

Corporate Profile & CSR Report 2017



Takuma Provides New Value for Society in the Environ mental and Energy Fields.

Takuma develops a variety of technologies around a core set of combustion technologies, including waste treatment and water treatment components.

Our businesses in the environmental and energy fields are dedicated to resolving environmental

issues such as global warming and to helping achieve a recycling-oriented society.

At Takuma, our mission is to pursue technologies for coexisting in harmony with nature in order that humankind and the Earth might enjoy a truly rich and fulfilling future.

Municipal solid waste treatment plants

We support the realization of a recycling-oriented society using advanced waste treatment technologies that meet the needs of local communities.



Industrial waste treatment plants

Using advanced incineration technologies, we can even treat toxic substances suitably and we are supporting the environmental protection efforts of industry.



Energy plants

Takuma's core technologies are utilized in various types of boilers such as biomass fuel boilers as well as total systems.



Water treatment plants

We are working to purify wastewater with a holistic perspective through a "dialogue with water."



General-purpose boilers

As the convergence of Takuma combustion technologies, our boilers are a reliable brand that has earned the support of a wide range of industries.



Air-conditioning equipment and clean systems

We provide comfortable, clean environments to customers in the semiconductor industry as well as locations such as universities, research institutions, and hospitals.



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Corporate Information

The Takuma Group Network

Message from Top Management

Achieving sustained growth by resolving social issues and increasing corporate value through CSR management



Business policies

Takuma's Management Principles state that the company will strive for "social contribution, corporate value enhancement, long-term corporate development, and the satisfaction of all stakeholders by providing goods and services that are needed and recognized as valuable in society."

In keeping with this philosophy, we have identified two goals: first, continuing to play an essential role for society as a leading company in the utilization of renewable energy and in the field of environmental protection; and second, of achieving ordinary profit of JPY 10.0 billion in FY2020 as our target level of ordinary profit. Similarly, we have embraced a corporate vision of building structures capable of earning JPY 10.0 billion in profit or more in a stable and consistent manner even as the business environment continues to undergo dramatic change, and we are pursuing a series of business activities in pursuit of that vision. We will achieve this vision not through the standalone efforts of the company, but as the result of the combined capabilities of the entire Takuma Group. To that end, we have adopted a basic management policy of maximizing profits in our consolidated financial accounting and of increasing corporate value.

The Group will work diligently to implement the 11th Medium-Term Management Plan (FY2015 to FY2017) in an effort to build on past results to enhance its business so that it can achieve sustained growth, both in terms of quality and quantity.

Business environment

We expect to see continued demand for our principal businesses thanks to increased environmental awareness; progress in initiatives to prevent global warming and conserve resources and energy; planned replacement of, and updates to, outdated facilities operated on behalf of local governments; and energy policies that incentivize biomass-fueled power plants, for example feed-in-tariff programs for power generated using renewable energy.

In addition, adoption of the Paris Agreement at the United Nations Climate Change Conference (COP 21) and of Sustainable Development Goals (SDGs) at the United Nations Sustainable Development Summit provides milestones along the path to a sustainable society. Takuma's technologies for processing waste and reducing carbon dioxide emissions through high-efficiency generation of electricity using biomass promise to make a significant contribution to the resolution of social issues, and I believe that they will also serve to facilitate the growth and development of the Group's businesses.

Implementing CSR management and achieving sustained growth

Companies must continuously build mechanisms for creating new value while maintaining good, long-term relationships with a variety of stakeholders, including customers, business partners, employees, shareholders, and investors. To do so, it is essential to demonstrate an ability to act in a way that earns stakeholders' trust. To that end, we will continue to pursue management activities in a socially just and ethical manner, to take into account environmental and human rights considerations, and to advance corporate governance, compliance, and risk management, which comprise the foundation on which the company's activities are carried out.

The Takuma Group has established its Company Motto, Management Principles, Takuma Group Ethics Charter, and Takuma Group Code of Conduct as the foundation for CSR





The Takuma Group has joined the United Nations Global Compact (UNGC), which is a voluntary effort to create a global framework for implementing sustainable growth by having companies and groups exercise responsible and creative leadership while acting as good members of society. Reference: UN Global Compact http://www.unglobalcompact.org/

management, and we strive to put them into practice. We believe that we can resolve social issues, increase corporate value, and achieve sustained growth by cultivating a healthy and robust corporate culture and ensuring that the Group's executives and employees each maintain a high level of CSR awareness and incorporate that awareness into their business activities.

Takuma has been a signatory to the United Nations Global Compact since 2006, and we support its 10 fundamental principles in the 4 areas of human rights, labour, environment, and anti-corruption. We will work to develop our business while understanding and respecting these globally shared principles.

In closing, in compiling this CSR Report we have sought not only to provide a resource by means of which a broad range of stakeholders could learn more about the Takuma Group's activities, but also to help each and every Group employee think carefully about CSR and bring that perspective to bear in his or her work. We at the Takuma Group encourage readers to offer their candid views and advice, which we will carefully review in order that we might better resolve social issues and contribute to the sustained development of society.

July 2017

Takaaki Kato President and CEO Takuma Co., Ltd.

Takaaki Hato

Company Motto

Value Technology, Value People, Value the Earth

Management Principles

Takuma will strive for social contribution, corporate value enhancement, long-term corporate development and the satisfaction of all stakeholders by providing goods and services that are needed and recognized as valuable in society.

The founding spirit of Takuma was "Service to the nation through boiler manufacturing,"* which in present-day language means "contribution to society by supplying goods and services that we yield." This spirit can also be applied to the concept of Corporate Social Responsibility (CSR) that in recent years has become a vital issue for corporate management. The management principles of the Takuma group companies are all based on the said founding spirit.

* Service to the nation through boiler manufacturing

It was the Company Motto of Takuma, then Takuma Boiler Manufacturing Co., Ltd., founded by Mr. Tsunekichi Takuma, one of the ten great inventors of Japan during the Meiji and Taisho periods (1868-1926).

Takuma Group Ethics Charter

Takuma and the Takuma Group companies believe that it is essential for the sound development of the group that all of the directors and employees remain aware of our social responsibilities and the circumstances surrounding us as well as act in response to social ethics complying with applicable related laws and ordinances. Bearing the above in mind, we have established and will promote this ethics charter as our code of conduct, aiming to realize our management principles.

- 1. We shall strive for proactive social contribution while establishing a harmonious coexistence with the global environment as good corporate citizens.
- 2. We shall act in good faith in accordance with sound business custom, while complying with applicable laws and regulations and committing ourselves to fair, transparent and free competition, as well as conducting lawful business activities.
- 3. We shall never have any relationship with antisocial forces or organizations, which may pose a threat to the social order and security of civil society.
- 4. We shall respect fundamental human rights and never practice discrimination.
- 5. We shall strive to provide high quality products and services, based on our advanced technologies, to attain high acclaim and confidence from our customers.
- 6. We shall strive to disclose corporate information to shareholders and investors through investor relations (IR) and other activities on a timely and equitable basis.
- 7. We shall strive to protect corporate properties as well as information, while never using either for improprieties or any unjustifiable purpose other than normal business operations.

Takuma Group Code of Conduct

Harmony with society

- 1. Coexistence with the global environment
- 2. Coexistence with international society
- 3. Practice of social contribution activities

Practice of compliance with laws and ordinances as well as sound economic activities

- 4. Free competition and fair trade
- 5. Relationship with politics and public administration
- 6. Policies concerning business entertainment and gift-giving
- 7. Prohibition of involvement in anti-social activities 8. Appropriate export and import transactions
- **Respect for basic human rights**

9. Prohibition of discriminatory actions

- 10. Respect for individuality, personal quality, and privacy 11. Safe work environment

Practice of customer satisfaction

- 12. Safety of products and services as well as ensuring reliability
- 13. Policies concerning advertising

Making appropriate disclosure of information

- 14. Transmission of corporate information
- 15. Ensuring reliability of financial reporting
- 16. Prohibition of insider trading

Protection of corporate properties and information

- 17. Management and proper use of corporate properties
- 18. Handling of confidential information
- 19. Intellectual property protection

Takuma Group 11th Medium-Term Management Plan — An Overview

Business Directions

1 Positioning of the 11th Medium-Term Management Plan Achieve sustained growth by targeting growth markets while maintaining and expanding our market position in the EPC business and using businesses that generate base profits as a foundation for growth.



2 Principal business domains

Enhance our businesses in terms of both quantity and quality by expanding on-site maintenance and management service, competitive product development, and regional reach around the existing EPC business.



- 2 Expansion of businesses that generate base profits
- 3 Initiatives that target growth markets
- 4 Further enhancement of the company's financial strength
- 6 Human resources management
- 6 Cultivation of a robust organizational culture

Perspectives

- 1 Creation of customer value
- Ongoing innovation
- 3 Accommodation of environmental changes and risk management

Achieving sustained growth

* EPC: Plant engineering, procurement, and construction

chieving sustained	
rowth (11 th Medium-Term	
lanagement Plan)	

FY2015 – FY2017

FY2018 and onwards

Leveraging the company's total capabilities

> Cultivation of a robust organizational culture

Further enhancement of the

company's financial strength

Human resources managemen

Maintenance and expansion of Parket position in the EPC business

Expansion of businesses

that generate base profits

Initiatives that target

growth markets

Manage

ment

base

Financial Targets (Consolidated) 3

We are currently striving to build structures capable of consistently earning an ordinary profit of JPY 10 billion even as the business environment undergoes a process of significant change in keeping with our corporate vision of "aiming to maintain our role of being an indispensable presence in society as a leading company in the field of renewable energy utilization and environmental protection" and our target of achieving ordinary profit of JPY 10 billion in FY2020.

To facilitate the achievement of the goals outlined in this plan, we will undertake initiatives to realize sustained growth in accordance with the policies while seeking to steadily improve our business in terms of both quantity and quality. To that end, we have established the financial targets described below.



	9 th Medium-Term Management Plan results				rm Management Plan results 10 th Medium-Term Management Plan results				
	2009	2010	2011	Total	2012	2013	2014	Total	FY2015 – FY2017
Order Value	70.5	97.0	90.4	257.9	109.2	148.0	113.7	371.0	400 Billion JPY (3-year cumulative total)
Sales	95.1	89.1	101.0	285.3	96.3	96.3	103.8	296.5	360 Billion JPY (3-year cumulative total)
Ordinary Profit	2.0	4.4	7.3	13.7	7.1	9.4	9.1	25.7	27 Billion JPY (3-year cumulative total)

Core Business Units and Emphasis of Future Activities 4

Municipal Solid Waste Treatment Plant Business

Business Environment

- As facilities age, there is ongoing robust demand for renewal and service life elongation.
- DBO project volume is growing, and there is also growth in O&M services for existing facilities.

Emphasis of Future Activities

- Develop the foundation of the business and enhance our operational capabilities.
- Further strengthen initiatives to prolong the service life of facilities.

Boiler Plant Business (Japan)

Business Environment

- Demand for biomass power plants remains steady.
- The number of plants targeted for maintenance is increasing as facilities are completed and transferred to customers.

Emphasis of Future Activities

- Secure more orders for biomass power plants (secure market position)
- Enhance maintenance service and capabilities.

Waste Treatment Plant Business (Overseas)

Business Environment

• Plans to build Energy from Waste plants are underway in various regions worldwide against the backdrop of ongoing urbanization and increasing environmental awareness.

Emphasis of Future Activities

- Develop schemes for entering the market that are suited to each country and region.
- Develop structures to facilitate market entry.

Water Treatment Plant Business

Business Environment

- There is a growing need to recover energy from sewage sludge.
- Renewal demand and service life elongation demand are increasing as facilities age.

Emphasis of Future Activities

- Secure our position in the market for tapping the energy potential of sewage sludge.
- Expand our share in the advanced-treatment sand filtration market.

Boiler Plant Business (Overseas)

Business Environment

• Demand for biomass power plants in Thailand and surrounding countries remains robust.

Emphasis of Future Activities

- Maintain and enhance functionality for carrying out overseas projects, including enhancement of the functions of our local subsidiary (Siam Takuma).
- Enhance price competitiveness and differentiated products.

Package Boiler Business

Business Environment

- The domestic market has matured, and it is not reasonable to expect a significant recovery of demand.
- The need for boilers is increasing overseas, particularly in developing nations.

Emphasis of Future Activities

• Expand our overseas business.

• Enhance our technologies and production capacity.

Corporate Profile

Corporate Information

The Takuma Group Network

Business Summary



Corporate Information

Company outline

Name:	TAKUMA CO., LTD.
Head office location:	2-2-33 Kinrakuji-cho, Amagasaki, Hyogo 660-0806, Japan
	TEL +81-6-6483-2609 FAX +81-6-6483-2751 (operator)
Representative Director:	Takaaki Kato, President and CEO
Established:	June 10, 1938
Capital:	JPY 13,367,457,968 (as of March 31, 2017)
Main business areas:	The design, construction and superintendence of a wide variety of boilers, plant machinery, pollution prevention plants, environmental equipment plants, and heating and cooling equipment and feed-water / drainage sanitation equipment and facilities
	The design, construction and superintendence of civil, architecture and other works
Number of employees (r	non-consolidated): 824 (as of March 31, 2017)

Number of employees (consolidated): 3,447 (as of March 31, 2017)

Permits and registrations

Head Office, branch offices and other business offices

Construction license (Minister of Land, Infrastructure, Transport and Tourism license, Special 27-6129) 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 guality 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)

ISO 9001 ISO 14001 certification certification Head Office, Osaka Office, Tokyo Branch, Chubu Branch, Harima Factory Kvushu Branch, Hokkaido Branch

and Harima Factory

The History of Takuma



Corporate structure (as of June 28, 2017)





Balance sheet overview and

The Takuma Group Network



Takuma's business offices

1 Head Office 2-2-33 Kinrakuji-cho, Amagasaki, Hyogo 660-0806 Japan TEL +81-6-6483-2609 FAX +81-6-6483-2751

http://www.takuma.co.jp **2** Osaka Office

Daiken Bldg., 2-3-20 Tsukamoto, Yodogawa-ku, Fukuoka 810-0022, Japan Osaka 532-0026, Japan

TEL +81-6-6100-3301 FAX +81-6-6100-3302 **B** Tokyo Branch

Nomura Higashi-nihonbashi Bldg., 1-1-7 Higashi- Okinawa 901-2224, Japan nihonbashi, Chuo-ku, Tokyo 103-0004, Japan TEL +81-3-5822-7800 FAX +81-3-5822-7888 9 Harima Factory

4 Hokkaido Branch

Daigo Bldg., 5-11, Ohdori Nishi, Chuo-ku, Sapporo, Hokkaido 060-0042, Japan TEL +81-11-221-4106 FAX +81-11-241-0523 (1) Taipei Branch

5 Tohoku Branch

NMF Sendai Aoba-dori Bldg., 2-1-2 Ichibancho, Taipei 114-92, Taiwan Aoba-ku, Sendai, Miyagi 980-0811, Japan TEL +81-22-222-3042 FAX +81-22-225-6759

6 Chubu Branch

Daitokai Bldg., 3-22-8, Meieki, Nakamura-ku, Nagoya, Aichi 450-0002, Japan TEL +81-52-571-5211 FAX +81-52-581-3005

7 Kyushu Branch

Yakuin Business Garden, 1-1-1 Yakuin, Chuo-ku,

TEL +81-92-717-2828 FAX +81-92-717-2830 8 Okinawa Branch

Commons Bldg., 1-11-12 Mashiki, Ginowan,

TEL +81-98-898-6650 FAX +81-98-898-6657

1-2-1 Shinhama, Arai-cho, Takasago, Hyogo 676-8540, Japan

TEL +81-79-443-6511 FAX +81-79-443-6599

7F., No.16, Lane 35, Jihu Rd., Neihu District,

TEL +886-2-8752-3838 FAX +886-2-2656-0584

Overseas group companies

 Taiden Environtech Co., Ltd. (Taiwan) Maintenance of waste treatment and other facilities

(as of April 1, 2017)

7F., No. 16, Lane 35, Jihu Rd., Neihu District, Taipei 114-92, Taiwan

TEL +886-2-2659-7137 FAX +886-2-2656-0584 2 Siam Takuma Co., Ltd. (Thailand)

Sale of energy and environment-related plants, sales of parts for the same plants and after-sales service

77/53 Sinn Sathorn Tower, 15th Floor, Krungdhonburi Road, Klongtonsai, Klongsarn, Bangkok 10600, Thailand TEL +66-2-4385616 FAX +66-2-4400114

Group companies in Japan 1 Nippon Thermoener Co., Ltd.

