## **JGC JGC CORPORATION**

JGC Report 2018

**JGC Report** 



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# Engineering the Future

#### **Corporate Philosophy**

# **JGC Way**

The corporate philosophy of the JGC Group, "The JGC Way", is the fundamental platform pursuant to which the business activities of the group are promoted and furthermore is followed by each and every JGC Group employee and executive in their activities.

#### Mission

We are committed to creating a more prosperous future for our clients, for people and for society through integrating our core capabilities and technical expertise to generate innovative solutions.

#### Values

We are driven by our shared values and commitments. These elements express our strengths and represent the basis for how we work and deliver solutions to our clients and stakeholders:

#### Shared Values

- Challenge We venture into new business fields, overcome technical hurdles and establish innovative methodologies.
- Create We remain dedicated to developing resultsfocused, thoughtful solutions that fully meet the needs of our clients and benefit society as a whole.
- Integrate We bring together a wide range of technologies, innovative tools and a diverse team dedicated to increasing value to all stakeholders.
- Deliver We commit to overcoming obstacles through diligence and our "never-give-up" philosophy, and to delivering quality products and services to our clients and society.

#### Professional Commitments

- Respect We undertake to foster mutual respect and support among all those involved in our activities and to emphasize the importance of safety for all.
- Integrity We pledge to maintain the highest ethical standards in everything we do.

#### Vision

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We bring a new generation of innovative solutions to the energy and infrastructure industries by utilizing our core competencies in engineering and project management. Since its founding in 1928, JGC has built plants and facilities worldwide serving a wide range of purposes, mainly in the oil and gas industries, such as oil, natural gas and petrochemical plants, but also power plants, non-ferrous metal plants, and other energy and industrial infrastructure as well as pharmaceutical plants, hospitals, environmental facilities, and other social infrastructure. JGC's proven capabilities in all these areas have established its reputation as a leading engineering contractor worldwide.

JGC views its corporate group mission as one which is committed to creating a more prosperous future for its clients, for people and for society through integrating its core capabilities and technical expertise to generate innovative solutions. We intend to further promote the expansion of our business areas and contribute to industrial advancement, economic progress, and sustainable growth, not only in Japan but throughout the world.

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#### **Editorial Policy**

#### Purpose of This Report

The purpose of the JGC Report, which was first published in 2015, is to explain to stakeholders how the JGC Group works to generate sustainable growth and increase corporate value over the medium to long term. JGC uses this report as a tool to communicate with stakeholders as part of its efforts to deliver sustainable growth through continuous, constructive dialogue.

#### Period Covered

In principle, the report covers the period April 2017 to March 2018 (fiscal 2017), but also includes information related to events from April 2018.

#### Information Provided The JGC Report summarizes and presents the most

relevant information related to the JGC Group and society. For detailed and comprehensive financial and non-financial information about the Group, please visit the JGC website.

#### Forward-looking Statements

Data and forecasts disclosed in this report are based on judgments and information available at the time of publication. The Company provides no guarantee for targets, forecasts and earnings projections, which may change due to a range of factors.



# Chapter 1 **Targeting Sustainable Growth**

In this chapter, we look at the JGC Group's growth trajectory and its value creation model. The chapter includes messages from the Chairman & CEO, President & COO and CFO, who explain how JGC is responding to developments in the operating environment and provide updates about measures being implemented in line with the medium-term business plan, Beyond the Horizon.



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# JGC STORY JGC Group's Businesses

The JGC Group creates social and economic value through two business segments - the total engineering business, which is active in a wide range of areas, and the functional materials manufacturing business, which is supported by a portfolio of unique technologies.

#### **Business Segments**

## **Total Engineering**

The total engineering business executes engineering, procurement and construction (EPC) projects, delivering facilities that support clients' businesses. The JGC Group has delivered more than 20,000 projects in 80 countries and built up a high level of trust with clients worldwide.

JGC works with clients from the early stage of projects, helping them realize their plans for facilities at the feasibility study (FS) stage and the front end engineering and design (FEED) stage before EPC projects get under way.

The total engineering business also provides operating and maintenance (0&M) services after project completion, helping clients increase the value of their businesses during the entire lifecycle of facilities.



#### **Project Execution Objective**

Our goal is to create facilities that help clients increase the value of their businesses by meeting quality and delivery parameters, while also generating an appropriate level of profits - the essential role of an engineering business. To realize that goal, the JGC Group constantly improves its capabilities to ensure each project is a success by optimizing quality, cost and delivery and appropriately managing diverse risks



## Functional Materials Manufacturing The title of this segment has been changed from Catalyst and Fine Chemicals Business.

#### **Catalysts and Fine Chemicals**

This business uses particle control technology and production management technology to produce and sell catalysts used in oil refining and petrochemical manufacturing processes, catalysts that protect the environment, and fine chemicals.

#### **Fine Ceramics**

This business makes and sells a wide range of fine ceramics products using materials evaluation and modification technology that harnesses the mechanical and electrical properties of ceramics.







## Oil & Gas

LNG Receiving Terminals



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## JGC has constantly transformed its business in response to changing times. Tireless efforts to overcome shifts in our operating environment have supported JGC's growth to this day.

Since the 1950s, when the engineering business gained momentum, the JGC Group has achieved growth by constantly adapting to changes in the market. Today, JGC is actively moving into the infrastructure area to complement its presence in the core oil & gas area, aiming to sustain growth as an engineering company and meet the expectations of all its stakeholders.



Lehman Brothers

# **JGC STORY** Value Creation Process

Story

## Four key strengths underpinned by a powerful business base help the JGC Group maximize value creation.

JGC has achieved sustained growth through its total engineering business and functional materials manufacturing business, which generate profits that outperform levels at peers, and through active efforts to tackle issues faced by society.





## JGC will generate sustained growth by accurately identifying trends in the market and strategically adapting to change

Changes in the market are both a threat and opportunity for sustained growth. By accurately responding to changes in the market, JGC aims to reinforce its position as the leading engineering contractor in the oil & gas area while also strengthening and expanding its position in the infrastructure area, actively extending its reach into target regions and enhancing competitiveness by improving technological capabilities.



**Message from the Chairman & CEO and the President & COO** 

Pursuing sustainable growth-responding to market changes



Representative Director, Chairman and Chief Executive Officer (CEO)



Since joining JGC in 1979, Masayuki Sato has worked throughout the Company in finance and accounting. He has been in charge of finance for projects in the Middle East, North Africa, Southeast Asia and CIS countries. He was appointed Director in June 2010. He served as Managing Director, Senior General Manager of the Corporate Administrative & Financial Affairs Division, and Chief Financial Officer from July 2011, and was appointed Executive Vice President and Director in June 2014, he has held the positions of Representative Director, Chairmanand and CEO.

After emerging from several difficult years, the plant market continues to recover. Here, the chairman & CEO and president & COO report on relevant measures. They focus on the JGC Group market strategies and risk management against a background of positive change as well as discuss how JGC is reinforcing management and responding to changes in this environment, in pursuit of sustainable growth.



Representative Director, President and Chief Operating Officer (COO)



After joining JGC in 1972, Tadashi Ishizuka was assigned to the Domestic Project Construction Division before being transferred to a role in overseas project management. He was Managing Director and Senior General Manager of the Project Operation Services Division from June 2008. He was appointed Senior Managing Director in 2010 before being promoted to the role of Executive Vice President and Director in June 2011. He became Senior Executive Vice President in February 2017, and was appointed President and CO0 in June 2017.

#### Market environment and company situation

Masavuki Sato. Chairman & CEO (hereinafter referred as to "Sato"): The first decade of the 2000s saw considerable capital investment in oil-producing countries, spurred by rising crude oil prices from factors such as economic growth in emerging countries. Seizing this opportunity, we won orders for a good number of oil and natural gas projects, including LNG

projects. Sales and profit rose accordingly. From autumn 2014, however, crude oil prices started to drop, which curbed capital investment by clients and led to a period of weakness in the plant market. Orders received declined, the plant business worsened, and we recorded a net loss in

fiscal 2016. Clearly, times were tough for us. Yet when the fiscal 2017 results were in, income and profit were up year-on-year, marking a return to profitability. We met our initial forecast and maintained a dividend payout of ¥25 per share. As rising crude oil prices continue to turn the tide toward plant market expansion, I believe we stand at a significant point for performance growth.

Tadashi Ishizuka, President & COO (hereinafter referred as to "Ishizuka"): Since my appointment as President & COO in June 2017, it has been a year of taking on the key tasks of "strengthening project management", expanding into the offshore and infrastructure sectors, and cultivating



future project leaders. In particular, our net loss in fiscal 2016 underscored the urgent need for more robust project management. Steps I have taken to sharpen our sensitivity to project risks have included promoting changes in awareness (among executives and employees alike) and risk profiling. On the basis of our return to profitability in fiscal 2017, I have concluded that these measures have gradually spread across the company. However, with factors such as a 6.2% gross profit ratio and loss on an Algerian

## A turning point for performance growth

project preventing us from meeting our full-year earnings forecast, we still have work to do before we have reached a level we can be content with. Sato: Since the plant market slowdown, we have missed our targets for new contracts over the past three years. In fiscal 2015, we recorded ¥320

billion, followed by ¥500 billion in fiscal 2016 and ¥550 billion in fiscal 2017. Outstanding contracts at the end of fiscal fiscal 2017 dropped below the ¥900 billion mark. One of our highest priorities is to once again meet our expectations for new contracts. We recognize that in our current position, we must significantly raise the bar in total orders received.

Ishizuka: In spite of the difficult market conditions, JGC has produced steady results. We have grown in oil and gas area, taken a strategic approach to meaningful advances in infrastructure and secured noteworthy projects, including FLNG (Floating LNG) in Mozambique and solar power plants in Vietnam. Although we have fallen short of our target in new contracts overall, the type of projects won has been very significant.

