethics Charter and the Takuma Group Code of Conduct, worked to raise awareness of social responsibility, and sought to promote conduct that accords with ethical principles.
	Stakeholder engagement	Development of trusting relationships with customers	Marketing Division	Meet customer requirements in an appropriate manner by working to streamline communication with customers and among internal departments.	Results of the customer satisfaction survey conducted during the previous fiscal year were reported internally at the beginning of the fiscal year and relayed to the QM Committee. Evaluations of our coordinators exceeded targets.
Consumer issues	Safety and quality of products and services	Design of facilities that satisfy customers through safe, stable operation	Engineering Division	Utilize review lists and checklists, and carry out performance verifications during plant commissioning in order to achieve stable operation of facilities after handover.	We made use of reviews and checklists in the design process and verified that stable operation is possible during a performance verification carried out during the commissioning process prior to plant handover.
		Improvement of construction quality	Construction Division	Work to improve construction quality by carrying out voluntary inspections in the field and strengthening checks of the status of construction management in the field by internal coordinators.	Although we conducted at least one site construction management status check every month, additional work was added after the facility was handed over to the customer. In each case, we identified the cause and resolved it by taking steps to address it. While the number of such incidents increased compared to the previous fiscal year, all additional work was minor in nature, and we believe that we were able to effectively improve construction quality.
Fair operating practices	Compliance with the Antimonopoly Act	Assurance of understanding of, and compliance with, the Antimonopoly Act	Marketing Division	Offer training on the Antimonopoly Act and continue to implement the Regulations Concerning Management of the Pledge of Antimonopoly Act Compliance.	We offered training on the provisions of the Antimonopoly Act and worked to ensure that employees understand the "Regulations Concerning Management of the Pledge of Antimonopoly Act Compliance" and the "Regulations on Managing Contact with Competitors' Sales Departments" and that they will comply with those and other regulations.
Labour practices and human rights	Appropriate employment relationships and labor conditions (including safety and health, social dialog, etc.)	Enhancement and monitoring of health and safety initiatives at worksites	Safety Control Division	Prevent accidents requiring leaves of more than 30 days by worksite employees by conducting safety patrols along with construction departments, site officials, and partner companies and thoroughly implementing health and safety activities such as safety inspection planning.	A site employee responsible for marshalling traffic twisted his ankle on a grade difference at a worksite and broke a bone. It will be necessary to ensure employees exercise caution in the future regarding grade differences involving temporary equipment and the installation of suitable lighting.
		Improvement of work-life balance	Engineering Division	Improve work-life balance by encouraging employees to use alternative time off and annual leave time.	Despite being busy, we were able to foster awareness of the need to improve work-life balance and meet our targets in that area.
	Employee skill development (skill enhancement)	Training and skill development for employees	Engineering Division	Work to improve employee knowledge by sharing information about cases in which design defects have been caused by insufficient knowledge or experience at departmental and other meetings.	We worked to improve awareness by sharing information internally about examples of defects, their causes, and corrective measures, and applying that information to checklists and other tools.
Environment	Contributions to resolving environmental problems	Implementation of initiatives to reduce environmental impacts	Engineering Division	Formulate and propose plans for new technologies and businesses that would allow us to help reduce environmental impacts in the environmental and energy fields while differentiating ourselves from competitors in the same industry.	Although we achieved our goal, we will work to develop plans that will enable us to make a greater contribution to the environment.
		Initiatives to save energy and reduce CO ₂ emissions	Engineering Division	Actively contribute to the resolution of environmental problems by pursuing measures to save energy and reduce CO ₂ emissions at plants during the planning stage.	We actively proposed improvements incorporating measures to save energy and reduce CO ₂ emissions.
Community involvement and development	Contribution to society	Contribution to the communities around our worksites	Engineering Division	Work to further beautify the neighborhoods in which worksites are located by encouraging employees to participate in local clean-up activities.	Employees have a high level of awareness of the importance of participating in volunteer clean-up activities, and many employees actively participated in such initiatives.

Corporate Governance

Corporate Governance

• Basic policy on corporate governance

In order to safeguard and steadily increase Takuma's corporate value over the long term, it is essential not only to ensure the development of the company's businesses, but also to clearly define governance in corporate operations—that is, to ensure that shareholders' oversight of operations is carried

• Board of Directors

As of June 26, 2019, the Board of Directors was comprised of six directors (excluding directors who are members of the Audit & Supervisory Committee) and five directors (of whom four were outside directors). The Board of Directors meets regularly once a month as a rule and whenever else it is necessary to make decisions about important issues related to business management and issues established by law and ordinances, as well as to oversee the execution of the directors' duties.

Directors	Including the following outside directors:
11 (10 men and 1 woman)	4 (3 men and 1 woman)

• Executive Officers

In order to accelerate management decision-making and clarify where management responsibilities are placed, we have adopted an executive officer system in which we appoint executive officers who are entrusted with the responsibility of executing our business activities. As of June 26, 2019, there were 15 executive officers (including those who also serve as directors). Moreover, we have also established a Committee of Executive Officers, which is chaired by the president/chief executive officer, as an organization that deliberates matters that are brought up at meetings of the Board of Directors and other important issues related to the execution of our business activities. This committee communicates and provides direction about items decided by the Board of Directors and other important items related to the execution of our business activities appropriately to the divisions that are to execute them.

out appropriately and that officers carry out their operational responsibilities by means of a process that is clear, rational, efficient, and legally compliant. For that reason, we believe that understanding the Corporate Governance Code and putting it into practice in an autonomous and systematic manner are top-priority management issues.

• Audit & Supervisory Committee

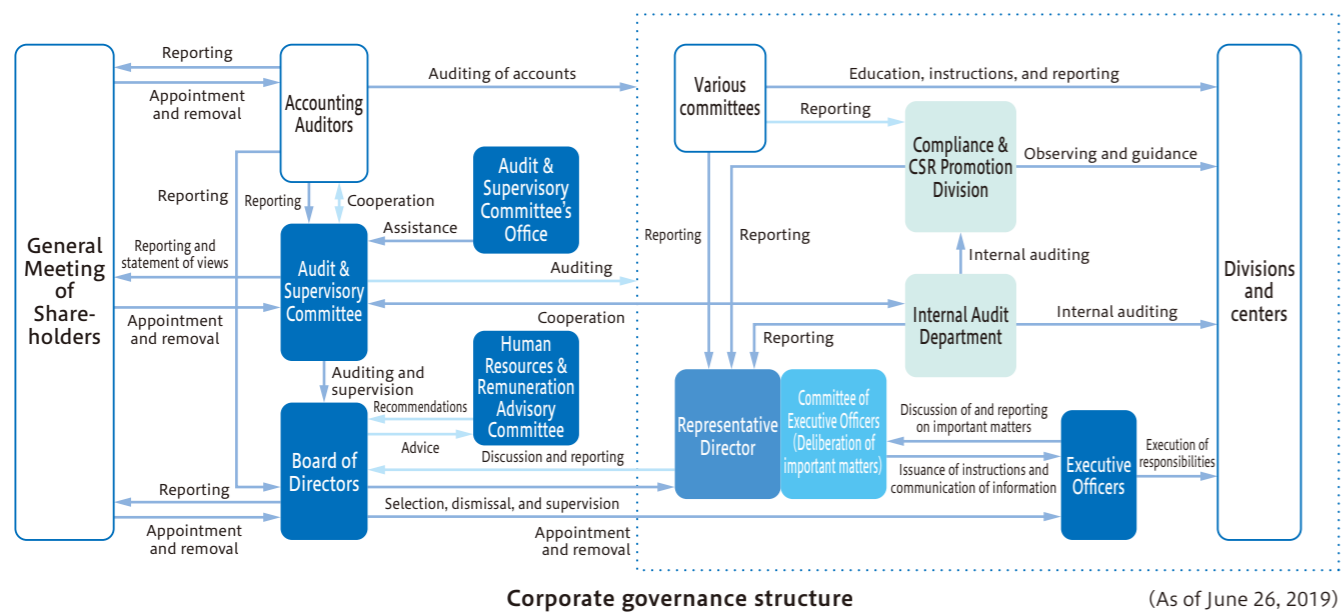
An Audit & Supervisory Committee that consists of five members, of whom four are outside directors, is responsible for accounting and operational audits. Members of the committee attend important meetings, including those of the Board of Directors and the Committee of Executive Officers, and they strive to understand and observe the status of business execution in a timely and appropriate manner. Drawing on their professional background and experience, they express their opinions as necessary from an objective perspective, and they conduct strict auditing of the business execution performed by the directors. To facilitate the effectiveness of audits carried out by the Audit & Supervisory Committee, the representative director holds regular meetings with committee members to ensure good communication.

• Audit & Supervisory Committee's Office

Takuma has established an Audit & Supervisory Committee's Office to help carry out the committee's work.

• Human Resources & Remuneration Advisory Committee

To augment the above structures, we have established a Human Resources & Remuneration Advisory Committee comprised of independent officers, representative directors, and the officer in charge of human resources. The purpose of the committee, a majority of whose membership consists of independent outside directors, is to increase transparency and objectivity in the selection of candidates for director and executive officer positions and in the determination of the compensation and other terms so as to enhance the oversight function of the Board of Directors.



Corporate governance structure

(As of June 26, 2019)

Internal Control

Takuma has adopted a Basic Policy for Establishment of an Internal Control System (the full text is available on our website) in accordance with the Companies Act. We continue to review and improve this policy in response to changing circumstances.

