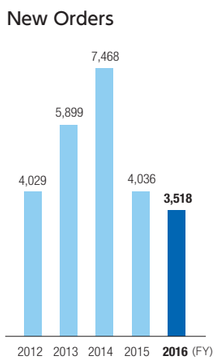
CHIYODA GROUP

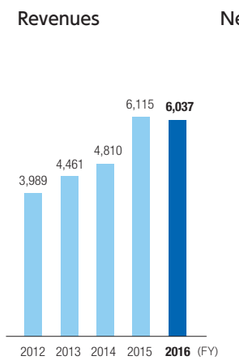
CHIYODA GROUP
Sustainability Report **2017**

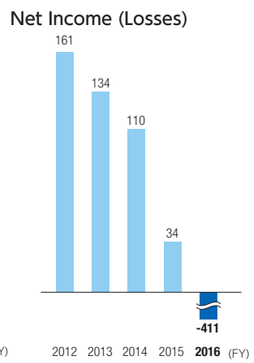
Corporate Profile (as of March 31, 2017)

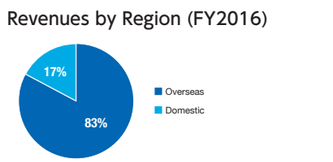
Company Name	Chiyoda Corporation
Established	January 20, 1948
Paid-in Capital	43,396 million yen
Number of Employees	5,367 people (Consolidated)
Main Business Fields	Engineering and Construction
Main Offices	Chiyoda Global Headquarters(CGH) Koyasu Office & Research Park
Project Experience	Over 60 countries worldwide

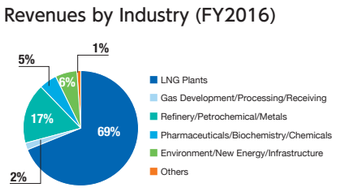
Consolidated Financial Highlights
(One Hundred Million Yen)











Editorial Policy

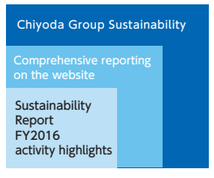
CSR Activity Report Policy

The Chiyoda Group provides comprehensive reporting on its CSR activities, including detailed information presented on the Chiyoda Corporation website.
In addition, the Group has published this digest version of the Group's FY2016 report, highlighting the latest activities.
The contents of these reports are elaborated and compiled based on the Group Corporate Philosophy and CSR Vision in collaboration with the members of the Group Liaison Meeting on CSR and those responsible for CSR in Group companies in Japan and overseas. For further details, including particulars on governance, please refer to the websites and other sources below.

Applicable Period: FY2016
(April 1, 2016 to March 31, 2017, unless otherwise specified)

Website
Sustainability
https://www.chiyoda-corp.com/csr/

Website
Corporate Governance Policy
https://www.chiyoda-corp.com/company/files/160623_CGPr.pdf



Group Companies Covered by the Report

The scope of this report extends to all Chiyoda Group companies. The names of Group companies are given in an abbreviated form in the report. Regarding those abbreviations, please refer to the details below.

Chiyoda Kosho Co., Ltd.(CKS)
Chiyoda System Technologies Corporation(CST)
Chiyoda TechnoAce Co., Ltd.(CTA)
Arrowhead International Corporation(AIC)
Chiyoda Almana Engineering LLC(Chiyoda-Almana)
Chiyoda Philippines Corporation(CPh)
Chiyoda & Public Works Co., Ltd.(CPW)
Chiyoda Singapore (Pte.) Limited(CSL)
L&T-Chiyoda Limited(L&TC)

Reference
Annual Report

Annual reports are published in English particularly for shareholders and investors overseas. Major topics relating to CSR activities are also introduced.

Reference
Chiyoda Group CSR Handbook

This Handbook has been edited to include the "Corporate Philosophy," the "CSR Vision," the "Code of Conduct," the "Compliance Manual (Employee's Practical Guide)," and other basic policies of the Chiyoda Group. It is made public on the Group website and also made known to employees.

The Chiyoda Corporation is a signatory of the United Nations Global Compact.

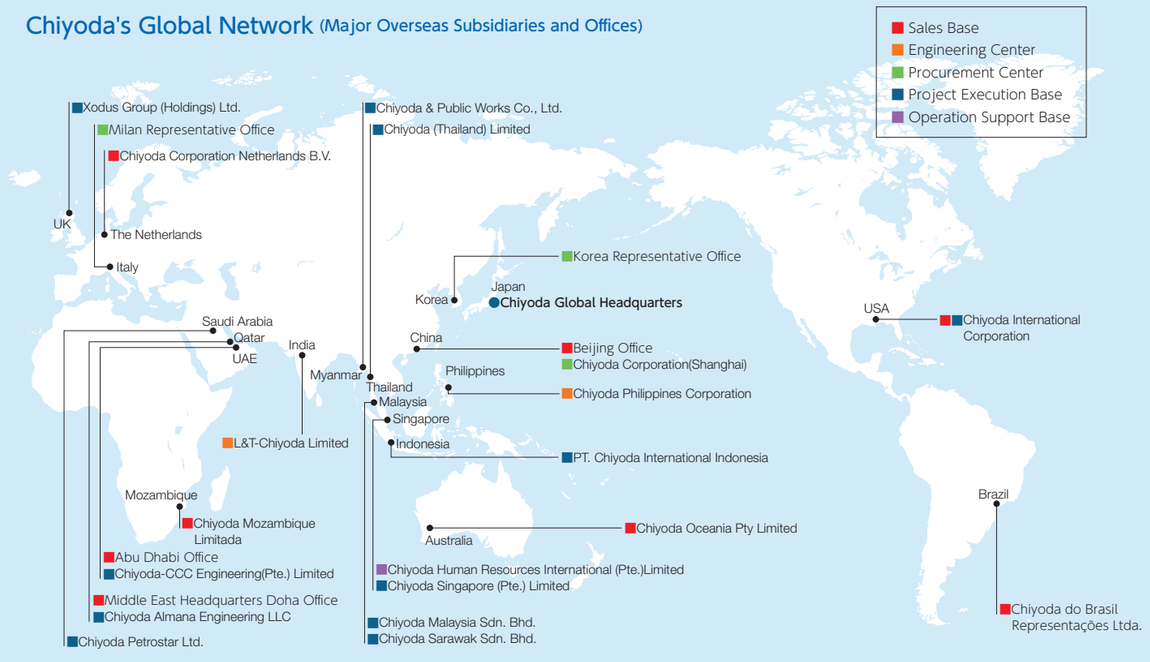
The Chiyoda Corporation has been included in the FTSE4Good Index Series, designed by FTSE Russell (United Kingdom), index of socially responsible investment.

The Chiyoda Corporation has been included as one of the constituent companies in the FTSE Blossom Japan Index designed by FTSE Russell (United Kingdom).

The Chiyoda Corporation is the constituent company of SNAM Sustainability Index.

Overseas Subsidiaries and Offices & Major Domestic Group Companies(as of April 1, 2017)

Chiyoda's Global Network (Major Overseas Subsidiaries and Offices)



Engineering

Chiyoda Kosho Co., Ltd.
Engineering, construction, and maintenance of industrial equipment and facilities of every type; insurance business, etc.
http://www.cks-ykh.co.jp/

Chiyoda TechnoAce Co., Ltd.
Consulting, planning, design, execution, test operation, and other services for civil engineering and construction work on pharmaceutical and petroleum facilities
http://www.cta.chiyoda.co.jp/

Chiyoda System Technologies Corporation
Engineering, procurement, construction, and maintenance of electrical, instrumentation, and control systems; consulting, development, and operation of integrated IT systems; business relating to social infrastructures
http://www.cst.chiyoda.co.jp/

Chiyoda U-Tech Co., Ltd.
Feasibility studies and consulting for energy, oil, chemical, and environment-related plants as well as other various types of industrial facilities
http://www.utc-yokohama.com/

Business Support

Arrow Business Consulting Corporation
Consulting and business outsourcing for finance, accounting, and tax services

Arrowhead International Corporation
Travel agent, air cargo, materials export, and other related services
http://www.arrowhead.co.jp/

Arrow Human Resources Co., Ltd.
Temporary staffing, placement consulting, outsourcing, and education and training
http://www.ahr.co.jp/

Chiyoda Business Solutions Co., Ltd.
Outsourcing services and consulting for HR and facility management

INDEX

Chairman of the Board

President & CEO

The Chiyoda Group's Backgrounds as a Social Entity

Chiyoda Corporation was founded in 1948 for the purpose of contributing to society through engineering, making excellent use of its sophisticated technologies. It has since been engaged in the engineering and construction of plants and facilities such as in petroleum refining, gas processing and petrochemicals, contributing to the development of industry in Japan. We have also made forays into countries in the Middle East and Asia, where we have also been striving to contribute to the development of society with our refined technical capabilities by providing each region with infrastructure tailored to the needs of the times and the regions. In those backgrounds, we have consistently continued engineering operation based on the core of our corporate philosophy of "harmony between energy and the environment."