#### Measures for higher performance

**Sato:** As crude oil prices have topped US\$70 a barrel this year, we sensed that international oil companies (IOCs), the oil majors, and national oil companies (NOCs), the state-run oil companies, are becoming more open to capital investment. Large LNG projects are good example, an area where the market has been stagnant for years. We see signs that these

projects are now resuming, driven by increased LNG demand in China, India, and Southeast Asia. Refinery and petrochemical investment continues to rise in Southeast Asia. The tide has turned and the plant market is emerging from a long slump. Looking forward to a full market recovery, we aim

# Stronger

to secure JGC's highest level of orders ever, at ¥1 trillion (with ¥850 billion overseas and ¥150 billion domestically). Attaining it means continuing to pursue projects with adequate margins and, as I mentioned earlier, raising the bar in new contracts.

Ishizuka: As we see signs of a turnaround in the planning of large LNG plants, it has been truly momentous for JGC to be selected for the first of these opportunities: Shell's LNG Canada project. LNG projects represent a segment where JGC is among a limited number of EPC contractors qualified to participate. Fully committed, we leverage superior resources in these projects, including a wealth of experience and unmatched technologies. The client's final investment decision for the LNG Canada project is expected to be made within 2018. Considering the plant market in fiscal

2018, including this project, there is also a chance we may surpass our ¥1 trillion contract target. Overseas EPC group companies have also become more adept at securing orders. I think we are in precisely the right position to further raise this target.

Sato: Still, LNG Canada is a "lump-sum" contract, and we recognize that monetary amounts for this size of project do carry considerable risk.

Ishizuka: Our management officers including



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myself took part in this project from the proposal stage, and we spent some time broadly assessing risks. Our accumulated expertise and experience from the Ichthys LNG and Yamal LNG projects were applied in the evaluation of construction methods for module fabrication. We took the utmost care in risk profiling.

Sato: As for fiscal 2018 earnings forecasts, we expect net sales, operating income, and ordinary income on the same level as in fiscal 2017. Our

# risk mitigation

gross profit ratio is also expected to be comparable, at 6.4%, due to factors such as projects that incurred a loss in fiscal 2017. Among the projects awarded to us during the downturn in the plant market, some have little leeway in terms of profit or loss. This makes it essential that we strive even

harder to strengthen project management. Net income attributable to the owners of the parent is projected at ¥10 billion, due to an expected increase in the effective tax rates applied. Accordingly, a dividend of ¥12 per share is planned, following the target dividend payout ratio (30% of net income attributable to owners of parent).

**Ishizuka:** Effective project execution is a matter of mitigating risk. We have seen positive results from the changes in awareness and risk profiling that we began emphasizing last year to sharpen our sensitivity to project risks. This will remain a focus of ours in fiscal 2018, with the goal of it contributing to meeting our full-year earnings forecasts.

#### Orders received (consolidated)



#### 3 Reinforcing management to create value

Sato: By its very nature, our work in the EPC business area fulfills a direct role in creating value for society and the environment. The issues we can help solve through JGC business, and the social and environmental value that is created, will provide greater access to energy in a world where energy needs are growing. By contributing to economic and industrial development in emerging economies and resource-producing countries, we play a role in bridging the economic gap between developed and developing countries. This also calls for fostering a sustainable, low-carbon society.

**Ishizuka:** More than ever, I believe that further promoting this social and environmental value will require us to hone our strengths in the total engineering and functional materials manufacturing businesses, and to reinforce a variety of strategic resources that give us a competitive edge.

## **EPC** business: directly creating value for society and the environment

Sato: When we consider that from among these business assets employees form the primary resource of EPC companies, we realize that we must focus our efforts on human resource development. JGC oversees a workforce of about 10,000 individuals with superior engineering skills and specializations. For this diverse workforce, which includes many nationalities, a growing number of female specialists, and people who are physically challenged, we will continue to expand our training system to develop technical capabilities and expertise as we ensure employee-friendly environments and maintain a high level of motivation. Ishizuka: An EPC business relies on the cooperation of joint venture partners, equipment manufacturers, subcontractors, and all of our business partners. It is also essential that not only JGC but also our partners and suppliers adopt the stance of increasing value across the supply chain. We will continue taking steps toward this end.

Sato: What is fundamental in creating value for stakeholders is sound corporate governance. We have enacted measures to strengthen corporate governance from a variety of standpoints, such as by making the Board of Directors more effective. Among these measures, Shigeru Endo and Masayuki Matsushima lend an impartial perspective as JGC's outside board directors, sharing their thoughts on risk and on challenges to sustainable growth for the company. They provide valuable opinions and are contributing toward steadily reinforcing corporate governance.

#### JGC Business and Management Base



#### Toward sustainable growth

Sato: JGC has been in the global engineering business since the 1950s. Though this business inherently carries considerable risk, we have enjoyed sustainable growth throughout our corporate history by facing and overcoming risks of all kinds. It is our obligation to stakeholders to maintain this sustainable growth. Yet the market environment for the engineering business inevitably changes over time. From the standpoint of the energy demand structure, for example, although we do not anticipate sudden changes in the dominance of fossil energy sources such as natural gas, we can be sure that renewable energy will gradually come to occupy a greater share. We have already broadened the scope of our business in oil and gas area and stepped up efforts to expand into power generation area that includes renewable energy. This preparation is already underway.



**Ishizuka:** Viewing the plant market from a regional perspective, we anticipate such development to spread into Africa, Central Asia, and other areas with emerging economies. JGC has been cultivating the

North American and East African markets for several years now, and we will continue this trend. Although we can expect a more competitive business environment due to the presence of contractors from emerging economies, our highly cost-competitive overseas EPC group

companies will fulfill an instrumental role.

Turning challenges in the business environment into opportunities

Sato: We recognize that another key area of endeavor where we can

#### Strategies responding to market characteristics and changes



make a difference is promoting hydrogen in support of a sustainable, low-carbon society. Ammonia is viewed as the most economically viable hydrogen energy carrier, and we are currently developing an

ammonia synthesis process.

Ishizuka: In functional materials manufacturing, a JGC domestic group company involved in the production of fine ceramics possesses outstanding and internationally acclaimed production technology for power unit substrates

in electric vehicles, which may contribute to the popularization of these vehicles.

> **Sato:** We can view future changes in the market environment as both threats and opportunities. Our achievements and experience demonstrate how we should anticipate market changes, make strategic moves in preparation and turn threats into opportunities, leading to sustainable arowth

> Sato: Ishizuka: We will be deeply grateful for the continuing support of all JGC stakeholders.

#### **CFO Message**



# Maintaining a Sound Financial Base and Investing in Growth

#### Basic aim of financial strategy

The basic aim of our financial strategy is to appropriately allocate the Group's financial resources generated by the core total engineering business. Profits from the business are used to fund sustainable business expansion, which increases corporate value and helps to meet the expectations of shareholders and other stakeholders.

Our five-year medium-term business plan, Beyond the Horizon, which runs from the start of fiscal 2016 to the end of fiscal 2020, includes targets for the shareholders' equity ratio and return on equity (ROE).

JGC needs to retain the trust of clients and ensure large-scale projects are implemented smoothly. From that perspective, as an engineering company responsible for clients' major capital investment projects, JGC has to maintain a sound financial base that is resilient to fluctuations in financial markets. Given those demands on our business, we aim to ensure the shareholders' equity ratio remains above 50%. As of March 31, 2018, the ratio was 57.6%, underscoring the Group's continued solid financial position.

Our ROE target is 10% or higher. We are working to achieve that target in two key ways: first, efficiently using capital to invest in growth, such

as strengthening our core EPC business, which is focused on the oil & gas and the infrastructure areas, and expanding the functional materials manufacturing business, which is led by Group companies; and second, working to secure projects with adequate margins and carefully controlling risk to maintain those margins.

#### Stance on allocating cash reserves

The JGC Group has to maintain liquidity backed by an adequate level of cash reserves. We need working capital to support the smooth implementation of large-scale projects and we also have to take into account the outlook for annual sales and projected funding requirements over the medium and long term.

In October 2017, we issued ¥50 billion in straight corporate bonds. The money will be used to offset the expected costs associated with a number of unprofitable projects that occurred in fiscal 2016 and to step up debt repayments at subsidiaries. We will also use some of the funds for working capital to implement large-scale projects that are likely to lead to major orders in the future. As of March 31, 2018, cash and cash equivalents totaled ¥235.3 billion, which is an appropriate level of cash reserves to support the Group's operations.



#### Cash and cash equivalents, and shareholders' equity ratio (last five years)

#### Shareholder returns

To ensure a clear stance on shareholder returns, the JGC Group allocates profits based on a dividend payout ratio target, while also taking into account the need to maintain the shareholders' equity ratio and retain funds to invest in growth.

Under our Beyond the Horizon medium-term business plan, we are putting greater emphasis on capital efficiency. We are aggressively investing in growth, but we are also aiming to increase shareholder returns in line with our dividend payout ratio target, which is 30% of net income attributable to owners of parent.

In fiscal 2017, net income attributable to owners of parent fell short of our start-of-year forecast announced in May 2017. However, after taking into account the Group's financial position and other factors, we decided to pay a dividend of ¥25.00 per share for fiscal 2017, the same as our start-of-year dividend forecast.

For fiscal 2018, we forecast net income attributable to owners of parent of ¥10 billion, reflecting an expected increase in tax payments. Based on that forecast and our dividend payout ratio target, we plan to pay a dividend of ¥12.00 per share for fiscal 2018.