Manufacture and sale of a wide range of boilers and related equipment Shirokanedai Bldg., 3-2-10 Shirokanedai,

Minato-ku, Tokyo 108-0071, Japan TEL +81-3-6408-8251 FAX +81-3-6408-8278 http://www.n-thermo.co.jp/

2 Takuma Technos Co., Ltd.

Maintenance, management and operation of waste treatment facilities, water treatment facilities and other facilities, as well as the design, installation and management of various types of boilers, environmental equipment and other equipment 10th Chuo Bldg., 1-5-6 Nihonbashi, Chuo-ku,

Tokyo 103-0023, Japan TEL +81-3-3231-2911 FAX +81-3-3231-2917

http://www.takumatechnos.co.jp/ B Hokkaido Sanitary Maintenance Co., Ltd. Operation and maintenance of sewage treatment facilities Daigo Bldg., 5-11, Ohdori Nishi, Chuo-ku, Sapporo, Hokkaido 060-0042, Japan TEL +81-11-221-8398 FAX +81-11-221-8542

4 Takuma Technos Hokkaido Co., Ltd. Operation and maintenance of waste treatment facilities Daigo Bldg., 5-11, Ohdori Nishi, Chuo-ku,

Sun Plant Co., Ltd.

Design, construction and superintendence of air-conditioning equipment, feed-water/drainage sanitation equipment, and electrical equipment Nomura Higashi-nihonbashi Bldg., 1-1-7 Higashi-nihonbashi, Chuo-ku, Tokyo 103-0004, Japan TEL +81-3-5825-0921 FAX +81-3-5825-1631 http://www.sunplant.co.jp/

6 Takuma Engineering Co., Ltd.

Design of environmental equipment plants and energy plants Takuma Bldg., 2-2-33 Kinrakuji-cho, Amagasaki, Hyogo 660-0806, Japan TEL +81-6-6487-4820 FAX +81-6-6487-4829 http://www.takuma-eng.co.jp/

7 Takuma System Control Co., Ltd. Design of electrical instrumentation equipment, including environmental equipment plants and energy plants Takuma Bldg., 2-2-33 Kinrakuji-cho, Amagasaki,

Hyogo 660-0806, Japan TEL +81-6-6487-4830 FAX +81-6-6487-4839 http://www.takuma-sc.co.jp/

Ban-Takuma Technologies Inc. Manufacture and sale of clean equipment, cleaning

equipment, chemical filters, clean rooms, drying equipment and thermal chambers 3-12-16 lwadokita, Komae, Tokyo 201-0004, Japan TEL +81-3-3488-1111 FAX +81-3-3488-1118 http://www.dan-net.com

Syoritsu Setsubi Co., Ltd.

Design, construction and superintendence of waste treatment facilities, mechanical equipment of sewage treatment facilities, and boiler plants for general industries 5-1-38 Yurigahara, Kita-ku, Sapporo, Hokkaido 002-8081, Japan

TEL +81-11-770-2811 FAX +81-11-770-2822

Hokutan High Trust Co., Ltd. Operation and maintenance management of a municipal solid waste treatment facilities 943 Booka, Takeno-machi, Toyooka, Hyogo 669-6331, Japan TEL +81-796-21-9111 FAX +81-796-21-9112 http://www.hokutan-ht.com/

Sapporo, Hokkaido 060-0042, Japan TEL +81-11-221-4128 FAX +81-11-221-1030

2168 Ishikawa, Fujisawa, Kanagawa 252-0815, Japan TEL +81-466-45-5411 FAX +81-466-45-5454 Iwate-Kenpoku Clean Co., Ltd.

Power retail business

622-0032, Japan

http://www.c-rp.co.ip/

Kashihara High Trust Co., Ltd. 48-34, Dai 20 Chiwari, Esashika, Kunohe-mura, Kunohe-gun, Iwate 028-6505, Japan TEL +81-195-42-4085 FAX +81-195-42-4550 Operation and maintenance management of municipal solid waste treatment facilities 1038-2 Kawanishi-cho, Kashihara, Nara http://www.iwate2cln.co.ip/ Hitachinaka-Tokai High Trust Co., Ltd. 634-0826 Japan TEL +81-744-26-6227 FAX +81-744-26-6228 Operation and maintenance management of municipal **Tochigi High Trust Co., Ltd.** Industrial waste treatment services solid waste treatment facilities

103-2 Shinkocho, Hitachinaka, Ibaraki 312-0005, Japan TEL +81-29-265-5371 FAX +81-29-265-5372 http://hitachinaka-tokai-ht.com/

6 Anan High Trust Co., Ltd. Operation and maintenance management of municipal solid waste treatment facilities 1-5 Kokatsu, Tachibana-cho, Anan, Tokushima 779-1631, Japan



Kankyo Sol-Tech Co., Ltd.

Analyzing and measurement for environment-related issues, including water quality, exhaust gas and soil pollution 1-2-1 Shinhama, Arai-cho, Takasago, Hyogo

676-0008, Japan TEL +81-79-443-6508 FAX +81-79-443-6510 http://www.k-soltech.co.ip/

 Campo Recycle Plaza Co., Ltd. Municipal solid waste and industrial waste treatment services 1 Takayanishitani, Sonobe-cho, Nantan, Kyoto

TEL +81-771-68-3636 FAX +81-771-68-3639

1 Nagaizumi High Trust Co., Ltd.

Facility upgrading, operation and maintenance of municipal solid waste final disposal sites 374-12 Higashino, Nagaizumi-cho, Suntou-gun,

Shizuoka 411-0931, Japan TEL +81-55-989-2268 FAX +81-55-987-9935

http://www.nagaizumi-ht.jp/ Fujisawa High Trust Co., Ltd.

Operation and maintenance management of municipal solid waste treatment facilities

Municipal solid and industrial waste treatment services

TEL +81-884-49-5823 FAX +81-884-49-5824 http://www.ecopark-anan.com/ 1 Takuma Energy Co., Ltd.

Takuma Bldg., 2-2-33 Kinrakuji-cho, Amagasaki,

Hyogo 660-0806, Japan TEL +81-6-6487-4870 FAX +81-6-6483-2794 Kurume High Trust Co., Ltd.

Operation and maintenance management of a municipal solid waste treatment facilities 2225 Hacchojima, Miyanojin-machi, Kurume,

Fukuoka 839-0805, Japan TEL +81-942-27-7490 FAX +81-942-27-7491

http://www.kurume-ht.com

20 Suwako High Trust Co., Ltd. Operation and maintenance management of a municipal solid waste treatment facilities 4769-14 Uchiyama, Okaya, Nagano 394-0055,

TEL +81-266-78-1590 FAX +81-266-78-1591 http://www.suwako-ht.jp/ Energy Mate Co., Ltd.

Sale of cogeneration systems and systems for the generation equipment of the same and total service for onsite energy systems for consumer use Midosuji Dajwa Bldg., 3-6-8 Kyutaromachi, Chuo-ku, Osaka 541-0056, Japan TEL +81-6-6241-6200 FAX +81-6-6241-6210 http://www.energy-mate.co.jp/ 2 Takuma Plant Service Co., Ltd. Maintenance of a wide variety of boilers and environmental facilities 2-2-27 Kinrakuji-cho, Amagasaki, Hyogo 660-0806, Japan TEL +81-6-6488-8434 FAX +81-6-6488-0300 http://www.takuma-ps.com/index.html Biopower Katsuta Co., Ltd. Wood biomass power generation business 1974-1 Koya, Hitachinaka, Ibaraki 312-0002, TEL +81-29-270-3341 FAX +81-29-270-3343

18-3 Kinugaoka, Moka, Tochigi 321-4367, Japan TEL +81-285-83-3966 FAX +81-285-83-6500 http://www.t-hitrust.co.jp/

🙆 Katsuta Co., Ltd.

Industrial waste and municipal solid waste treatment services

1968-2 Koya, Hitachinaka, Ibaraki 312-0002, Japan TEL +81-29-270-3711 FAX +81-29-270-3712 http://www.eco-katsuta.com/

2 R.B.N. Co., Ltd.

Municipal solid waste, including waste home appliances and office automation equipment, and industrial waste treatment services

3059-20 Nakajima, Shikama-ku, Himeji, Hyogo 672-8035, Japan TEL +81-79-243-1200 FAX +81-79-243-1202

Ichihara New Energy Co., Ltd.

Industrial and municipal solid waste treatment services 733 Mandano, Ichihara, Chiba 290-0549, Japan TEL +81-436-50-8300 FAX +81-436-50-8400 http://www.ichihara-new.com/

Ecos Yonezawa Co., Ltd. Final disposal of industrial waste 7028-1 Yanazawa, Yonezawa, Yamagata 992-0077, Japan TEL +81-238-39-4050 FAX +81-238-39-4051

http://www.ecos-y.co.jp/

Business Summary

Environmental and energy business

Municipal solid waste treatment plants

We support the realization of a recycling-oriented society using advanced waste treatment technologies that meet the needs of local communities.

- Energy from Waste plant
- Pyrolysis gasification and melting plant
- Resource recycling and collection plant • Bulky garbage crushing plant
- Incineration ash and fly ash melting
- plant
- Waste to solid fuel conversion plant • Transition and intermediate
- processing plant • Raw fuel (biogas) recovery plant
- Various types of pollution prevention equipment







Bulky garbage crushing plant

Energy plants

Takuma's core technologies are utilized in various types of boilers, starting with biomass boilers, as well as total systems.

• Biomass boiler

- Fossil fuel boiler
- Waste heat boiler
- Power plant







Waste heat boile

Package boiler

General-purpose boilers

As the convergence of Takuma's combustion technologies, our boilers are a reliable brand that has earned the support of a wide range of industries.

- Once-through boiler (Eqos, Super Eqos)
- Vacuum-type water heater (Vacotin heater)
- Package water-tube boiler
- Smoke tube boiler (RE boiler)
- Heat-transfer oil boiler
- (thermoheater) • Radiation heating equipment
- (strip heater) • Various equipment for ships

Note: These products are handled by Nippon Thermoener Co., Ltd., which is one of our group companies.



Industrial waste treatment plants

Using advanced incineration technologies, we can even treat toxic substances suitably and we are supporting the environmental protection efforts of industry.

• Industrial waste treatment plant



Industrial waste treatment plant

Water treatment plants

We are working to purify wastewater with a holistic perspective through a "dialogue with water."

- Sewage and wastewater treatment plant
- Various types of advanced sewage treatment plant
- Sewage sludge-fueled power plant
 Plant to process water that



Upflow moving-bed filtration system

Equipment and systems business

Air-conditioning equipment and clean systems

We provide comfortable, clean environments to customers in the semiconductor industry as well as many locations such as universities, research institutions, and hospitals.

- Building equipment
- Air-conditioning equipment
- Cleaning and drying devices
- Clean room
- Clean devices
- Chemical filters



• Sludge treatment plant

infiltrates final disposal sites



and provides heat to a plantation





Sewage sludge-fueled power plant

Plant construction process

This page introduces how our plant business, which is one of our core areas of operations, functions.

1 Sales activities

The mission of sales is to facilitate communication with customers, promote Takuma's products and services, and acquire information about potential customers' new plant construction plans as quickly as possible. Then sales personnel work with internal planning and design departments as well as cost estimation departments to create proposals that will satisfy those customers.

2 Planning and design

We develop a basic plan for each plant that will satisfy the customer's needs. For local governments, we propose a basic plan for the plant that conforms to the purchase specifications that the ordering agency has provided. The purchase specifications indicate the conditions and level of performance required by the local government, for example in terms of the amount and type of waste it wishes to process, site conditions, and waste-fueled power generation capacity. Engineering coordinators spec out incinerators and waste heat boilers along with other systems in order to satisfy those conditions and performance requirements and determine how the equipment will be laid out at the facility.

3 Cost estimation

We calculate the costs associated with all equipment and systems that will be installed at the plant up until the facility's completion based on the basic plan and finalize a quotation to submit to the customer.

Order receipt

We propose the plan developed through the collaboration of sales, planning and design, and cost estimation coordinators to the customer. For local governments, this proposal is submitted during the bidding process. If our proposal outshines other companies' proposals and satisfies the customer, we will receive an order for the project.

4 Plan implementation and detailed design

Once we have received an order, we transition to detailed design work to facilitate the construction of the plant. We conduct a detailed study of equipment specifications and layout based on the plan and design and then proceed to finalize associated details. At this stage, specialists from a variety of fields, including combustion technology, exhaust gas treatment, and electrical control systems, work together to create the detailed design

5 Manufacture and procurement

We manufacture equipment and systems whose specifications have been finalized at our factories using a strict quality control system and place orders with a variety of specialized equipment manufacturers.

6 Construction work and commissioning

We commence the civil and foundation work, construct all plant buildings, install equipment and systems, and manage the project until the plant is fully operational. Key considerations include efficient site operations, thorough schedule and cost management, and management of safety and quality at the site.

Acceptance

During the commissioning work, it is confirmed the constructed plant is capable of safe operation. Once the performance test is completed successfully, the acceptance of the plant can be made

7 After-sales service

Once the plant has been handed over to the customer, we provide periodical inspections and maintenance to prevent problems and keep the plant operating safely over the long term. In addition to inspecting and repairing systems for which inspections are legally mandated, we inspect and repair equipment deterioration and damage that accumulates over time. In addition, we complete large-scale renovation work in response to changes in applicable laws and customer needs.









CSR Report 2017

Business Development

CSR Initiatives

CSR Activities for the Future **Corporate Governance** Human Rights and Labor Practices The Environment **Fair Business Practices Consumer Issues** Participation in the Community **Contribution to Society**

Financial Data



Feature: Striving to Coexist with Local Communities

DBO projects ① Kurume High Trust Co., Ltd.

Working with local residents to create a place that will be loved by the community

Kurume High Trust Co., Ltd. is a special-purpose company (SPC) that was established through joint investments by Takuma Co., Ltd.; Takuma Technos Co., Ltd.; and ShinMaywa Industries, Ltd. to play the lead role in operating, maintaining, and managing Miyanojin Clean Center.

Overview of Miyanojin Clean Center

The Kurume Northern Municipal Solid Waste Treatment Plant Development and Operation Project is being implemented as a DBO-style program that integrates facility design, construction, and operation in order to facilitate the proper processing of municipal solid waste from the Kurume City. Under the project, Takuma Co., Ltd. was responsible for designing and constructing the plant building, and Kurume High Trust Co., Ltd. took over operation of the plant following its completion in June 2016.

The company's goals in operating the facility include giving top priority to safe and stable operation, working to reduce its environmental impact, ensuring that area residents feel secure living close to the plant, and utilizing it as a place where people can gather to learn about the environment and related topics.

The facility has also been designed to help form a low-carbon society and realize a recycling-oriented society. The incineration facility is designed to utilize energy effectively by using surplus heat from incinerated waste to generate electricity and selling surplus power remaining after plant operation to power companies. Metals in the crushing and sorting facility's output stream are sold and recycled, while incineration ash is used effectively as a raw material in the production of cement.



Customer		Kurume City			
Location		2225 Hacchojima, Miyanojin-machi, Kurume-shi, Fukuoka Prefecture			
Site area		About 74,000 m ²			
Plant: Building size		6 aboveground floors, 1 belowground floor			
Plant: Operating period		June 2016 to June 2036 (20 years)			
Plant: Incineration facility Processing method		Stoker furnace (with conversion of ash into cement)			
	Processing capacity	163 tons per day (81.5 tons per 24 hours \times 2 units)			
Plant: Crushing and sorting facility	Processing method	Crushing and sorting			
	Processing capacity	Unburnable waste and unburnable bulky garbage, 28 tons per 5 hours; burnable bulky garbage, 24 tons per 5 hours			
Power output		3,560 kW			

















Stakeholder message



The Kurume City built Miyanojin Clean Center, its second municipal solid waste intermediate treatment facility, so that it could promote the development of a recycling-based society and carry out safe, stable waste processing over the long term.