The Chiyoda Group's Corporate Social Responsibility (CSR)

Recently, the global requirements for corporate social responsibility (CSR) have changed significantly. As corporate activities become increasingly globalized, new demands are emerging for the resolution of social issues such as respect for human rights, the correction of inequality, environmental preservation and compliance such as anti-corruption. To address these issues, expectations are growing for the business sector and its resources. The goals and directions to be followed by companies are shown through the Sustainable Development Goals (SDGs)*1, adopted by the United Nations in the year 2015, and the Paris Climate Agreement, in which the international community agreed to aim for a carbon-free world as a measure to combat climate change. As shown in our corporate philosophy and CSR visions, commitment to UN Global Compact*2 joined in 2012, there are many areas in which our technologies and human resources could resolve these issues.

We believe that we can satisfy these requirements through the Chiyoda Group's CSR activities to contribute to the creation of a better society by having a correct understanding of the requirements of the times and our stakeholders and making efforts to solve social issues through engineering.

To Achieve Our Ultimate Goal of Becoming a Reliable Company

As our corporate activities have been increasingly global in scope, we are dedicated to developing the circumstance in which employees as well as other stakeholders such as customers, business partner and local communities can participate and play an active role, regardless of their gender, nationality, age or religion in a spirit of respecting human rights, above all.

In addition, Chiyoda Corporation made the transition to a "company with the audit and supervisory committee" in June 2016 based on the Corporate Governance Policy, seeking to increase the fairness and transparency of business management and make decisions more promptly. Through this action, we have further enhanced our corporate governance system by appointing three independent outside directors. As a group, we will solidify the foundations for our operations and work on the medium-tern management plan starting on the fiscal year 2017 to contribute to a sustainable society.

August 2017

*1: SDGs are a set of global goals to be achieved by 2030, adopted at the UN Sustainable Development Summit in September 2015. They are common goals for the international community, consisting of 17 goals and 169 targets, for both developed and developing countries to tackle to eradicate poverty and realize a sustainable world.

*2: UN Global Compact was announced by then UN Secretary-General Kofi Annan in an address to the World Economic Forum held in 1999. It is a principle-based framework for businesses, stating ten principles in the areas of human rights, labor, the environment and anti-corruption. Chiyoda has signed up in UN Global Compact in 2012.

History and Future of the Chiyoda Group

We were founded in 1948, during the period when Japan was starting to make powerful moves toward its postwar recovery. With "serving society through technology" as its founding motto, the company has kept moving forward in accordance with the Corporate Philosophy of "harmony between energy and the environment" and in unswerving awareness of the requirements of the international community. As we address the issues of society with our technological capabilities, we continue aiming to make even greater advances.

1960s

Dawning

Social Context

- 1945 Mitsubishi Oil Co. refinery in Kawasaki is heavily damaged
  The Second World War ends
- 1950 Domestic refineries reenter operation, starting the "Age of Oil"

Chiyoda Group History

- 1948 Founding of Chiyoda Corporation
- Contributions to the postwar reconstruction of Japan's domestic industry
- Participation by means of engineering in oil and petrochemical industries
- Start establishing footholds for overseas expansion

Major Projects Awarded and Technology Development Achievements

- Construction to rebuild the Kawasaki refinery of Mitsubishi Oil Co., Ltd. (present JXTG Energy)
- New refinery for Mitsubishi Oil Co., Ltd.
- Fertilizer(Ammonia/Urea) plant for India

Reconstruction of the Kawasaki refinery

Mizushima grass-roots refinery for Mitsubishi Oil Co., Ltd.

1980s

Growth

Social Context

- Market changes due to two times of oil crisis

Chiyoda Group History

- Start environmental initiatives in conjunction with domestic economic growth
- Respond to the diversification of plant demands led by oil producing countries
- Overseas expansion shifts into high gear in line with promotion of Group-wide internationalization
- Start initiatives for laboratory facilities projects

Major Projects Awarded and Technology Development Achievements

- Construction of desulfurization units for the petroleum refinery
- Consecutive domestic orders for flue gas desulfurization units
- Jeddah and Riyadh refineries, Saudi Arabia
- Refineries for Nigeria

Riyadh refinery for Petromin (Saudi Arabia)

Kaduna refinery for NNPC (Nigeria)

Tsukuba Research Laboratories, Upjohn Pharmaceuticals Limited

Resurgence & Transition

Social Context

- Overseas production by Japanese manufacturers accelerates due to the Plaza Accord (high yen era)

Chiyoda Group History

- Accelerate overseas expansion and move to global operations
- Expand into fields of general industrial facilities and non-ferrous metals
- Initiatives for LNG projects shift into high gear
- Participation in national oil stockpiling projects

Major Projects Awarded and Technology Development Achievements

Copper smelter for P.T. Smelting Co.

Arun natural gas liquefaction plant for Pertamina (Indonesia)

Complete construction of Fukui national petroleum stockpile base

2000s

Further Development

Social Context

- oil prices soar and global LNG demand increases
- A carbon-free society and environmental conservation one globally demanded
- More stringent environmental controls by the United States leads to the consective orders to license CT-121 technology

Chiyoda Group History

- Execution of LNG mega projects
- Execution of projects in gas value chain
- Development and demonstration operation of environmental conservation technology
- Development of renewable energy-related business

Major Projects Awarded and Technology Development Achievements

- Participation in photovoltaic and solar thermal power generation projects
- Development of SPERA Hydrogen® System technology for large-scale transportation of hydrogen
- Expansion of overseas licensing of flue gas desulfurization technology

CT-121 Bowen 3 SGR JBR

Photovoltaic power generation facility for Mitsui & Co., Ltd.

Qatar Gas Operating Co., Ltd.

Mizushima LNG receiving terminal for Mizushima LNG Co., Ltd.

Sakhalin Energy Investment Co., Ltd.

Project Execution and Technology Development founded on "Energy and Environment in Harmony"

Contributions to the sustainable development of society

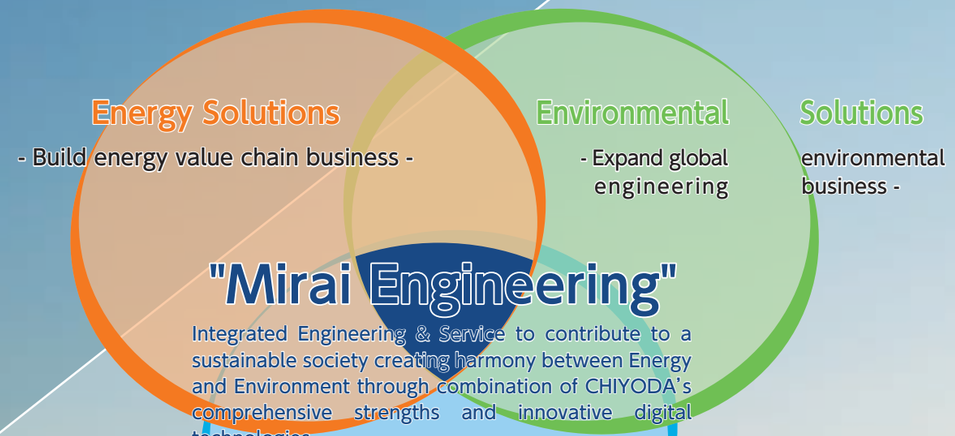
Courtesy of Sakhalin Energy Investment Company

The Value Creation Story by the Chiyoda Group

The Chiyoda Group pledges to continue as an enterprise that oplimizes the use of the cutting-edge technology and human resources to create value for society. We have been pursuing business according to our declared Corporate Philosophy of "harmony between energy and the environment" and with our CSR Visions as our core value. In order to respond to the requirements of global markets and communities, we aim to be a global top-tier provider of comprehensive engineering services in both energy and environmental fields by implementing our Medium-term management plan "Mirai Engineering - A Grand Opportunity for the Future".

Medium-term management plan

"Mirai Engineering" derived from integration of three growth strategies



Realization of the Corporate Philosophy

- The Mission for us to Accomplish -

Enhance our business in aiming for harmony between energy and the environment and contribute to the sustainable development of a society as an integrated engineering company through the use of our collective wisdom and painstakingly developed technology.

- Achievement of SDGs
- Enhancement of Corporate Value

What are the SDGs (Sustainable Development Goals)?

These are goals that need to be realized by the year 2030 in order to achieve a sustainable development of society. They consist of 17 major goals and 169 targets that were adopted by the United Nations General Assembly in September 2015 to provide a basic framework for action in the international community of both developing and developed countries.