## **Financial and Non-financial Highlights**

	March 31, 2009	March 31, 2010	March 31, 2011	March 31, 2012	March 31, 2013	March 31, 2014	March 31, 2015	March 31, 2016	March 31, 2017	March 31, 2018
Performance Highlights										
Net Sales	¥450,911	¥414,257	¥447,222	¥556,966	¥624,637	¥675,821	¥799,076	¥879,954	¥693,152	¥722,988
Operating Income or Operating Loss (-)	52,003	41,919	63,559	67,053	64,123	68,253	29,740	49,661	-21,497	21,495
Net Income Attributable to Owners of Parent or Loss Attributable to Owners of Parent (–)*1	31,543	27,112	25,477	39,111	46,179	47,178	20,628	42,793	-22,058	16,589
New Contracts	506,135	733,549	618,203	793,278	594,091	818,161	769,680	320,626	506,293	547,826
Outstanding Contracts	671,341	982,594	1,163,256	1,506,146	1,549,813	1,767,814	1,772,036	1,192,625	1,019,621	886,601
Financial Position at Year-End										
Total Current Assets	335,220	283,538	319,464	376,172	460,231	575,886	533,538	522,747	480,866	532,974
Total Current Liabilities	208,023	137,728	174,293	205,771	262,439	333,353	286,533	225,203	226,458	215,773
Total Assets	480,279	430,176	468,502	526,169	628,757	746,102	719,754	689,782	646,292	685,002
Total Net Assets	224,488	246,140	264,483	291,042	336,083	379,882	388,496	419,673	383,260	395,779
Shareholders' Equity	223,887	245,819	263,983	290,415	335,534	374,654	387,480	418,695	382,215	394,701
Cash Flow										
Net Operating Cash Flow	36,595	-25,179	48,214	97,847	85,010	120,576	-71,416	-49,764	-28,884	5,539
Investment Cash Flow	-26,457	-19,823	116	-18,746	-28,370	-18,728	-23,411	8,696	-12,979	11,737
Financing Cash Flow	472	-8,893	-7,317	-20,536	-3,695	-10,687	3,836	-4,374	-19,674	33,782
Cash and Cash Equivalents at End of Year	174,281	123,808	161,894	222,556	284,777	385,252	297,707	247,947	185,603	235,394
Financial Highlights										
ROA (Return On Assets) (%)	10.4	9.0	14.1	14.6	12.6	12.2	6.1	7.4	-2.3	3.7
ROE (Return On Equity) (%)	14.6	11.5	10.0	14.1	14.8	13.3	5.4	10.6	-5.5	4.3
Net Income per Share or Net Loss per Share (–)(in yen)	124.76	107.25	100.83	154.90	182.91	186.90	81.73	169.60	-87.42	65.75
Cash Dividends per Share (in yen)	30.0	21.0	30.0	38.5	45.5	46.5	21.0	42.5	30.0	25.0
Gross Margin Ratio (%)	16.0	14.6	18.2	15.6	13.5	13.1	6.6	8.3	0.2	6.2
Operating Income Ratio or Operating Loss Ratio (%)	11.5	10.1	14.2	12.0	10.3	10.1	3.7	5.6	-3.1	3.0
Shareholders' Equity Ratio (%)	46.6	57.1	56.3	55.2	53.4	50.2	53.8	60.7	59.1	57.6
Current Ratio (%)	161.1	205.9	183.3	182.8	175.4	172.8	186.2	232.1	212.3	247.0
Payout Ratio (%)	24.0	19.6	29.8	24.9	24.9	24.9	25.7	25.1	_	38.0
ESG Indicators										
Number of incidents of leaks of hazardous substances, etc. (Domestic and overseas construction sites)	0	2	1	0	0	0	0	0	0	1
Number of women in management positions	_	_	_	3	5	10	11	15	17	19
Rate of frequency of accidents accompanied by lost work time (%)*2	_	-	-	0.014	0.010	0.004	0.012	0.015	0.012	0.022

\*1: As a consequence of applying "Accounting Standard for Business Combinations" (ASBJ Statement No. 21, September 13, 2013), "Net income" is referred to as "Net income attributable to owners of parent" from the fiscal year ended March 2016 onward
 \*2: Rate of frequency of accidents accompanied by lost work time = Number of accidents accompanied by lost work time × 200,000 ÷ Total project working hours

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## Chapter 2 **Value Creation**



**Business Segment Earnings Highlights for the Last Five Years** 







## **Total Engineering Business**



#### Business Overview

Despite some uncertainties, the operating environment in the oil & gas area improved in fiscal 2017, supported by moves in oil and gas-producing countries to restart capital investment programs due to the stable crude oil price since 2016. In the oil & gas area, the EPC business worked to establish a firm position in offshore projects and improve project execution capabilities. With demand for energy likely to continue increasing, spurred by population growth and rising living standards in emerging economies, we expect investment in major LNG projects and other facilities to gain momentum again.

#### **Orders Received in Fiscal 2017**

Major orders in fiscal 2017 included a Floating Liquefied Natural Gas (FLNG) facility offshore the Republic of Mozambique and a large-scale LNG plant construction project in the US (order amount to be booked in 2019). We secured the orders on the back of our leading track record in



JGC is currently involved in one of the world's largest LNG plant construction projects in Sabetta in Russia's Yamalo-Nenets Autonomous District.

Plant facilities designed to operate in the extremely cold environments, module transportation via the Northern Sea route using icebreakers, and challenging construction conditions in the Yamal peninsula, which is above the Arctic Circle, combine to make Yamal LNG a very tough project. Despite those challenges, shipments from the plant's first train left Yamal as planned in December 2017. JGC is currently drawing on all its resources to complete the second train before the end of 2018 and the third train in the first half of 2019.

the LNG field and client recognition of our strong project management capabilities and engineering technologies. We also won an order to build a natural gas processing plant in Indonesia with subsidiary JGC Indonesia.

#### **Project Overview**

Client	Yamal LNG
Location	Sabetta, Yamalo-Nenets Autonomous District, Russia
Capacity	16.5 million tons / year (5.5 million tons x 3 trains)
Contract type	Hybrid lump-sum and cost-reimbursement contract
Project implementation structure	Joint-venture group headed by Technip FMC (France), with JGC and Chiyoda Corporation (Japan)



As the operator of the Ichthys LNG Project, the first large-scale LNG project to be undertaken by a Japanese company, INPEX CORPORATION commissioned a joint venture group headed by JGC and including KBR of the U.S. and Chiyoda Corporation of Japan to carry out the Engineering, Procurement and Construction (EPC) work.

A module construction method was adopted for this project, with modules built at fabrication yards and transported onsite. Project execution therefore required a high level of expertise to manage construction. The first train and the second train were completed in 2018.

#### Project Overview

Client	Ichthys LNG
Location	Darwin, Northern Territories, Australia
Capacity	8.9 million tons / year (LPG: 1.6 million tons / year, condensate: 100,000 barrels / day (peak output))
Contract type	Hybrid lump-sum and cost-reimbursement contract
Project implementation structure	Joint-venture group headed by JGC, with KBR (US) and Chiyoda Corporation (Japan)



JGC secured an order in June 2017 to construct a Floating Liquefied Natural Gas (FLNG) facility offshore Mozambique. It is the world's fourth FLNG facility to reach Final Investment Decision (FID) and the first in Africa. The construction of FLNG plants is a highly complex process with numerous technical challenges. Currently, only JGC and one other contractor worldwide have experience in FLNG topside work\*.

In Mozambique, one of the world's major offshore gas fields was discovered in recent years and multiple LNG and other gas-related projects are currently under consideration. We hope that this project will serve as our foothold in expanding our operations in the country.

#### Project Overview

Client	Coral FLNG		
Location	Coral gas field, offshore, Republic of Mozambique		
Capacity	approx. 3.4 million tons/year		
Contract type	Lump-sum contract		
Project implementation structure	Joint-venture group headed by Technip FMC (France), with JGC and Samsung Heavy Industries Co. Ltd. (Korea)		

\*True FLNG plants that can be positioned in high seas and with gas liquefaction processing capacity of several million tons from a single train.



JGC was awarded an order to construct the US Gulf Coast (USGC) ethylene plant in 2013. The plant has one of the world's largest gas crackers fed by shale gas (at time of order) and is the first large engineering, procurement and construction (EPC) project won by JGC in the US. JGC worked with leading US engineering firm Fluor on EPC execution. The project faced a number of challenges, including worse-than-expected weather conditions and a shortage of skilled labor due to the shale oil and gas boom in the US. Despite those issues, the project was completed in December 2017 and production started in March 2018.

Building on that success, JGC is now actively targeting the large number of planned investments in LNG and gas chemical plants in the US that will use local price competitive gas.

## the Total Engineering Business



Client	Plant type	Country/region
1 Yamal LNG	LNG plant	Sabetta, Russia
2 Ichthys LNG	LNG plant	Darwin, Australia
3 Petronas	Floating LNG plant	Sabah, Malaysia
🚯 Saudi Aramco	Oil refinery	Jazan, Saudi Arabia
5 Kuwait National Petroleum Company	Oil refinery	Ahmadi, Kuwait
6 Sonatrach	Gas boosting separation and compression facilities	Hassi R'Mel, Algeria
7 Banagas	Gas processing plant	Awali, Bahrain
8 Sarangani Energy	Thermal power plant	Sarangani, Philippines
9 Pacifico Energy	Solar power plant	Okayama, Japan
10 Karumai East Solar	Solar power plant	lwate, Japan



#### Project Overview

Client	Chevron Phillips Chemical			
Location	Baytown, USA			
Capacity	1,500,000 T/Y			
Contract type	Hybrid lump-sum and cost-reimbursement contract			
Project implementation structure	Joint-venture group headed by JGC with Fluor Corporation (US)			

Client	Plant type	Country/region
1 Karumai West Solar	Solar power plant	lwate, Japan
12 Muroran Biomass Power Generation	Biomass power plant	Hokkaido, Japan
13 Sumitomo Chemical	Chemical plant	Ehime, Japan
14 Jordan Cove LNG	LNG plant	Oregon, US
15 Coral FLNG SA	Floating LNG plant	Coral, Mozambique
16 Sonatrach	Crude oil gathering and processing facilities	Hassi Messaoud, Algeria
17 PT Pertamina EP Cepu	Gas processing plant	East Java, Indonesia
18 Gia Lai Electricity	Solar power plant	Gia Lai, Vietnam
LNG Canada	LNG plant	British Columbia, Canada

## Infrastructure Area

#### Business Overview

In fiscal 2017, the operating environment in the infrastructure area saw a large number of overseas power generation projects move into the execution phase in China, India, Southeast Asian countries and other emerging economies, where population growth and rising living standards are spurring increased demand for electricity. In Japan, solar power, biomass and other renewable energy projects were implemented and there was sustained investment in pharmaceutical plants, hospitals and other facilities in the life sciences area.