With an incineration facility, crushing and sorting facility, and recycling facility as well as the Environment Interchange Plaza, which is designed to serve as a place for environmental awareness-raising and learning, Miyanojin Clean Center will not only process and recycle waste, but also facilitate learning about the environmental field in general while revitalizing the local community and creating a sense of excitement and activity in the surrounding area by fostering social interaction through citizens' activities. To achieve these goals. Ledieve that it will be important for the facility to earn the trust

Mr. Tomohisa Iida Kurume-shi Government Office

area by fostering social interaction through citizens' activities. To achieve these goals, I believe that it will be important for the facility to earn the trust of city residents so that it becomes a familiar presence to them and to contribute to the community. We expect Kurume High Trust to pursue an active program of community initiatives, for example by creating a sense of excitement by hosting environmental awareness-raising events and exhibits that take advantage of the facility and cooperating with events conceived to revitalize the local community even as it gives top priority to reducing environmental impact and operating the facility in a safe and stable manner.











The Miyanojin "Manabino" Biotope was completed in April 2016 at Miyanojin Clean Center in Kurume. We created the facility's basic design with the goal of having it become a new symbol of Kurume and serve as a place where people could learn about the environment and spread what they learn while coexisting with the area's scenic natural landscape and as a place where people could learn about the plant and animal life that inhabits the community. We built a space with water, plant life, and soil to foster a variety of plant and animal species that live and reproduce in the basin's rivers, waterways, and surrounding areas. Going forward, we will work with Kurume High Trust to ensure that the facility will serve as a place where people can learn about the natural environment so that Kurume's exceptional environment can be passed down to the next generation by using the biotope to host classes and events.

We held an experience-based learning event entitled "Mission: Find Aquatic Life" in August as the first environmental learning activity we proposed in FY2016. During that event, we caught fish living in rivers in the Chikugo River water system, released them into the biotope, explained the ecology of the captured fish, and considered the implications together with participants. The second activity took the form of a parent-child class entitled "Learning How Fireflies Live" in March, where we explained that thinking about how fireflies live means thinking about the local environment. Going forward, we will help author the *Miyanojin Biotope Newspaper*, which is published by Kurume High Trust each season, by proposing new lifestyles to help ensure Kurume will have a rich future while communicating information about plant and animal life as well as seasons from the Miyanojin "Manabino" Biotope.





(Environmental learning partner) Mr. Yuji Yasueda Ecoplan Corporation

Feature: Striving to Coexist with Local Communities

DBO projects ② Hokutan High Trust Co., Ltd.

Providing a facility that will be trusted by local residents and safeguarding the area's beautiful natural setting

Hokutan High Trust Co., Ltd. is a special-purpose company (SPC) that was established through joint investments by Takuma Co., Ltd. and Takuma Technos Co., Ltd. to play the lead role in operating, maintaining, and managing Clean Park Hokutan. http://www.hokutan-ht.com/

Overview of Clean Park Hokutan (Hokutan Administrative Association)

Clean Park Hokutan was built as a DBO project under the provisions of the Act on Promotion of Private Finance Initiatives with the goal of protecting the living environment in the Hokutan region, improving public health, and moving away from a social paradigm founded on mass production, mass consumption, and mass disposal to advance the 5Rs of waste (refuse, reduce, reuse, repair, and recycle) in a comprehensive manner by facilitating the proper processing waste generated day in and day out by the city of Toyooka and the towns of Kami and Shin'onsen. Designed and built by the Takuma-Kabumoto-Kawami-Nishiyama Designated Construction Joint Venture, the facility was completed and began operation in July 2016.

In addition to ensuring safety and inspiring peace of mind in the future on the part of area residents by reducing the community's environmental impact, the facility is dedicated to serving as a designated evacuation center in the event of a disaster and to functioning effectively as an area center of environmental learning and awareness-raising.

The facility also combats global warming through effective use of energy by using surplus heat produced when the incineration facility burns waste to generate electricity and then selling the surplus power that remains after facility use to a power company (Takuma Energy Co., Ltd.) under Japan's renewable energy feed-in-tariff program. In addition, generated power is supplied to public facilities such as elementary and middle schools in Clean Park Hokutan's member towns and city in the spirit of "local production for local consumption." The crushing and sorting facility also helps advance the 5Rs by recycling processed materials.

Customer		Hokutan Administrative Association				
Location		943 Booka, Takeno-cho, Toyooka-shi, Hyogo Prefecture				
Site area		About 2.6 ha				
Building size		Administrative building: 2 stories; Clean Center: 6 aboveground floors; Recycling Center: 2 aboveground floors				
Operating period		August 2016 to July 2036 (20 years)				
Incineration facility Processing method		Fully continuous combustion stoker				
	Processing capacity	142 tons per 24 hours (71 tons per 24 hours $ imes$ 2 units)				
Crushing and sorting facility	Processing method	Crushing and sorting				
	Processing capacity	19 tons per 5 hours				
Power output		About 2,850 kW				









Stakeholder message



Hokutan Administrative

Association

The process leading to this project's successful completion in July 2016 involved many twists and turns over more than 18 years since the Hokutan Regional Waste Processing Plan was formulated in December 1998. This success despite numerous challenges—for example, changes in the height of the foundation during the earthwork phase and a reassessment of the project design—due to the project's reliance on a financing plan that utilized a jointly issued bond and deadlines that were extremely demanding was made possible by the tireless efforts of the partners in the Takuma Group Joint Venture, for which I am deeply grateful. When our association formulated the basic policies that would guide the construction of the facility, we asked that it protect and revitalize the surrounding environment, that it foster coexistence and mutual prosperity with nature, and that it serve as a dynamic and exciting place where people can learn about the importance of resources and the environment through waste and enjoy interaction with their fellow residents. We are pleased that the joint venture was able to construct a facility that conforms to the construction policies that were put in place by our association.

One year has passed since Clean Park Hokutan began processing waste as part of its trial operation phase in April 2016. Maintaining equipment reliability and operational stability is an extremely important part of continuing to operate the facility in a safe and stable manner going forward, and despite various issues, Hokutan High Trust is working hard to do just that. We trust that it will continue to work hard to resolve the remaining issues. The facility began hosting tours and environmental learning events in September 2016, and by March 2017 it had hosted 1,373 visitors at a total of 51 tours and events. Hokutan High Trust has provided assistance with planning events and explaining the facility to visitors, and the feedback that our association has received through surveys and other means indicates that visitors are pleased with the polite and accommodating reception they received. Going forward, we fully expect Hokutan High Trust to operate the facility in a safe, secure, and reliable manner over the 20-year period ending in July 2036.





In the area around Clean Park Hokutan, there were a series of *satoyama* sites (including terraced fields, rice paddies, bamboo groves, and forests) that had not been maintained over a long period of time. In order to protect and restore these areas while utilizing them as places for learning about coexistence with nature, studying the importance of resources and the environment, and gathering to foster rich sensibility, we took advantage of the opening of Clean Park Hokutan to develop a plan for restoring these *satoyama* spaces, and we have offered assistance to environmental learning projects that utilize them after the facility began operation.

Starting with information about *satoyama* spaces that we provided during the facility's opening event in August 2016, we have planned and orchestrated a variety of events at which a large number of area residents have participated and enjoyed themselves, including an acorn craft session at which people made tops and traditional balancing toys with acorns that had been gathered in the *satoyama*; a parent-child soba-making and rice cake-making party where people could experience those traditional techniques, which have been passed down in the community; and a spring plant gathering where participants viewed and tasted flowers and mountain vegetables that can be found in *satoyama* spaces in spring. Going forward, we will continue to offer operational assistance to ensure that Clean Park Hokutan can revitalize nature in this new era and encourage regional interaction while fostering these *satoyama* spaces together with local residents, for example by maintaining bamboo groves and forests and managing cultivation fields.



(Environmental learning partner) Ms. Yuri Nakagawa Chubu Branch Office PREC Institute Inc. Feature: Striving to Coexist with ocal Communities

Feature: Striving to Coexist with Local Communities

DBO projects ③ Suwako High Trust Co., Ltd.

Supporting comfortable local lifestyles in order to create a sustainable future for a recycling-based society

Suwako High Trust Co., Ltd. is a special-purpose company (SPC) that was established through joint investments by Takuma Co., Ltd.; Takuma Technos Co., Ltd.; and Okayagumi Co., Ltd.; to play the lead role in operating, maintaining, and managing Suwako Koshu Clean Center. http://www.suwako-ht.jp/

Overview of Suwako Koshu Clean Center (Neighborhood of the Lake Administrative Affairs Association)

Suwako Koshu Clean Center was constructed as a DBO project with the goal of facilitating the smooth implementation of measures related to waste processing and the development of a recycling-based society through the joint, regional processing of waste by the cities of Okaya and Suwa and the town of Shimosuwa, all of which lie in the lakeside district. The Takuma-Okayagumi Designated Construction Joint Venture designed and constructed the facility, which began operation in December 2016.

To operate the facility in a way that achieves the goals of safeguarding nature, educating residents, and connecting communities, Suwako High Trust is dedicated both to operating the facility in a safe and environmentally friendly manner so as to inspire peace of mind among residents and to coexisting with local communities over the long term as a facility of environmental creativity where large numbers of people gather.

In addition, the facility is helping to form a recycling-based society as part of the Takuma Group by recovering as much heat from waste as possible and converting it efficiently into electricity and then selling surplus power remaining after facility use to Takuma Energy Co., Ltd. under Japan's renewable energy feed-in-tariff program.



Customer		Neighborhood of the Lake Administrative Affairs Association
Location		4769-14 Uchiyama, Okaya-shi, Nagano Prefecture
Site area		About 19,620 m ²
Plant: Building size		6 aboveground floors, 1 belowground floor
Plant: Operating period		December 2016 to November 2036 (20 years)
Plant: Incineration facility	Processing method	Stoker furnace
	Processing capacity	110 tons per day (55 tons per 24 hours $ imes$ 2 units)
Power output		2,050 kW













Stakeholder message



Neighborhood of the

Lake Administrative

Affairs Association

The Suwako Koshu Clean Center was successfully completed in December 2016 following a series of twists and turns as the embodiment of the Lakeside District Waste Processing Basic Plan that was formulated in 2005. The project's goal is to jointly process waste from the lakeside district that includes the cities of Okaya and Suwa and the town of Shimosuwa on the shores of Suwa Lake, which is located in roughly the center of Nagano Prefecture. Thanks to the tireless work and constant effort of Takuma, we were able to overcome the many challenges and unexpected problems that continued to arise until the project was completed. I'd like to express our deep gratitude to all of your workers, along with my respect for their enthusiasm and commitment. The completed facility provides functionality worthy of being called state-of-the-art, and it is also equipped to disseminate information as a symbol of environmental protection. In particular, the center will help form a recycling-based society by reducing CO₂ emissions through the generation of electricity from heat, which it accomplishes at an efficiency of close to 20%, highlighting its performance. Once the electricity has been used locally, surplus power is sold. Concerning the concentration of exhaust gases, an area of high interest to local residents, we required the facility to generate emissions that do not exceed legal levels, but your company submitted guaranteed levels that are even lower than those levels as part of its focus in operation and management of reducing the facility's impact on the environment of the surrounding area. Your employees have served as volunteers at a marathon held near the facility, and they've cooperated with cleanup and other activities. You've also earned trust by treating customers who bring waste directly to the facility in a meticulous and considerate manner. Going forward, we fully expect you to continue to operate the facility with an even greater focus on safety, peace of mind, and reliability over the next 20 years.







managing Suwa Lakeside Clean Center, nicknamed eco-Poppo, with a robust series of structures for a term of 20 years with the guidance and cooperation of the Neighborhood of the Lake Administrative Affairs Association and its member cities and town.

I believe that the most important aspect of these operations over the long term is coexistence with the local communities, which is also a priority of the Association and its member cities and town.

Although intermediate processing facilities have not enjoyed a particularly favorable image to date, we look forward to striving daily to operate, maintain, and manage the facility in a way that will endear it to everyone in the local communities. In doing so, our goal will be to involve everyone in the process of "raising" eco-Poppo while visualizing the status of facility operations and disseminating information in an accessible manner (via digital displays, the facility's website, etc.), disclosing information about those operations to local communities by holding participatory events for residents (including operational briefings and facility tours), and actively fostering the exchange of information among the Association, local residents, and Suwako High Trust Co., Ltd.



Mr. Katsunari Endo Suwako High Trust Co., Ltd.

Activities of Our Municipal Solid Waste Treatment Plant Business

A leading company in the industry

Since completing Japan's first fully continuous mechanical waste incineration plant in 1963, Takuma has built more than 350 waste incineration plants in the country, more than any other company in the industry.

We have consistently led the municipal solid waste treatment industry, for example by starting operation of Japan's first combined facility comprised of waste incineration and biogas recovery plants and building numerous high-efficiency wastefueled power plants.

Takuma will continue to contribute to the realization of a recycling-based society as the industry's leading company.



Combined facility comprised of waste incineration and biogas recovery plants (Delivered in 2013 to Nantan Regional Administrative Association)



High-efficiency waste-fueled power plant (processing capacity: 163 tons per day) (Delivered in 2016 to Kurume City)



High-efficiency waste-fueled power plant (processing capacity: 600 tons per day) (Delivered in 2014 to the Clean Authority of Tokyo)

From construction to after-sales service

Takuma's municipal solid waste treatment plant business consists of four components: plant construction, primary equipment improvement, maintenance, and long-term turnkey operation.

In each area of operations, we draw on technological capabilities and expertise based on our extensive experience to precisely meet the needs of local governments, regions, and society, allowing us to offer facilities that are welcomed by their communities.



High-efficiency waste-fueled power plant (processing capacity: 110 tons per day) (Delivered in 2016 to the Neighborhood of the Lake Administrative Affairs Association)



Plant construction

Stoker-type incinerators

Most Energy from Waste plants use stoker-type incinerators. Takuma has been delivering stoker-type incinerators to customers for half a century, allowing us to accumulate a variety of expertise in areas such as stable combustion, exhaust gas treatment, and waste-fueled power generation.

Based on this well-established base of technological capability, we build and supply highly efficient waste treatment systems by integrating the latest technologies, for example water-cooled stokers, proactive combustion control, exhaust gas recirculation systems, and furnace denitration and urea decomposition systems.



• This design increases the stocker's cooling performance to facilitate stable combustion of high-calorie waste. • It also increases the boiler's steam conditions to improve power generation

control based on waste characteristics to maintain extremely stable combustion condi

Biogas recovery plants

Recently the Ministry of the Environment has been encouraging the introduction of biogas recovery plants for use with municipal solid waste. This is an area where Takuma is helping further lower CO₂ emissions with a combined system of methane fermentation and incineration for municipal solid waste to recover the maximum amount of energy from the waste treatment and utilize it in high-efficiency power generation. (The system received the New Energy Foundation's Chairman Award at the FY2014 New Energy Awards.)





Activities of Our Municipal Solid Waste Treatment Plant Business

Primary equipment improvements

Implementing high-value-added renovations

Although waste treatment plants are required to operate over extended periods of time, equipment must be renovated once 20 or more years has passed since the plant began operating. In addition, changes in the regulatory environment and society sometimes make large-scale renovations necessary.

Takuma draws on the sophisticated heat utilization technologies and energy-saving technologies it has accumulated as a boiler and environmental plant manufacturer to carry out high-value-added and large-scale renovation projects. In this way, we are able to help extend facilities' service life while lowering CO₂ emissions.



Maintenance

Ensuring stable waste treatment

Annual maintenance is essential in order to ensure stable operation of waste treatment plants. However, maintenance demands both sophisticated technological capabilities and experience, both because waste treatment plants draw on a range of expertise and because the manner in which their equipment deteriorates over time varies with the properties of the waste they process. Takuma takes maximum advantage of its accumulated expertise to contribute to stable waste treatment and long-term facility operation by developing long-term repair plans, carrying out elaborate site investigations, and then performing maintenance that has been optimized in terms of both timing and content.





Repairing an incinerator's refractory

Measuring the thickness of boiler water tubes

Long-term turnkey operation business

High-guality facility operation using **POCSYS**^{*}, a comprehensive support system for operation, maintenance, and management

Our long-term comprehensive operation business, in which we offer contract operation, maintenance, and management services over a period of 10 to 20 years, has been growing in recent years. As of May 2017, the Takuma Group operates 16 facilities. We are working to increase the quality of our operation, maintenance, and management services by progressively deploying **POCSYS**_®, a system that we developed during FY2016, at the facilities we operate. **POCSYS**_® makes it possible to achieve even more stable operation by analyzing enormous volumes of accumulated data, for example to facilitate more sophisticated automatic combustion control. (* POCSYS® : Plant Optimization Comprehensive Support System)



POCSYS_® conceptual diagram



Maintaining a conveyor

Activities of Our Energy Plant Business

-Transforming a variety of biomass resources into fuel

Technologies and experience in using a broad range of biomass fuels

Since its founding, Takuma has enhanced its technological capabilities as a pioneering boiler manufacturer to deliver a total of more than 600 boilers designed to accommodate a wide variety of biomass fuels in Japan and overseas.