As a member of the community, the Chiyoda Group is responding to this movement by engaging in actions intended to contribute to the achievement of the goals.

In this report, we are reconfirming our own corporate activities and displaying icons for the relevant goals side by side with such activities.

CHIYODA GROUP The Chiyoda Group Supports the SDGs .

Our Shared Values
CSR Vision

One of our primary aims in the Chiyoda Group, as an integrated engineering company, is to contribute to the sustainable development of society through our business activities. By furthering the below activities in a sustained manner, we strive constantly to enhance our corporate value and to be a corporation that earns the trust and affinity of all our stakeholders.

The Chiyoda Group's CSR Vision	ISO26000 Core Subjects	UN Global Compact	Action Policies	FY2016 Activities	Related SDGs
1 A Reliable Company We strive to be a reliable company to our customers and other business partners by providing world-class technologies and knowledge.	Consumer (customer) issues	–	• Provide industrial plants that earn customer trust through engineering of outstanding quality • Share our CSR principles with suppliers and other business partners	• The engineering company's mission in society • Build relationships of trust with our cutting-edge FA control technology • Added value enhanced by proposals using integrated 3D design technology	11, 12 9 3, 9
2 Environmental Initiatives We will work to remain an invaluable company to society by utilizing refined technologies to promote harmony between the global environment and economic and social activities.	The environment	**Principle 7:** Businesses should support a precautionary approach to environmental challenges; **Principle 8:** undertake initiatives to promote greater environmental responsibility; and **Principle 9:** encourage the development and diffusion of environmentally friendly technologies.	• Develop and provide environmentally friendly energy and conservation technologies • Conduct business activities that contribute to environmental conservation	• Next-generation clean energy • Effective utilization of oil fields • Technology development of hydrogen energy • The dissemination of technology to prevent air pollution • Environment-conscious activities in project execution	7, 13 12, 13 7, 11, 13 7, 11, 13 11, 13
3 Social Contributions through Business Activities Through our engineering business in Japan and overseas, we contribute to local communities in ways including human resources development, technology transfer and environmental protection.	Community involvement and development	–	• Contribute to society through integrated engineering business activities • Enhance social contribution activities by providing knowledge and labor	• Providing optimized operation through cutting-edge technology • Safety first • Developing excellent human resources through technology transfer • Developing human resources with the goal of establishing industrial infrastructure	9 11, 12 8, 10, 17 4
4 Respect for Human Rights We are dedicated to respecting the human rights of all people. We will create a corporate culture where the diversity, individuality and character of employees are respected, where people are motivated to do their best, and of which employees and their families are proud.	Human rights Labor practices	**Principle 1:** Businesses should support and respect the protection of internationally proclaimed human rights; and **Principle 2:** make sure that they are not complicit in human rights abuses. **Principle 3:** Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; **Principle 4:** the elimination of all forms of forced and compulsory labour; **Principle 5:** the effective abolition of child labour; and **Principle 6:** the elimination of discrimination in respect of employment and occupation.	• Create a lively and energetic working environment and help employees develop their talents • Instill in everyone involved that safety is a core value	• Initiatives for changes in work style in FY2016 • Safety first crisis management support to prepare for all emergencies • Reinforcement of corporate strengths by development of global human resources	5, 8 11 4, 8
5 Commitment to Fairness We are dedicated to achieving even greater transparency and stability by conducting our operations fairly in accordance with the highest ethical standards.	Organizational governance Fair operating practices	**Principle 10:** Businesses should work against corruption in all its forms, including extortion and bribery.	• Conduct business activities based on strict compliance and a high degree of transparency • Conduct a thorough risk management program	• Initiatives to prevent misconduct	10, 16

Global Trend of CSR and Expections to the Chiyoda Group from Stakeholders

Looking at the world, we see that the circumstances of CSR are constantly undergoing change. We invited outside experts for the dialogues about relevant movements in Japan and overseas, about what is important to keep in mind about corporate activities, and about what stakeholders expect of the Chiyoda Group.

Session Summary

Date March 13, 2017

Location Chiyoda Global Headquarters, Chiyoda Corporation

Outside Participants

Ms. Mariko Kawaguchi
Chief Researcher, Research Division, Daiwa Institute of Research Ltd.

Mr. Masao Seki
Senior Advisor on CSR, Sompo Japan Nipponkoa Insurance, Inc.

Mr. Kenichi Takayasu
Professor
Department of Economics, Dokkyo University

Mr. Katsuhiro Harada
Professor
Meiji Gakuin University

Chiyoda Group Participants

Ms. Kaoru Nakamura
GM, PLC Planning & Administration Unit

Mr. Yasuyuki Maeda
Associate Director, Corporate Risk Management Division
GM, Compliance Unit

Mr. Shuichi Wada
Senior Vice President & Division Director, Corporate Planning & Management Division
GM, Corporate Planning Unit

[Moderator]
Mr. Makoto Watanabe
Corporate Planning Unit

Taking a Global View of Added Value from a CSR Perspective

The image of the Chiyoda Corporation and of this industry is that it is extremely open and diverse. Frankly, I was amazed at how flat the organizational structure in the industry is, and how free of official, organizational constraints. It just seems a pity that the industry is so little known inside Japan because of a lack of domestic PR. An approach from the standpoint of Daiwa Securities considers that in the investment world, conventional environmental and societal problems are addressed by SRI, or Socially Responsible Investment, for which the motivation comes from the corporate social responsibility perspectives of ethics and finance. At present, however, we see rapid expansion of ESG investment, which places value on environmental and societal issues, as a measure for raising investment performance. The world's major corporations are responding to the climate change issue by changing course toward 100% renewable energy sources and carbon-free goals. In Japan, however, we are fixated on low-carbon approaches centered on energy conservation, and there is concern that we are falling behind. As to SDGs, they should be positioned as long-term management strategies that are promoted top-down as company-wide activities. In doing so, the attention should always be directed to the global, and it is important to take hidden negative factors into consideration, so that you can follow the impact on local operations as well as determine the contributions achieved. This is certain to contribute to heightened employee motivation. When CSR serves as an opening to come back with proposals for added value in your core business, the result can have a powerful appeal that may also lead to solutions for customers.

Mariko Kawaguchi
Chief Researcher,
Research Division
Daiwa Institute of Research Ltd.

Perusing Business Trends with Sincerity to Achieve Aggressive CSR

My first impression of the Chiyoda Corporation was of its extremely sophisticated technological capabilities, as an enormously powerful global corporation that would rather transform society than contribute to society. In the area of CSR activities, the corporation is sincerely grappling with the demands of society, but my impression is that it tilts somewhat toward a defensive stance. I wonder if it might not be worth appealing to stakeholders with more aggressive CSR activity that tells the Chiyoda story. The SDGs were adopted in 2015, and then the Paris climate Agreement was signed toward the end of that same year, so that was a major turning-point. With the world now starting to steer toward the zero-carbon goal, this transition risk represents a new business opportunity for Chiyoda. The most important thing is for top management to make a commitment. Statistics tell us that management in Europe has about 65% understanding of SDGs, while management in Japanese corporations is still at 25%. It will also be important to work on middle management, which is most directly influenced by top management.

A baseline of business today is the respect for human rights, which also underpins the foundation of the SDGs. It is necessary for the corporation to establish policy regarding human rights and disclose it. It must also identify the risks of human rights infringement in value chains, and activate the PDCA cycle to implement preventive measures.

Masao Seki
Senior Advisor on CSR
Sompo Japan Nipponkoa Insurance, Inc.

Formulating Value Creating Story in CSR Message on the Basis of Corporate Philosophy

The business category called comprehensive engineering in Japanese is easier to understand in its English term, which is integrated engineering. There are very high expectations of Chiyoda with respect to CSR because the company has a diversity of technologies and human resources to implement the Corporate Philosophy of "harmony between energy and the environment" that forms the core of the SDGs. At the same time, therefore, the company bears a great responsibility. As a specific example, its CSR Report says that a project in Papua New Guinea hired 2,500 local people and gave them training. According to development economics, it is a tremendous feat to accomplish this without ODA or other cooperation, and I think this is a story that Chiyoda could disseminate more actively. The mindset of the individuals involved is very important in CSR implementation, so I think that if Chiyoda created an arrangement for collecting the things local people on the ground are saying, and if the company focused the spotlight more on its employees when disclosing information, this would heighten the degree of penetration and the ability to communicate Chiyoda's CSR message. Envision the kind of change your company's initiative could bring about a decade from now, formulate the story accordingly, and throw yourself wholeheartedly into it so that what will emerge as the result of that effort is your CSR. Create a means for arranging this, train the young people in it, and the company will undergo change. If you set up the long-term objective to match the same target year of 2030 as the SDGs, and disseminate the story that way, then I think that a more concrete corporate value will be conveyed to your stakeholders.