Working towards thorough compliance, Takuma built a compliance promotion organization in FY2006 in order to continuously implement enlightenment and educational activities that make corporate ethics, related laws and ordinances, and internal rules fully understood. To control the danger of loss, we have also prepared a "Risk Management Code" that determines the person in charge of each risk, and we set up our risk management organization

according to that Code. When the unexpected occurs, emergency headquarters are established with the company president as the director in charge of risk management, and an organization is put in place in order to minimize and prevent further damage through prompt action.

Internal control, constructed and evaluated in order to report on and prevent misstatements in our financial reporting, is based on the Financial Instruments and Exchange Act. This internal control on financial reporting for the Group has resulted in reports that indicate this system has been effective.

In this way, we will continue to work in the future to ensure thorough compliance while carrying out business properly and efficiently while also deepening risk management.

Compliance & CSR Promotion Structure

• Basic approach

Led by the department in charge of compliance and CSR promotion (CSR Department), Takuma aims at encouraging that activity through the Compliance & CSR Promotion Organization that was installed for the purpose of enabling compliance and CSR to concretely permeate company-wide through an in-house organization.

This organization is composed of a chairman (the Executive Manager of the Compliance & CSR Promotion Division), a secretariat (positioned in the CSR Department), and an executing organization in each division, center, and department. As the person in charge of promoting compliance and CSR in his or her division, each division or center manager is appointed as a Compliance and CSR Promotion Administrator. As persons who implement awareness and education in compliance and CSR in their respective departments, department managers are appointed as Compliance and CSR Promoters. The meetings conducted within this mechanism include regular meetings and departmental meetings.

• Regular meetings

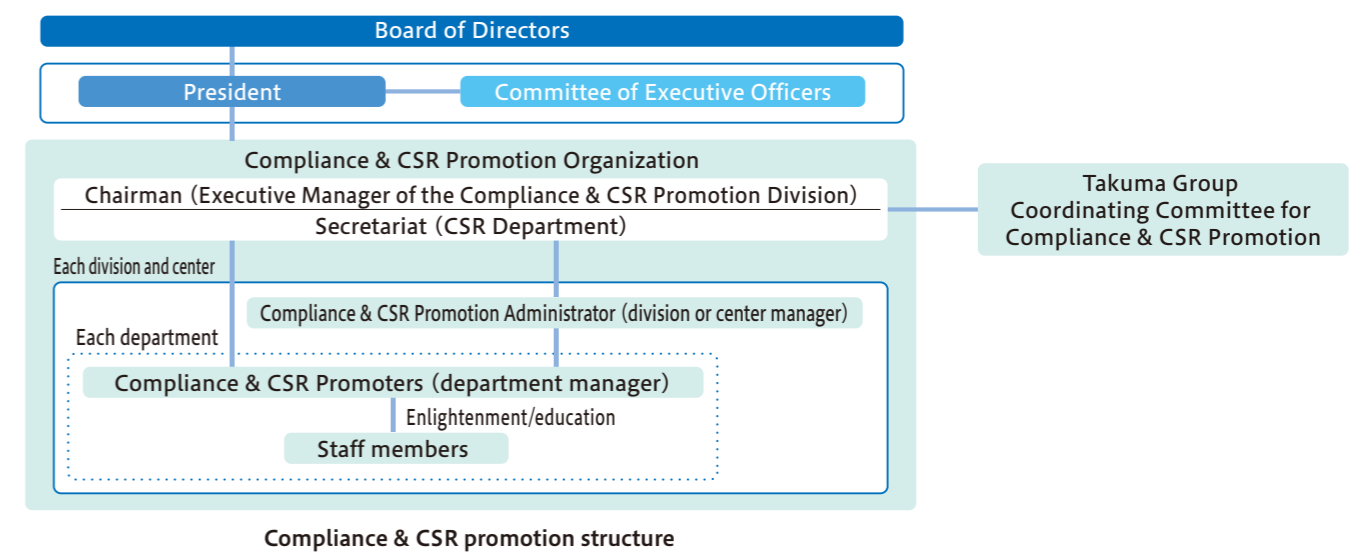
Regular meetings are held once a year. The person in charge of promotion receives reports on the status of compliance and CSR promotion company-wide, as well as on the status of the implementation of compliance and CSR promotion education for the past year, etc., and participants deliberate on a promotion plan for the current fiscal year.

• Departmental meetings

Promotion members convene departmental meetings once a quarter, with educational training aiming at the permeation of compliance and CSR in each department. After departmental meetings, promotion members implement compliance and CSR promotion education in their respective departments using training materials or in-house educational materials and report the result to the Secretariat.

• Takuma Group Coordinating Committee for Compliance & CSR Promotion

We are pursuing awareness-raising and educational activities targeting group companies through our Takuma Group Coordinating Committee for Compliance & CSR Promotion to ensure thorough compliance and risk management throughout the Group. During FY2018, we invited representatives of group companies to participate in two meetings of the committee.



Compliance & CSR promotion structure

Corporate Governance

Risk Management Structure

Takuma follows a "Risk Management Policy" that connects company-wide risks and separately classifies them into "project risks" related to our core business, i.e., plant construction; "DBO project risks" and "DBO project operation, maintenance and management risks" related to our DBO business; and "potential risks," "actualized risks," and "financial reporting risks" related to other corporate business activities.

We are also building a risk management organization and constructing a system of risk management and promoting the strengthening of management for group companies as well through our Takuma Group Coordinating Committee for Compliance and CSR Promotion.

Risk Management Policy

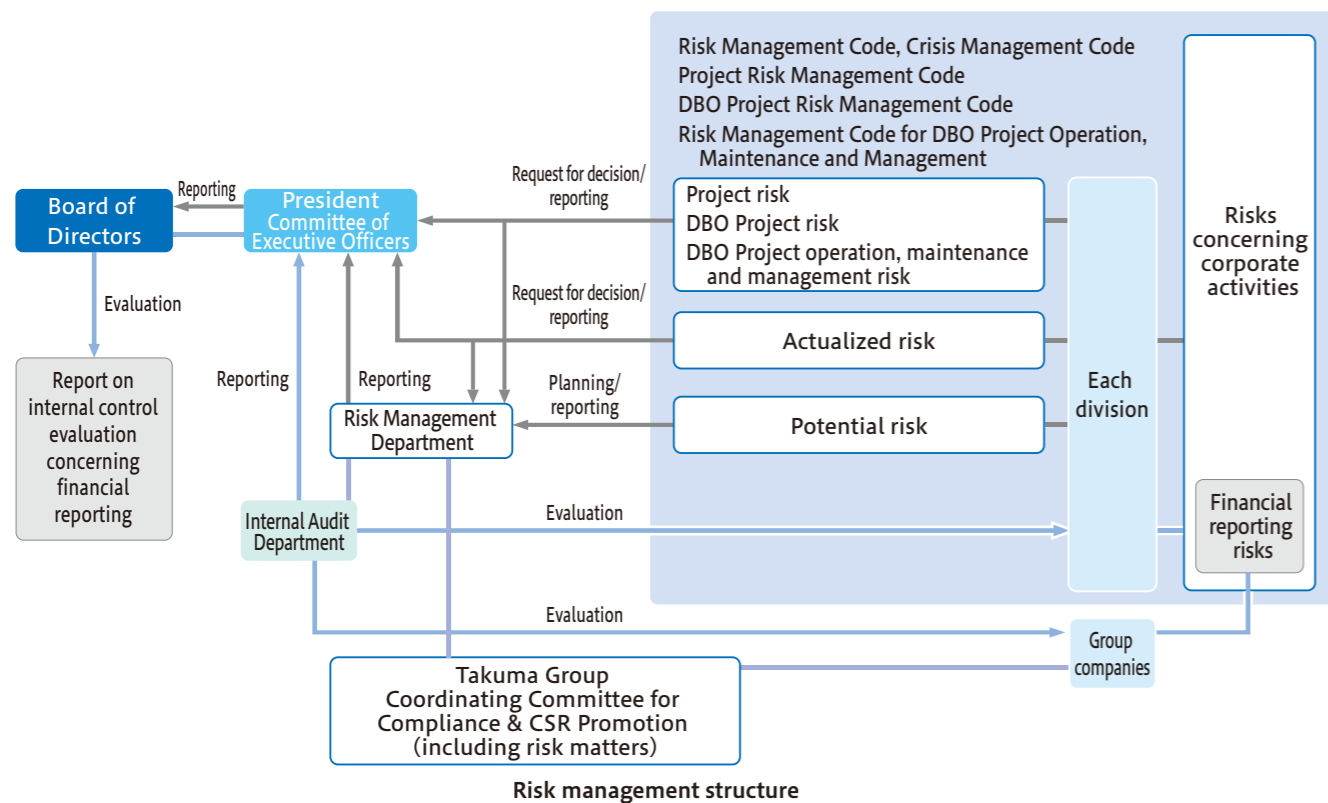
[Basic purpose of risk management]

Risk refers to all phenomena that interfere with the Group's ability to achieve its business objectives or cause losses or harm to the interests of stakeholders.

The Takuma Group practices risk management with the goal of increasing its corporate value by working to maximize returns while minimizing the negative impacts of risk.

[Risk management action guidelines]

1. The president and CEO is responsible for risk management at Takuma.
2. All officers and employees participate in risk management activities.
3. Risk management activities are carried out in accordance with applicable guidelines such as the Risk Management Rules.
4. Risk management activities are carried out in line with the Medium-Term Management Plan and annual plan, and we work to make improvements on an ongoing basis.
5. When risk manifests itself, we respond by taking responsible action quickly to minimize any damage and creating provisional organizational entities as necessary.
6. Group companies carry out risk management activities in accordance with their own policies and plans, with support from Takuma.