Under the current medium-term business plan, we are actively working to establish our business in the infrastructure area as a second key source of earnings in the core EPC business. Specifically, we are focusing on securing more orders in three areas – energy infrastructure such as power plants, industrial infrastructure such as non-ferrous metals refining plants, and social infrastructure such as pharmaceutical plants, medical facilities and airports.

#### Orders Received in Fiscal 2017

In fiscal 2017, we won more orders in Japan for solar power plants, continuing the trend from fiscal 2016. In the pharmaceutical area, where we have more than 20 years of experience, JGC was awarded orders to build an antibody drug ingredient plant and a pharmaceutical plant. In the healthcare area, we secured orders to construct new general hospitals and expand existing hospitals. Overseas, JGC was awarded one of Vietnam's largest-ever solar power plant orders. Vietnam has launched a feed-in tariff system to promote wider use of renewable energy. Leveraging our expertise from the delivery of numerous solar power

plants in Japan, we intend to actively target orders for solar power plants in Vietnam and other markets in Southeast Asia. We plan to roll out marketing activities in the infrastructure area overseas to secure more orders for energy infrastructure such as solar power plants, as well as orders for chemical plants and other industrial infrastructure in Southeast Asia and social infrastructure such as new airports currently being planned for West Asia and Southeast Asia.

#### Projects Under Way in Fiscal 2017

Mega-solar Power Generation Plant

In March 2018, JGC and its subsidiary JGC Vietnam were awarded a contract by Gia Lai Electricity a subsidiary of the TTC Group, to construct a mega-solar power plant with output of 49MW (equivalent to the annual electricity consumption of about 47,000 households in Vietnam). JGC and its subsidiary are now working to complete the project by autumn 2018. The Vietnamese government formulated its 7th Power Development Plan (PDP7) in 2011 and the country is promoting increased use of renewable energy, with a plan to lift the generation capacity of solar power to 12,000MW by 2030. Using the order as a foothold, we intend to make an all-out move into the power generation area in Vietnam's energy infrastructure market.



#### Project Overview

Client	Gia Lai Electricity	
Location	Krong Pa District, Gia Lai Province, Vietnam	
Capacity	approx. 49MW (AC)	
Contract type	Lump-sum contract	



Rendering of completed hospital

In May 2017, JGC was awarded a contract to redevelop Kumagaya General Hospital in Kumagaya, Saitama by Hokuto Social Medical Corporation. Construction work started in June 2017.

The project is located in the north of Saitama Prefecture, which has been affected by a lack of healthcare provision. The upgraded hospital will have the latest technologies and medical equipment, allowing it to provide advanced medical care. A new integrated PET\* treatment center opened in July 2018 ahead of the hospital's full operational date. We plan to start construction of the new hospital buildings in 2019 to complete the project in time for the grand opening in autumn 2020.

#### **Project Overview**

Client	Medical Corporation Kumagaya General Hospital	
Location	Kumagaya, Saitama Prefecture	
Capacity	310 beds	
Contract type	Lump-sum contract	

\*Integrated positron-emission tomography (PET) treatment center: An oncology facility equipped with advanced medical equipment such as radiation therapy systems and cuttingedge PET scanners that can effectively detect early signs of cancer.

#### Biomass Power Plant

In 2016, JGC was awarded an EPC contract by JXTG Nippon Oil & Energy Corporation to construct one of Japan's largest biomass power generation plants (output of approximately 74.9MW) in Muroran, Hokkaido. As the project operator, JGC will also support the plant's safe and stable operation. Since starting construction work in August 2017, JGC has been pushing ahead with engineering work, such as installing equipment at the plant in summer 2018, aiming to complete the project in time for the planned start of commercial operation in spring 2020.

#### Project Overview

Client	Muroran Biomass Power Generation	
Location	Muroran, Hokkaido Prefecture	
Capacity	approx. 74.9MW	
Contract type	Lump-sum contract	



Rendering of completed plant

In June 2017, JGC was awarded an EPC contract by integrated pharmaceutical manufacturing company Tamura Pharmaceutical for a new solid formulation plant. The new plant will make and supply over-the-counter medicines and pharmaceuticals for external clients and strengthen Tamura Pharmaceutical's manufacturing framework. JGC is currently working towards an end-June 2019 completion date.

The new plant is designed to comply with GMP\* standards in both Japan and overseas. People and material flows will be completely separate to prevent contamination risk and automated handling systems will improve speed of operation and productivity, ensuring Tamura Pharmaceutical can rapidly supply large volumes of high-quality pharmaceuticals to external clients.

#### **Project Overview**

Client	Tamura Pharmaceutical	
Location	Hashimoto, Wakayama Prefecture	
Capacity	1.5 billion tablets/year	
Contract type	Lump-sum contract	

\*Good manufacturing practice (GMP): A set of international standards for quality assurance in pharmaceutical manufacturing. GMP standards cover all elements of the manufacturing process, from ingredient delivery and manufacturing through to product shipment, to ensure product safety and meet certain quality requirements.

#### Okayama Prefecture Mega-solar Power Generation Plant

In May 2017, JGC secured an order to construct one of Japan's largest mega-solar power plants in Okayama Prefecture. The plant will have an output of 257.74MW, equivalent to the annual electricity consumption of roughly 81,000 households. JGC is currently working towards delivery in autumn 2019.

JGC has not only undertaken the EPC work for a number of mega-solar power generation plants domestically, but has also operated two such facilities, providing the company with extensive experience and know-how in this area.

#### **Project Overview**

Client	Pacifico Energy	
Location	Mimasaka, Okayama Prefecture	
Capacity	approx. 257.74MW (AC)	
Contract type	Lump-sum contract	

## **Functional Materials Manufacturing Business**

#### Business Overview

The JGC Group has a functional materials manufacturing business, in addition to its core total engineering business. Functional materials manufacturing is divided into the catalysts and fine chemicals, and the fine ceramics areas.

JGC is unusual among global engineering contractors in that it focuses on engineering but also has a presence in manufacturing. However, the functional materials manufacturing business has a different business cycle to the total engineering business and it creates unique products with good prospects for stable profits, which means it plays a key role in supporting the Group's sustained growth. Given that position in the JGC Group, we continue to strengthen and expand the business.

\*The functional materials manufacturing business includes two consolidated subsidiaries, JGC Catalysts and Chemicals Ltd. and JAPAN FINE CERAMICS CO., LTD. and one equity-method affiliate, Nikki-Universal Co., 1 td

#### **Business Conditions in Fiscal 2017**

In the catalysts area, we implemented initiatives focused on winning back market share in Japan, increasing sales in export projects, and maintaining and increasing collaboration with clients. Those efforts led to growth in sales of FCC catalysts. In the fine chemicals area, demand for cosmetics ingredients and functional coating materials was firm. In the fine ceramics area, we received strong orders for components used in semiconductor cleaning equipment and OLED photolithography equipment, driven by wider use of AI, IoT and other new technologies in the domestic market. As a result, the functional materials manufacturing business reported record-high segment profit of ¥7.1 billion in fiscal 2017.



We supply various types of catalysts for different applications (oil refining, chemical, environmental, etc.) that contribute to the development of highly efficient manufacturing processes, helping to mitigate issues related to the environment, energy and resources. One example is fluid catalytic cracking (FCC), where JGC has one of the highest market shares worldwide for FCC catalysts. We also help to enhance comfort for consumers by supplying fine chemicals used in everyday products such as cosmetics and LCD displays.



Catalysts for the oil refining process (FCC catalysts)



Fine Ceramics

We supply a range of fine ceramics products that harness the mechanical and electrical properties of ceramics. Developed using unique technologies, our products meet the needs of clients in various hightech industries. One of the products we supply is silicon nitride substrate, which is a key material for electric vehicle (EV) power units and other products and is projected to benefit from growth in demand. JGC has developed a unique, advanced manufacturing process that reduces the cost of production and improves material performance compared with existing processes. We aim to leverage those strengths in manufacturing to capture a high share of the silicon nitride substrate market.



Fine ceramics products (Engineering ceramics)

## **Chapter 3**

## **The JGC Group's Strengths** and Management Base

In this chapter, we explain the four key strengths that underpin the Group's value creation, as well as steps we are taking to reinforce the management base that supports those strenaths.



Cosmetics inaredients

JGC Group's Strengths
Strengthening Human Resources
Strengthening Our Client Base
Strengthening Our Supplier Base

# **JGC Group's Strengths**

The JGC Group's four key strengths underpin our extensive track record of project implementation in the total engineering business and our range of unique products in the functional materials manufacturing business.

#### **Total Engineering Business**

#### **Engineering Technologies**

The JGC Group's wide range of advanced engineering technologies allows us to construct and deliver outstanding plants and facilities that help clients maximize investment returns. Our technologies are also supporting the growing use of hydrogen and renewable energy.