Kenichi Takayasu
Professor
Department of Economics
Dokkyo University

Cleating Value from Solutions to Societal Issues in View of SDGs

An engineering company deals with more than just technology. Its business also covers a wide range, and putting this the other way around, we could say that it seems a kind of enterprise that has great possibilities. Think of CSR not as the corporation's responsibility, but as the expectations placed on the corporation. Since the late 20th century, a consensus has formed that resolving social and economic problems will require more than just a United Nations framework. It will depend on the cooperation of the business sector with its abundance of resources. The Global Compact came into being as a result. In 2015, the voices of stakeholders from around the world formed at the United Nations in the SDGs, which form a common language. It appears to me that corporate social responsibility (CSR) and creating shared value (CSV), which originated in social contribution activities, have gone back to their original place as a vision of what can be accomplished by a company's core business. For the Chiyoda Corporation, the core business covers a broad range, so all seventeen goals of the SDGs are relevant, but your technology cannot be put to good use or purpose unless you analyze societal issues and apply your own technology and know-how in an outside-in manner (or from an external viewpoint) to generate innovation. Since people have expectations of your company, I hope you will set concrete targets for renewable energy, hydrogen-related programs, and other environmental areas, and feature them prominently. In dealing with the value chain, you should also cover human rights and other related matters. It is important to be aware that in resolving societal issues can yield profit, and to share that awareness.

Katsuhiro Harada
Professor
Meiji Gakuin University

Making CSR Consciousness in Employees and a Driving Force for Moving Forward

The idea here is that furthering CSR activities will generate a driving force in the form of corporate value. In order to reach out to employees and give them a solid sense for the relationship between the Chiyoda Group's core business and their own individual work on the one hand, and the SDGs on the other hand, it will be essential not only to have members of top management emphasize the point, but also to incorporate that understanding in company policy. It is possible, however, that this kind of approach may make some employees feel they are being forced. I think it would be good to get away from the notion that there are some particular individuals who are interested in CSR, and instead spread that CSR consciousness widely among your employees.

Kaoru Nakamura
GM,
PLC Planning &
Administration Unit

Transforming Risks to Opportunities for Enhancing Corporate Value

CSR is not a duty but an expectation, so where you have an ability or response, you have a broad possibility for responding to stakeholder expectations. It is the same with risk management. As I understand it, managing risk means the same thing as determining how to take advantage of an opportunity. I would like to see us bring the corporate value of the Chiyoda Group into even clearer definition, have every individual actively think about transformation and discovery, and then go on to develop the combination of these.

Yasuyuki Maeda
Associate Director,
Corporate Risk
Management Division
GM, Compliance Unit

Thoughts on Hearing the Views of Experts

I want to say thank you for sharing your valuable views with us today. What I heard has allowed me to confirm not only the basics of CSR, but also the trends in society that form the context for CSR. Having received a variety of different suggestions, what we will do is analyze and study them thoroughly as the Chiyoda Group. Then, we will review our CSR vision, which has stood now for ten years since it was formulated, disseminate the understanding and further promote activities among all our employees. In order to press forward with activities and business that are suited to the Chiyoda Group, in light of the spirit of the SDGs, I would like to actively create occasions of this kind.

Shuichi Wada
Senior Vice President &
Division Director,
Corporate Planning &
Management Division
GM, Corporate Planning Unit

Yamal LNG Project

The philosophy of the Chiyoda Group is to “Enhance our business in aiming for 'harmony between energy and the environment,” and “contributing to the sustainable development of society as an integrated engineering company through the use of our collective wisdom and painstakingly developed technology.” In that spirit, we are contributing to the development of society by transcending the frameworks of regions and corporations to provide high-quality plants for a stable supply of energy. This feature article introduces the Yamal LNG Project as one such example of this approach.

Project Overview

We are engaged in the construction of Yamal LNG Plant project located in Yamalo-nenets Autonomous Region, Russia, as a member of the joint venture (JV) composed of TechnipFMC, JGC and Chiyoda. Chiyoda's involvement in this project is based on the recognition for its achievement of the successful project execution in Russia; Sakhalin 2 LNG Project.

The contract for this project was signed in 2014. This project is such a huge scale undertaking that the construction of a LNG plant with three lines producing 5.5 million tons annually is to be completed in five years. The LNG it produces will be exported to China, Spain, France, and other countries.

The construction site is located at the severest natural environment in Russia at a latitude of 71 degrees north. The winter season occupies eight months of the year. In the winter the sun never rises, and in the summer, it never sets. Since operations are carried out in a harsh environment where the winter temperature drops as far as -50°C, a modular construction method is adopted. Construction modules, some of which are tall as a 10-story building, were fabricated at various locations in the South East Asia and shipped on large ships to be completed on-site, thereby making this project tackle various challenges.

Further, this region serves as an energy frontier where 22% of reserves of the world natural gas are concentrated, and this project will be the Russia's first large-scale energy development project undertaken in an untapped land under such harsh environment as located on the permanently frozen ground in the Arctic. The JV is based in Paris, from where it manages seven engineering centers and ten module yards set up throughout China, Indonesia, and so on. At its peak, there are fifteen thousand people working on-site to carry out the project.

Initiatives for Safety

At present, approximately one thousand three hundred (1,300) JV staff members and twelve thousand (12,000) workers under the joint venture supervision are working on the construction site of Sabetta. In addition, there are ten module yards set up in Asia under management by the Paris office of the joint venture, which serves as a central base for execution of this internationally networked project.

Safety measures are being thoroughly implemented at all project sites and offices. These began with a workshop for manager level staff held in 2015, followed by seminars held at every operation center and every module yard, and extending even to subcontractors at the Sabetta site office. Particularly, ten (10) Asian yards attained a great success. On April 28, The World Day for Safety and Health at Work, three (3) members were awarded for their active safety improvement initiatives. Safety Day events are held every three months, and all the members of the project team are engaged together in the Safety First approach.

Safety commendation

Safety seminar participants

Initiatives for Environmental Preservation

A beach cleaning campaign was held in areas around the plant construction site on September 24, 2016. A large number of employees participated.

Scenes of beach cleaning

Initiatives for Human Resource Development

Fifteen (15) students from the Moscow State University of Civil Engineering took the opportunity to come and work at Sabetta site office from June 29 to August 19 of 2016. The students had firsthand experience of operations in a number of fields, including construction, quality, HSE, transportation, pre-commissioning, and so on. This gave the students a good opportunity to learn a great deal from the highly experienced members of the joint venture team, as well as to get practical approaches for their own future work, and they were very satisfied. We intend to continue contributing to the development of the engineers of the future.

Moscow State University students

Participation in Charitable Activities

Eleven (11) female members of the Yamal LNG Paris team participated in the most famous women's marathon in Paris, La Parisienne, on September 11, 2016. There were thirty-seven thousand (37,000) runners and the course was 6.7 km long. The entry fees were used to support medical research on breast cancer.

Members of the Yamal LNG Paris team

Voice of Employees

In this project, we are taking the challenge of LNG plant construction in the Arctic, a harsher environment than ever before. Overcoming this challenge enables us to promote development of a gas field with reserves in a territory too cold to be considered readily accessible, and we think this will support the sustained, stable supply of LNG, which is an environmentally friendly energy source. We are making the most of the expertise and technology developed in our past project experiences, and all our employees are joining together as one team in our day-to-day effort to bring this plant to the successful completion.

Nobuhiko Koizumi
Project Manager
YL2 Team

Vision 1

A Reliable Company

– Why –

For a corporation, the trust of its stakeholders provides the foundation for management. Through our business, the Chiyoda Group will contribute to the resolution of global issues and the sustainable development of society so as to continue earning the trust of our stakeholders.

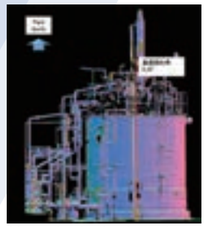
– How –

- Provide safe, reliable plants
- Execute high quality engineering
- Provide full support for plants during emergencies
- Provide solutions to global issues through business
- Provide engineering solutions for the sustainable development of society

THE ENGINEERING COMPANY'S MISSION IN SOCIETY

Construction for Early Restoration of Operations at the Kumamoto Plant of the Nippon Synthetic Chemical Industry Co., Ltd

When the Kumamoto earthquake struck in April 2016, a peak seismic intensity of 7 was observed. In the city of Uto, where the Kumamoto Plant of The Nippon Synthetic Chemical Industry Co., Ltd., is located, the tremors reached a peak intensity of upper six on the Japanese scale. Damage to tanks, buildings, production equipment, piping facilities, and so on caused manufacturing facilities to stop operating. The Chiyoda Group was asked to quickly restore operation of three lines that manufacture polyvinyl alcohol and optical film, which are the company's main products. Teams were formed to mobilize the Chiyoda Group overall capabilities, including the ChAS & Life Science Project Operations (facility diagnostics), CKS (construction management), and CST (electrical and instrumentation), and we began restoration work in early May while aftershocks were still continuing.