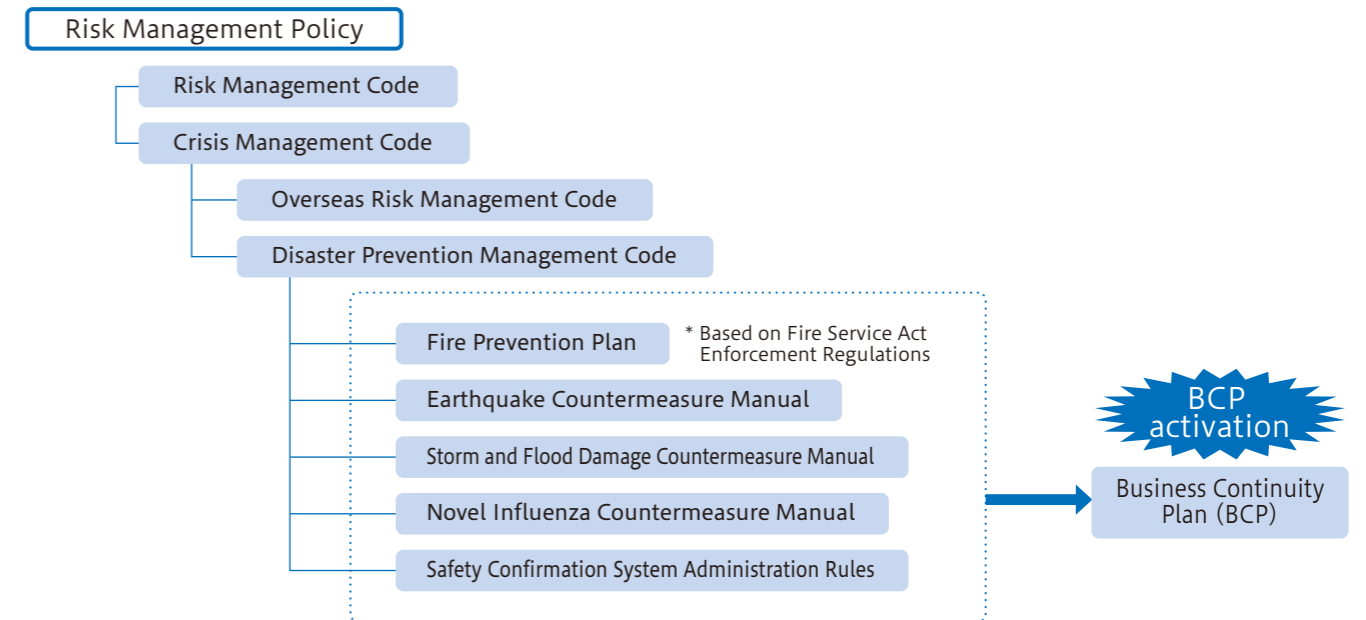


Business Continuity Plan (BCP)

Takuma has formulated a "Business Continuity Plan" based on the following policies to ensure proper and appropriate continuity of business operations in the event of a large-scale disaster, pandemic, or other emergency:

1. In addition to implementing disaster-related measures to secure the safety of corporate officers and employees, maintain structures so as to enable continuity of business operations while minimizing damage in an emergency.
2. Strive to respond to customer needs and recover from damage quickly by working closely with suppliers and partner companies to continue business operations.
3. Earn the trust of numerous stakeholders, including employees, their families, shareholders, and nearby residents, and fulfill social needs by continuing business operations.

[Disaster rule system diagram]



IR Activities

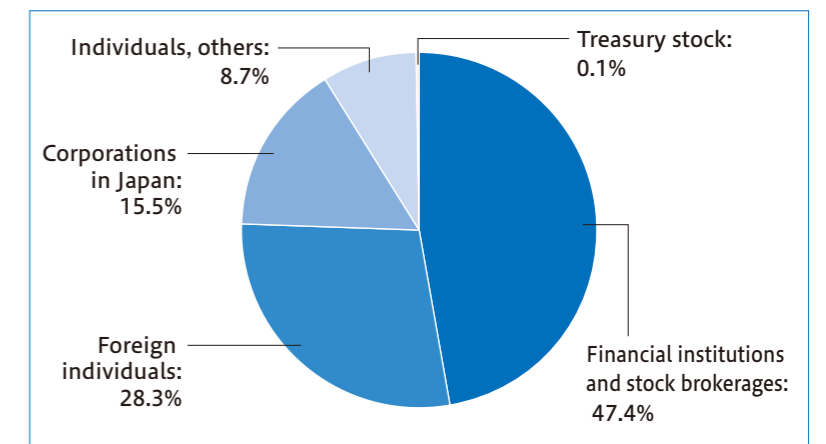
In keeping with the "Takuma Group Code of Conduct," we provide our shareholders and investors with accurate corporate information in a timely and fair manner. As a part of this, we provide notifications on the convening of General Meetings of Shareholders, balance sheet information, timely disclosure information, marketable securities reports, shareholders reports, annual reports in English and other business information, all on our website.

[Takuma website > IR information]

<https://www.takuma.co.jp/english/investor/index.html>



Shareholders Report



Composition of shareholders (as of March 31, 2019)

Corporate Governance

Directors



(Back row, from the left)

Minoru Murata Outside Director (Audit & Supervisory Committee Member)	Osamu Iwahashi Outside Director (Audit & Supervisory Committee Member)	Tomomi Fujita Outside Director (Audit & Supervisory Committee Member)	Hiromichi Satake Outside Director (Audit & Supervisory Committee Member)	Yasushi Enomoto Director (Audit & Supervisory Committee Member)
---	--	---	--	---

Hideki Takeguchi Director Senior Managing Executive Officer	Kengo Numata Director Executive Vice President	Takaaki Kato Director Chairman Executive Officer	Hiroaki Nanjo Representative Director President and Chief Executive Officer	Tsuyohito Nishiyama Director Senior Managing Executive Officer	Koji Tanaka Director Executive Officer
---	---	--	---	--	---

Executive Officers



Takashi Manabe Managing Executive Officer	Ryoji Tani Managing Executive Officer	Norito Uchiyama Managing Executive Officer	Mitsuaki Adachi Managing Executive Officer
---	---	--	--



Akira Taguchi Executive Officer	Hidetoshi Tomita Executive Officer	Norio Maeda Executive Officer	Kunio Hamada Executive Officer	Keiji Nakamura Executive Officer
---	--	---	--	--

Message from a New Outside Director



Tomomi Fujita
Outside Director
(Audit & Supervisory Committee Member)

I've been involved with corporate legal affairs for about 15 years as an attorney. During that time, an especially large proportion of my work has centered on legal work involving manufacturing companies (including consultations, negotiations, and lawsuits involving intellectual property rights and various domestic and international transactions). In addition to teaching a weekly class through a semester at Kyoto University Law School as a lecturer, I serve as a director of the Licensing Executives Society Japan, whose membership includes top corporate management and leaders, businesspeople, attorneys, patent attorneys, and scholars.

I'm looking forward to taking advantage of my experience and legal knowledge to contribute to the growth of Takuma, Japan's leading plant and boiler manufacturer.

Takuma has integrated many objectives related to the 17 Sustainable Development Goals (SDGs) that were adopted at a United Nations summit in 2015 into its businesses, particularly clean water and sanitation (Goal 6), affordable and clean energy (Goal 7), and protection of the natural environment (Goals 14 and 15). Takuma's business, and the role it plays in society, will likely become increasingly important going forward. It is a great honor for me to be chosen to serve as an outside director (specifically, as a member of the Audit & Supervisory Committee) at Takuma in a new era such as the one we face today, and I will do my best to fulfill my role.

Other SDGs include gender equality (Goal 5) and economic growth and productive employment (Goal 8). As a female outside officer, I hope that I will be able to further improve Takuma's corporate value by helping to tap the potential of a diverse workforce that includes woman and boosting productivity.

Respect for Human Rights and the Abolition of Discrimination

Our company sets out its respect for basic human rights and prohibition of discriminatory acts in the Takuma Group Ethics Charter, Takuma Group Code of Conduct and labor regulations. In addition, we also support respect for human rights, without contributing to human rights violations, elimination of forced labor/child labor and the abolition of discrimination through participation in the UN Global Compact. We are also working to promote employment of disabled and elderly individuals.

- **Takuma Group Ethics Charter (excerpt)**
 4. We shall respect fundamental human rights and never practice discrimination.
- **Takuma Group Code of Conduct (excerpt)**

【Respect for basic human rights】

 9. Prohibition of discriminatory actions
 10. Respect of individuality, personal quality and privacy
 11. Safe work environment

Working with Our Employees

The 12th Medium-Term Management Plan, which began in FY2018, sets forth a series of measures to address our workforce, which is an essential resource and the foundation of all efforts to advance our businesses. Top priority is given to pursuing hiring and training, and to creating an environment in which to ensure each and every employee enjoys an engaging and motivating work experience while giving full play to all of his or her abilities over the long term.

Employee data

Number of employees	852 (including 784 men and 68 women)
Average age	43.3
Average years of service	15.4
Attrition rate	6.3% (past 3 years)

*As of March 31, 2019

Employee retention programs

Takuma is involved in a variety of employee retention programs to ensure employees remain at Takuma over the long term.

Workstyle reform initiatives

Initiatives to boost productivity

In addition to working to review business processes and streamline and improve operations in individual departments, we're working to boost productivity by deploying a videoconferencing system and automating work by means of RPA.