#### **Business Portfolio Covering a Wide Range** of Areas and Regions

Since it was established in 1928, JGC has built plants and facilities in more than 80 countries worldwide, mainly for the oil and gas industry, but also for other sectors such as power generation, pharmaceuticals, healthcare and non-ferrous metals refining. Our business portfolio, covering a wide range of different areas and regions, means we can respond flexibly to changes in the market, helping to support the Group's sustained growth.

## **Project Management Capabilities**

Implementing projects that optimize quality, cost and delivery while also appropriately managing various project-related risks, is the key skill for an engineering contractor. JGC is recognized as one of the best engineering contractor in the world at delivering lump-sum, full-turnkey projects.

#### **Functional Materials Manufacturing Business**

#### Advanced manufacturing technology that addresses global needs

The JGC Group's particle modification technology, materials evaluation and modification technology, and advanced production control capabilities allow us to develop and supply a range of unique products in the functional materials manufacturing field.

## Track record of more than **20,000** projects in over **80** countries worldwide



JGC has a strong record in the construction of heavy oil cracking facilities, such as fluid catalytic cracking (FCC) and hydrocracking units.

#### Ethylene





JGC is recognized worldwide for its ability to deliver ethylene plant projects, which are seen as particularly challenging due to the complex nature of the facilities.

# Large market shares in niche areas backed by unique technologies

#### Catalysts for Oil Refining and Petrochemical

The JGC Group's companies supply catalysts that support highly efficient oil refining and petrochemical processes. JGC has one of the top market shares worldwide for fluid catalytic cracking (FCC) catalysts.

#### Environmental Catalysts

The JGC Group's companies supply flue gas desulfurization catalysts that reduce environmental impact and catalysts that remove odors and harmful substances for home electronics and other applications.

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Four strengths

that maximize

the creation of social

and economic value



Liquefied Natural Gas (LNG)



JGC has constructed LNG plants with a combined total of 48 trains, equating to a market share of over 30% on a production capacity basis.

Floating Liquefied Natural Gas (FLNG) CGI image of completed FLNG plant



the world's 4 projects

The JGC Group is involved in three of the four true FLNG\* projects currently under way worldwide

\*FLNG plants that can withstand high seas in open ocean locations

#### Fine Chemicals

The JGC Group's companies use nanotechnologies to develop and supply fine chemicals used in everyday products such as cosmetics and LCD displays, contributing to the comfort of consumers.

#### Fine Ceramics

The JGC Group's companies supply a range of fine ceramics products that harness the mechanical and electrical properties of ceramics. Developed using unique technologies. JGC's products meet the needs of clients in various high-tech industries.

# Strengthening Human Resources

#### **Basic Stance**

For an engineering company with no assets such as production facilities, people are our most important business asset among the management resources that support our strengths, such as engineering technology and project management capabilities. We are proactively carrying out initiatives to enhance our training system for diverse human resources and improve working conditions.

#### Human Resources with a Wide Range of Technical Capabilities and Expertise

#### Diverse capabilities support the JGC Group's efforts to create value

JGC's human resources have technical capabilities spanning all of the various engineering fields required for plant construction projects, including information technology and chemical, civil, mechanical, electrical, control, and safety engineering, and possess project management capabilities to optimize cost, schedule and quality, as well as advanced and diverse expertise in areas such as legal/contracts and accounting/taxation.



#### JGC's human resources have a wide range of expertise

#### Human Resources We Aim to Cultivate and Outline of Personnel Management

JGC employees involved in the engineering business are required to possess advanced technical capabilities and expertise, the receptivity toward different cultures and diversity that is required to conduct operations in cooperation with multinational personnel, and the mentality to contribute to the demonstration of organizational strength, as a JGC employee and as a member of the project team.

At our head office, we endeavor to hire diverse, outstanding, and motivated

human resources both in Japan and overseas, which resonates with the significant social purpose of the engineering business, not only by hiring new graduates in Japan, but also through various methods such as hiring recent graduates who have worked for a few years, mid-career hiring, and hiring persons with disabilities. We also provide labor/benefit programs to create worker-friendly conditions and keep our employees highly motivated.



Human Resources We Aim to Cultivate

• Receptivity toward different cultures and diversity

#### 3. Demonstration of organizational strength

Building relationships of trust among employees
 Strong cance of responsibility to complete projects

• Strong sense of responsibility to complete projects

#### **Training System**

JGC conducts the training of human resources with advanced technical capabilities and expertise, receptivity to different cultures and diversity, and the mentality required for teamwork by means of a training system based on three

#### Off-JT (various training) System

We offer a wide range of training programs, such as programs aimed at providing management skills, including leadership skills, to new and midcareer employees and management, as well as programs aimed at providing



\*Specialty lectures conducted by employee volunteers with the aim of passing on techniques, skills, and experience from senior staff to young staff

**Outline of Personnel Management** 



approaches: on-the-job training (OJT), off-the-job training (OFFJT), and selfdevelopment.

knowledge and skills such as technical training, language training, and communication/negotiation training.

g management skills				Enhancing business skills
	External programs			
ng J	Management course dispatch program	Overseas con domestic training disp program	atch	English language training tailored
	Negotiation training Meeting facilitation training	Onsite	Developm	to each grade Negotiation, presentation, professional
ent	Presentation training Training in logical thinking	Onsite training	Development rotation	writing, etc.
employee training				

#### Onsite Training System

#### Preparing our employees for leadership with six-month onsite deployments

All new employees hired in the main career track are sent to construction sites in Japan and overseas for six months of onsite training. By actually seeing and experiencing the plants that represent JGC's final products and by being involved in the construction phase at an early stage in their careers, our employees gain an understanding of how the engineering documents they will help create at our Head Office are used in the plant construction process. They also experience the weight of responsibility related to ensuring quality and delivering plants to clients on schedule.

At overseas construction sites, people from many different countries often work together at a given time. Clients, vendors of materials and equipment, and subcontractors involved in plant construction each have their own approaches and value systems. Even though our new employees are just starting their JGC careers, they need to display the necessary leadership and teamwork skills to ensure onsite staff work together as a team towards the goal of completing the

#### Fiscal 2017 deployments under the onsite training system (72 employees)



plant. Experience gained from the onsite training system is invaluable in their

future roles around the world.



#### Cultivating the Mentality to Demonstrate Organizational Strength

#### Building relationships of trust beyond the boundaries of departments and year of employment

It is essential that a relationship of trust is established between the company and employees, and also among employees, in order for each employee to contribute to the demonstration of organizational strength, both as a member of JGC and as a member of the project team.

As an initiative targeting employees in the early stages of their careers, from fiscal 2018, we launched the JGC Rapport\* System to cultivate the independence of such employees, with a view toward promoting lively

communication. Groups comprising early-stage employees from different departments who joined the company in different years voluntarily plan and hold various events, such as welcome parties for new employees. We promote the establishment of relationships of trust that cross the barriers of departments and year of employment, by supporting the cultivation of a network of people of the same generation.

#### Role Play-Based Training

#### Learning early on how to optimize entire projects

In 2007, we launched a role play-based training course for employees who have been with JGC for four to nine years to give them experience in preparing project estimates and negotiating with clients. During the course, which is mainly a residential program and lasts for four and a half days, small teams are given the task of preparing a project quote and proposal documents to win a hypothetical order within a set timeframe.

The hypothetical projects used in the training are created based on experience from many past estimates and projects implemented by JGC, giving our employees a real feel for actual estimate preparation processes, despite the Off-JT environment. Every member of a JGC project team is required to understand how to optimize entire projects, rather than simply focus on their specific areas. This training is aimed at ensuring employees in the early stages of their JGC careers see the importance of taking a broad perspective, giving



#### Welfare Programs that Support a Employee-Friendly Environment

In order to enable all of the employees involved in plant construction work in the challenging environment overseas to maximize their skills, we create an environment where employees can maintain their health and work with peace of mind. We are enhancing our welfare programs through various initiatives to support health management, as well as enhancement of the leave system.

#### Home Leave and Medical Examination for Personnel Stationed Overseas

We have a system that allows employees stationed at overseas project sites and other locations to take special leave for 9 to 12 consecutive days, once every three to four months. The provision of opportunities to take home leave helps to maintain the motivation of employees who live and work in a

A term in psychology that means "a close relationship of trust."

\*Rapport

them the tools and skills to understand and optimize the bigger picture.





challenging environment that differs from Japan. We also assist employees in maintaining their health by conducting medical examinations for employees on home leave.

# Strengthening Our Client Base

#### **Basic Stance**

Since the 1950s, JGC has been constructing and maintaining plants and other facilities for oil majors and national oil companies in oil- and gasproducing countries, and a wide range of other clients in the energy infrastructure, industrial infrastructure and social infrastructure areas in Japan and overseas. When our clients decide to invest in new facilities, we put forward proposals that help them increase the value of their businesses and work to deliver the best-quality plants and facilities on budget and on time. Our long track record of success has helped us win their confidence, resulting in a strong client base.

#### Trusted by Oil Majors and National Oil Companies

#### Gaining repeat orders through steady project implementation

By steadily leading projects to completion even under difficult environments, the Company's engineering technologies and project management capabilities have become highly valued by oil majors and national oil companies around the world. Due to this strong reputation, we have received more orders for projects, and by steadily completing these projects, we have established solid relationships of trust that have led to repeat orders from these companies.