Measuring inclination using 3D laser

The work started with emergency safety checks and risk determination of structure collapse using 3D laser instruments, after which we implemented repairs on building columns, walls, and framework (fifty locations), inspection and repair of rotating equipment, towers, and vessels (one hundred sixty items), inspection of instrumentation (a thousand items), testing air tightness and making repairs of piping (one hundred twenty packs), and so on. A consistent end-to-end project system was used from surveying and inspection to analysis, planning, and construction. A response team consisting of the members both from a customer and from the Chiyoda Group was formed. Further, thanks to the cooperation of on-site suppliers the restoration of the main lines was completed over a brief period of approximately two and a half months. Thus, responding to the requirements of the customer suffering from the earthquake, we fulfilled our responsibility as an engineering company.

Scene of reconstruction work

Voice of Employees

Real Feeling of Single team Project Execution with the Customer

The situation had been unexpected on the customer side, as well, so when the disaster first happened, they did not even have together all of the drawings necessary for us to take measures. We were being pressed to take measures in a situation that did not even give a clear picture of how work should proceed. The Chiyoda Group and the customer formed a single team combining maintenance and operations personnel. In the course of going forward with day-to-day on-site work and formulating restoration proposals, a sense of unity gradually formed with the aim of rapid restoration of operations, and we built strong relationships of trust with customer.

I think that this relationships contributed to the smooth progress of our following project work. Since we had already built relationships of trust that made it possible for the many proposals to resolve problems presented by experts from the Chiyoda Group to be communicated directly to management on the customer side. I think that this contributed to their decision making and the prompt resolution of problems.

Yuji Saito
Downstream &
Chemical Project Control Section

BUILD RELATIONSHIPS OF TRUST WITH OUR CUTTING-EDGE FA CONTROL TECHNOLOGY

Nippi Collagen Industries, Ltd.
Completion of Construction on Control Systems for Casing Manufacturing Equipment at Fujinomiya Plant

Chiyoda System Technologies Corporation (CST) won the order for construction of control systems at Fujinomiya Plant of Nippi Collagen Industries, Ltd.

In May 2016, the construction of new casing manufacturing plant was successfully completed.

In addition to build the relationships of trust between the client, all the members were united to accomplish the project. As a result, we achieved an accident-free, disaster-free completion. Furthermore, in response to the client's request of making it possible to operate and monitor the adjustment process in the No.2 Plant, newly constructed at this time, to the existing No.1 Plant, we built an FA network and suggested installing programmable logic controllers (PLCs)*1 and touch panels. We also made a number of suggestions, such as an integration of control panels, the adoption of a network with reduced wiring requirements at lower costs, and a calibration efficiency improvement of the load cells*2 on the tanks, as a result of which we built a relationship of unshakeable trust with the customer.

We will continue providing our customers with safe, high-quality industrial plants so that they can produce the best products.

Comments from the Client

We Give CST High Marks for Quality of Engineering and Implementation Capabilities

We use collagen extracted from cowskin as the main ingredient to manufacture edible sausage casings.

Our company's relationship with the Chiyoda Group goes back to 20 years or more. During that time, we have successfully carried out a variety of developmental projects. The projects have been centered mainly on new plant constructions.

What impresses us each time is the high qualities of their technical support and ideas, and the abundance of human resources who put them into practice.

This project was no exception. They faced severe conditions, including updating specifications due to changes in the plans and tight delivery date. The Chiyoda Group members, however, think as our company's point of view, and were courteous and flexible in their responses. We are also grateful for the sincerity they showed us in their follow-up.

Mr. Yoshihito Okubo
Deputy Manager, Fujinomiya Plant
Nippi Collagen Industries, Ltd.

*1: Control devices developed as an alternative to relay circuits
*2: Load transducers that convert load (force) into electric signal

Nippi Collagen Industries, Ltd.
Fujinomiya Plant

ADDED VALUE ENHANCED BY PROPOSALS USING INTEGRATED 3D DESIGN TECHNOLOGY

New Plant Construction Project for the Seiko Eiyo Yakuhin Co., Ltd.

Chiyoda TechnoAce Co., Ltd. (CTA) won the order to build a new plant for Seiko Eiyo Yakuhin Co., Ltd., which is a pharmaceutical contract manufacturing organization (CMO). We completed construction in March 2016.

We implemented this project by applying our integrated 3D design technology to construction drawings created by a subcontractor during the construction stage. The manufacturing areas in a pharmaceutical plant are clean rooms. Since these involve air conditioning equipment for managing room pressure, temperature, and humidity, as well as a great deal of piping for manufacturing water as well as ducts and piping involved in production, there have commonly been issues in coordinating the use of ceiling space. What we did, therefore, was to integrate the 2D drawings with 3D drawings created before starting construction. This allowed us to visualize the fit of the various equipment and facilities. Then we held coordination meetings where the customer, CTA, and cooperating contractors could confirm issues and make corrections to the design.

In this way we were able to closely approach an optimal facility building plan from construction to operation. The 3D drawings that had been examined were used as a construction standard by making them viewable and shareable in real time by workers and so on. This also made it much easier to represent the operability and maintainability of facilities and equipment in visual form. Furthermore, since work on construction was begun after issues had been resolved, redundant work by cooperating contractors was eliminated, and not only was better communication achieved with the customer and cooperating contractors than before, but the amount of work needing to be redone was reduced, construction time was shortened, and so on. These results made it possible to increase the added value to a greater extent than previous construction methods.

Combined 3D drawing

Actual image

Comments from the Client

We are Grateful for CTA's Outstanding Project Execution and Technology

The use of integrated 3D drawings struck us as an excellent technique for formulating plans that provide an image of the completed work even during construction of a plant, in the same way as the technique generally employed in the pharmaceuticals manufacturing sector, of drafting a master plan in advance and then executing design qualification (DQ). The design created in advance can be confirmed in 3D so that adjustments can be made for problems prior to construction, and as a result, costs can be reduced. Chiyoda TechnoAce's idea for this approach was excellent, and it solidly addressed the need not only for quality control and safety management by each cooperating contractor, but also for progress management. This approach also realized in thoroughgoing management of each separate element of construction, such as building construction, equipment installation work, and so on.

This project allowed us glimpses of Chiyoda TechnoAce's superb technology, and we are extremely satisfied with what we have seen.

Mr. Takahiro Yamaguchi
Director & General Manager, Production Headquarters
Seiko Eiyo Yakuhin Co., Ltd.

Vision 2

Environmental Initiatives

– Why –

Ever since it was founded, the Chiyoda Group has been addressing the conflicting topics of energy and the environment. The Paris Climate Agreement and the SDGs adopted by the United Nations in 2015 communicated a common message to the world regarding initiatives for environmental conservation and clean energy, and concern with the environment among stakeholders has been growing greater.

– How –

- Development and demonstration of clean energy
- Engineering contributions leading to a carbon-free society
- Dissemination of environmental technology
- Environmental initiatives implemented through project execution

TECHNOLOGY

"Serving Society with Technology" is the philosophy of Chiyoda's foundation. Bearing this in mind, we have undertaken research and development, demonstration projects and commercialization of energy and advanced environment-related technologies.

Making the most of our strengths as an engineering firm, we are able to take such a comprehensive approach to research and development as it is integrated with process development, design and system analysis. With this approach, we have carried out technology development both on our own and in cooperation with our clients and technology owners, aiming for commercialization and problem-solving based on society's ever-changing demands. We will continue our efforts to contribute to solving new issues including materializing a low-carbon and carbon-free society.

NEXT-GENERATION CLEAN ENERGY

A demonstration plant for renewable jet and diesel fuels

As a business partner in the "Domestic Biofuel Project," led by euglena Co. Ltd. (Euglena), we are currently participating in the construction of Japan' s first renewable jet and diesel fuel demonstration plant (to be completed in October 2018).

Using technology that was introduced by our technology owner in the United States, Chevron Lummus Global, Euglena is executing the design, procurement and construction according to Japanese standards.

Led by METI (the Ministry of Economy, Trade and Industry) and MLIT (the Ministry of Land, Infrastructure, Transport and Tourism), the project aims to switch to biofuel by 2020 to reduce the extent of CO_2 emissions. The international framework of the ICAO (International Civil Aviation Organization) to prevent CO_2 emissions from exceeding the 2020 standard means that the need for jet biofuel is becoming greater than ever.