Using RPA tools to streamline operations

Environmental Engineering Department 1 is responsible for planning municipal solid waste treatment plants. The process of planning optimal plants that align perfectly with customers' needs requires an extremely large number of complex calculations that span multiple files. Among those calculations are operations in which input parameters must be varied little by little in an effort to search for the optimal system, with the result that the process has many, simple steps. To reduce the amount of time taken up by these calculations, we have deployed robotic process automation (RPA) tools, and we succeeded in saving about 1,000 hours by means of that approach during FY2018.



Putting in place an environment that encourages employees to take annual leave

As a way to promote mutual understanding and cooperation, employees announce their plans in advance for five of their annual paid time off days to their counterparts in the workplace. This initiative is conceived to allow employees to take advantage of paid time off in a well-planned manner.

Initiatives to promote the participation of female employees in the workplace

We're working to deepen women's understanding of Takuma while boosting the number of female applicants and hires through such means as including content specifically for female college students on our website and hosting information meetings just for female students.

In addition, we're working to increase the number of female employees in management positions and the number of female employees on the main career track (including individuals who have been tentatively offered positions) as of March 31, 2021, to

Number of newly hired graduates over the last 5 years by gender (main career track)

	FY2015	FY2016	FY2017	FY2018	FY2019
Men	19	18	19	17	16
Women	1	1	2	2	2
Total	20	19	21	19	18

20, which would be double the corresponding number as of March 31, 2016, by putting in place a workplace environment that facilitates flexible workstyles and continued employment.



Child-raising and nursing care support measures

We offer the following work programs as measures to help employees balance work demands with their child-raising and nursing care responsibilities.

- Nursing care leave
- Child-raising and nursing-care leave
- Reduced working hours program
- Flex time program
- Telework program

Impressions from an employee who has taken advantage of Takuma's child-raising leave (male, 20s, engineering position)

Because our first child still requires a lot of care at age 3, I took child-raising leave for about 11 months starting one month after our second child was born so that my wife could go back to work. I consulted with my supervisor before returning to my position, and now I'm working in the same department as I was before I took the leave. Thanks to the support of my supervisor, colleagues, and the company, I've been able to participate in the same work as I did before taking the leave.



Employee health initiatives

In addition to stress checks and examinations to assess the risk of adult-onset diseases, our annual health checkups include cancer and gastric checks for employees who wish to have them.

We also hold health consultations by an occupational physician (once a month) and counseling sessions by a clinical psychologist (twice a month) as part of our commitment to

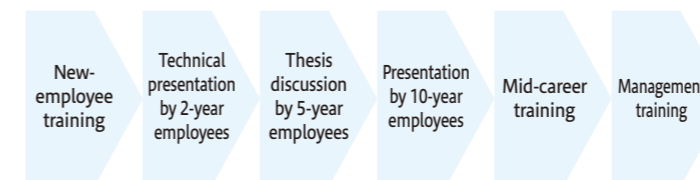
facilitating employees' physical and emotional health.

We encourage employees with excessive working hours to meet with an occupational physician for guidance. The Human Resources Department also interviews such employees and their supervisors so that we can study and implement corrective measures after the cause of the excessive hours has been pinpointed.

Supporting employee skill development

Grade-specific educational programs

We're working to enhance employee ability, technological skills, and management capability by offering grade-specific educational programs, from new hires to management candidates.



Technical training sessions

We hold several technical training sessions a year in order to increase employees' technical knowledge, including lectures by university professors and outside researchers and presentations by Takuma engineering employees about their work responsibilities and research themes.

Support for skill development

To support employee skill development, we reimburse employees for the cost of acquiring various licenses and offer incentives for earning professional certifications.

Language education

To improve employees' language skills, we host the TOEIC test twice a year and offer incentives to employees who earn a high score.

Working with Our Employees

Systems designed to boost employee motivation

Objective management and human resources evaluation system

At the beginning of each fiscal year, operational goals are determined based on departmental policies and individual employees' work issues and expected roles. A mid-year interview in September and annual review interview the following March offer opportunities for supervisors to offer feedback to their subordinates by evaluating their job performance and to receive advice and requests from employees. In this way we strive to foster subordinates' abilities and improve their motivation through communication between supervisors and their subordinates.

Self-reporting system

We have introduced a self-reporting system that allows employees to communicate their thoughts on topics such as their future career path directly to the company every three years. Through this system we are working to assess employees' awareness, needs, and issues and to apply that information to human resources measures.

Work group transfer system

We have created a work group transfer system to facilitate movement from clerical and labor positions to the main career track so that motivated and skilled employees can make use of their abilities. We also provide opportunities for employees to be promoted to management positions.

In-house commendation system

Each year on June 10, we hold an awards ceremony to commemorate the anniversary of the company's founding.

- **Takuma Prize:**
Employees who have helped improve operations or who have exceptional achievements in community service
- **Invention and idea commendations:**
Employees who have earned patents or other intellectual property rights
- **Safety and Health Award in Construction Division:**
Foremen at sites without accidents or damage
- **Takuma Technical Review Outstanding Paper Award**
- **Qualifications acquisition commendations**
- **Length-of-Service Award**
(every 5 years of service after 20 years)



Promoting employment of senior citizens

We have put in place programs to offer employees who have left the company after reaching retirement age reemployment at Takuma and group companies up to age 65.

Number of reemployed individuals over the past 5 years

	FY2014	FY2015	FY2016	FY2017	FY2018
Number of employees reaching retirement age	12	11	3	5	11
Number of employees desiring reemployment	10	10	2	5	10
Number of reemployed employees	10	10	2	5	10

Social welfare programs

We have introduced a number of social welfare programs designed to meet a diverse array of employee needs.

- **Cafeteria plan:**
Employees receive a fixed "benefits budget" from the company to spend by choosing from a menu of options including support for self-study, child-raising and nursing care, healthy living, and asset-building.
- **Employee Shareholder Association:**
Employees can combine contributions that are automatically deducted from their salaries and bonuses provided by the company to purchase Takuma shares.

Human Rights and Labor Practices

Efforts for Occupational Safety and Health

Occupational safety and health initiatives

Since FY2006, we have introduced TK-COHSMS based on an occupational safety and health management system for the construction industry and worked actively and independently to improve our safety and health activities. We believe that among these efforts, the manner in which (1) safety inspections, (2) mandatory safety and health education (education for construction site representatives), and (3) creation of pre-work safety procedure checklists known as SSAs have been steadily adopted by all departments and used to consistently improve the level of knowledge about Takuma's safety and health is particularly noteworthy.

We have adopted the following safety and health objectives for FY2019: for construction sites, eliminating accidents that result

in work stoppages (of four or more days); for branches, pursuing a thorough program of safety and health education, ensuring adherence to safety inspection guidelines, and implementing the branch safety patrol plan; and for the Safety and Health Cooperative Association, strengthening collaboration with partner companies. We will work to revitalize safety and health activities throughout the company by carrying out that role.

Rather than contenting ourselves with the status quo, we will pursue new safety and health initiatives to foster a deep awareness of the concept that underlies our safety and health policy — "understanding the need for respecting people and giving top priority to safety and health" — on the part of everyone who's involved in our operations.

Safety and health activities and their results

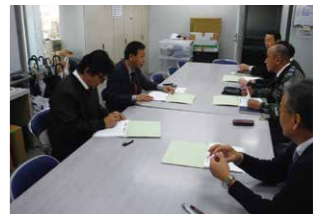
Safety inspection system

We maintain a system where any construction or installation work starts only after the safety and health manager or other responsible official in each department conducts a successful safety inspection based on safety and health plans for the construction or installation work as prepared by our primary partner companies.

We strive to ensure a safe work environment at all construction sites by eliminating potential hazards and risk factors identified by those inspections before work begins.

FY2018

Number of safety inspections done: 163
(Initial inspection pass rate: 95%)



A safety inspection meeting

Safety patrols and safety talks

Based on an annual plan, safety patrols are carried out at worksites by the Safety and Health Committee (comprised of committee members and advisors), Safety Control Department, and construction division along with safety talks in a precisely targeted and efficient manner.

Safety patrols focus on identifying and eliminating risks as early as possible, while safety talks are conceived to prevent occupational accidents and raise employees' safety awareness by offering an opportunity to hand out and explain materials such as examples of accidents. Both programs help ensure safety at worksites in the field.

Number of safety patrols implemented in FY2018

By Safety and Health Committee (members, advisors) : 47
By Safety Control Department : 267
By construction division : 334



Safety patrols



Safety talks

Safety and health education (education for construction site representatives)

We continuously provide specialized safety and health education at branches and worksites to increase the levels of safety awareness and knowledge of our employees and partner companies.

As indicated at right, more than 17,500 trainees have passed the completion exam. We are involved in a variety of initiatives to put in place mechanisms for preventing accidents, including by assigning workers with extensive knowledge in areas such as safety-related laws and ordinances to individual construction sites.

April, 2004 to March, 2019

Cumulative number of trainees : 34,078
Number of trainees passing the completion exam : 17,621



Head Office venue



Tokyo Branch venue

Efforts for Occupational Safety and Health

Safety and Health Meeting

Takuma holds a Safety and Health Meeting to bring workers with safety- and health-related responsibilities together to improve and share their safety and health awareness with the goal of ensuring worker safety and health and promoting the development of a pleasant work environment.