Going forward, we will continue to actively pursue development and improvement of technologies for effectively using energy in a way that gives priority to both humankind and the planet while simultaneously meeting customer needs.

Social landscape

The Great East Japan Earthquake of 2011 threw the safety of nuclear power plants into question and led many to begin focusing on "renewable energy," which is characterized by a low environmental impact, as an alternative source of energy. Biomass-fueled power generation in particular promises beneficial ripple effects such as redevelopment of the forestry industry and job creation as companies move to fill needs of fuel procurement, transport, and storage as well as chip processing and other operations. Compared to solar and wind power, biomass also has the advantage of being able to provide power in a relatively stable manner without being affected by weather. Currently, biomass-fueled power plants are being planned and built in locations across Japan.



Delivery record of biomass boilers by area of Japan

Takuma is working on facilities that use biomass fuel throughout Japan.

- We have constructed facilities that use forestry-derived biomass fuels such as thinned timber and waste from lumber plants and industry-derived biomass fuels such as plant waste and sludge from manufacturing plants in many regions.
- We have constructed many facilities in Japan that use livestock-derived biomass fuels such as chicken and cattle manure and agriculture-derived biomass fuels such as bagasse (fiber remaining after sugarcane is crushed and sugar extracted), particularly in Kyushu and Okinawa.





Sales activities from the customer's perspective

Planning of biomass-fired power plants has surged due to the effects of Japan's feed-in tariff (FIT) program for renewable energy, which entered into effect in July 2012. As a result, our sales departments have been receiving a large number of inquiries for such facilities.

Our primary focus as we work to accommodate those inquiries is on pursuing sales activities from the customer's perspective. Since numerous companies from other industries are entering the FIT business, we work in our daily sales activities to build trust by addressing the concerns of customers with little experience in plant operation and to offer the best possible proposal for each customer.

Negotiations typically entail considerable difficulty, but I look forward to working through various obstacles and challenges in an optimistic and constructive manner while communicating closely with involved parties both inside and outside the company.

Junya Yamada Section 1 Plant Sales Department 1 Energy Plant Division & Manager Section 1, Hokkaido Branch Takuma Co., Ltd.

Activities of Our Energy Plant Business

-Pursuing biomass power generation

Biomass-fired power plants comprise one of our most skilled product areas. Activity in the segment has been sparked by the prospect of stable profits made possible by the launch of Japan's feed-in tariff system for renewable energy, and Takuma has received orders for numerous plants.

We have also received multiple orders for boiler fuel conversion projects to provide electricity and steam for internal plant use.



Proposing combustion furnaces that can accommodate the fuels customers use

Step grate stoker

This combustion method, which derives from waste incineration technology, can be used to uniformly burn fuels with different calorific values, moisture content, shapes, and sizes. Another characteristic of this method is that it requires less power to operate (known as facility power) than other types.



Installation example: Sendai Factory, Chuetsu Pulp & Paper Co., Ltd.

Chuetsu Pulp & Paper Co., Ltd. is a large general paper manufacturer that manufacturers, processes, and sells pulp and paper products.

The facility we delivered at the company's Sendai Factory uses a step grate stoker that can accommodate biomass fuels with a variety of properties and shapes in anticipation of the future diversification of fuels.

[Equipment overview]

OLocation: Satsumasendai City, Kagoshima Prefecture OPower output: 23,700 kW

Bubbling fluidized bed

Since sand that has been fluidized by high-pressure air burns away the surface of the chips, little unburned fuel remains, making high boiler efficiency a characteristic of fluidized bed systems. They can accommodate a variety of different types of fuel, including fuels with high moisture content.



Installation example: Hanamaki Biomass Energy Co., Ltd.

Hanamaki Biomass Energy Co., Ltd. is a wood chip biomass power plant operator established by a group of investors led by Takeei Corporation.

This plant makes effective use of unused lumber such as wood from thinned trees from Iwate Prefecture's lush forests and lumber damaged by pine weevils to create renewable energy.

[Equipment overview]

OLocation: Hanamaki City, Iwate Prefecture OPower output: 6,250 kW

Traveling stoker

With a traveling stoker, fuel is distributed in the furnace so that longer combustion times are secured for fuel with larger volumes. As with a step grate stoker, combustion is comparatively gradual, and the system can accommodate a wide range of fuels with different calorific values, moisture content, and shapes.



Installation example: Ariake Green Energy Co., Ltd.

Ariake Green Energy Co., Ltd. is a wood chip biomass-fueled power plant operator established with investments by Ishizaki Inc.; Kyushu Biotech Co., Ltd.; and Matsumoto Mokuzai Co., Ltd.

This plant uses scrap lumber and other wood waste from lumber mills in Kumamoto Prefecture as well as unused lumber such as wood from thinned trees as biomass fuel. The business is expected to yield a variety of benefits, including the revitalization of the forestry industry and the local community through job creation.

[Equipment overview]

- OLocation: Arao City, Kumamoto Prefecture
- ○Power output: 6,250 kW

Circulating fluidized bed

Heated, fluidized sand burns fuel as it circulates, keeping temperatures inside the furnace uniform to enable stable combustion. Since little waste remains unburned, boiler efficiency is high, and the system can accommodate a broad range of mixed fuels with different caloric values.



Installation example: Hyuga Factory, Chugoku Mokuzai Co., Ltd.

Chugoku Mokuzai Co., Ltd. is a large general lumber company that offers an extensive product line ranging from lumber to laminated lumber and precut lumber.

The facility delivered by Takuma to the company's Hyuga Factory uses a circulating fluidized bed boiler that can accommodate the customer's need to effectively utilize a wide range of biomass fuels.

[Equipment overview] OLocation: Hyuga City, Miyazaki Prefecture

^{*} Biomass-fired power plants ordered during or after July 2012 (as of March 31, 2017)

Activities of Our Water Treatment Plant Business

More than 50 years have passed since Takuma entered the water treatment business. To date, we have helped improve the water environment by building water treatment facilities. Recently, the industry has been called upon not only to improve the water environment, but to reduce the amount of power that treatment equipment consumes and to create energy from sludge

This section introduces some of Takuma's recent initiatives, using a sewage treatment plant as an example.



1 Reaction tank facility

A bioreactor tank, which provides the primary type of water treatment at the site, purifies sewage through the action of microorganisms. Takuma's low-power agitator plays a key role by reducing the power consumption requirements of agitating activated sludge to one-third of those of a conventional facility.



Installation example (Higashiuji Sewage Treatment Plant, Uji City)

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Stable operation over the VOICE long term



Section 1 Sewerage Engineering Department Project Center Takuma Co., Ltd.

In this project, we replaced an outdated reaction tank facility with a state-of-the-art energy-saving system and introduced advanced treatment capable of removing nitrogen and phosphorus. The latter can be expected to improve the quality of treated sewage, to protect water quality where treated discharge is discharged, and to prevent eutrophication, which causes phenomena such as red tides, in Osaka Bay. It is our hope that the facility in whose design and construction I was involved will operate in a stable manner over the long term and play a useful role in protecting the water environment.

2 Rapid filtration facility

A sand filtration facility removes even smaller suspended particles in water that has already passed through the reaction tank and sedimentation basin. This type of facility is necessary when the river into which treated sewage is discharged is subject to strict water quality requirements or when the treated sewage will be reused. Moving-bed sand filtration facilities, which are a specialty of Takuma's, deliver energy and space savings along with stable performance. To date, we have delivered more than 2,500 such systems throughout Japan.



Installation example (Edagawa Sewage Treatment Plant, Nishinomiya City)

3 Sludge-fueled power generation facility

Sludge, which is a byproduct of the sewage treatment process, contains a large amount of energy. As a result, it has been attracting attention in recent years as a type of biomass.

Takuma harnesses its core incineration and boiler technology to make effective use of sludge as fuel for power generation to create electricity.



Installation example Tama River Water Recycling Center [currently under construction], Tokyo







Contributing with the latest systems



Hiroki Wada Sewerage Engineering Department Project Center Takuma Co., Ltd.

The new sludge-fueled facility we're building in this project is a state-of-the-art system that incorporates steam power generation into a stoker furnace and waste heat boiler that was ordered by the Tokyo Metropolitan Government's Bureau of Sewage to fulfill a hightemperature, energy-saving furnace and generator procurement project. The facility will generate 137 kW from incineration of 140 tons of sludge per day. We'll be working with the Tokyo Metropolitan Government and other involved companies to complete the project safety and reliably by the end of FY2019.

Activities of Our Overseas Business

Biomass-fueled power plant business in the Southeast Asian market

The biomass-fueled power generation boiler business in Southeast Asia is an essential part of any discussion of Takuma's history. We have delivered more than 370 biomass boilers to customers overseas, and we have an especially extensive track record since 1959 of delivering boilers fueled by bagasse (fiber remaining after sugarcane is crushed) in Thailand, where we have a local subsidiary. Takuma has supported the Thai sugar industry for many years.

As the feed-in tariff program becomes increasingly well established in various industries, a growing number of customers in Thailand are looking beyond simply gaining a source of power for plant operation and instead opting to construct boilers with the goal of using 10 MPa/520°C class boilers that operate at comparatively high temperature and high pressure levels to actively generate electricity for resale to boost their income. In this way, demand for this type of boiler facility is expected to continue to grow.

Under these conditions, we look forward to helping supply environmentally friendly power from biomass, particularly in Southeast Asia, by accommodating demand not only in Thailand, but also in neighboring countries such as Indonesia and Vietnam with reliable technology and fine-grained customer service based on our extensive experience in the field.



Bagasse-fired boiler installation example



Sugarcane deliveries



Bagasse yard



The first time I visited a sugar factory in Thailand, I was amazed at the scale of the facility. At the same time, I was impressed that one of our boilers was serving as the plant's source of power. We've delivered numerous boilers overseas, and I think that this experience has served to further hone our biomass combustion technology. I look forward to doing my best to help supply energy locally through diligent sales activities so that we will be able to pass that legacy on to the next generation of Takuma engineers intact.



Takahiro Akaishi Manager, Sales Section Energy Plant Sales Department International Operations Division Takuma Co., Ltd.

Overseas Energy from Waste plant business

Waste processing problems have been manifesting themselves in countries around the world recently due to the effects of rapid urbanization, and there have been reports of the adverse effects of burying waste as-is on living conditions, including soil pollution and fires, especially in developing nations. These countries have embarked on initiatives to resolve waste processing issues, but the fact remains that they require even more sophisticated waste processing diagnostic expertise, advice, and guidance.

Takuma has deep experience and an extensive track record that together make it a market share leader in waste incineration and processing equipment in Japan. The photograph below depicts a plant that we delivered in Beijing, China, but in fact we have delivered plants in nine overseas countries and regions, including China and the UK. Our Lakeside Plant in the UK and our Gaoantun Plant in Beijing have earned a high level of praise and trust from their respective customers, for example due to the facilities having achieved continuous operation for more than 8,000 hours a year.

We look forward to taking advantage of our extensive experience to closely exchange information and engage in partnerships with local stakeholders as we offer optimal proposals that meet the full array of needs using technological capabilities in which we have great confidence.

Apart from plant construction, numerous issues must be addressed in order to resolve waste processing problems, including methods for collecting and sorting waste, awareness-raising and environmental education, and consensus-building with local residents. While it takes time to resolve each of these in turn, we are confident that it is precisely by cooperating with such initiatives that we can best provide safe, stable plants that inspire pace of mind on the part of people in their host countries and communities.

Going forward, Takuma will continue to contribute to environmental protection by pursuing an overseas Energy from Waste plant business that suits each country and community.





Helping solve environmental problems overseas

Waste incineration facilities, which are one of Takuma's flagship products, are one type of essential infrastructure that numerous developing nations in Asia expect to construct in the future. Although the market environment, for example in terms of laws, has not yet been put in place in those countries, I'm involved in large-scale projects related to developing associated mechanisms. I find my job motivating from the standpoint of being able to help resolve environmental problems in developing nations.

Beijing Gaoantun Energy from Waste Plant (China) • Processing capacity: 1,600 tons per day (800 tons per day \times 2 units) • Steam capacity: 73.8 tons per hour • Steam pressure: 4.0 MPa • Steam temperature: 400°C • Rated power output: 15,000 kW × 2 units



Masaya Kawamoto Sales Section **Environmental Plant Sales Department** International Operations Division Takuma Co., Ltd.

Main Recent Projects

The following are the main facilities supplied by Takuma during FY2016.

Municipal solid waste treatment plants

■ New construction (DBO projects)

* More information about the following projects can be found in "Feature: Striving to Coexist with Local Communities" on pages 17 to 22.

• Miyanojin Clean Center



Project name Northern Kurume Solid Municipal Waste Treatment Facility Development and Operation Project Capacity Incineration facility: 163 tons per day (81.5 tons per day × 2 units) Power output: 3,560 kW

Clean Park Hokutan

Fukuoka Prefecture

Location



Project name	Hokutan Waste Treatment Facility
	Development and Operation Project
Capacity	Incineration facility: 142 tons per day
	(71 tons per day \times 2 units)
	Power output: 2,850 kW
Location	Hyogo Prefecture

• Suwa Lakeside Clean Center



 Project name
 Lakeside District Waste Treatment Facility

 Development Project

 Capacity
 Incineration facility: 110 tons per day
(55 tons per day × 2 units)

 Power output: 2,050 kW

 Location
 Nagano Prefecture

Primary equipment improvements

• Kogasaki Incineration Facility City of Kitakyushu



Project name Kogasaki Plant Incineration Facility Improvement Project Capacity Incineration facility: 810 tons per day (270 tons per day × 3 units) Power output: 17,200 kW Location Fukuoka Prefecture

Osato Regional Konan Clean Center



Project name	Konan Clean Center Core Equipment
	Improvement Project
Capacity	Incineration facility: 100 tons per day
	(50 tons per day \times 2 units)
ocation	Saitama Prefecture



Mattoishikawa Environmental Clean Center

• Sakado West Disposal Center



Main Recent Projects

Energy plants

Ichinohe Forest Power Co., Ltd.



• Sanyo Paper MFG. Co., Ltd.



Project name Biomass Boiler Generation Equipment Installation Project Capacity Fuel: Biomass fuel Steam conditions (normal operation): 70 tons per hour \times 6.0 MPaG \times 460°C Power output: 16,700 kW Location Tottori Prefecture

• Shin Tokai Paper Co., Ltd., Shimada Mill



Project name Boiler and Turbine Equipment Installation Project Fuel: Wood fuel, RPF Capacity Steam conditions (normal operation): 100 tons per hour \times 6.0 MPaG \times 460°C Power output: 23,040 kW Shizuoka Prefecture Location

• Ariake Green Energy Co., Ltd.



Project name Arao Biomass Power Plant New Construction Project Capacity Fuel: Wood fuel Steam conditions (normal operation) 29.2 tons per hour × 6.0 MPaG × 425°C Power output: 6,250 kW Kumamoto Prefecture Location

• Hanamaki Biomass Energy Co., Ltd.



Project name Biomass Power Plant Construction Project Capacity Fuel: Wood fuel Steam conditions (normal operation): 28 tons per hour \times 5.98 MPaG \times 425°C Power output: 6,250 kW Location Iwate Prefecture

• Osaka Soda Co., Ltd. (via Daiso Engineering Co., Ltd.)



Project name RPF Boiler Plant Installation Project Fuel: RPF Capacity Okayama Prefecture Location

Water treatment plants

Nishinomiya City Edagawa Sewage Treatment Plant



Edagawa Sewage Treatment Plant Rapid Filtration Facility Machinery and Equipment New Construction Project Treatment volume: 29,500 m³ per day Capacity Type: Moving-bed upflow continuous sand filter Specifications: $M60 \times 10$ units $\times 2$ basins (high-speed type) Hyogo Prefecture Location

• Tatsuno City Matsubara Preprocessing Plant



Project name Matsubara Preprocessing Plant No. 1 Thickener Tank Scraper Update Project Type: Center-drive suspended type Specifications: 17,900 mm diameter × 1 unit Capacity Location Hyogo Prefecture

Overseas energy plants

• Rajburi Sugar Co., Ltd.