With know-how accumulated through engineering and the construction of oil refi neries, we continue to collaborate in the commercialization of this technology and further contribute to reducing CO_2 emissions.

Latest appearance image of the pilot plant

EFFECTIVE UTILIZATION OF OIL FIELDS

Yabase oil field produced-water treatment demonstration plant

Global energy needs are growing, for one reason, because water production from oil fields increases as oil fields age. To maintain high levels of productivity in oil and gas production while concurrently abiding by environmental regulations, more advanced produced-water* treatment technology is needed.

To resolve the problem of produced-water treatment, the Japan Oil, Gas and Metals National Corporation's project known as "Small-Scale Demonstration of Produced-Water Treatment Technology" is being jointly conducted by four companies: the Japan Oil, Gas and Metals National Corporation, INPEX, METAWATER and Chiyoda.

Yabase oil field produced-water treatment demonstration plant

For the project, a demonstration plant was constructed at the Yabase oil field in Akita Prefecture, with operations begun in March 2017 and planned for seven months.

Because the ceramic membrane filter requires no pretreatment such as that for coagulation, the use of chemicals can be greatly reduced. Further, as the membrane can be washed and used repeatedly, no disposable waste will be generated, reducing the environmental burden. It is expected that the filtered water will be reused as injection water for reservoir pressure maintenance in oil fields.

We will continue this domestic demonstration project, aiming to improve the produced-water filtering technology that supplies oil more economically, increases oil field longevity and decreases the environmental burden.

*Produced-water: Formation water produced alongside crude oil and natural gas

TECHNOLOGY DEVELOPMENT OF HYDROGEN ENERGY

SPERA Hydrogen® system receives the top prize of the Nikkei Global Environmental Technology Awards

Hydrogen is considered a clean next-generation energy, and the dissemination of hydrogen fuel cell vehicles and ENE-FARM (home-use fuel cells) as well as practical realization of hydrogen electricity generation are being promoted by the government. In this respect, it is essential to develop a technology for hydrogen to be "stored" and "transported" in a stable state and in large quantities like natural gas and oil. Such technology has never been available until now.

In 2014, we became the first in the world to complete technological development to resolve this issue. This system has been named "SPERA," meaning "hope" in Latin. There are high expectations for this technology, which has been highly evaluated both domestically and internationally, and has received numerous technology awards such as the top prize in the Nikkei Global Environmental Technology Awards. We will continue to meet these high expectations and to contribute to the global environment.

Grand Prize plaque for
Nikkei Global Environmental Technology Awards

Pilot plant demonstrates SPERA hydrogen system

Major Examples of Technology Demonstration Operation

❶ Synthesis gas generation process: CO_2/steam reforming process
❷ Catalyst for Hydrodesulfurization: Hybrid titania catalyst
❸ A high-severity fluid catalytic cracking (HS-FCC) process
❹ Various types of waste water treatment technology
❺ Acetic acid production process: CT-ACETICA™
❻ Concentrated solar power generation

THE DISSEMINATION OF TECHNOLOGY TO PREVENT AIR POLLUTION

CT-121 licensing of technology to one of India's major heavy industry manufacturers

In November 2016, Chiyoda concluded a technology license agreement with India's major heavy industry manufacturer Larsen & Toubro (L&T) to provide its proprietary "Chiyoda Thoroughbred 121 (the CT-121)" flue gas desulfurization process (FGD) technology for promotion in the Indian market.

Coal accounts for 75% of the power supply in India, which, with its robust and rapid economic growth, is in need of power plants to sustain development. The demand for FGD plants is increasing significantly, as the demand for coal is firmly rooted in its cheap and stable price. While coal-fi red thermal power provides 42% of the world's energy, that figure is expected to reach 44.5% by 2030.

Under these conditions, CT-121, the environmental technology highly evaluated by L&T, will continue to meet the demands of India's economic growth while helping to resolve its environmental issues.

ENVIRONMENT-CONSCIOUS ACTIVITIES IN PROJECT EXECUTION

Environmental Proposals/Green Procurement

Chiyoda approaches the design, procurement and construction stages of every project with consideration for the environment. Improving on the plans provided by our clients and proactively engaging in environmental proposals, we aim to construct plants with a lower environmental impact.

Over the past five years we have submitted an average of 319 proposals annually. In 2016, 221 proposals were accepted by our clients. Our project procurement operations are implemented on our green procurement guidelines based on the Ministry of the Environment's Green Purchasing Law so that we utilize construction materials and construction methods with less of an environmental impact.

ENVIRONMENT-ORIENTED PROPOSALS IN 2016

❶ Site preparation plans that minimize surplus soil generated after construction
❷ Adoption of energy-conserving, low-noise equipment
❸ Pier design optimization plans to reduce jungle deforestation

GREEN PROCUREMENT

❶ Use of portland blast furnace cement (material designated under the Green Purchasing Law)
❷ Use of base coat paint (anticorrosive) (material designated under the Green Purchasing Law)
❸ Use of EM electric wires and cables (eco-friendly material)

Vision 3

Social Contributions through Business Activities

– Why –

The social responsibility of engineering fi rms is to address issues surrounding society and provide solutions for those issues. In this respect, we are assigned the mission of providing superlative services and products in partnership with our clients, using skills and expertise accumulated from experience in engineering and constructing plants and consistently offering services with the full use of cutting-edge technologies.

– How –

- Adding value by integrating cutting-edge technologies
- Forming and promoting a culture of safety
- Human resource development and technology transfer in countries where we have projects

PROVIDING OPTIMIZED OPERATION THROUGH CUTTING-EDGE TECHNOLOGY

Initiatives in the AI Solutions Field

The Chiyoda Group established the AI Solution Unit in October 2016 with the aim of maximizing the value of customer plant assets by using big data analytics technology and artificial intelligence (AI) to provide support for the operation and maintenance of all types of industrial plant. This unit concluded a business alliance agreement with GRID Inc. in December of that year, making it possible to fuse advanced plant engineering with GRID's state-of-the-art AI technology. An operation to confirm the optimization of plant operations and enhancement of reliability through the use of AI systems has already begun, and full-scale business expansion will be pursued in the time ahead.

The Chiyoda Group has a long history of initiatives in AI systems. We started with expert systems in the 1980s and engaged in in-house neural network* development. In the course of such activities, we have engaged continuously in measures to apply the most up-to-date technology to industrial plant operation.

More recently we have worked on demonstrating the validity of big data analytics by conducting correlation analyses of operating data on the deterioration of equipment due to aging in flue gas desulfurization units in power plants. This is confirming the possibility of causal analysis and a formulation of effective measures.

The Chiyoda Group has responded to troubles and resolved operating issues through the effective use of cutting-edge analytics, diagnostics, simulation, and other such technologies. By utilizing the AI technology, we will develop these activities into a new business providing operational support services, and will contribute to the sustainable development of society.

* Information systems that are modeled after the arrangement of neural circuits in the human brain

SAFETY FIRST

Best international safety practices to benefit project execution

The Chiyoda Group conducts all activities with "Safety First" as a core value. Furthermore, for our clients, a safe plant is usually their highest priority. While some industries apply "destructive testing" of their products (think of crash tests for cars), this approach would be obviously unacceptable in the design of hydrocarbon plants. We verify the safety of our plant design by incorporating international, industry and client-based safety standards. However, safety standards vary for each country and are continually being updated. In addition, each plant's confi guration and specifi cations are unique. Therefore, a complete understanding of the relevant codes and standards and the skills to undertake thorough safety studies are required when we design a plant.

To deal with the various safety requirements, our company offers a "Design Safety Induction Course" that targets all engineers involved in project execution. To date, over 400 engineers have participated in the course, which begins with consideration of the concept of plant safety. By the end of the course, we plan to have taught participants how to achieve safe plant design. The participants review relevant case studies, study the work flow and relationships between the various required safety studies, look at how interdisciplinary safety matters are addressed and learn the effects on costs and schedules when safety studies/activities affect the design of a plant.

Scene of course instruction taking place

Chiyoda applies the "Safety First" concept to all our clients. Through the "Design Safety" course, we plan to apply the best international safety practices domestically. By promoting such a culture of safety awareness, Chiyoda will continue to provide safe and highly reliable plants to our clients. This will enable all our employees to be proud of the achievements we deliver.

DEVELOPING EXCELLENT HUMAN RESOURCES THROUGH TECHNOLOGY TRANSFER

Deployment of international client training

In addition to carrying out many international projects, the Chiyoda Group also concentrates on developing human resources in those countries.