During FY2018, we recognized subcontractors that helped achieve our zero-accident record at worksites, held a lecture entitled “Key Revisions to Safety Belt Standards,” and hosted a



Presentation of a zero-accident record award

talk by a guest lecturer entitled “Health and Safety Activities Incumbent upon Managers: Considering Risk Assessment and Human Error.” In addition, safety and health partner companies gave presentations on their safety and health policies and goals, and all participants closed the meeting by chanting the FY2018 slogan and pledging to continue to work toward thorough safety and health management by utilizing TK-COHSMS.

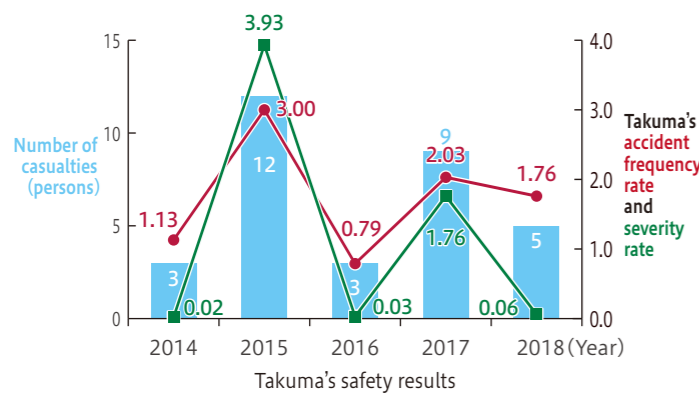


Pointing and chanting of the slogan by all participants

Takuma's safety results in recent years

In 2018, the total number of worked hours fell by about 64% compared to 2017. In addition, the total number of occupational accidents and accidents leading to missed workdays fell about 60% of the 2017 level. However, the total number of occupational accidents held constant in the two-digit range for the five-year period starting in 2014. In

addition to enhancing our safety and health management structures in order to halt this trend, we will work to ensure even more thorough risk management through a unified effort by all involved so that we can redouble our resolve to eliminate occupational accidents.



Year	Accident frequency rate	Accident severity rate
2014	0.91	0.07
2015	0.92	0.21
2016	0.64	0.11
2017	0.81	0.18
2018	1.09	0.30

Reference: Nationwide accident frequency and severity rates for the construction industry (general construction)

Topics Takuma receives Outstanding Construction Contractor Award and Outstanding Engineer Award

In November 2018, Takuma was recognized as an Outstanding Construction Contractor for the Imabari New Waste Treatment Facility Maintenance and Operation Project/Imabari City New Waste Treatment Facility Construction Project, which was completed in FY2017. In addition, Takuma's site manager for the work was recognized as an Outstanding Engineer.

The pair of awards, which the City of Imabari offers to recognize outstanding construction contractors and engineers that serve as a model for others in construction technology, site superintendence, and other areas of their performance in construction work ordered by the City, are conceived to help ensure construction projects are carried out in an appropriate manner and to improve associated technologies.



Conferment of the awards by Mr. Ryoji Kan, Mayor, Imabari City

Message from a partner company



Mr. Yuichi Nakayama
General Manager
Tobu Crane Service Center
Hitachi Plant Mechanics Co., Ltd.

We're a general manufacturer of industrial cranes. Our goal is to supply products that meet customer needs with an integrated system that encompasses design, manufacture, and after-sales service, and we've been responsible for manufacturing and providing after-sales service for the ceiling-mounted waste feed cranes in Takuma's Energy from Waste plants for many years.

Recently, from August through October 2018 we replaced the traveling rails of the waste feed cranes and the fall prevention safety net at the Shinkoto Waste Treatment Plant operated by the Clean Authority of Tokyo.

As their name suggests, ceiling-mounted traveling cranes are installed near the ceiling, making construction potentially hazardous due to the need to work at a height. Consequently, construction guidelines that value safety are critically important. For this project, we reduced the risk of falls by holding study group meetings before work started with partner subcontractors, installing a temporary handrail and multiple safety ropes on the runway, installing two man lifts on the hopper floor, and ensuring that all workers used two safety belts.

The work we carried out required great care and compliance with safety standards based on Takuma's safety inspection program, and we were able to complete it without incident or accident thanks to Takuma's guidance, which the company offered in the form of daily meetings, joint safety patrols, and other means.

We look forward to working to ensure safety in a way that meets Takuma's expectations in the future based on our safety slogan: “Build an uncompromising safety culture that does not accept unsafe conditions based on thoughtfulness toward coworkers' safety.”

Message from Takuma's Purchasing Department



Shinobu Takahashi
Associate Director
Purchasing Department
Takuma Co., Ltd.

Hitachi Plant Mechanics Co., Ltd., supplies products including waste cranes, which are a key component at our waste incineration plants. We're deeply grateful for the company's excellent record of cooperation with our health and safety activities at construction sites, including new installations as well as overhauls and other work.

Work involving cranes at waste incineration facilities is associated with an extremely high level of risk due to the fact that the work must be carried out in constricted areas and at a height. The magnitude of this risk is borne out by the accident record, and we require subcontractors to take a rigorous approach to safety management at sites. In asking Hitachi Plant Mechanics to handle replacing the traveling rails for the waste feed cranes and the fall prevention safety net at the Shinkoto Waste Treatment Plant last year, we imposed numerous requirements at a worksite where worker tension was aggravated by the effects of an accident that had occurred the previous year. The company took those requests seriously and complied appropriately.

The sequence of work required by the project was completed without accident thanks to an approach that included a variety of measures, for example applying the characteristics of the site as assessed in advance surveys into safe work procedures. I'm confident that Hitachi Plant Mechanics developed a shared understanding of Takuma's approach to health and safety.

Going forward, I hope that Hitachi Plant Mechanics will join Takuma in working to continue our zero-accident record by cooperating to implement thorough risk management at all sites where the two companies work together and by further deepening our shared awareness of health and safety.

The Environment

Basic Environmental Policy

Our company has established the “Basic Environmental Policy” as follows, aiming to ensure employees contribute to global environmental conservation. This basic policy applies to the activities of all company departments.

Environmental Philosophy

Takuma is committed to preserving the environment and realizing an affluent society through business activities under the Company Motto: “Value Technology, Value People, Value the Earth.”

Operational Guidelines

1. All Takuma Group companies will recognize the importance of maintaining a balance between preservation of the environment and business activities.
2. Continuously develop activities to preserve the environment that comply with applicable environmental laws and ordinances, and ensure environmental control and assessment systems conform to international environmental standards.
3. Promote development of improved technologies and products for society that preserve the environment.
4. Address resource conservation, energy efficiency, recycling, and minimization of waste generated by all business activities.
5. Improve employee awareness and understanding about the importance of preserving the environment through environmental education and internal promotional activities.
6. Provide the community with information on the activities of Takuma to preserve the environment.

Environmental Management

• The situation concerning the acquisition of ISO 14001

Our Harima Factory has acquired ISO 14001 certification and has been implementing environmental management activities based on an environmental management system established to comply with international standards.

Our group companies Nippon Thermoener Co., Ltd., Takuma Technos Co., Ltd., Hokkaido Sanitary Maintenance Co., Ltd., and Dan-Takuma Technologies Inc. have also acquired ISO 14001 certification.



Harima Factory

Takuma's CO₂ Emission Reduction Technologies

We convert waste/biomass into energy and reduce CO₂ emissions!

In 1 year, Takuma products cut about 5 million tons!

Equivalent to the CO₂ absorbed by about 350 million Japanese cedar trees*: Assuming one Japanese cedar tree absorbs 14 kg of CO₂ per year. (*Equivalent to a cedar forest the size of 7,500 Tokyo Domes, assuming each tree takes up about 1 square meter of space.)

Reducing CO₂ emission with biomass power plants

The sugar industry is an example of an industry that generates power using biomass. Factories that make sugar produce large quantities of residue from sugarcane, the raw material used to make sugar. Sugarcane is crushed into a pulp, and sugar is extracted in a mill. The remaining fiber is called bagasse and can be used as plant fuel. The steam and electricity generated by the plant are used as sources of heat for the milling process and of power for plant operations, while surplus power is sold back to a power company. The amount of power generated at sugar factories has grown greatly, with examples of single plants that generate 50,000 kW.

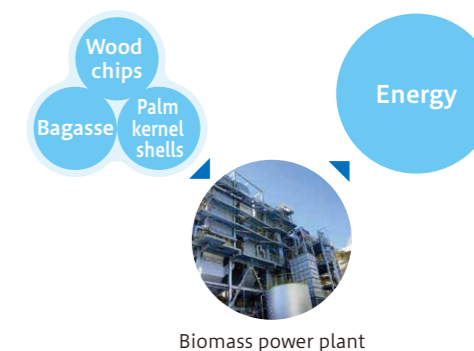
In 1 year, down about 4 million tons!

CO₂ emission reduction achieved by Takuma's biomass power plants

(as of end of FY2018)

• What is biomass?

Biomass is any recyclable organic material derived from a living organism, but does not include fossil fuels, such as oil and coal. For example, even though CO₂ is emitted if wood chips are incinerated, when trees grow again, they absorb CO₂ to offset the emissions from incineration, so there is no increase in CO₂ in the atmosphere. Biomass power generation helps reduce the amount of electricity generated from fossil resources, helping lower CO₂ emissions.



CO₂ emission reduction from waste incineration plants

Garbage, or waste, is an important source of energy. About 500 kW** of power can be generated from one ton of garbage. In Europe and the Americas, waste incineration plants are often called Energy from Waste (EfW) plants, and recovering energy from garbage has become the norm. Waste must be seen as a “resource,” so Takuma is seeking to be the best in the world with our technologies to convert waste into energy and reduce CO₂ emissions.

In 1 year, down about 1 million tons!