Project name N-5000H Bagasse-Fired Boiler Capacity Fuel: Bagasse Number of boilers: 1 Steam conditions (normal operation): 150 tons per hour \times 4.2 MPaG \times 450°C Location Ratchaburi, Thailand



Capacity

Location

Project name Uji City Higashiuji Sewage Treatment Plant Water Treatment Equipment Project No. 16 Treatment volume: 3,650 m³ per day Treatment method: Biological nitrogen removal with agglomerating agent Specifications: Low-power vertical agitator, aeration system Kyoto Prefecture

Nagoya City Tsuyuhashi Sewage Treatment Plant



CSR Activities for the Future

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 FY2016

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.

150 25000					EV2016 act	ion program	
ISO 26000 core subjects	Key issue	CSR issue	Department		Action plan Self-evaluation of results		
Organizational governance	Corporate governance	Verification of corporate administrative procedures	Internal Auditing Division		Verify whether corporate activities (general operations) are being carried out in accordance with predetermined control procedures (such as rules) by means of an internal audit	We carried out an internal audit in accordance with the audit plan. We found that activities were generally conducted according to plan and that they generated results.	
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 2016 and in internal education and worked to ensure that they permeate the organization and take hold.	
	Risk management	Mitigation of risks to employee safety	General Affairs Division		Carry out activities to reduce the number of traffic accidents, including those caused by company vehicles and bicycles.	We worked to raise awareness, for example by holding training at a driving school for individuals who have been involved in two traffic accidents and holding safety lectures given by an outside instructor. We believe that awareness increased as a result.	
		Improvement of risk management techniques (reduction of additional costs)	Engineering Division		Reduce the risk of incurring additional costs by enhancing partnerships with departments placing orders.	In addition to continuing preliminary studies, we worked to reduce the risk of incurring additional costs by enhancing partnerships with departments placing orders.	
		Review of risk management items in the field, evaluation and improvement of current conditions, and implementation of risk management	Construction Division		Enhance the information included in construction plans for each project by identifying risks associated with work in the field in order to eliminate accidents and disasters at construction sites, carry out audits to determine whether safety activities are being conducted according to plan, and work to implement improvements.	Although we identified risks in our safety and health plans, incorporated that information into construction plans, audited safety activities in accordance with those plans, and worked to make improvements, accidents resulting in work stoppages still occurred, preventing us from achieving our goal. Going forward, we will augment guidance and education for workers with education for site managers.	
	Information disclosure (fulfillment of accountability requirements and assurance of transparency)	Appropriate disclosure of technical information to outside parties	Engineering Division		Promote useful Takuma technologies and spread awareness outside the company by having employees apply for and win awards.	We applied for and received one award during this fiscal year. Combined with the results of similar activities last year, we have now received two such awards.	
	Employee training on social responsibility	Promotion of employee understanding (awareness) of social responsibility	Marketing Division		Apart from companywide education, offer departmental education to deepen employees' understanding (awareness) of social responsibility.	We offered educational experiences such as holding readings of documents related to social responsibility and carried out initiatives to deepen employees' understanding of CSR in general.	
	Stakeholder engagement	Development of trusting relationships with customers	Engineering Division		Work to resolve issues by organizing and sharing customer information and examples of problems encountered during past projects.	We worked to deepen trusting relationships with customers and to resolve issues by organizing customer information and examples of similar problems that have occurred in the past and sharing that information with operational management.	
Consumer issues	Safety and quality of products and services	Provision of products that contribute to customer satisfaction	Marketing Division		Work to ensure effective communication with customers and comply with customer requirements.	Customers who responded to this year's customer satisfaction survey praised Takuma for its fast, sincere service, and we were able to provide products that contribute to customer satisfaction thanks to the cooperation of involved departments.	
		Preventive measures related to risk concerning the safety and quality of products and services	Engineering Division		Enforce precisely targeted safety guidance and safety patrols in the field.	We offered safety guidance and education by holding safety patrols and liaison meetings.	
		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.	We worked to improve construction guality by carrying out voluntary inspections at all sites in the field and having internal coordinators carry out checks of the status of construction management in the field at least once a month, with the result that we had no orders of additional work due to defective construction.	
		Provision of high-quality products that contribute to customer satisfaction	Manufacturing Division		Carry out process intermediate inspections in a reliable manner.	We carried out process intermediate inspections in a reliable manner, but inspection mistakes led to the occurrence of defects.	
Fair operating practices	Compliance with the Antimonopoly Act	Understanding of the provisions of the Antimonopoly Act	Marketing Division		Hold workshops about the Antimonopoly Act, for example as part of compliance education.	We held workshops about the Antimonopoly Act as part of compliance education and other programs.	
	Fair business relationships with customers and business partners	Implementation of fair transactions with business partners	Administration Division		Offer support for fair business practices in sales, manufacturing, procurement, and construction departments (support for transactions that comply with all applicable laws and regulations).	Cost management department personnel offered support for fair business practices on the part of ordering departments after carrying out cost assessments in a fair and appropriate manner.	
	Respect of property rights	Protection and utilization of intellectual property rights	Engineering Division		Offer education about intellectual property rights and work to raise employee awareness about protecting and utilizing those rights.	We worked to raise employee awareness by holding courses on patent basics for new employees as part of new employee training and for all employees at company branches.	
Labour practices and human rights	Appropriate employment relationships and labor conditions (including safety and health, social dialog, etc.)	Initiatives to address occupational safety and health	Safety Control Division		Prevent the type of fatal accidents that occurred last year based on the FY2016 safety and health plan.	We were able to prevent fatal accidents by implementing a variety of measures, including by strengthening Safety and Health Committee structures.	
		Pursuit of appropriate labor conditions and initiatives to balance work and personal life	Marketing Division		Work to enhance the balance between work and personal life by encouraging employees to make appropriate use of leave time.	Employees were aware of planned paid holidays and took paid time off while coordinating their plans with coworkers in their department.	
	Employee skill development (skill enhancement)	Leadership for young employees and efforts to pass down expertise	Marketing Division		Work to improve the mastery of knowledge with an emphasis on participating in learning opportunities such as OIT related to operations involving the export of parts to previously delivered plants as well as seminars related to employees' own departments, for example with a focus on subjects such as English contracts and export controls.	Concerning the export of parts, we offered education for department employees with a focus on OJT. Despite handling a comparatively large volume of such exports during the fiscal year under review, there were no incidents with detrimental effects.	
Environment	Contributions to resolving environmental problems	Energy-saving initiatives	Engineering Division		Deploy systems that can be expected to (1) maximize generating capacity, (2) minimize power consumption, and (3) reduce utility use.	We were able to orchestrate more deployments than we planned at the beginning of the fiscal year.	
Community involvement and development	Impact of business activities on the local community and society at large	Contribution to the communities around our worksites	Marketing Division		Engage in activities that contribute to communities around worksites.	Worksite employees participated in cleanup activities and were able to make a contribution to the local community, however slight.	
	Contribution to society	Community service and other volunteer opportunities	General Affairs Division		Actively participate in the activities of local organizations (disaster prevention, crime prevention, safety, economic stimulation, etc.).	Department employees coordinated with events held by local groups and government organization, participating whenever possible. This effort helped strengthen personal relationships with local residents.	

Group Company CSR Topics

This section introduces messages from the presidents of major Takuma Group companies describing issues they have identified in the course of pursuing CSR activities and how they are working to address them.

NTEC NIPPON THERMOENER CO., LTD. Established August 1, 1961 (The current name was adopted on April 1, 2005, after the company merged with Ebara Boiler Co., Ltd.) Businesses Manufacture, sale, engineering, and maintenance of a wide range of boilers and related equipment Employees 395 (as of March 31, 2017)





Masato Fuiita

Representative Director

NIPPON THERMOENER CO., LTD.

President and

Message from the President

Our management principle is "Service to the nation through boiler manufacturing," and we are committed to enriching all stakeholders in accordance with that principle. Our vision calls on us to become a leading company in the public thermal energy sector, and we define "leading" in this context in terms of thermal output and our ability to reduce CO₂. In short, our corporate activities are themselves CSR activities.

Thanks to support from our stakeholders, we have delivered close to 100,000 boilers nationwide to date, and most of them remain operational today. Consequently, our customers have a broad array of needs, and our products go beyond boilers to include chemical agents and maintenance service. As a result, partnerships with numerous stakeholders, including employees and business partners, play an extremely important role in our ability to offer fast, precise service. To enrich our customers and indeed all stakeholders, we believe enhancing CSR activities is directly related to the company's continued evolution, and all of our employees will continue to come together to pursue that goal.



Established September 27, 1967 Businesses Maintenance, management, and operation of waste treatment facilities, water treatment facilities, industrial waste treatment facilities, boiler facilities, power generation facilities, and other buildings Employees 1,523 (as of March 31, 2017)





Kazunori Tsuji

President Takuma Technos Co., Ltd.

• Message from the President

Local government agencies in 59 communities throughout Japan entrust us with the operation and management of their waste incineration, bulk waste treatment, recycling, and other facilities. We maintain a worksite, branch office, field office, or administrative office at each of those sites so that we can provide safe and secure service at all hours.

As a company that's responsible for one aspect of government service and one that's engaged in business activities that are intimately related to the lives of community residents, we realize that our mission is important, and we are confident that we can increase our corporate value by carrying that mission out in a reliable manner.

Our executives and employees come together to ensure that everyone who is involved with the company is satisfied. We emphasize the need to improve compliance and CSR awareness, and we offer a systematic program of education and guidance in order to ensure that attitude permeates every aspect of our organization. Going forward, we will continue to strive to become a company that can achieve sustained growth by making social responsibility a core part of our approach.

SUNPLANT Co., Ltd. Established September 15, 1941 Businesses Design, construction, and superintendence of air-conditioning equipment, feed-water/drainage sanitation equipment, and electrical equipment Employees 104 (as of March 31, 2017)



• Message from the President We've been involved with environmental optimization in the full range of building types through the design and construction of air conditioning, water supply and drainage, and other equipment. Rock-solid legal compliance is one of the CSR issues that we must fulfill as part of the

Takuma Group. We strive to observe all laws and regulations related to our operations, to engage in fair competition, and to operate in a fair and just manner. A second CSR issue involves strengthening risk management. In addition to reliably carrying out technical patrols to prevent quality-related accidents, we strive to ensure that all employees report relevant information and communicate and consult with their colleagues and that issues are dealt with in a timely manner. A third CSR issue is dealing with overwork. Overtime work for extended hours has become the rule in the construction industry, and that trend is having an adverse effect on healthy family life. It's also had a major impact on our personnel planning, and we can no longer afford to overlook it. We're working to create a workplace environment in which employees can balance the competing demands of their jobs and their personal lives.

President SUNPLANT Co., Ltd.

An accurate understanding of the legal system is necessary in order to address these issues. Going forward, we will work to acquire legal knowledge and to ensure that a commitment to corporate ethics permeates our organization.

Dan-Takuma Technologies Inc.

Established August 21, 1969

Businesses Supply and maintenance of clean equipment, systems, and other products for customers in the electronics and precision machining industries, particularly the semiconductor industry in Japan and overseas Employees 70 (as of March 31, 2017)



We supply an extensive range of new products while carrying out the important mission of creating a clean environment, which is an essential task in the electronics and precision machining industries, by drawing on technology and experience gained in semiconductor-related industries over many years. As you know, semiconductor and electronic devices are widely used in a broad range of industries, products, and social systems, and they play a vital role in contemporary life. We help maintain the advanced, clean environments used in production of these semiconductor and electronic devices and improve rational productivity that helps solve global issues involving the environment and energy resources while achieving a rich, safe, and secure society by supplying clean devices and systems. We're also striving to make an even greater contribution in other fields that require a clean environment, including medicine and food products, based on our accumulated technology and experience.

As part of the Takuma Group, which is a manufacturer of environmental and energy plants, we work with customers to make a broad contribution to the resolution of problems involving the environment and energy resources in Japan and overseas by supplying clean-running equipment and systems.

Chiaki Nagahama PRESIDENT & CEO Dan-Takuma Technologies Inc.





• Message from the President

Group Company CSR Activities

Spreading Takuma's Company Motto and Management Principles among overseas **Group companies**

To spur shared understanding of the Takuma Group's basic approach, we have prepared Chinese and Thai translations of key documents such as the Company Motto and Management Principles for overseas Group companies in order to deepen local employees' understanding of these important guides.

The Takuma Group will continue to cultivate a healthy and robust corporate culture throughout the Group going forward.

Takuma Group corporate policies





This page introduces feedback from overseas Group company employees who have read the Takuma Group's corporate policies in their own language.

Taiden Environtech Co., Ltd. (Taiwan) Helping maintain and manage waste VOICE treatment facilities in Taiwan

Taiden Environtech Co., Ltd. has worked to protect and improve the environment in Taiwan as part of the Takuma Group since its establishment in 1988. Four plants built by Takuma in locations such as Taipei together process more than 4,000 tons of municipal solid waste per day. We've earned high praise for our earnest approach to maintaining and managing these plants, and we're currently offering similar services at other facilities as well. We strive to facilitate the company's development while satisfying all stakeholders, and in so doing to help protect the local environment, by proposing equipment maintenance and construction plans that take the local environment into consideration and by providing safe, secure products and services. Going forward, I look forward to continuing to implement and utilize the Takuma Group's corporate policies through daily operations such as these.



Siam Takuma Co., Ltd. (Thailand)



Customer trust is our first priority

Siam Takuma is actively standing at the front of business activity of Takuma. It has been over 50 years after starting supplying numerous Takuma boilers in Thailand and customers rely on Siam Takuma since we opened office in Bangkok.

In responding to the customers we shall present whole necessary information without delay and do have an efficient strategy growing with the reliance ever. Through handling environmental friendly equipment, the matter of reducing impact on Earth will be our pride. The extensive experience will always keep customers feel confident in our safety and stable performance even competition is increasing nowadays. At the same time, we also give appropriate advice on energy use and operating costs creating full satisfaction. Above all, our boiler technology is particularly designed to generate lower carbon effect to the society and environment than those of others in term of pollution.

Besides that, we realize to be a giver to our society by donating old or unused office equipment to temples or poor people as for recycling. We are, therefore, contributing to Society through our businesses and products under clean energy. Customers, Society and Environment are the keys for the development in our service, and Takuma Group Ethics Charter and Code of Conduct, etc. should be our underlying principles for our business activity.

Chien-Lung Shen President



Pornpetch Petchsuwannakit (Joy) Manager General Affairs Section

Corporate Governance

Corporate Governance

As of June 28, 2017, the Board of Directors was comprised of six directors (excluding directors who are members of the Audit & Supervisory Committee) and four directors (of whom three 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.

In order to accelerate management decision-making and clarify where management responsibilities are placed, we have adopted an operating officer system in which we appoint operating officers who are entrusted with the responsibility of executing our business activities. As of June 28, 2017, there were 14 operating officers (including those who also serve as directors). Moreover, we have also established an Executive Execution Committee, which is chaired by the president/chief operating 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.

An Audit & Supervisory Committee that consists of four members, of whom three 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 Executive Execution Committee, 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 president holds regular meetings with committee members to ensure good communication, and we have established an Audit & Supervisory Committee's Office to provide staff to help carry out the committee's work.

In addition to the above, we have established a Human Resources & Remuneration Advisory Committee comprised of independent officers, representative directors, and the officer in charge of human resources. The committee works to increase transparency and objectivity in the selection of candidates for director and operating officer positions and in the determination of compensation as well as to enhance the supervisory function of the Board of Directors.



Corporate governance structure

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

Compliance & CSR Promotion Structure

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.



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.

In this way, we are working to ensure thorough compliance while carrying out business properly and efficiently while also deepening risk management.

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.

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.

Promotion members convene departmental meetings once a guarter, 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. (Details of the compliance and CSR promotion education implemented in FY2016 can be found on page 59.)

We are also 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.

Compliance & CSR promotion structure

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 the risk management organization shown below 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 guickly 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.



Risk management structure

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,
- companies to continue business operations.
- 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, annual reports in English and other business information, all on our website.