#### The JGC Group's Main Repeat Clients (Oil Majors and National (Government-Affiliated) Oil Companies)



#### Featured Projects



GTL (gas to liquids) plant for Qatar Shell GTL Completed: 2012



I NG plant for BP Berau Completed: 2009

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LNG plant for INPEX Completed: 2018



Gas gathering and separation plant for Sonatrach Completed: 2013



Oil refining plant for PetroVietnam Completed: 2009



Oil refining and petrochemical complex for Petro Rabigh (a joint venture between Saudi Aramco and Sumitomo Chemical) Completed: 2008



#### **Basic Stance**

JGC treats suppliers as partners in value creation, working with them to ensure mutual competitiveness and success through optimum quality, cost and delivery. We select suppliers based on a fair and comprehensive assessment of factors, such as quality, price, delivery, and technical capabilities, while also fully taking into account environmental considerations, human rights, health and safety, and information security during this process.

#### **Global Supply Chain**

#### Emphasizing the importance of suppliers as partners in value creation

Cooperation with partner companies in countries around the world is essential for plant construction. JGC has created a global supply chain for plant construction thanks to more than half a century of implementing numerous projects overseas. JGC treats suppliers as partners in value creation, working with them to ensure success through optimum quality, cost, and delivery.



#### Fostering a Culture of Quality

To ensure the quality of plant facilities - JGC's final products - we have to drive improvements in quality at suppliers in Japan and overseas, which make up our supply chain. To achieve that goal, it is important for our suppliers to take steps based on their own initiative. At JGC, there is no trade-off between quality and factors such as delivery and profit

#### TOPICS JGC Quality Forum

On February 5, 2018, we held the 3rd JGC Quality Forum, which provided partner companies with an opportunity to share the details and outcomes of initiatives aimed at fostering a culture of quality and to learn about new activities for quality enhancement. The forum, which was held at our Yokohama Head Office, featured a lively exchange of opinions between at least 200 participants from 44 client companies and vendors in Japan and overseas



margins. We aim to improve quality while delivering projects on time and maintaining margins. These approaches and initiatives support what we call a culture of quality, and we work hard on an ongoing basis to ensure that culture permeates throughout our supply chain.

## Chapter 4 **Environment and Society Initiatives**

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- 41 Environmental Initiatives
- 45 Working with Local Communities
- **47** Human Rights and Diversity

#### **Basic Stance on ESG**

Guided by the Group's corporate philosophy, the JGC Way (see page 1 for more details), we are targeting sustainable growth in corporate value while ensuring high ethical principles, addressing the needs of society and our clients, respecting diverse human resources and utilizing a wide range of technologies. We create environmental and social value in each phase of project implementation and through the operation of plants and facilities after completion. ESG information disclosure in this report references the Global Reporting Initiative (GRI), fourth generation (G4) stainability Reporting Guidelines and the Sustainable Development Goals (SDGs), in line with the core subjects of ISO 26000.

1000	Key Themes	JGC Group's Initiatives		
Environment	Realize a sustainable, low-carbon society •Use resources in a rational way •Address climate change issues •Protect the environment around construction sites	Engineering Environmental factors incorporated into designs (Minimize use of energy, plant materials and equipment, etc.)	Procurement       Construction         Environmental factors taken into account in transportation       Environmental factors incorporated into construction work (Conservation of ecosystems, etc.)	
Environmental Initiatives P.41-44	Related SDGs 7 Grander SDGs 12 BRANGE APRICATION APRICATION APRICATION APRICATION APRICATION APRICATION APRICATION APRICATION APRICATION APRICATION APRICATION APP	LNG plant construction Promote wider use of renewable energy	Propose environmental technologies Support wider use of hydrogen energy	
	Support economic and industrial development in emerging economies and resource-producing countries	Engineering Collaborate with overseas Group companies	Procurement     Construction       Select local materials and equipment manufacturers     Select local construction companies	
Social	8 всехл никк ала всехлание адарты всехлание адарты всехлание всехлание адарты всехлание адарты всехлание всехлание адарты всехлание адарты вс		Actively promote technology transfers (Transfer to overseas Group companies, local material and equipment manufacturers, local construction companies)	
Social Initiatives P.45-47	Improve access to energy		Construct various types of energy plants in regions worldwide	
	Respect for human rights		Use fair recruitment practices based on human rights Support diversity within Group organizations Build a global supply chain	



#### Environmental and Social Value Created by JGC

Lower emissions of greenhouse gases **Highly efficient facilities** that use less energy

#### **Equipment and facilities** that support industrial development

#### **Growth in energy supply**

Satisfying rising demand for energy, driven by emerging economies Contributing to energy security in resource-importing nations

#### Diversity

40

## **Environmental Initiatives**

#### **Basic Stance**

Economic development and population growth in emerging countries is spurring increased interest in environmental conservation, protecting biodiversity and other efforts to realize sustainable societies. Based on our belief that engineering business has an inherent role to play in conserving the environment, we understand that protecting nature and ensuring co-existence with the environment are key issues in our business activities. With that in mind, we implement a range of initiatives to protect the global environment, in line with the principles of our Environmental Policy.



#### Environmental Improvement Activities by the JGC Group

We believe it is important to solve environmental issues and support the sustainable development of society through its business activities, which also helps create corporate value and improve the Group's competitiveness. Based on this thinking, the JGC Group tackles environmental issues directly and indirectly through its business activities.



## **Common Initiatives in Project Implementation**

#### Incorporate Environmental Considerations into Designs

The JGC Group works to reduce the energy used by facilities and equipment through process designs that optimize processing flow and equipment configuration.

#### **TOPICS** Optimization Technology for a Bulk Condensate Desulfurization and Distillation System

The JGC Group has developed a technology for the bulk desulfurization of condensate (JUST<sup>™</sup> Condensate), and acquired patents in Japan and overseas. According to estimates made for a plant, this process will enable a reduction of approximately 50% in the amount of fuel gas used and a reduction of approximately 30% in the amount of electricity used during plant operations.

As use of natural gas expands due to its low CO<sub>2</sub> impact, the use of the condensate, which is obtained in association with natural gas production, will expand as well. This technology facilitates the process necessary to efficiently use the condensate as a petrochemical material. Accordingly, it is expected to contribute to an overall reduction in the environmental impact of the energy value chain.

#### Incorporate Environmental Considerations into Construction Work

#### Reduction of Environmental Impact through Efficient Construction Work

We believe that enhancing the efficiency of construction work is one of the most important initiatives that an engineering contractor can undertake, as it can yield benefits such as improved delivery management, profitability, and construction safety, as well as benefits in terms of environmental impact, including reductions in CO2 emissions due to construction machinery and power generation facilities operating for shorter amounts of time.

Based on this policy, the JGC Group will continue to pursue efficiency

#### Ecosystem Conservation around Construction Sites

The JGC Group pays careful attention to protecting the natural environments surrounding construction sites and preventing the leakage of pollutants when conducting construction projects for various facilities and equipment in regions around the world.

#### TOPICS Targeting Zero Leaks

JGC takes into account environmental considerations in every phase of plant and facility construction projects implemented by the Group in different fields around the world. At overseas construction sites, which are more difficult to manage than sites in Japan, all employees share and implement a rigorous approach to site management to prevent any leaks of contaminants. Our employees, as well as people working for construction subcontractors, undergo training to encourage a deeper understanding of this management approach. On some projects, several thousand onsite personnel participate in the training program.



during construction work, through the optimization of construction sequences and appropriate resource management, while adopting advanced concepts and technologies such as AWP\* and IoT.

#### \*AWP: Advanced Work Packaging

Advanced Work Packaging is a project management methodology proposed by the Construction Industry Institute (CII) in the US and the Construction Owners Association of Alberta (COAA) in Canada, with the aim of reducing idle time and improving construction efficiency through the centralized management (packaging) of designs, materials, and equipment information

## **Environmental Initiatives**

#### Environmental Assessments of Domestic Construction Sites

JGC conducts an annual evaluation of environmental performance at its construction sites in Japan based on three criteria: industrial waste recycling rate, number of contaminant leaks and CO<sub>2</sub> emissions per unit of energy. In fiscal 2017, JGC made good progress, achieving its internal environmental targets through concerted efforts across its project sites. Although one leak incident occurred in fiscal 2017, it was reported immediately to the relevant authorities, followed by prompt, appropriate action, essentially preventing external damage

However, CO<sub>2</sub> emissions per unit of energy during fiscal 2017 increased relative to the previous fiscal year, due to the frequent use of power generators at sites without a power supply, an increase in large-scale projects with a high proportion of civil engineering work, and an increase in the use of construction machinery and equipment.

In terms of the adoption rate of electronic manifests, although the basic policy is to select vendors that support electronic manifests, the adoption

## Projects and Technologies that Contribute to Addressing Global Warming

#### Expanded Use of Hydrogen Energy

#### Using Ammonia as a Hydrogen Energy Carrier

There are high expectations surrounding the use of hydrogen, which does not emit CO2 during combustion, in addressing energy diversification and a lowcarbon society, both of which are global challenges. However, due to many issues regarding both cost and safety involved in transporting and storing gaseous hydrogen, it must be converted into an energy carrier such as ammonia, liquefied hydrogen, or organic hydride to facilitate use.

Ammonia generates power through direct combustion and emits no CO<sub>2</sub> during the process because of its hydrogen and nitrogen composition. Also, infrastructure related to the transportation and storage of ammonia already exists. For those reasons, we are focusing on ammonia as a hydrogen energy carrier and are working to develop related technologies.

Development of a new process for ammonia synthesis using hydrogen as a raw material

The current issue with ammonia synthesis is the large volume of CO2 emissions from the process of producing hydrogen using natural gas as raw material

In order to reduce the CO<sub>2</sub> generated in conventional synthesis, the development of hydrogen production methods involving electrolysis of water using renewable energy has been anticipated. However, energy efficiency has remained an issue due to pressurization of hydrogen for conventional ammonia synthesis, which is a necessary process as synthesis using renewable energy generates hydrogen at low pressure. In response to this issue, the company has developed a new catalyst for ammonia synthesis using low pressure hydrogen, and constructed a demonstration plant for producing ammonia at lower temperatures and pressures than conventional methods, using this catalyst. Going forward, we aim to establish hydrogen power generation technologies using ammonia as a fuel, and to conduct research on the further development of these technologies aimed at commercialization.