CO₂ emission reduction achieved by Takuma's municipal solid waste incineration plants

(as of end of FY2018)

** Presumes waste with a calorific value of 8,800 kJ per kg and a power generation efficiency of 20%



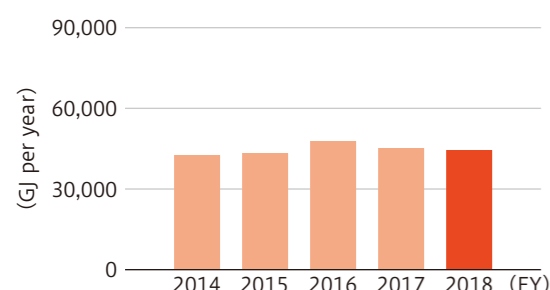
The Environment

Environmental Reporting

Takuma reports the environmental impact of its business activities as well as the manner in which it takes environmental considerations into account in accordance with the Environmental Reporting Guidelines (issued by the Ministry of the Environment). This environmental reporting program includes not only environmental information extracted from our overall business activities from an environmental standpoint, but also information about related economic and social aspects of those activities.

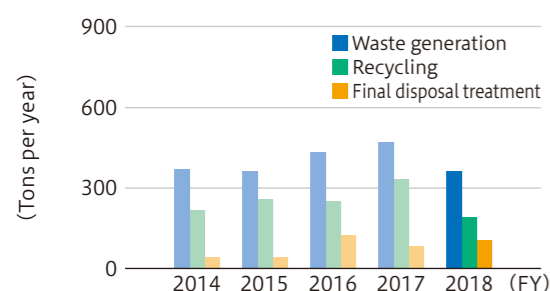
Environmental data (non-consolidated)

Total energy consumption



The total energy consumption of the fuel and the electricity consumed at Takuma during FY2018 fell slightly compared to FY2017 levels. We will continue to promote energy savings from here on out.

Waste generation



Our company sells recyclables and reusables from the waste generated through its business activities to scrap dealers, while outsourcing the treatment of non-recyclables and non-reusables to haulers, processors and final disposal dealers, in accordance with the Industrial Waste Control Manifest system.

PRTR target substance emissions

Although our business activities do not involve a wide variety of chemical substances on a massive scale, we use a few designated chemical substances. Consequently, we report and register such chemical substances designated under the Pollutant Release and Transfer Register (PRTR), in accordance with relevant laws and ordinances, with the local government.

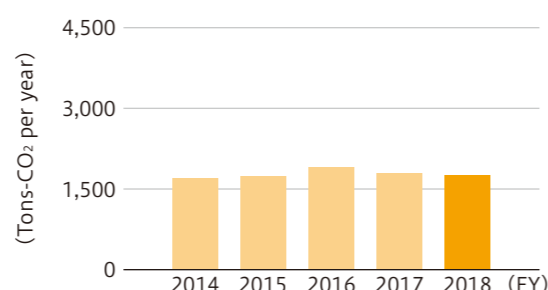
Dichloromethane (CAS No. 75-09-2)

FY	2014	2015	2016	2017	2018
Emissions (tons per year)	0.3	0.4	0.4	0.5	0.3

Xylene (CAS No. 1330-20-7)

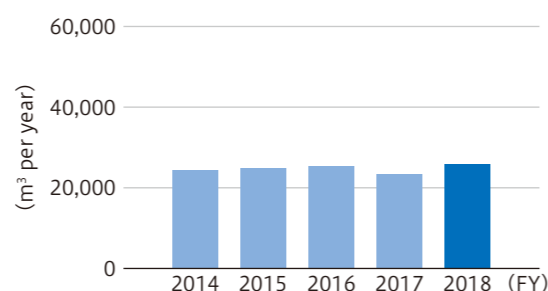
FY	2014	2015	2016	2017	2018
Emissions (tons per year)	3.4	2.2	2.9	1.2	1.1

Greenhouse gas emissions



The greenhouse gas emissions created by our company are limited to carbon dioxide (CO₂). The amount of CO₂ emissions in FY2018 fell slightly compared to FY2017 levels. We will continue striving to reduce CO₂ emissions.

Water usage



Water consumption during FY2018 rose slightly compared to FY2017. Going forward, we will work to lower our water use.

Toluene (CAS No. 108-88-3)

FY	2014	2015	2016	2017	2018
Emissions (tons per year)	0.08	0.26	0.09	0.07	0.06

These materials are used for antirust painting of boiler structures and so on.

Environmental accounting

Environmental accounting is the process by which companies and other entities recognize the cost of environmental conservation in their business activities as well as the effects of those activities and measure and communicate them in as quantitative a manner as possible (either in terms of monetary amounts or amounts of materials) with the goal of pursuing environmental conservation initiatives in an efficient and effective manner while maintaining a good relationship with society so as to

Environmental conservation cost

According to the "Environmental Accounting Guidelines," environmental conservation costs measure on a monetary basis investments and expenditures on preventing, controlling, or avoiding environmental impacts, eliminating their effects, recovering from associated damage, and initiatives to aid in the same.

Item	Investment (thousand JPY)	Costs (thousand JPY)
Business area costs		
Pollution prevention costs	2,655	21,035
Global environmental conservation costs	16,003	20,271
Resource recycling costs	—	13,479
Management activity costs	—	41,584
Research and development costs	38,598	1,478,605
Social activity costs	—	11,808
Total	57,256	1,586,782

Environmental conservation effect

According to the "Environmental Accounting Guidelines," environmental conservation effects measure on a material basis the effects of preventing, controlling, or avoiding environmental impacts, eliminating their effects, recovering from associated damage, and initiatives to aid in the same.

Item	FY2017	FY2018
(1) Environmental conservation effect concerning resources input for business activities		
Total energy input (Gj)	97,416	95,047
Water resources input (m ³)	45,460	48,034
(2) Environmental conservation effect concerning environmental loads and wastes created by business activities		
Greenhouse gas emission volume (tons-CO ₂)	4,131	3,977
Waste generation (tons)	1,028	934
Final disposal volume (tons)	131	150
Total drainage volume (m ³)	45,460	48,034
BOD emissions (kg)	2,448	2,565
COD emissions (kg)	2,613	2,747
T-N emissions (kg)	645	693
T-P emissions (kg)	111	121

Environmental efficiency

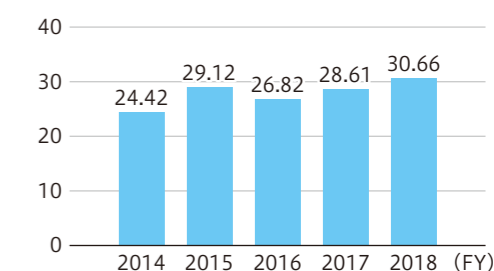
Even as total environmental impacts must be reduced, it is necessary from a business management standpoint to pursue environmental initiatives that are characterized by a high degree of economic efficiency. We report environmental efficiency using an index calculated in accordance with examples provided by the Ministry of the Environment in its Environmental Performance Indicators Guidelines for Organizations.

At the Takuma Group, we calculate environmental efficiency as the ratio of consolidated net sales to greenhouse gas emissions. In FY2018, this value improved slightly compared to FY2017.

The Takuma Group's definition of environmental efficiency

$$\frac{\text{Consolidated net sales (million JPY)}}{\text{Greenhouse gas emissions (tons-CO}_2\text{)}}$$

Environmental efficiency



facilitate sustainable development. In FY2006, we introduced and disclosed our own environmental accounting system based on the "Environmental Accounting Guidelines 2005" issued by the Ministry of the Environment. As our business activities mainly involve environmental conservation plants and their equipment, Takuma Group employees have a significant awareness of the need for environmental conservation, and we have been implementing approaches toward such issues within the Takuma Group.

Scope of data collected

• Period covered: April 1, 2018, to March 31, 2019

• Companies targeted:

12 domestic companies

- Takuma Co., Ltd. (Head Office, other offices including overseas sites and the Harima Factory)
- NIPPON THERMOENER CO., LTD.
- Takuma Technos Co., Ltd.
- Hokkaido Sanitary Maintenance Co., Ltd.
- Takuma Technos Hokkaido Co., Ltd.
- SUNPLANT Co., Ltd.
- Takuma Engineering Co., Ltd.
- Takuma System Control Co., Ltd.
- Dan-Takuma Technologies Inc.
- Kyoritsu Setsubi Co., Ltd.
- Kankyo Sol-Tech Co., Ltd.
- Takuma Plant Service Co., Ltd.

2 overseas subsidiaries

- Taiden Environtech Co., Ltd.
- Siam Takuma Co., Ltd.

Fair Business Practices

Compliance & CSR Promotion Education

Takuma offers compliance and CSR promotion education through the Compliance & CSR Promotion Organization (see page 42), which was established in order to spread awareness of compliance and CSR issues among employees. During FY2018, we implemented education focusing on compliance and CSR promotion in four separate stages (see below) in keeping with our policy of pursuing a sustained and thorough program of spreading and improving compliance and CSR awareness and risk management. This effort, through which we sought to live up to society's requirements and expectations, while taking into account internal circumstances and the characteristics of group companies, was based on the Compliance & CSR Promotion Division's medium-term policy of continuing to practice compliance-focused management in accordance with the 12th Medium-Term Management Plan.