[Takuma website > IR information] http://www.takuma.co.jp/english/investor/index.html



Shareholders Report

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

3. Earn the trust of numerous stakeholders, including employees, their families, shareholders, and nearby residents, and



Composition of shareholders (as of March 31, 2017)

Corporate Governance

Directors and Executive Officers

(as of June 28, 2017)

Directors



(Back row, from the left)

Minoru Murata

Outside Director (Audit & Supervisory) Committee Member

> Osamu Iwahashi Outside Director

Outside Director

(Audit & Supervisory) Committee Member)

(Front row, from the left)

Kengo Numata Director Senior Managing Executive Officer

Koji Tanaka Hiromichi Satake (Audit & Supervisory) Committee Member)

Yasushi Enomoto

(Audit & Supervisory) Committee Member)

Takaaki Kato

Representative Director

President and Chief Executive Officer

Director

Director Executive Officer

Director Executive Officer

Tsuyohito Nishiyama

Hideki Takeguchi Director **Executive Officer**

Hiroaki Nanjo Managing Executive Officer

Executive Officers





Takashi Manabe Managing Executive Officer



Masahiko Izumi **Executive Officer**

Yoshiki Kita



Akira Taguchi **Executive Officer**

Hidetoshi Tomita **Executive Officer**

Director

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Ryoji Tani **Executive Officer**



Norito Uchiyama **Executive Officer**



Executive Officer



Mitsuaki Adachi **Executive Officer**



Human Rights and Labor Practices

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 guality and privacy
- 11. Safe work environment

Working with Our Employees

Approaches toward employees

Our company sets "establishing a work environment allowing each employee to challenge their goals, as well as getting on with their work through appropriate assessment" as its basic policy. Specifying the following three approaches as critical items, we introduce various systems for each.

Increase employee motivation by ensuring transparency as well as satisfaction with **HR** assessments

Objective management system

We utilize an objective management system in which work objectives are set at the beginning of the fiscal year and the degree to which they are achieved is evaluated at the end of the fiscal year. The objectives, which are based on company policies, are decided through meetings and interviews with superiors to include the work tasks that each individual is to undertake over the year and the roles they are expected to fill.

• 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 pursue success regardless of their gender or academic background. We also provide opportunities for employees to be promoted to management positions.

In-house commendation system

Every year on the anniversary of the company's founding on June 10, we recognize employees with the following awards:

Takuma Prize*

- Invention and idea commendations
- Safety and Health Award in Construction Division
- Qualifications acquisition commendations
- Takuma Technical Review Outstanding Paper Award
- Years-of-service commendations
- * The Takuma Prize is awarded to employees who have demonstrated outstanding achievements in their work or in their efforts on behalf of society outside of work, including lifesaving, disaster prevention, and volunteer service.



2 Provide capacity building assistance to employees

Junior employee exhibition

As a part of the education of our junior staff, ten-year company employees give presentations that reflect on

their experiences and indicate the future growth that they are looking for, and second-year employees hold technological exhibitions in order to improve their ability to make presentations.



Technical training sessions

We hold technical training sessions to provide opportunities for employees to increase their technical knowledge. These events range from inviting outside researchers or university professors to give lectures to having employees in technical positions give presentations on issues on which they are currently working.

• English education support

We periodically administer the TOEIC test at the company to help employees improve their language skills. Employees who earn a high score are eligible to receive a bonus from the company.

• Support for self-study

Takuma encourages employees to acquire various licenses and certifications as part of the skill development process, for example by reimbursing them for the cost of testing needed to earn official certifications and licenses that are necessary for operational reasons and offering incentives for successful completion of such tests. We also provide information about a range of distance learning and e-learning opportunities.

• Grade-specific educational programs

- New employee training
- General employee training
- Line manager training

Improve the work environment, facilitating employees' efforts to address business tasks without anxiety

• Work-life balance

Takuma offers the following programs in order to help employees harmonize their jobs and private lives, balance their work and child-raising responsibilities, and make the most of their skills and abilities:

- Paid time off in half-day increments
- Childcare leave
- Nursing care leave
- Discretionary work
- Flextime*
- Telework
- * The Flextime program has been expanded to cover employees raising children up to the end of third grade in order to make it easier for them to balance the competing demands of work and raising children.

• Employee health management

- Takuma carries out the following health management measures:
- Improvement program for lifestyle-related diseases
- Lifestyle-related disease prevention checkups
- Mental health measures
- Health consultations
- Dissemination of health information (in-house newsletter and website)
- Wellness Fair (cosponsored with the Health Insurance Union and cafeteria operator)

• Labor-management relations

The labor union is an organization which conducts periodic deliberations and collective negotiations in terms of annual salary, working hours and other working conditions and establishing a stable employee-employer relationship.

Initiatives to create a workplace environment where employees can more easily take time off

We are working to create a workplace environment where employees can more easily take time off by planning their desired vacation dates, making those plans known to their coworkers, sharing associated information, and offering each other support.

Initiatives to promote the participation of female employees in the workplace In March 2016, Takuma adopted an action plan with the goal of doubling to 20 the number of female employees in core and general management positions by March 31, 2021, and we are pursuing the following initiatives to achieve that goal:

• Female employees hold talks to paint a picture of what it's like for women to work at Takuma, and there is information about those talks on the website.

[Takuma top page > New-graduate hiring information > Takuma jobs and employees > Talks by female employees] http://www.takuma.co.jp/recruit/newgraduates/work/talk.html (content in Japanese)

directly with female employees of Takuma.

• Other enhancements to workplace environments

- Measures to counter sexual/power harassment
- Listening to opinions within the company*
- "opinion box," as well as communication via e-mail and telephone concerning their working environments.

• Cafeteria plan

We offer a "cafeteria plan" as an employee benefit program as part of our effort to meet the full range of diverse employee needs. Employees can choose from a menu of programs including support for skill development, child-raising and nursing care, and health maintenance and promotion. The company then reimburses them for the cost of using those services, subject to an annual cap. The selection of programs is reviewed on an ongoing basis.





• We hold company information sessions for female students, and we provide opportunities for students to talk

* To enhance ideal working conditions for employees, our company absorbs a wide range of views from employees by placing an



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 FY2017: 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 achieving at least 90% of the objectives set forth in the 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.

Instead of resting on our laurels, we will redouble our safety and health activities going forward with a focus on each and every employee so as to ensure that all workers are aware of the vital importance of Takuma's philosophy of respecting people, which forms the foundation of our safety and health policies.

Safety and health activities and their results

1. 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.

• FY2016 Number of safety inspections done: 159

(Initial inspection pass rate: 93%)

2. Safety patrols and field education

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 education in the field in a precisely targeted and efficient manner.

By focusing on the early discovery and elimination of risk in safety patrols and on the improvement of safety awareness among workers through communication skills in field education, these activities help ensure the safety of Takuma's workplaces.

• Number of safety patrols implemented in FY2016

By Safety and Health Committee (members, advisors): 51 By Safety Control Department: 342 By construction division: 310



A safety inspection

Safety patrols and field education

Takuma's safety results in recent years

Despite a tight labor market in the construction industry nationwide, business continued to be brisk in 2016. We saw our safety track record improve from the dip in performance that occurred in 2015 as a variety of safety and health activities began gradually to bear fruit. Nonetheless, we will not rest on these accomplishments, but rather will work to ensure even more thorough risk management, to strengthen and enhance our safety and health management system, and to redouble our resolve to eliminate occupational accidents.



Accident severity rate	* Accident frequency rate Indicates the frequency with which accidents occur as the number of fatalities caused by
0.05	occupational accidents per 1 million actual working hours.
0.23	$\frac{\text{Number of fatalities}}{\text{Total actual working hours}} \times 1,000,000$
0.07	* Accident severity rate Indicates the seriousness of accidents as the
0.21	number of work-days lost per 1,000 actual working hours.
0.11	$\frac{\text{Total work-days lost}}{\text{Total actual working hours}} \times 1,000$

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

1.25

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 below, more than 14,000 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, 2017

Cumulative number of trainees: 30,743 Number of trainees passing the completion exam: 14,639

Message from a partner company



Thanks to Takuma's education for construction site representatives, we learned that the mission of such representatives is to ensure safety and health at companies by raising the level of safety in order to create a healthy workplace environment in accordance with Takuma's commitment to respecting life and health to create a healthy workplace environment. Our site foremen have also received that education, and all of our branch companies now understand the importance of SSAs, although they were a little confused at first. It is clear now that the lesson is the same as what our predecessors used to teach, that preparation is 80% of the job, and indeed those measures provide a useful way to ensure safety in advance. I think that good communication among foremen and an understanding that safety is a priority that must be pursued actively are bringing optimism

Mr. Takeshi Ito Site Manager Kizugawa Office Kansai Branch, West Japan Regional Headquarters Nishimatsu Construction Co., Ltd.

and motivation to the workplace environment. Furthermore, Takuma's site safety patrols have provided education and guidance on how to enhance safety equipment so that it can withstand human error while raising employees' safety awareness so that such errors will not occur. We're extremely grateful that those inspections have also served to cultivate autonomy on the part of workers and enabled worksites as a whole to think seriously about safety.

(From a Takuma construction site representative)

Because Takuma chooses the primary contractor when it's the prime contractor but not secondary or subsequent contractors, we've adopted a system in which we have construction site representatives pass on our approach to safety and health to foremen (safety and health managers). If this education leads site workers to recollect what Takuma says about safety and health issues and therefore empowers them to nip hazards in the bud, we will consider it to have been successful.

Your company was confused about SSAs at the start of work at the site, and you asked many questions before you finally became convinced of the effectiveness of that approach. However, I'm extremely grateful that now you create samples yourselves and explain the system to other companies. You've proposed and organized foremen's meetings, and your belief that site personnel, particularly foremen, must play the lead role in safety and environmental issues is apparent. I can understand why our safety patrols always praise the Kizugawa construction site for its clean and organized appearance.

In closing, let me mention that I find many aspects of your safety management system interesting and look forward to managing sites with you again in the future while learning from one another.



Education for construction site representatives



Tatsuya Kawamura Site Manager Kizugawa Construction Site Takuma Co., Ltd.

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., and Dan-Takuma Technologies Inc. have also acquired ISO 14001 certification



Takuma's CO₂ Reduction Technologies

We convert waste/biomass into energy and reduce CO₂!



Reducing CO₂ with biomass power generation boilers

A classic example of biomass power generation can be found in sugar factories. 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 boiler fuel. The steam produced is used as the plant's heat source, and any remaining steam is used to generate electricity that is utilized to operate the plant and, if any remains, sold to the electric power company. The amount of power generated at sugar factories has grown greatly, with examples of single plant that generates 50,000 kW.



CO₂ 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.

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



In 1 year, down millio about 🦯 = - tons CO₂ reduction achieved by

Takuma's biomass power generation boile (as of end of FY2016)

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 waste products are incinerated, when trees grow again, they absorb CO_2 to offset the emissions from incineration, so there is no increase in CO2 in the atmosphere. By using the heat produced by incinerating biomass to generate power, the amount of power generated using fossil fuels can be reduced, and this contributes to decreasing CO2

> 500 kW o power

In 1 year, down millior about 🗸 tons CO2 reduction achieved by Takuma's

plants and industrial waste incineration plants (as of end of FY2010

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 FY2016 rose slightly compared to FY2015 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.

• Greenhouse gas emissions

2013

The greenhouse gas emissions created by our company are limited to carbon dioxide (CO₂). The amount of CO₂ emissions in FY2016 rose slightly compared to FY2015 levels. We will continue striving to reduce CO₂ emissions.

2014

2015

2016

Water usage

2012



Takuma's water consumption during FY2016 held steady at FY2015 levels. Going forward, we will continue to work to lower our water use.

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	2012	2013	2014	2015	2016
Emissions (tons per year)	0	0	0.3	0.4	0.4

• Xylene (CAS No. 1330-20-7)

FY	2012	2013	2014	2015	2016
Emissions (tons per year)	1.8	1.4	3.4	2.2	2.9

• Toluene (CAS No. 108-88-3)

FY	2012	2013	2014	2015	2016
Emissions (tons per year)	0.05	0.08	0.08	0.26	0.09

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 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.

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 JP		
В	Susiness area costs				
	Pollution prevention costs	1,610	17,518		
	Global environmental conservation costs	4,754	23,968		
	Resource recycling costs	_	12,524		
Ν	lanagement activity costs		46,386		
Research and development costs		36,866	1,675,842		
S	ocial activity costs	_	3,377		
	Total	43,230	1,779,615		

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	FY2015 FY2016				
(1) Environmental conservation effect co for business activities	ncerning resou	irces input			
Total energy input (GJ)	92,458	101,684			
Water resources input (m ³)	44,342	50,584			
(2) Environmental conservation effect co loads and wastes created by business	ncerning envir activities	onmental			
Greenhouse gas emission volume (tons-CO ₂)	3,883	4,337			
Waste generation (tons)	834	976			
Final disposal volume (tons)	77	163			
Total drainage volume (m ³)	42,482	48,299			
BOD emissions (kg)	2,273	2,720			
COD emissions (kg)	2,443	2,898			
T-N emissions (kg)	626	698			
T-P emissions (kg)	111	119			

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 FY2016, this value declined compared to FY2015.

The Takuma Group's definition of environmental efficiency





Fair Business Practices

Compliance/CSR Promotion Education

Takuma offers compliance and CSR promotion education through the Compliance & CSR Promotion Organization (see page 46), which was established in order to spread awareness of compliance and CSR issues among employees.

During FY2016, 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 improving compliance and CSR awareness and risk management based on a consideration of internal conditions and the characteristics of Group companies in response to social requirements and expectations in accordance with our priorities of cultivating a robust corporate culture, accommodating environmental change, and practicing risk management as set forth in the Compliance & CSR Promotion Division's medium-term plan under the 11th Medium-Term Management Plan.

1st term: Insider trading

We offered education to prevent insider trading, addressing such topics as the definition of insider trading, penalties imposed in response to violations, example violations, and Takuma's rules on the subject.

3rd term: Overview of security export controls; measures to prevent maternity harassment, paternity harassment, and care harassment

We offered an educational program addressing security export controls, including their purpose, examples of violations and associated penalties, and internal export control-related operations and associated procedures.

We also offered education about maternity, paternity, and care harassment in response to the announcement of revisions to Japan's Act on Securing, Etc. of Equal Opportunity and Treatment between Men and Women in Employment and the Act on Childcare Leave, Caregiver Leave, and Other Measures for the Welfare of Workers Caring for Children or Other Family Members. In addition to the specific provisions of the revisions in question, the program addressed topics such as problematic behavior and Takuma's approach to dealing with related issues.

2nd term: Corporate scandals

This program introduced recent corporate scandals, many of which have been coming to light recently; explained the importance of compliance, mechanisms that lead to scandals, and measures for preventing them; and raised awareness in order to prevent them.

4th term: Business continuity planning (BCP); Forward-looking CSR activities: CSR issues and action programs

We offered education about business continuity planning (BCP) based on the results of the FY2016 CSR awareness survey that was conducted during the third term.

We also offered education about forward-looking CSR activities and conducted a self-assessment of our implementation of FY2016 action programs as planned by each department.

• CSR lectures for management-level employees

In November 2016, we invited attorney Izumi Sato, who is an expert on environmental issues, to give a lecture for management-level employees entitled "Takuma's Environmental Business, Compliance, and Risk Management."

In her talk, which was extremely useful for participants as they prepared to chart the future course of Takuma's environmental business, Ms. Sato addressed current trends with regard to environmental issues, revisions to environment-related laws and regulations in Japan, examples of instances in which those laws and ordinances have been violated, and the future direction of the environmental business.



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 Alert Service

In order to allow its employees to gain a continuous grasp of the latest information on revised laws and ordinances, Takuma introduced a Legislation Alert Service. In this system, legislation alerts highlighting changes to 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 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. We will continue to offer this survey and use its results to improve compliance and CSR promotion education on an

ongoing basis.

In-house Reporting System

Takuma has been operating an in-house 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 "In-house 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.

Material Procurement Policy

Takuma 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.

Takuma procurement procedures and required items are posted on the following website.

[Takuma website > Material Procurement] http://www.takuma.co.jp/procurement/ (content in Japanese)



In-house reporting process

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.

Consumer Issues

Activities Involving Product Quality

In addition to defining our Quality Policy (see below), registering for "ISO 9001: Management Systems" certification (Registration No.: JQA1952), and improving product guality based on our guality management system, we carried out concrete activities to enhance customer satisfaction. The present status for ISO 9001 certification includes having switched to ISO 9001:2000 in FY2002 and to ISO 9001:2008 in FY2010, as well as a transition to ISO 9001:2015 that we plan to complete in FY2017.