#### Use of Ammonia as a Hydrogen Energy Carrier



#### rate is lower than last year, due to a lack of transport vendors or intermediate processing vendors capable of supporting electronic manifests in some of the regions where projects were under way.

(EV

#### Environmental Performance Indicators for Domestic Construction Sites

Environment indicators		Units	2013	2014	2015	2016	2017
Industrial waste recycling rate	Result (Target)	%	94.2 (97.0)	94.1 (97.0)	96.3 (98.0)	98.1 (97.0)	97.7 (97.0)
Number of leaks of hazardous substances, etc.	Result (Target)	Leaks	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)
CO2 emissions per unit of energy	Result (Target)	kgCO2/ hour	0.58 (0.9)	0.63 (0.9)	0.64 (0.9)	1.43 (0.8)	3.52 (0.8)
Adoption rate of electronic manifests	Result	%	-	-	79.4	96.0	64.2

#### Contributing to the Wider Use of Renewable Energy

#### Construction and Operation of Solar Power Plants

The JGC Group has been involved in the construction of 17 solar power plants, including projects still under way. The combined output of the plants is nearly 700 MW, or enough to power roughly 220,000 households for one year. JGC is one of the most experienced contractors in Japan's solar power plant construction market. In addition to construction work. the JGC Group provides plant operation and maintenance services and is involved in solar power plant operation helping to spur wider uptake of solar power in Japan through its involvement in various phases of solar power businesses.

Leveraging our wealth of experience in solar power plant construction and operation in Japan, we are also working with JGC subsidiaries around the world to actively target solar power plant construction projects overseas. In March 2018, we received an order for one of the largest megasolar power plant construction projects in Vietnam, and are currently constructing a power plant that will produce the energy equivalent to the annual consumption of 47,000 general households in Vietnam

#### Development of Power System Technologies

Accompanying the expansion of renewable energy power generation in Japan, various challenges have emerged that have an impact on the power system (the system that integrates power generation, transformation, and transmission, and the distribution of electricity), including output fluctuations and surplus power. The company is working

#### **TOPICS** Power Systems Technologies Being Developed

#### Virtual Power Plant (VPP)

A virtual power plant (VPP) is an approach that aims to stabilize the power system and make surplus power profitable by aggregating multiple distributed power sources (renewable energy power sources, such as solar and wind power, storage batteries, privately-owned power generation facilities, etc.) and running them as a single virtual power source.

The company is using its technologies and expertise as an engineering company to develop a system that aggregates and controls distributed power sources and makes flexible adjustments depending on the balance between supply and demand.

#### Solar Storage

Solar storage is a system for storing power generated from solar energy and discharging during rainy weather, cloudy weather and at nighttime, smoothing the distribution of solar power. One of the features of our solar storage system is that it can be mounted regardless of the form of the power conditioner (PCS), as it also stores the output that exceeds the capacity of the PCS for conversion of a direct current (DC) power supply into an alternating current (AC) power supply.

Through these initiatives, the JGC Group will drive wider use of renewable energy in Japan and overseas and help create a recycling-oriented society that addresses issues related to climate change.



to develop new power system technologies, such as the virtual power plant (VPP) and solar storage, in order to achieve a balance between continuing the expansion of renewable energy uses and stabilizing the power system.





## **Working with Local Communities**

#### **Basic Stance**

The JGC Group recognizes it has a responsibility to contribute to the development of society through our business, in addition to increasing economic value. We are working to fulfill our corporate social responsibility while always seeking to coexist with society. Through our projects, we will contribute to the sustainable development of society, including regional communities, by creating employment opportunities and implementing various activities such as education, training and guidance programs for local workers.



#### Industrial Development in Countries where Plants are Located: a Case Study in Malaysia

#### Constructed Plant Serving as a Basis for Regional Industrial Development

The Bintulu LNG Complex, which is owned by Malaysia's state-owned oil company Petronas, is one of the largest LNG production centers in Asia. The facility currently has nine trains with a combined annual LNG production capacity of roughly 26 million tons. For more than 30 years, starting in the 1980s, JGC has carried out engineering, procurement, construction and commissioning (EPCC) work for all the plant's nine trains, as well as ongoing work to increase capacity and upgrade facilities after completion.

The Bintulu region in Sarawak, Malaysia, where the complex is located, is currently one of the major regions for the oil and gas industry in Malaysia, and the LNG plant which was constructed by JGC has played a central role in the industrial development of this region.





#### Actively Procuring Materials and Equipment from Malaysian Manufacturers

In the construction of the LNG plant in the Bintulu region of Sarawak, Malaysia, we have not only created jobs for many construction workers, but have also contributed to the development of industry surrounding the plant, through active business with local materials suppliers and equipment manufacturers.

When placing orders with local manufacturers for equipment that requires a high degree of precision, we dispatch our engineers to the manufacturing plant in order to provide technical assistance, depending on the manufacturing capabilities of local facilities and the skill levels of local engineers, and help them acquire new technologies. Such efforts, which contribute to the growth of Malaysian materials suppliers and equipment manufacturers, have received high praise from Petronas, a state-owned oil & gas company.

#### **TOPICS** Vendor Technical Support Group Activities

In the Train 9 LNG plant construction project for Petronas that was completed in 2017, we stationed engineers from JGC vendor technical support group at four manufacturers in Malaysia from the start of the project to provide production support for a total of 140 units of equipment weighing 3,000 tons, including towers, vessels, and heat exchangers.

Thanks to the technical assistance provided based on comprehensive judgments made regarding the capabilities of each manufacturer and the difficulty of the ordered equipment, these relatively inexperienced manufacturers succeeded in manufacturing equipment that fulfilled the quality requirements, on schedule. The new track record established through this project will help these manufacturers to obtain equipment orders for other projects. The company views the positive relationships with suppliers that have been achieved as a result of these efforts as valuable business partner assets, and for this reason, actively provides technical assistance to manufacturers.



Training for welders

#### Promoting the Transfer of Technologies

#### Initiatives by Overseas Group Companies

The JGC Group has established Group companies overseas and actively promoted the transfer of technologies to employees of these Group companies through our engineers, and in doing so, has contributed to the development of the engineering industry in the respective countries.

#### **TOPICS** Initiatives at JGC Philippines

As part of efforts to increase corporate value, JGC Philippines has implemented initiatives on an ongoing basis to enhance the capabilities of its engineers. The company has trained engineers in the latest design technologies through courses at its own offices and JGC's Head Office and given them opportunities to gain project experience and skills through deployments to some of JGC's projects worldwide. Outstanding engineers are actively promoted to division manager positions, as well as senior manager roles, helping to increase motivation and lovalty

This ongoing program has enhanced the engineering skills of JGC Philippines as an engineering base. The company is now also capable of implementing EPC projects after securing a construction license in the Philippines in 2016 (AAAA category).

#### • Cultivating the next generation of human resources with partners in academia

JGC Philippines offers internships as part of its social initiatives. After undergoing training in office and general skills, interns are given practical experience by participating in actual projects while rotating between various departments. The internship program has led to various links with local universities and colleges, giving JGC Philippines the opportunity to contribute to local communities and the development of human resources in the Philippines.

#### Training Programs for Human Resources in Resource-Producing Countries

Over the past several decades, the company has conducted various training programs for engineers and students specializing in fields such as chemical engineering from resource-producing countries for the purpose of strengthening relationships with such countries. Many of the participants in these programs have contributed to resource development and industrial development in their own countries after returning home, which has also led to increased business for the company with these countries.

#### Selected Training Programs Finished in Fiscal 2017

Companies and universities	Number of trainees accepted	Duration
State Oil Company of the Azerbaijan Republic	6	8 months
King Fahd University of Petroleum and Minerals (Saudi Arabia)	4 to 6	2 to 8 months
Mozambique Ministry of Mineral Resources, and others (*1)	14	1 month
National oil / gas companies, etc. (*2)	126	Half to a few days

\*1 Contracted project from the Japan Oil, Gas and Metals National Corporation \*2 Contracted project from the Japan Cooperation Center Petroleum





Although the contents of these programs differ according to the objectives and learning outcomes set by companies and universities that send participants to the program, as well as the training period, the programs primarily consist of practical lectures and OJT in project management and various design technologies that take advantage of our characteristics as an engineering company with an extensive project completion track record in countries around the world.



Trainees from Mozambique he company's Chairman & CEC and President & COO)

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## **Human Rights and Diversity**

#### Basic Stance

Fair personnel management that emphasizes human rights is fundamental to the JGC Group. We are working to enhance the diversity of our workforce through equitable recruitment practices and personnel systems that give a greater role to non-Japanese personnel, seniors, people with disabilities and female employees. JGC is also implementing various measures to respect different lifestyles, increase the motivation of every employee and create working environments that enable all personnel to maximize their skills and potential, which will be vital to create different types of value and drive sustained growth.

Systems and measures

to create a healthy work-life

balance that respects different lifestyles



Promoting diversity

and increasing employee

motivation to

drive new value creation

#### **Personnel Diversity**

JGC's large overseas projects rely on teamwork between many different specialists and human resources with diverse cultural backgrounds and values – teams that genuinely embody diversity. JGC believes diversity is a crucial ingredient in creating social and economic value and is actively implementing various measures to promote even greater diversity in the workforce.

#### Promoting Global Recruitment

JGC is hiring more people from different countries to work at its head office in order to strengthen its ability to implement multinational projects. We run recruitment campaigns at universities overseas and actively hire exchange students in Japan. Around 100 foreign employees from over 20 different countries currently work at the head office, accounting for more than 4% of head office staff. As our workforce has become more international, we have taken steps to respect different cultures and make the working environment welcoming for everyone, such as providing a prayer room for Muslim employees.