- 1st term: Effect of Japanese-style plea bargaining on corporate operations
- 2nd term: Corporate disaster prevention and mitigation, SDGs (Sustainable Development Goals), Takuma's CSR comprehension test
- 3rd term: Corporate scandals, security export control
- 4th term: Compliance and internal reporting system (lecture), forward-looking CSR activities: CSR issues and an action program



4th term lecture
(Speaker: Mr. Kiyoshi Endo, Attorney at Law, Endo Kiyoshi Law Office)

Sessions: 4 per year (May, August, November, and January)
Number of participating departments: 45
Total number of attendees: 4,026

CSR lectures for management-level employees

In September 2018, attorney Yusaku Kurahashi of the law firm Nakamura, Tsunoda & Matsumoto gave a talk for managers entitled "Risk Management in Ordinary Times and in Times of Emergency."

In the talk, Mr. Kurahashi addressed the job responsibilities and operational response of executives from the standpoint of risk management in ordinary times and in emergencies. The lecture offered a valuable opportunity to think anew about conventional risks as well as special risks that are more likely to go unnoticed.



Compliance Measures

Initiatives to ensure compliance with the Antimonopoly Act

Towards ensuring permanent compliance with the Antimonopoly Act, Takuma enacted "Regulations Concerning Management of the Pledge of Antimonopoly Act Compliance," which provides for the submission of a written oath in regard to observing the Antimonopoly Act.

"Rules on Controlling Contact with Competitors' Sales Departments, Etc.," defines the procedure for an employee to contact the sales department, etc., of a competitor and specifies that an application should be made to and an approval should be obtained from the affiliated division or center manager in advance to ensure fair business contact.

Holding training sessions about the Antimonopoly Act

We hold regular training sessions about the Antimonopoly Act to deepen participants' understanding of the act and to ascertain the latest information about it.

Introducing a Legislation Information Service

In order to allow its employees to gain a continuous grasp of the latest changes to laws and ordinances, Takuma introduced a Legislation Information Service. In this system, legislation alerts highlighting revisions to, and abolition of, laws and ordinances are sent by e-mail in advance to employees, who can also review detailed information about the corresponding law or ordinance on the system's website as needed.

In addition to current laws and ordinances, the system lets users search for legal precedents and public comments to facilitate an even greater understanding of relevant laws and ordinances.

CSR Awareness Survey

As a means of understanding the level of awareness of compliance and CSR and the level of permeation of education that promotes these priorities, and employing that data as reference for the integrated activities carried out during each fiscal year and for the following fiscal year's action plan, we have conducted the "CSR Awareness Survey" every year since FY2008 with the end goal of utilizing that information for future compliance and CSR promotion activities. The survey has included group companies since FY2013.

We actively use survey results in our activities, for

example by offering additional education in areas that received lower scores than in the previous survey. In FY2018, responses indicated that 921 (of 942) employees are conducting themselves in accordance with standards such as the company's Management Principles and the Takuma Group Code of Conduct, indicating that awareness of the importance of compliance and CSR have spread widely among employees.

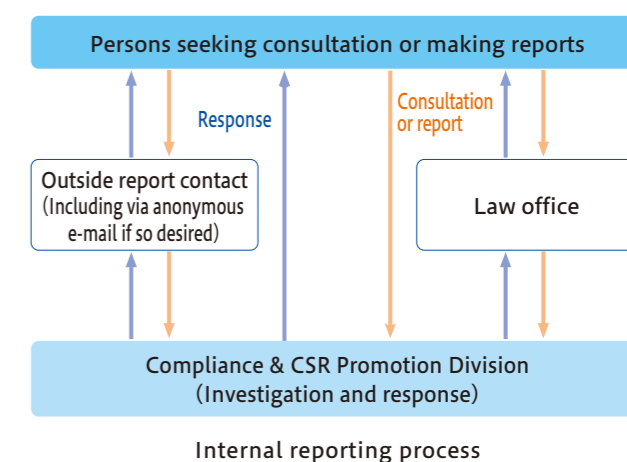
We will continue to offer this survey and use its results to improve compliance and CSR promotion education on an ongoing basis.

Internal Reporting System

Takuma has been operating an internal reporting system since FY2006, with the aim of promoting compliance management by uncovering illegal or unfair acts as early as possible and undertaking corrective measures.

Reporting contacts are set up at our Compliance & CSR Promotion Division and at an outside law office, as well as a dedicated outside report contact for anonymous e-mail reporting. Our "Internal Reporting Code" and the Takuma Group Code of Conduct further declare that no informant shall be subjected to disadvantageous treatment simply due to his or her having filed a report.

Furthermore, in order for this system to be correctly understood and utilized, we distribute a card to all employees with information on the reporting contacts and regularly publicize the system. Although awareness of this system exceeded 90% according to the results of the FY2018 CSR awareness survey, some respondents indicated that they were unaware of the system or uninterested in utilizing it, suggesting that issues remain for the reporting system.



Material Procurement Policy

Our Purchasing Department carries out procurement activity in accordance with its Material Procurement Policy.

We provide fair opportunities for all suppliers, irrespective of nationality, company size, or transaction history. Suppliers are selected based on our comprehensive evaluation of their reliability and safeness in terms of quality, price, delivery, etc., as well as their abilities in technological development and supply capabilities.

Long-term stable transactions with dependable suppliers result in improved product reliability and greater corporate value. We, therefore, seek to establish relationships of mutual trust and mutual development with our suppliers.

While also respecting relevant laws and regulations as well as social norms, we strictly control and maintain any confidential information that we obtain through our business transactions.

More information about the procurement procedures used by our Purchasing Department is available on the following website: [Takuma website > Material Procurement] <https://www.takuma.co.jp/procurement/> (content in Japanese)

【Material Procurement Policy】

1. Treat all candidates fairly when selecting a supplier.
2. Strive to discover new manufacturers.
3. Strictly control confidential information.
4. Strive to acquire new and pertinent information.
5. Promote green procurement.
6. Comply with laws and ordinances related to business dealings.
7. Always keep VA and VE in mind.
8. Strive for self-development.

Activities Involving Product Quality

The amount of attention paid by consumers (stakeholders) to quality in a wide range of fields, including manufacturing and services, has been growing in recent years. This section introduces Takuma initiatives that are designed to provide safe, confidence-inspiring products and plants.

Takuma's Head Office, branch companies, and other business offices have earned certification under the ISO 9001 international standard on quality management systems, and the Harima Factory has earned certification under the ISO 9001 and ISO 14001 international standards on quality management systems and environmental management systems, respectively. In December 2017, we completed a

transition to ISO 9001:2015, the latest edition of that standard. In addition to working to improve the quality of our products in accordance with our Quality Policy and quality management system, we are pursuing activities that emphasize customer satisfaction.

In order to produce products and plants that customers truly appreciate, it is necessary not only to boost the quality of the product itself, but also to improve the operations and quality as well as each individual's ability to create a good plant in each process from planning up to delivery (sales, planning, design, procurement, manufacture, construction, and management).

Quality Policy

Takuma Co., Ltd. has adopted the following Quality Policy in order to provide satisfying products that meet customer expectations and earn a high level of trust while continuously improving the effectiveness of its quality management system.

Quality Policy

“Manufacturing products that result in customer satisfaction”

Based on that Quality Policy and the three priority items described below, Takuma is working to improve the quality of its products and services through a variety of initiatives that address every process, including in sales, planning, design, procurement, manufacture, construction, and management.

Priority items

- **Creating value to earn customer satisfaction (ascertaining customer needs and making improvements based on past experience)**
- **Carrying out risk management (addressing changes in the business environment and human error)**
- **Implementing human resources management (implementing human resources development and ensuring skills are passed down to younger employees)**

Specific initiatives for improving quality

• Organizational initiatives for improving quality

As an organizational initiative that's designed to boost product quality, we have each department establish quality targets at the beginning of the year and then provide regular reports (twice a year) on progress towards achieving those goals at QM Committee meetings (quality management reviews). As part of the transition to ISO 9001:2015, we're working to further improve quality by identifying an effort to clarify and address risks and opportunities as a key quality goal and evaluating the effectiveness of that effort.

• Internal quality audits

In addition to increasing the precision of operations by standardizing operating procedures in each department's processes, we are improving operations as necessary by carrying out an internal quality audit of each department to verify the status of quality management system operation. Internal quality audits are carried out regularly by employees who have been certified as internal auditors after completing internal quality auditor training seminars offered by instructors from an outside organization. At the training seminars, employees master content ranging from basic

knowledge about ISO 9001 to specific methods for conducting internal audits.

• Improving the employees' individual operational skills

To improve employees' individual operational skills, we have created an operational skill achievement checklist that identifies the skills required by personnel in each process for use in regular assessments, and we are reviewing the targets we have chosen.

• Quality control and process reviews

Quality control is an important measure that allows us to provide exceptional products and plants. We take action (improvement measures) as outlined by a manual (standard) in the event a non-conforming product is discovered, but even if an issue doesn't lead to a non-conforming product, we conduct a review as a preventive measure if there are processes that could have caused the issue. Furthermore, we actively offer training to new business partners and retraining (instruction) for existing business partners to prevent defects in the products we purchase.

Customer satisfaction survey

- We carry out the following quality improvement initiatives:
- (1) Conducting a customer satisfaction survey every year since FY2007
 - (2) Applying customer feedback with regard to delivered products and Takuma employees to quality and service

The figure to the right illustrates how the survey is administered. First, we administer questionnaires targeting customers who had construction work done by asking them to assess the overall experience after the work is completed, including the nature of the work performed, suitability of delivered equipment, and the level of service provided by Takuma staff.

Next, the QM Committee calculates a score for each item based on the survey results as well as a report and explanation from the responsible department. The committee then analyzes the resulting data.