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

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

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 such measures as improving organizational operations, improving individual employees' capabilities, carrying out internal quality audits, and reviewing quality control and processes.

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)

Customer satisfaction survey

We have conducted a customer satisfaction survey each year since FY2007 to obtain unfiltered customer feedback concerning delivered products and the level of service provided by Takuma coordinators. We use that information to improve quality.

The figure to the right illustrates how the survey is administered.

First, we administer guestionnaires 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 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 or a score of 1 (dissatisfied) or 2 (rather dissatisfied) on a 4-point scale, the 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.



Customer satisfaction survey process

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.

Since the second year, the average score for these questionnaires has been 80 points or higher, as shown in the table to the right. We believe that the rising trend for scores indicates that our initiatives are functioning effectively.

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

Message from a customer



& Factory Manager

the project lasted about three years.

In studying construction of a biomass power plant, we identified requirements such as the following after touring numerous such facilities and ultimately determined that a Takuma progressive stoker furnace would best meet our needs: 1. That site requirements be satisfied

production equipment

Executive Managing Director Sanyo Paper MFG. Co., Ltd.

that response is apparent in the stability of the facility.

(From the sales manager)

First of all, I'd like to thank you for choosing a Takuma progressive, water-cooled stoker furnace.

Although the construction process presented a variety of challenges, it is thanks to your cooperation as well as the cooperation of everyone else who was involved that we were able to complete the project without any accidents, and I'd like to express my gratitude for that.

We look forward to working hard to ensure that the facility generates power for the feed-in tariff program in a way that inspires peace of mind while working with maintenance department personnel and taking into account the wishes you indicated on our customer satisfaction survey.



Number of questionnaire surveys and average score

We began studying the possibility of having Takuma build a biomass power plant for us at the start of 2014 as part of our environmentally responsible fuel conversion business. We began civil and foundation work for the project in 2015 and then began construction of the plant itself in 2016. The new plant began operation in January 2017. In this way,

2. That the facility operate in a stable manner since it will also be used to supply heat to

3. That the facility be capable of using various types of fuel

After starting this study process, we held numerous meetings to flesh out the various constraints, and we were impressed with how Takuma's sales coordinators and technical coordinators were able to draw on their extensive experience to offer a fast, precise response based on knowledge and information about past projects. I think the quality of

In addition, Takuma was able to complete the removal of plant equipment according to plan despite space constraints. The fact that the new facility is operating in such a stable manner is a testament to the high level of technical skill that Takuma's construction site representatives and supervising engineers brought to the project.



Kentaro Araki Manager, Section 1 Plant Sales Department 2 Energy Plant Division Takuma Co., Ltd.

Participation in the Community

• Group company activities

• Anan High Trust Co., Ltd.

Group company Anan High Trust is striving to open itself to the surrounding community through a series of initiatives that include cleanup activities in the area around its facilities, environmental learning sessions and workplace tours held at its on-site management education center, and a variety of other events.



• Kashihara High Trust Co., Ltd.

Activities by Group company Kashihara High Trust include cleaning and beautifying nearby roads, weeding in the surrounding area, conducting patrols for illegal dumping, manning a booth at local business meetings, and cooperating with locally held events.



* Activities by Group companies Kurume High Trust Co., Ltd., Hokutan High Trust Co., Ltd., and Suwako High Trust Co., Ltd. are introduced in the "Striving to Coexist with Local Communities" feature on pages 17 to 22.

Contribution to Society

Contribution to society

• Takuma Group coordinated cleanup activities

The Group participated in an initiative to clean up the area around its worksites to contribute to the local community and beautify the surrounding environment. Each year, the entire Group participates on a volunteer basis. During FY2016, a total of 534 employees participated in two cleanup initiatives, one in May and June and the other in September. 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 October 2016, volunteers from Takuma's Plant Service Department (Osaka) participated in the "Osaka Marathon 'Cleanup' Campaign," a cleanup activity that is held every year in Osaka City.

The activity, which brought together organizational, group, and individual volunteers to beautify public spaces such as roads, promenades, parks, and station plazas throughout the city, is held every year as part of a tie-up with the Osaka Marathon.

Blood donation campaign

Takuma supports blood donation activities through the Japanese Red Cross Society. Our Head Office and Harima Factory held spring and autumn blood drives, and President Kato participated. During FY2016, a total of 177 employees took part in the campaign. Harima Factory has cooperated with the Japanese Red Cross Society's blood drives for many years, earning it a letter of appreciation from the organization's Hyogo Branch. Donors can simultaneously register as bone marrow donors, and this year nine 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. According to the UN WFP, about 800 million people suffer from hunger worldwide. Through the Japan Association for the World Food Programme, we will continue to raise funds to help people suffering from food scarcity.

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 calendars to a charity calendar market

Takuma donates unused calendars to a calendar market sponsored by the NPO "Nippon Volunteer Network Active in Disasters." In FY2016, we donated more than 100 calendars. The proceeds are used to provide aid for victims of natural disasters and other crises.

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 FY2016 included a report on research into sewage sludge incinerator, a report on the operation of biomass boiler power generation facilities, a report on the operation of waste incineration facilities, a report on a survey of overseas recycling facilities, and introductions to new products. Abstracts are available on Takuma's website.

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

• Publication of Air Pollution Prevention Technology

The Takuma Environmental Technology Society, which consists of Takuma employees who are experts in the field, published Air Pollution Prevention Technology in April 2016. The book presents its subject matter using plain language and extensive pictures and diagrams so that it will be accessible to general readers with an interest in preventing pollution while simultaneously serving as a reference for engineers and students in related fields

• Group company activities

• Tour of Kankyo Sol-Tech Co., Ltd. [Kankyo Sol-Tech Co., Ltd.]

In November 2016, Takuma Group company, Kankyo Sol-Tech Co., Ltd., hosted a tour by 35 students of the Osaka Institute of Technology together with the Shirokita Club*. In addition to introducing the company, the students learned about instruments used in environmental analysis and the processes by which such analysis is carried out. For most of the visitors, it was their first time to see an analytical laboratory, and they reacted with great interest.

* Shirokita Club: A group of business executives consisting of graduates of Josho Gakuen, which consists of the Osaka Institute of Technology, Setsunan University, Hiroshima International University, etc.











Trend in Principal Management Indicators and Other Financial Data

Fiscal year	$\substack{ \begin{array}{c} 108^{th} \\ \left(\begin{array}{c} \text{Millions of} \\ \text{yen} \end{array} \right) \end{array} }$	$\substack{\textbf{109}^{th}\\ \left(\begin{smallmatrix} Millions of\\ yen \end{smallmatrix} \right)}$	110 th (Millions of) yen	111 th (Millions of) yen	112 th (Millions of) yen	113 th (^{Millions of}) yen	113 th (Thousands of) U.S. dollars
End of fiscal year	March 2012	March 2013	March 2014	March 2015	March 2016	March 2017	March 2017
Net sales	¥ 101,015	¥ 96,384	¥ 96,334	¥ 103,875	¥ 113,088	¥ 116,309	\$1,036,717
Operating income	¥ 6,429	¥ 6,241	¥ 8,424	¥ 8,223	¥ 9,189	¥ 10,974	\$ 97,815
Ordinary income	¥ 7,336	¥ 7,168	¥ 9,449	¥ 9,116	¥ 9,646	¥ 11,606	\$ 103,446
Profit attributable to owners of parent	¥ 4,212	¥ 6,145	¥ 8,835	¥ 8,030	¥ 7,817	¥ 8,551	\$ 76,217
Comprehensive income	¥ 4,935	¥ 6,712	¥ 9,935	¥ 9,398	¥ 7,149	¥ 9,937	\$ 88,569
Net assets	¥ 28,308	¥ 34,653	¥ 43,889	¥ 52,516	¥ 58,809	¥ 67,727	\$ 603,682
Total assets	¥ 107,028	¥ 106,754	¥ 108,520	¥ 123,127	¥ 132,614	¥ 140,201	\$1,249,675
Net assets per share (JPY or USD)	¥ 339.20	¥ 415.92	¥ 527.50	¥ 631.53	¥ 708.18	¥ 815.77	\$ 7.27
Net income per share (JPY or USD)	¥ 50.94	¥ 74.32	¥ 106.86	¥ 97.12	¥ 94.55	¥ 103.43	\$ 0.92
Diluted net income per share (JPY or USD)	-	-	-	-	-	-	-
Capital adequacy ratio (%)	26.2	32.2	40.2	42.4	44.1	48.1	48.1
Return on equity (%)	16.3	19.7	22.7	16.8	14.1	13.6	13.6
Price-to-earnings ratio	8.1	7.4	6.9	9.7	10.7	10.5	10.5
Cash flows from operating activities	¥ 4,565	¥ 17,465	¥ 8,270	¥ 21,727	¥ 6,728	¥ 9,590	\$ 85,483
Cash flows from investing activities	¥ 270	¥ (59)	¥ (1,430)	¥ (160)	¥ (445)	¥ 143	\$ 1,273
Cash flows from financing activities	¥ (2,494)	¥ (8,887)	¥ (5,867)	¥ (3,707)	¥ (2,900)	¥ (1,787)	\$ (15,930)
End-of-year balance of cash and cash equivalents	¥ 17,384	¥ 26,005	¥ 27,030	¥ 45,008	¥ 48,335	¥ 57,132	\$ 509,247
Number of employees	3,187	3,288	3,315	3,266	3,366	3,447	3,447

Note

1. U.S. dollar amounts are shown solely for the convenience of readers and are translated at the rate of ¥112.19 to U.S.\$1.00, the exchange rate prevailing at March 31, 2017.

2. Ordinary income is a measure of accounting profit that equals operating income plus other income minus other expenses, except for extraordinary items under Japanese GAAP

Business performance during the fiscal year under review

The Japanese economy continued to recover gradually during the consolidated fiscal year under review as employment and incomes improved along with corporate revenue and personal consumption. At the same time, uncertainty expanded overseas due to factors such as slowing economic growth in China and other emerging nations, the UK's exit from the EU, and the political situation in the U.S., contributing to an opaque economic outlook.

Against this economic backdrop, the Takuma Group expects to see continued demand for its principal businesses thanks to increased environmental awareness; progress in initiatives to prevent global warming and conserve resources and energy; planned replacement of, and updates to, outdated waste treatment facilities; and energy policies that are favorable for biomass power facilities, for example in the form of feed-in-tariff programs for power.

During the consolidated fiscal year under review, we received orders for projects including construction of biomass power facilities and sewage sludge-fueld power generation facilities in addition to construction of waste treatment facilities, primary improvement work, and facility operation, maintenance, and management. As a result, order volume surged to 191,026 million yen, an increase of 91,106 million yen (91.2%) from the previous consolidated fiscal year.

Thanks to steady progress in construction of projects such as waste treatment facilities and biomass power facilities, sales rose 3,220 million yen (2.8%) from the previous consolidated fiscal year to 116,309 million yen. As a result, the backlog totaled 214,142 million yen.

Because we pursued cost-cutting measures even as sales grew, gross profit increased despite increases in selling, general and administrative expenses such as R&D. As a result, operating income was 10,973 million yen, ordinary income was 11,605 million yen, and profit attributable to owners of parent was 8,550 million yen, up 1,784 million yen (19.4%), 1,959 million yen (20.3%), and 733 million yen (9.4%), respectively.

Performance by segment was as follows:

Segment	Orders received	Sales amount	Operating income	Backlog
Domestic Environment and Energy	163,505	90,643	11,726	203,571
Overseas Environment and Energy	3,070	2,222	(154)	2,310
Package Boiler	16,724	17,165	916	2,974
Equipment and System Business	8,041	6,666	322	5,326
Sub-total	191,342	116,696	12,811	214,183
Adjustment	(315)	(387)	(1,837)	(41)
Total	191,026	116,309	10,973	214,142



Consolidated Balance Sheets

TAKUMA CO., LTD. and Consolidated Subsidiaries As of March 31, 2017, and 2016

	Millions of yen		Thousands of U.S. dollars		Million	s of yen	Thousands of U.S. dollars	
ASSETS	2017	2017 2016 2017 LIABILITIES AND NET ASSETS		2017	2016	2017		
Current assets:				Current liabilities:				
Cash and time deposits	¥ 57,719	¥ 48,916	\$ 514,475	Short-term loans payable	¥ 7,675	¥ 7,750	\$ 68,411	
Notes and accounts receivable:				Current portion of long-term debt	468	673	4,169	
Trade	44,716	44,935	398,574	Notes and accounts payable:				
Unconsolidated subsidiaries				Trade	32,569	34,584	290,300	
and affiliated companies	391	1,457	3,486	Unconsolidated subsidiaries				
Other	242	289	2,160	and affiliated companies	344	575	3,071	
Less allowance for doubtful accounts	(27)	(39)	(247)	Other	931	1,111	8,299	
Total	45,322	46,642	403,973	Total	33,844	36,270	301,670	
Inventories	3,897	4,041	34,744	Accrued income taxes	2,532	1,256	22,567	
Deferred tax assets	2,471	2,803	22,021	Advances received	7,935	7,700	70,733	
Other	766	607	6,827	Allowance for guarantees on completed work	177	141	1,577	
Total current assets	110,175	103,009	982,040	Allowance for losses on sales contracts	3,578	5,164	31,889	
				Other	5,734	4,190	51,114	
Property, plant and equipment:				Total current liabilities	61,943	63,144	552,130	
Land	3,018	3,018	26,898					
Buildings and structures	12,225	12,219	108,973	Long term liabilities:				
Machinery, equipment, lease assets				Long-term debt	929	1,396	8,278	
and construction in progress	11,119	11,123	99,109	Allowance for directors' and executive officers'				
	26,362	26,360	234,980	retirement benefits	152	189	1,356	
Less accumulated depreciation	(17,434)	(16,764)	(155,401)	Net defined benefit liability	9,011	8,668	80,317	
Total property, plant and equipment	8,928	9,596	79,579	Other	439	408	3,912	
				Total long term liabilities	10,531	10,661	93,863	
Investments and other assets:				Total liabilities	72,474	73,805	645,993	
Investment securities	13,161	11,136	117,311	Contingent liabilities				
Investments in:								
Unconsolidated subsidiaries				Net assets:				
and affiliated companies	4,950	5,556	44,123	Common stock	13,367	13,367	119,150	
Other	938	823	8,363	Authorized: 321,840,000 shares				
Less allowance for doubtful accounts	(461)	(467)	(4,108)	Issued: 83,000,000 shares				
Total	5,427	5,912	48,378	Capital surplus	3,768	3,768	33,588	
Deferred tax assets	2,210	2,648	19,699	Retained earnings	46,258	38,754	412,323	
Other	300	313	2,668	Treasury stock, at cost	(234)	(232)	(2,095)	
Total investments and other assets	21,098	20,009	188,056	331,201 shares in 2017 and 328,764 shares in 2016				
Total assets	¥ 140,201	¥ 132,614	\$ 1,249,675	Total shareholders' equity	63,159	55,657	562,966	
				Unrealized gains on securities	4,886	3,586	43,548	
				Deferred gains and losses on hedges	(21)	(27)	(185)	
				Foreign currency translation adjustments	6	(11)	50	
				Remeasurements of defined benefit plans	(591)	(660)	(5,264)	
				Total accumulated other comprehensive income	4,280	2,888	38,149	
				Non-controlling interests in consolidated subsidiaries	288	264	2,567	
				Total net assets	67,727	58,809	603,682	
				Total liabilities and net assets	¥ 140,201	¥ 132,614	\$ 1,249,675	

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Consolidated Statements of Operations

TAKUMA CO., LTD. and Consolidated Subsidiaries For the years ended March 31, 2017, and 2016