Starting with the acceptance of trainees from the Kingdom of Saudi Arabia in 1976, followed by training including on-site technical education in the Federal Republic of Nigeria in 1978, collaborative training with external organizations has been in practice since 1982. The training offered to foreign clients is highly esteemed both domestically and overseas. The United Arab Emirates joined in 2010, and the State of Qatar joined in 2012, while the number of countries participating in training continues to grow, including the Kingdom of Saudi Arabia, the Republic of Korea, the Republic of Mozambique and the Islamic Republic of Iran. The training provided to foreign clients can be conducted both in Japan and by dispatching lecturers abroad.

The number of participants in these programs last year was 73. The training provided in Japan also includes the opportunity to experience Japanese culture.

Thus, through engineering training and cultural exchange, we collaborate with countries where plants are constructed to help create a basis for the innovation of their industries and technologies as well as develop their human resources.

A Scene of Training

DEVELOPING HUMAN RESOURCES WITH THE GOAL OF ESTABLISHING INDUSTRIAL INFRASTRUCTURE

Opening up internships for the Masdar Institute of Science and Technology (MIST)

Through subsidiary aid granted by the Agency for Natural Resources and Energy in the Ministry of Economy, Trade and Industry, internships have been provided to the United Arab Emirates' Masdar Institute of Science and Technology (MIST), with the Japan International Cooperation Center (JICE) as the point of contact. The project was founded with the goal of promoting fellowship and strengthening cooperation between Japan and the United Arab Emirates. Within the fields of renewable energy, smart communities and green technology, Japanese companies annually accept MIST students of UAE nationality, with 2016 marking the fi fth year so far. After arriving in Japan, MIST interns receive a basic introduction to life in Japan. Training is provided for each enterprise. Over five consecutive years, the Chiyoda Group has hosted a total of eight graduate students in internships involving classroom lectures and on-site inspections for a month and a half. The Japanese government also works in close cooperation, fostering engineering skills and human resource development.

University students of United Arab Emirates' Masdar Institute of Science and Technology (MIST)

Diverse human resource development at Chiyoda Almana in accordance with the Qatar National Vision 2030

Our overseas Group companies contribute to developing various human resources. Chiyoda Almana Engineering LLC supports the development of human resources, an important aspect of the Qatar National Vision 2030. Chiyoda Almana supports Qatar by nurturing diverse human resources and career development.

In 2016, the company sponsored many educational opportunities in the field of hydrocarbon processing technology. With the goal of enriching the technical experience of those in the field, Chiyoda Almana and Chiyoda Global Headquarters facilitated training programs geared toward RasGas and Qatargas engineers.

On November 2 and 3, 2016, we presented an important overview of the basic operation of LNG plants to young engineers of Qatargas. We are also proactively involved with developing human resources in regional communities.

Qatargas professionals at Chiyoda Almana Brownfield Management Masterclass 2016

Vision 4

Respect for Human Rights

– Why –

Human resources are valuable assets for an engineering company. We will continue to create a corporate climate that not only all of our employees, of course, but also their families can take pride in. At the Chiyoda Group, which is developing operations on a global scale, we are faced with a growing necessity to observe work style reforms promoted by the national government, develop global human resource development and respect diversity.

– How –

- Initiatives to work style reform
- Reinforcement of emergency management systems
- Reinforcement of corporate strengths by development of global human resources

INITIATIVES FOR CHANGES IN WORK STYLE IN FY2016

We have been encouraging reform through changes in our employees' mindsets and organizational operations as well as improvements in the operating bases where Chiyoda is 1) a company whose employees are motivated to continue working on a long-term basis and 2) a company that is continually able to develop its competitiveness and strength.

We have developed systems for reduced working hours and for leaves of absence for employees constrained by child care or nursing care. Among our achievements in FY2016, we embraced diversity, made the child care and nursing care systems more flexible and introduced a system to afford retired employees new re-employment opportunities. Additional steps include:

❶ Leaves of absence for employees working in Japan or overseas to be off with their spouses
❷ Re-employment opportunities for people who have left the company for child care, nursing care or to accompany spouses who have been transferred
❸Work-at-home (teleworking) opportunities on a trial basis
(Note: Full-scale introduction was launched in May 2017.)

These steps were taken to secure human resources willing and able to work and to help retired employees be re-employed when their circumstances change, all enabling us to increase our workforce in an effective manner. We will continue to take steps to increase our productivity and competitiveness by promoting such changes in work style.

In FY2016, Chiyoda Corporation received "Kurumin," a certification for companies recognized for their enthusiastic efforts to cultivate the next generation, granted by the Kanagawa Labor Bureau of the Ministry of Health, Labour and Welfare. Companies can gain this certification by achieving the goals specified in their action plans and by satisfying the criteria set by the bureau.

Chiyoda Corporation obtained the certification after achieving the targets set for the period from April 1, 2010 to March 31, 2015 and for being highly appreciated for the following new initiatives to take from now:

❶ Extending application of a program of shorter working hours to employees with elementary school children up through the sixth academic year, fostering a better balance between work and child care
❷ Consideration of flexible work styles
❸ Reduction of total working hours by enforcing stoppage of work after 20:00 and on holidays

We will continue our efforts to create an environment where employees can perform to the best of their potential.

Voice of Employees

Thanks to the Efforts of Many People, We Can Now Make Use of absence program for taking along spouse

I was working as an engineer in the Gas & LNG Process Engineering Unit when my spouse was assigned to Australia. Starting in October 2016, I used the system for leave to accompany my spouse and am now living in Darwin, Australia. Under the corporate efforts to promote work style reform, I felt some hesitation to choose this program, and I think that people who make use of this program will be a very small part of the total number of employees. However, now I am appreciating the company listening to the minority voices of their employees, and gave me the choice of an alternative to continue working from the long term viewpoint.

Chie Tanaka Human Relations Unit

SAFETY FIRST CRISIS MANAGEMENT SUPPORT TO PREPARE FOR ALL EMERGENCIES

Business Continuity Plan/Disaster prevention

In 2015, the Chiyoda Group formulated a Business Continuity Plan (BCP). Covering all kinds of disasters, including fi res and large earthquakes, disaster prevention practice and BCP training are conducted with the basic principle of "life comes first."

In 2016, we practiced fi re drills from buildings and dealing with disrupted transportation networks to help people return home safely in the event of a large earthquake. While Chiyoda Global Headquarters continued its BCP training from last year, training has expanded on a larger scale to the Koyasu Office & Research Park and the corporate Group this year. In addition, the "Nighttime/Holiday Initial Response Training" outlines the procedures necessary for the smooth resumption and execution of business after a major crisis. In addition to verifying the safety of employees, we also strive to ensure the safety of their families. In the event of a disaster, employees' family members will receive e-mails to confirm their safety if they are registered on the relevant system.

Further, our Group company Arrowhead International makes all the arrangements for our employees' business trips. Providing adequate support that puts safety first for the various risks that may occur between departure and return, the Arrowhead Travel Risk Management System (A-TRIMS) provides safer and more reliable crisis management. This system verifies the itineraries of those traveling overseas and ensures their safety by thoroughly checking through e-mail and mobile phone. The Group as a whole supports stronger crisis management and puts the safety of employees first.

BCP Training

Crisis management activity at the field office in Yanbu, Kingdom of Saudi Arabia

At the construction site of a sponge titanium plant that was mechanically completed in May 2017 with Non LTI for Advanced Metal Industries Cluster and Toho Titanium Metal Company Limited, we worked with the client to implement various crisis management measures in terms of both hardware and software to ensure the safety of the client and field office staff from around the world.

As part of this activity, we conducted evacuation drills several times to ensure prompt evacuation and confirm the effectiveness of the Emergency Plan and Emergency Response System.

Practical training was carried out while the difficulty level was continuously raised according to the progress of construction and the number of field office staff.

The completed sponge titanium manufacturing plant

An evacuation drill in progress

REINFORCEMENT OF CORPORATE STRENGTHS BY DEVELOPMENT OF GLOBAL HUMAN RESOURCES

Global Engineer System

We instituted the Global Engineer system in April 2016 as a measure to develop engineers who are able to perform globally at a higher level at the Chiyoda Philippines Corporation (CPh) and other Group companies. We aim to use this system to raise the level of the Group as a whole as well as to realize true globalization by assigning these engineers flexibly to CGH (Chiyoda Global Headquarters) and Group company jobs.

Developing Staff for Commissioning Operations

The Commissioning Unit employs staff from the Philippines, India, Europe, America, and other places outside Japan. They receive technical training at CGH in matters ranging from safety, the environment, security, and planning of plant test operations, to implementation of said test operations. Then they are dispatched to construction projects as on-site staff specialized in preparation for test operation. These engineers contribute to project execution as well as to business and growth in other countries.