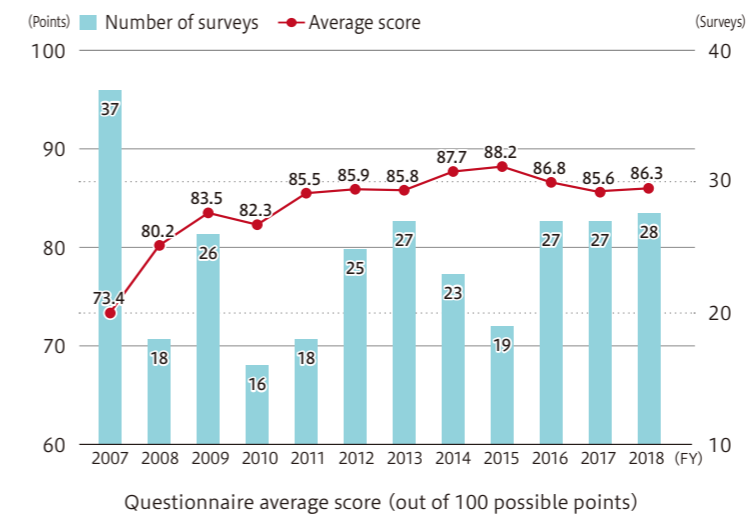
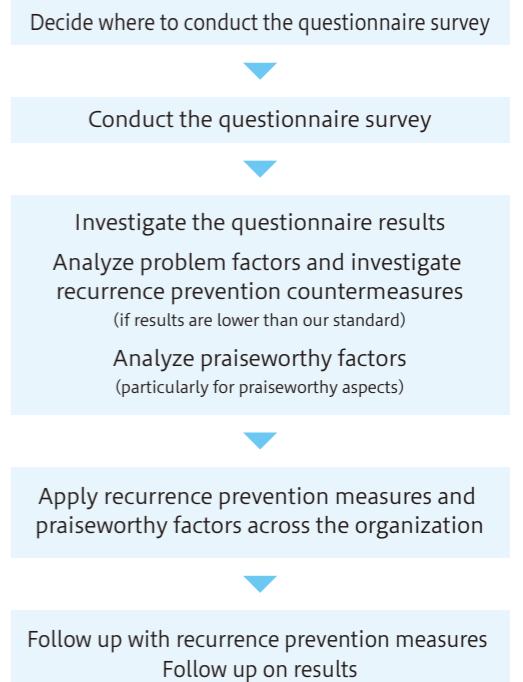
If we find a problem, for example an item receiving an evaluation score of less than 70 out of 100 or a score of 1 (dissatisfied) or 2 (rather dissatisfied) on a 4-point scale, the QM Committee analyzes the cause of the problem and studies measures to prevent recurrence based on interviews with the department in question. We also evaluate aspects of our products and services that receive especially high praise from customers and work to further enhance customer satisfaction by combining problem areas and praiseworthy areas and applying them horizontally across involved departments at the company.

For customers targeted for problem analysis and consideration of preventive measures based on the survey results, we also conduct a follow-up survey to discern whether those measures were reliably implemented and whether their level of satisfaction has indeed improved.

With scores averaging higher than 80 points every year since its second year, the questionnaire demonstrates the effectiveness of our initiatives.

In this way, we work to improve product and plant quality so that all customers are satisfied.

Customer satisfaction survey process



Permits and registrations

- **Head Office, branch offices and other business offices**
 - Construction license (Minister of Land, Infrastructure, Transport and Tourism license, Special 27-6129, Special 29-6129)
 - Construction consultant registration (Minister of Land, Infrastructure, Transport and Tourism registration, Construction 26-10202)
 - First-class architect office registration (01A02903)
 - ISO 9001 quality management system certification
- **Harima Factory**
 - ISO 9001 quality management system certification
 - ISO 14001 environmental management systems certification
 - Manufacture of thermal equipment for power generation (Ministry of Economy, Trade and Industry)
 - Permission to manufacture boilers and pressure vessels, permission to manufacture cranes (Ministry of Health, Labour and Welfare)
 - Manufacture of specific high-pressure gas facilities (Ministry of Economy, Trade and Industry)
 - Manufacture of refrigerators (Governor of Hyogo Prefecture)



JQA-1952
ISO 9001 certification
Head Office, Osaka
Office, Tokyo Branch,
Chubu Branch, Kyushu
Branch, Hokkaido
Branch and Harima
Factory



JQA-EM0313
ISO 14001
certification
Harima Factory

Participation in the Community

Reflecting their dedication to providing safe, reliable facilities that inspire peace of mind on the part of local residents, Takuma and its group companies work actively to disclose information in an appropriate manner, keep the areas around plants clean, participate in regional activities, and engage in exchanges with local residents.

This section introduces some of those efforts.

Imabari High Trust Co., Ltd.

Imabari High Trust is a special-purpose company that was established to operate and maintain Imabari City Waste Management Center (known as “Bari Clean”), which was constructed to connect residents, their community, and the future through safe operation that inspires peace of mind. The company has promoted exchanges with residents through a variety of events every month since it began operating in April 2018.

The facility is able to serve as an evacuation center in the event of a natural disaster, and it has enough space and emergency supplies to accommodate 320 people for one week. It can also generate electricity for use in such scenarios. In September 2018, the facility joined local residents and the city in conducting an evacuation center drill.



Work to open the evacuation center



Before the festival venue doors opened



Flea market

A tour of the waste treatment facility

In December 2018, the facility held the Imabari Environmental Festival to prompt exchanges with local residents and environmental education. Numerous residents attended the event, which was cosponsored by Imabari High Trust, and enjoyed activities including a flea market, environmental learning booths, and tours of the waste treatment facility.

The company will continue to operate the facility in an appropriate manner so that it can earn the understanding of residents in ordinary times as well as in times of emergency as a facility that treats waste in a safe, stable manner in line with the Imabari Model (a model for 21st-century waste treatment facilities) while earning a place in the hearts of local residents and safeguarding the community, and as a place that offers environmental awareness-raising and hands-on learning opportunities while communicating related information.

Takuma Energy Co., Ltd., and Fujisawa High Trust Co., Ltd.

In August 2018, Takuma and group companies Takuma Energy and Fujisawa High Trust manned a joint booth at the Recycle Plaza Fujisawa Fair, an event that is held every year in the city of Fujisawa to promote and raise awareness of issues such as 3R initiatives and use of renewable energy. This year, we promoted local production and consumption of surplus electricity from Energy from Waste plants. Numerous local residents, especially families, visited Takuma’s bicycle-driven hands-on power generation area, which attracted crowds for the duration of the event.



Bicycle-driven hands-on power generation area

Eco classroom support guide

Takuma’s Harima Factory has registered as an eco classroom as part of its ongoing sponsorship of environmental learning in the city of Takasago. In October 2018, a coordinator from one of Takuma’s engineering departments visited Takasago Municipal Amida Elementary School to teach an environmental learning class entitled “Thinking about Waste.” The instructor used slides and other learning materials to explain topics such as waste generation, sorting, treatment, and recycling in an easy-to-understand manner to a group of about 90 third-graders. The children listened with interest as the teacher happily answered their questions.



Eco classroom

Contribution to Society

This page introduces some examples of Takuma’s community service activities.

Takuma Group coordinated cleanup activities

The Takuma Group orchestrates coordinated clean-up activities in the areas around its worksites each year as a way for volunteers to beautify the environment and contribute to society. During FY2018, a total of 570 employees participated in two such activities. The activities provided an opportunity for employees to think afresh about waste-related issues and their connection to the community. Going forward, the Takuma Group will continue this initiative.



Participation in the “Osaka Marathon ‘Cleanup’ Campaign”

In November 2018, volunteers from Operation & Maintenance Services Department 2 participated in the “Osaka Marathon ‘Cleanup’ Campaign,” a cleanup activity that is held every year as part of the Osaka Marathon.

The activity brought together organizational, group, and individual volunteers to beautify public spaces throughout the city.



Blood donation campaign

Takuma supports blood donation activities through the Japanese Red Cross Society. During FY2018, a total of 122 donors participated in blood drives at the Head Office and Harima Factory. Donors can simultaneously register as bone marrow donors at the Head Office, and this year eight employees did so. We plan to continue this activity in the future.

WFP fundraising activities

Takuma serves on the Board of Trustees of the Japan Association for the World Food Programme, the official supporting partner of the World Food Programme in Japan. Each year, we display WFP posters at the entrances to company buildings and in cafeterias during a campaign that lasts from June through August. The campaign serves both to increase employee interest in the world’s food problems and to collect donations to address them.



Contributions to NPOs

Purchasing UNICEF Christmas cards

Takuma purchases UNICEF Christmas cards. A portion of the proceeds is used to fund UNICEF in their work to help children around the world.

Donating unused calendars

Each year, Takuma donates unused calendars to a non-profit organization. The proceeds from selling the

calendars at a charity calendar market sponsored by the NPO Nippon Volunteer Network Active in Disasters are used to provide aid for victims of natural disasters and other crises. We also donate calendars to the NPO Community Support Center Kobe’s Gift On Heart Calendar project for delivery to local residents’ associations and other groups, elderly residents, and individuals with disabilities.

Publications

Publication of the Takuma Technical Review

We publish the Takuma Technical Review twice a year to introduce technologies that Takuma has developed. Contents in FY2018 included an explanation of how power can be locally produced and consumed based on examples from Takuma Energy, operational reports on plant equipment, observations from visits to overseas facilities, and profiles of delivered projects. Abstracts are available on Takuma’s website.

[Takuma top page > Technical Information > Technical Review]
<https://www.takuma.co.jp/english/gijutu/gihou.html>