	Millior	ns of yen	Thousands of U.S. dollars
	2017	2016	2017
Net sales	¥ 116,309	¥ 113,088	\$1,036,717
Cost of sales	90,693	89,744	808,393
Gross profit	25,616	23,344	228,324
Selling, general and administrative expenses	14,642	14,155	130,509
Operating income	10,974	9,189	97,815
Other income (expenses):			
Interest and dividend income	337	366	3,000
Interest expense	(76)	(105)	(673)
Loss on disposal of property, plant and equipment	(51)	(167)	(456)
Equity in earnings of affiliated companies	280	287	2,491
Impairment loss	-	(267)	-
Other, net	142	76	1,269
Other income (expenses), net	632	190	5,631
Income before income taxes	11,606	9,379	103,446
Income taxes:			
Current	2,859	1,558	25,482
Deferred	172	11	1,532
Total income taxes	3,031	1,569	27,014
Profit	8,575	7,810	76,432
Profit (loss) attributable to non-controlling interests in consolidated subsidiaries	24	(7)	215
Profit attributable to owners of parent	¥ 8,551	¥ 7,817	\$ 76,217
Per share	Y	′en	U.S. dollars
Net income	¥ 103.43	¥ 94.55	\$ 0.92
Diluted net income	-	-	-
Cash dividends applicable to the year	13.00	11.00	0.12

Consolidated Statements of Comprehensive Income

TAKUMA CO., LTD. and Consolidated Subsidiaries For the years ended March 31, 2017, and 2016

	Millions	of yen	Thousands of U.S. dollars
	2017	2016	2017
Profit	¥ 8,575	¥ 7,810	\$ 76,432
Other comprehensive income:			
Unrealized gains (losses) on securities	1,299	(511)	11,582
Deferred gains and losses on hedges	(29)	(41)	(262)
Foreign currency translation adjustments	23	(55)	200
Remeasurements of defined benefit plans	69	(54)	617
Total other comprehensive income	1,362	(661)	12,137
Comprehensive income	¥ 9,937	¥ 7,149	\$ 88,569
Comprehensive income attributed to:			
Owners of the parent	¥ 9,942	¥ 7,165	\$ 88,619
Non-controlling interests	(5)	(16)	(50)

Consolidated Statements of Changes in Net Assets

TAKUMA CO., LTD. and Consolidated Subsidiaries For the years ended March 31, 2017, and 2016

			Millions of yen		
	Common stock	Capital surplus	Retained earnings	Treasury stock, at cost	Total shareholders' equity
For the year ended March 31, 2017					
Balance at the beginning of current period	¥ 13,367	¥ 3,768	¥ 38,754	¥ (232)	¥ 55,657
Cash dividends (¥12.00 per share)	-	-	(992)	-	(992)
Profit attributable to owners of parent	-	-	8,551	-	8,551
Change in scope of consolidation	-	-	(55)	-	(55)
Purchase of treasury stock	-	-	-	(2)	(2)
Other changes during the year, net	-	-	-	-	-
Balance at the end of current period	¥ 13,367	¥ 3,768	¥ 46,258	¥ (234)	¥ 63,159

	Millions of yen													
	Un ga se	irealized ains on ecurities	Deferred gains and losses on hedges		Foreign currency translation adjustments		Remeasure- ments of defined benefit plans		Total accumulated other comprehensive income		Non-controlling r interests in consolidated subsidiaries		Ţ	otal net assets
For the year ended March 31, 2017														
Balance at the beginning of current period	¥	3,586	¥	(27)	¥	(11)	¥	(660)	¥	2,888	¥	264	¥	58,809
Cash dividends (¥12.00 per share)		-		-		-		-		-		-		(992)
Profit attributable to owners of parent		-		-		-		-		-		-		8,551
Change in scope of consolidation		-		-		-		-		-		-		(55)
Purchase of treasury stock		-		-		-		-		-		-		(2)
Other changes during the year, net		1,300		6		17		69		1,392		24		1,416
Balance at the end of current period	¥	4,886	¥	(21)	¥	6	¥	(591)	¥	4,280	¥	288	¥	67,727

			Millions of yen		
	Common stock	Capital surplus	Retained earnings	Treasury stock, at cost	Total shareholders' equity
For the year ended March 31, 2016					
Balance at the beginning of current period	¥ 13,367	¥ 3,768	¥ 31,764	¥ (228)	¥ 48,671
Cash dividends (¥10.00 per share)	-	-	(827)	-	(827)
Profit attributable to owners of parent	-	-	7,817	-	7,817
Purchase of treasury stock	-	-	-	(4)	(4)
Other changes during the year, net	-	-	-	-	-
Balance at the end of current period	¥ 13,367	¥ 3,768	¥ 38,754	¥ (232)	¥ 55,657

	Millions of yen													
	Un ga se	realized ains on curities	Deferre and on h	ed gains losses edges	For curr trans adjus	eign rency slation tments	Rem me de bene	easure- ents of efined fit plans	accum comp	Total ulated other prehensive ncome	Non-co inter conso subs	ontrolling rests in blidated idiaries	1	otal net assets
For the year ended March 31, 2016														
Balance at the beginning of current period	¥	4,097	¥	24	¥	25	¥	(605)	¥	3,541	¥	304	¥	52,516
Cash dividends (¥10.00 per share)		-		-		-		-		-		-		(827)
Profit attributable to owners of parent		-		-		-		-		-		-		7,817
Purchase of treasury stock		-		-		-		-		-		-		(4)
Other changes during the year, net		(511)		(51)		(36)		(55)		(653)		(40)		(693)
Balance at the end of current period	¥	3,586	¥	(27)	¥	(11)	¥	(660)	¥	2,888	¥	264	¥	58,809

	Thousands of U.S. dollars											
	Common stock	Ca su	pital rplus	Retair earnir	ned ngs	Ti	reasury stock, at cost	sha	Total reholders' equity			
For the year ended March 31, 2017												
Balance at the beginning of current period	\$ 119,150	\$ 3	3,588	\$ 345,	436	\$	(2,075)	\$	496,099			
Cash dividends (\$0.11 per share)	-		-	(8,	843)		-		(8,843)			
Profit attributable to owners of parent	-		-	76,	217		-		76,217			
Change in scope of consolidation	-		-	((487)		-		(487)			
Purchase of treasury stock	-		-		-		(20)		(20)			
Other changes during the year, net	-		-		-		-		-			
Balance at the end of current period	\$ 119,150	\$ 3	3,588	\$ 412,	323	\$	(2,095)	\$	562,966			
					Tho	usand	s of U.S. d	lollars				
	Unrealized gains on securities	Deferr and on h	ed gains losses iedges	Foreig currer transla adjustm	gn ncy tion nents	Rer m d ben	neasure- ents of efined efit plans	accun com	Total nulated other prehensive income	Non- int con sul	controlling terests in solidated bsidiaries	Total net assets
For the year ended March 31, 2017												
Balance at the beginning of current period	\$ 31,964	\$	(237)	\$ ((100)	\$	(5,881)	\$	25,746	\$	2,350	\$ 524,195
Cash dividends (\$0.11 per share)	-		-		-		-		-		-	(8,843)
Profit attributable to owners of parent	-		-		-		-		-		-	76,217
Change in scope of consolidation	-		-		-		-		-		-	(487)
Purchase of treasury stock	-		-		-		-		-		-	(20)
Other changes during the year, net	11,584		52		150		617		12,403		217	12,620
Balance at the end of current period	\$ 43,548	\$	(185)	\$	50	\$	(5,264)	\$	38,149	\$	2,567	\$ 603,682

	Unrealized gains on securities	Defer and on	rred gains d losses hedges	Fo cu trar adju	oreign Irrency nslation Istments	Rei n o ber	measure- nents of defined nefit plans	accun com	Total nulated other prehensive income	Non- int cons sub	controlling erests in solidated osidiaries	Total net assets
r the year ended March 31, 2017												
Balance at the beginning of current period	\$ 31,964	\$	(237)	\$	(100)	\$	(5,881)	\$	25,746	\$	2,350	\$ 524,195
Cash dividends (\$0.11 per share)	-		-		-		-		-		-	(8,843)
Profit attributable to owners of parent	-		-		-		-		-		-	76,217
Change in scope of consolidation	-		-		-		-		-		-	(487)
Purchase of treasury stock	-		-		-		-		-		-	(20)
Other changes during the year, net	11,584		52		150		617		12,403		217	12,620
Balance at the end of current period	\$ 43,548	\$	(185)	\$	50	\$	(5,264)	\$	38,149	\$	2,567	\$ 603,682

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Consolidated Statements of Cash Flows

TAKUMA CO., LTD. and Consolidated Subsidiaries

For the years ended March 31, 2017, and 2016

	Million	Millions of yen			
	2017	2016	2017		
Cash flows from operating activities:					
Income before income taxes	¥ 11,606	¥ 9,379	\$ 103,446		
Adjustments to reconcile income before income taxes					
to net cash provided by operating activities:					
Depreciation	851	840	7,585		
Impairment loss	-	267	-		
Increase (decrease) in allowance for doubtful accounts	(18)	(21)	(157)		
Increase (decrease) in allowance for bonuses	182	107	1,623		
Increase (decrease) in allowance for losses on sales contracts	(1,586)	(1,731)	(14,140)		
Increase (decrease) in net defined benefit liability	445	325	3,971		
Interest and dividend income	(337)	(367)	(3,000)		
Interest expense	76	105	673		
Equity in losses (earnings) of affiliated companies	(280)	(287)	(2,491)		
Net decrease (increase) in notes and accounts receivable and advances received	463	(7,951)	4,123		
Decrease (increase) in inventories	148	(237)	1,325		
Decrease (increase) in other current assets	(25)	42	(224)		
Net increase (decrease) in notes and accounts payable and advance money	(2,143)	6,867	(19,105)		
Increase (decrease) in other current liabilities	1,489	(587)	13,274		
Other	149	152	1,324		
Subtotal	11,020	6,903	98,227		
Interest and dividend received	405	623	3,609		
Interest paid	(76)	(108)	(679)		
Income taxes received (paid)	(1,759)	(690)	(15,674)		
Net cash provided by operating activities	9,590	6,728	85,483		
Cash flows from investing activities:					
Net decrease (increase) in time deposits	3	42	30		
Purchase of property, plant and equipment	(575)	(656)	(5,126)		
Purchase of intangible fixed assets	(65)	(82)	(578)		
Purchase of investment securities	(473)	(91)	(4,216)		
Sale of investment securities	13	152	116		
Disbursement for loans receivable	(171)	(25)	(1,524)		
Collection of loans receivable	1,328	243	11,836		
Other	83	(28)	735		
Net cash provided by (used in) investing activities	143	(445)	1,273		

	Millions	s of yen	Thousands of U.S. dollars
	2017	2016	2017
Cash flows from financing activities:			
Net increase (decrease) in short-term bank loans	(75)	(100)	(668)
Payment of long-term debt	(673)	(1,896)	(5,996)
Purchase of treasury stock	(2)	(4)	(20)
Payment of cash dividends	(992)	(827)	(8,843)
Dividends paid to non-controlling interests	(17)	(25)	(151)
Other	(28)	(48)	(252)
Net cash used in financing activities	(1,787)	(2,900)	(15,930)
Effect of exchange rate changes on cash and cash equivalents	15	(56)	131
Net increase in cash and cash equivalents	7,961	3,327	70,957
Cash and cash equivalents at beginning of year	48,335	45,008	430,835
Increase in cash and cash equivalents from newly consolidated subsidiary	836	-	7,455
Cash and cash equivalents at end of year	¥ 57,132	¥ 48,335	\$ 509,247

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Outside Expert Opinion

Outside Expert Opinion



Hiroji Tanaka Head Researcher Business Ethics Research Center Professor Emeritus Tokyo College of Transport Studies (former President)

Exceptionally praiseworthy accomplishments

First, the Takuma Group summarizes its stance toward achieving sustained growth by resolving social issues and increasing corporate value based on CSR management in an easy-to-understand manner in its Corporate Profile & CSR Report 2017. In this way, it fulfills its responsibility to explain its operations to all stakeholders in an appropriate manner.

Second, the message from top management outlines the manner in which the company will facilitate the expansion and development of its business by diligently pursuing its 11th Medium-Term Management Plan (FY2015 to FY2017) in order to achieve sustained growth in line with its Management Principles and by pursuing its goal of achieving ordinary income of JPY 10.0 billion in FY2020.

Furthermore, it is praiseworthy how the company has set forth the Company Motto, Management Principles, Takuma Group Ethics Charter, and Takuma Group Code of Conduct as the basis for CSR management and how it is fulfilling its social mission through its business by ensuring that all employees strive to put those ideals into practice to cultivate a robust corporate culture.

Third, the corporate profile's "Corporate Information," "Business Summary," and "The Takuma Group Network" sections provide concise explanations of the environmental energy, package boiler, and equipment and systems businesses, as well as the state of its business network, using photographs and illustrations along with information about Takuma's history, organization, and business results.

Fourth, the "Striving to coexist with local communities" feature provides a concrete report about how Takuma partners with three companies to complete DBO projects, offering site photographs, messages from stakeholders, and thoughts from involved employees. The report goes on to highlight the company's municipal solid waste treatment plant business, energy plant business, water treatment plant business, overseas business, and principal delivered projects with site photographs, illustrations, and thoughts from involved employees. In this way, Takuma meticulously fulfills its responsibility to explain its operations. Fifth, the company describes key issues, CSR topics, responsible departments, action plans, and its self-assessment of implementation status for each initiative in the form of a comprehensive table while making reference to seven core themes from sources such as the GRI and ISO 26000. The report goes on to carefully explain how Takuma creates value through its CSR activities with photographs, illustrations, and tables that show the status of activities in each area as well as messages from customers and thoughts from involved employees. The thoroughness of this approach is praiseworthy.

Moreover, the company accommodates social pressure with regard to corporate governance, an area of pronounced interest, by thoroughly outlining for stakeholders its corporate governance, internal controls, compliance and CSR structures, risk management structures, business continuity planning (BCP), and IR activities. In addition, the company has addressed environmental concerns by significantly lowering its CO₂ emissions in accordance with the Takuma Environmental Policy, environmental management practices, and proprietary technologies for reducing CO₂ emissions.

Areas where Takuma can do more

First, I would suggest that Takuma establish concrete links concerning environmental, social, and governance (ESG) and sustainable development guidelines (SDGs), both areas where interest is growing in society, in the comprehensive table of forward-looking CSR activities compiled with reference to the GRI and ISO 26000.

Second, the Takuma Group has formulated guidelines such as the Takuma Group Ethics Charter, the Takuma Group Code of Conduct, and various company rules to ensure respect of fundamental human rights and to prohibit discrimination. I would recommend that the company summarize those guidelines in the form of a Takuma Group human rights policy. Adding initiatives related to human rights would only serve to heighten the level of trust that society has placed in the company.

Response to the Outside Expert Opinion



Koji Tanaka Director & Executive Officer Executive Manager Compliance & CSR Promotion Division & Corporate Service Division

I would like to thank Mr. Tanaka of the Business Ethics Research Center for offering his valuable insights on the Corporate Profile & CSR Report 2017.

In compiling this report, we have worked to offer a concrete, easy-to-understand introduction to a variety of activities carried out by the Takuma Group with the goal of achieving sustained growth while resolving social issues and increasing corporate value, and we have invited stakeholders and involved parties to express their thoughts on related subjects in their own words so that all stakeholders could have a better understanding of our operations.

I'm grateful that Mr. Tanaka has praised us for carrying out our responsibility to explain our operations to all stakeholders in an appropriate manner in the "Exceptionally praiseworthy accomplishments" section of his evaluation. I'm also extremely grateful for his kind words concerning the way we've incorporated the thoughts of stakeholders and employees. His observation that we are carrying out our social mission through our businesses by ensuring that all employees put the Group's fundamental approach, as defined by guidelines such as the Company Motto and the Management Principles, into practice and cultivating a robust corporate culture is very encouraging.

At the same time, Mr. Tanaka provided valuable insights in the "Areas where Takuma can do more" section of his evaluation. With regard to forward-looking CSR activities and human rights initiatives, I hope that we'll be able to better facilitate communication with stakeholders in the future by deepening their understanding of ESG and SDGs, organizing social expectations and requirements from that perspective, and working to share value with stakeholders.

We value Mr. Tanaka's observations and take them seriously, and I would request stakeholders' continued support and encouragement as we work to practice CSR management and enhance our CSR Report.

Editorial Policy

We have prepared this document as a combined Corporate Profile and CSR Report, with both a guide to our corporation and a report on our CSR activities.

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Data Collection Period

From April 1, 2016, to March 31, 2017, in principle. In addition, some activities in FY2017 are included.

Coverage

This report applies to Takuma Co., Ltd. and its affiliates in principle.

Time of Issue:

Current issue: July 2017 Next issue: Scheduled for July 2018 Last issue: July 2016





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