Developing Staff for Risk Management

Corporate Risk Management Division has begun deploying safety, quality, environment, information security, compliance, and crisis management measures globally, providing its services to the entire Chiyoda Group. The First Summit of the Risk Management Division (RMD), held in July 2016, also marked the start of an RMD program to share its personnel concerned with the risk management within the Group. As an initial part of this effort, a global operation platform (GOP) task was started up at the Group headquarters.

During FY2016, quality management coordinators and information security coordinators from CPh were dispatched to CGH for a period of four months each. After that, information security coordinators were dispatched from Chiyoda Almana Engineering LLC.

Chiyoda-Almana
Mochamad Riza Achrullar

Developing Staff for Quality Management

Chiyoda & Public Works Co., Ltd. (CPW) is preparing for acquiring ISO 9001 (QMS) certification, and CGH is providing full backup for this effort. We therefore hosted a representative from CPW for two months of training not only to support CPW in acquiring QMS certification but also to develop human resources for QMS maintenance and management after receiving the certification.

Back in CPW, she will be a staff member with a key responsibility for tasks relating to QMS certification acquisition. CPW aims is to eventually obtain management systems certification in safety, environment, and information security as well.

Voice of Employees

My assignment is to acquire necessary work practice & study in SQEI Management Unit of CGH, which is great assistance to conduct ISO 9001:2015 Certification process for CPW.

I have learnt a lot about not only QMS but also OHSMS, EMS and ISMS in CGH. Although the organization size is big deference between CGH and CPW, I believe I will be able to apply my new knowledge & experiences acquired here.

Even though my training is two months on-desk training, not on-job training, it is sure I will not be able to work actual activities without this training.

After this training, I will be fully responsible for HQSE※ activities in CPW and expect these all things learnt are reflected to work process in CPW definitely.

So, please let me express my sincerest gratitude for giving me the opportunity to visit CGH for training. Thank you so much for all supports to CPW and me during my stay in Japan.

Theint, Thiri Hlaing
Chiyoda & Public Works Co., Ltd.

※ Health,Quality,Safety,Environment

Vision 5

Commitment to Fairness

– Why –

Commitment to fairness is the foundation for the corporation's continuing existence. The Chiyoda Group has pursued stronger governance and a more thoroughgoing compliance. Beyond that, there have been growing demands for greater management transparency and fairness from the Financial Services Agency, the United Nations Global Compact, and other such internal and external demands.

– How –

- Corporate operations with transparency and soundness in line with Corporate Governance Policy
- Global development of Compliance Consultation and Reporting System
- Implementation of thoroughgoing compliance education and export control education

INITIATIVES TO PREVENT MISCONDUCT

Measures to make the active use of the Compliance Consultation and Reporting System

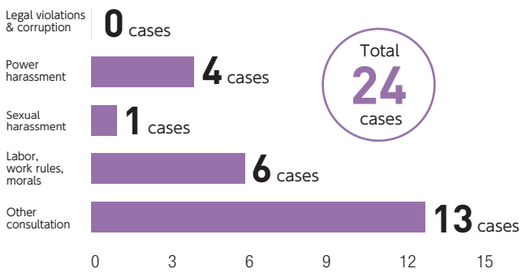
The Chiyoda Group has adopted a Compliance Consultation and Reporting System (Whistleblowing System) for the purpose of prevention, early detection, and correction of misconduct and unethical behavior within the Group. The Whistleblowing System can be used not only by Group employees but also by their families, retirees, and employees of our business partners. An outside contact point has also been set up. Reported matters are treated appropriately according to the provisions of relevant legal statutes and regulations. The Whistleblowing System is arranged so that people seeking consultation or making reports can have a sense of security.

To promote use of the Whistleblowing System in the Group companies inside and outside Japan, in FY2016. Thoroughgoing steps were taken to reconfirm the importance and necessity of the Whistleblowing System for Group companies. Examples of measures taken to activate the Whistleblowing System were also compiled and shared within the Group to foster better understanding. Group companies overseas sent their members to gather at CGH in July for discussion of the Whistleblowing System and compliance education.

From now on as well, the Chiyoda Group as a whole will make the active use of the Whistleblowing System in order to enhance the control on misconduct, enable the earlier discovery when it occurs, and make the correction promptly by responding to it.

Overseas Group company members who attended the discussions

FY2016 Whistleblowing Record (CGH and Group Companies in Japan)



Compliance Education and Export Control Education Performance

	Category	Item	Content (Numbers of Times, People, Etc.)	
Compliance	Hierarchical training	Training for new hires	Held 1 time	108
		Training for mid-career hires	Held 2 times	5
		Training for new managerial personnel	Held 2 times	53
	Functional training	Training prior to overseas assignment (for all assignees)	Held as needed	250
		Training prior to on-site supervisory assignment (for all assignees)	Held as needed	37
	Seminars	Seminar with outside instructor (Harassment: for managerial staff)	Held 1 time	288
		Seminar with outside instructor (Harassment: for general employees)	Held 1 time	429
	e-Learning	e-Learning	Japanese language	2,724
			English language	117
	Issuance of briefs	Compliance briefs	Issued 2 times	
In Export Control	Hierarchical training	Training for new hires	Held 1 time	108
		Training for mid-career hires	Held 2 times	5
	Functional training	Export control: General training	Held 5 times	128
		Special Training Course: Determination of the classification for goods & technologies	Held 4 times	108

The Chiyoda Group's Social Contribution Activities

– Why –

The Chiyoda Group is actively seeking solutions to global issues in order to help create a better society. This is not just a matter of Social Contributions. We will also continue working closely with local communities to contribute to the sustainable development of society.

– How –

Taking "CSR promotion by all members together" as a motto, we are engaging continuously in social contribution activities of all types, both inside and outside Japan, with the aim of collaboration and harmonious coexistence with local communities.

Educational Support & Human Resource Development

Internships

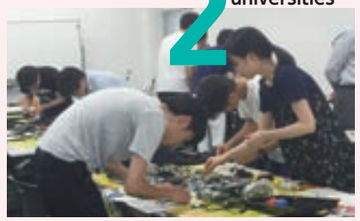
Operating in **7** companies

Student visits to the Company

38 students

University lecturers

Held at **2** universities



Grade school campaign drive
(Donation of books, satchels, uniforms, etc., by CPh and L&TC)

Donations for **270** students

Collaboration with Yokohama City Council of Social Welfare

In-house sale of products made by people with special needs
(CGH and Koyasu Office)

15 gatherings

Japan Philharmonic performance of Beethoven's "9th Symphony" concert invitations provided to those with visual impairments
(letter of appreciation recipients)

25 sets

50 people invited

Widen the Circle of Exchange Communities and Aim to Development

and Collaboration with Local Further Realize the Sustainable of Society

Assistance to areas hit by disasters

Remittance of donations for earthquakes in Italy, Ecuador, and Kumamoto
(Implemented at Chiyoda Group in Japan and at CPh)

Employee volunteer dispatching to areas hit by disasters
(Implemented at Chiyoda Group in Japan)

7 visits **70** people participated

Purchase of CO_2 sequestration credit(19.00t-CO_2)
Registration for Green Wave program*2

Providing food to the victims of large-scale disasters (implemented at CPh)

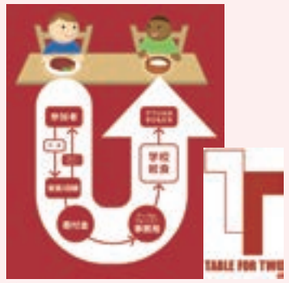
500 people

Sale of products from areas hit by disasters
(Held at CGH and Koyasu Office)

10 gatherings

Contributions to Health & Welfare

Table For Two*1
(Facilitated domestically by the Chiyoda Group)



(C) TABLE FOR TWO

37,200 yen

(1,860 meals provided)

*1: The TFT menu provided at employee dining halls includes a 20-yen donation, and each 20 yen can provide one school meal in a developing country.

196,166 caps recycled

(Vaccine doses for 228 people)

ECOCAP*3 collection
(Implemented at Chiyoda Group in Japan)

Blood donation
(Implemented at CPh and L&TC)

503 donors

*2: An initiative to spread the "Green Wave" across the Earth by tree planting and so on carried out on the International Day for Biological Diversity established by the United Nations. (http://greenwave.undb.jp/index.html/)
*3: Caps for PET bottles are collected at the office and the proceeds (approximately 860 caps provides a polio vaccine for one person) are sent to developing countries.

Environmental Conservation

Tree planting (implemented at CPW)

43 participants **200** trees planted

Cleaning operations
(Implemented at Chiyoda Group in Japan, Chiyoda-Almana, and CSL)

Over **350** participants

Chiyoda Corporation

Chiyoda Global Headquarters

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