#### Supporting Active Careers for Seniors

In 2000, JGC has raised the mandatory retirement age to 65 to create workplaces where motivated older employees can continue to work with peace of mind, giving them the opportunity to utilize their extensive experience and specialist knowledge and play an active role for as long as possible. In addition to continuing their main duties, senior staff pass on their skills, provide advice and make a major contribution to the training of young engineers.

#### Recruiting People with Disabilities

Under a law designed to promote the employment of people with disabilities, JGC is actively working to achieve legally stipulated employment ratios for disabled employees. Efforts are also being made to upgrade and improve workplace environments to cater for different types and levels of disability. JGC is creating employment opportunities for people with disabilities and as a part of those initiatives, has introduced a health keeper system (in-house therapeutic nurses) to help manage the health of employees.

#### Empowering Women

JGC has introduced a family care system and taken other steps to improve working conditions for women. By working with the Kanagawa Women's Career Support Group and talking to our female employees, we aim to encourage wider use of these systems. We are also taking steps to boost career awareness among female employees, providing more opportunities for them to fulfill their potential and promoting them to leadership positions. The number of women in management positions is increasing each year. We are also working to raise awareness of our industry as a sector where women have job opportunities, for example by holding company briefing sessions for new graduates aimed specifically at female students.

Number of women	n manage	ment positions
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				(F1)
2013	2014	2015	2016	2017
10	11	15	17	19

# Chapter 5 Management Structure

In this chapter, we look at JGC's management structure, which supports the Group's value creation. The chapter includes a dialogue with outside directors and explains how we are reinforcing corporate governance, risk management and compliance.



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Special Interview

## Outside Director Dialogue

In fiscal 2017, JGC returned to profit after a net loss in the previous fiscal year. There are also emerging signs of a recovery in the plant facility market. Against that backdrop, outside directors Shigeru Endo and Masayuki Matsushima evaluate JGC' s business results and corporate governance in the past year and discuss issues that need to be tackled to ensure sustained growth.



Shigeru Endo × Masayuki Matsushima

#### Profile

- Apr. 1974 Joined the Ministry of Foreign Affairs
- Apr. 2001 Director-General, Middle Eastern and African Affairs Bureau
- Feb. 2002 Director-General, Consular and Migration Affairs Department
- Aug. 2003 Ambassador to The Permanent Mission of Japan to the United Nations and Other International
- Organizations in Geneva and Consul General, Consulate General of Japan in Geneva Mar, 2007 Ambassador extraordinary and plenipotentiary to the Republic of Tunisia
- Jul. 2009 Ambassador extraordinary and plenipotentiary to are republic of run Jul. 2009 Ambassador extraordinary and plenipotentiary to Saudi Arabia
- Oct. 2012 Retired from the Ministry of Foreign Affairs
- Jun. 2013 Outside Director, JGC CORPORATION (current post)
- Jun. 2013 Outside Director, INO KAIUN KAISHA, I TD. (current post)
- Apr. 2014 Special Assistant to the Minister for Foreign Affairs (current post)

#### Significant Positions Concurrently Held

•Outside Director, IINO KAIUN KAISHA, LTD. •Special Assistant to the Minister for Foreign Affairs

#### Profile

Apr. 1968 Joined Bank of Japan
Jun. 1998 Executive Director, in charge of the Bank's International Affairs
Jun. 2002 Senior Advisor, the Boston Consulting Group
Feb. 2005 Senior Executive Advisor, Credit Suisse Securities (Japan) Limited
Jun. 2008 Chairman, Credit Suisse Securities (Japan) Limited
May 2011 Senior Advisor, the Boston Consulting Group
Jun. 2011 Outside Director, Mitsui O.S.K. Lines, Ltd. (current post)
Sep. 2014 Senior Advisor, Integral Corporation (current post)
Jun. 2016 Outside Director, JGC CORPORATION (current post)

#### Significant Positions Concurrently Held

Outside Director, Mitsui O.S.K. Lines, Ltd.
 Senior Advisor, Integral Corporation

Q1 In June 2017, Tadashi Ishizuka was appointed President and COO with the key mission of turning round the EPC business. Since then, the Company has implemented a range of measures to achieve that goal. How well has JGC done in the past year?

## It was a solid first year for the new President. His focus on tighter management bodes well for the future.

**Endo** In the year since he was appointed President to tackle JGC's losses in fiscal 2016, Tadashi Ishizuka has made steady progress, announcing a string of concrete initiatives to address issues that caused the losses. The Company has also moved quickly to implement those initiatives. That helped JGC move back into profit in fiscal 2017. Amid a recovery in the plant facility market, JGC secured an order for a major LNG plant in Canada in early fiscal 2018. In the last year, Mr. Ishizuka has also been focusing on tighter project management, which is

extremely important for JGC right now. Signs of that approach are already appearing, but I hope to see even clearer evidence of tighter management in the project implementation process and in project outcomes.

Matsushima I'm sure Mr. Ishizuka faced plenty of challenges in his first year as President, but I think he has made a good start. Positive signs started to emerge in fiscal 2017 results, but I expect to see even clearer signs as the Company pushes ahead with his initiatives.



JGC has decided to refocus its energies on its core EPC business. In line with that policy, assets accumulated through business investments, which had become an area of concern, have been streamlined, and the Group's structure and thinking is increasingly EPC-oriented. That process has only just begun, but I think Mr. Ishizuka has made a very strong start in his first year.

Q2 What is your view on the new tighter approach to project management, and are there any comments by Mr. Ishizuka during board meetings that left a strong impression?

## Mr. Ishizuka is a man of action. He is focusing on restoring JGC's earnings capabilities and technical skills.

**Endo** I understand that Mr. Ishizuka has been talking to many mid-career and younger employees as part of his efforts to change JGC's approach.

He's held face-to-face meetings with around 400 employees, providing an excellent opportunity to communicate his strategy and talking directly to employees. That personal approach speaks volumes about Mr. Ishizuka's character.

My long-held view is that JGC needs to increase its earnings capabilities. From that perspective, I give high marks to Mr. Ishizuka for the way he has been personally approaching clients to highlight JGC's technical superiority in the plant facility market. When a new project order was reported to the board, I asked Mr. Ishizuka why the client selected JGC. His answer was very clear – technical skills and expertise made all the difference. The way he has been encouraging JGC to emphasize its technical strengths to increase earnings capabilities left a strong impression on me.

■ Matsushima After listening to Mr. Ishizuka's remarks at board meetings, my overriding impression is that he's a man of action – somebody who backs up his words with meaningful actions. That type of strong leadership is also having a positive impact on employees working around him.

In meetings with project leaders, he often asks them where the risk is in

their projects and what they are doing to manage that risk. With the recent major LNG plant order in Canada, it's very clear to me that Mr. Ishizuka is doing everything in his power to make sure we don't take our eye off the ball and complete the project successfully.

He is adept at seeing to the heart of any issue, which helps him develop and implement measures in the right sequence and timing to solve any problems. In fiscal 2017, JGC focused first on rebuilding the Group's earnings capabilities. In the next two years, I hope we can build on that progress and address longer-term issues, such as improving personnel training and reinforcing our technical skills.



Q3 Over the last year, JGC steadily strengthened corporate governance to support the Group's sustained growth and development. What is your take on those efforts?

## JGC has taken some pragmatic steps to improve corporate governance.

**Endo** JGC, like many companies, is strengthening corporate governance as a natural part of supporting sustained growth and increasing corporate value. I support the various steps JGC is taking to make the Board of Directors more effective, as well as broader efforts to upgrade corporate governance on an ongoing basis.

Meanwhile, to remain a truly global company, JGC also has to focus on

creating a business model that can address the needs of emerging economies, such as tackling environmental issues and transferring technologies, given rising international interest in ESG and the sustainable development goals (SDGs).

Those are areas where we can leverage our strengths as an engineering company and play a meaningful role by providing value to society.

Matsushima JGC made some good improvements to corporate governance in fiscal 2017, such as enhancing reporting to the Board of Directors and giving outside directors and outside auditors more opportunities to observe EPC projects overseas. The role of outside directors is to provide oversight and advice to the board from an outside perspective. However, I think we should be involved more in tackling the Group's longer-term challenges, which would contribute to JGC's corporate value, rather than focusing on short-term management issues. I hope more proposals related to the Group's long-term strategic direction and vision are referred to the board so that outside directors can also play a part in the discussions.

#### Q4 Please tell us about your visit to the Ichthys LNG Project construction site in Australia in fiscal 2017.

#### The scale of the construction site and plant facilities is incredible.

Endo In short, the visit was inspiring. Motivation was high among onsite staff, with young JGC employees doing an excellent job of running large morning meetings involving many site workers. In Darwin, workers are responsible for connecting modules made by yards in China, Thailand and other countries to tolerances of 1 millimeter. Seeing the high level of sophistication and skills with my own eyes was a revelation.

Matsushima I was amazed by the scale of the construction site and plant facilities. When we met JGC's onsite project team leader, he was working extremely hard to complete the facilities while keeping on top of numerous elements of the project. The team leader's role is to generate profits from the project by responding to any unexpected event and

managing numerous resources, including the assets of equipment manufacturers and subcontractors. Seeing first-hand the challenges that staff face onsite brought home to me the complexity and social significance of JGC's EPC business.



JGC's outside directors and outside auditors attend a project briefing by onsite staff

**Q5** The EPC market is picking up again amid signs of a recovery in capital investment by state-run oil companies and oil majors. Against that backdrop, what issues does JGC need to address to maintain growth over the medium and long term?

## We need resilience and business acumen to sustain long-term growth.

**Endo** We live in uncertain times. When we look back on 2018, I think we will see it as only the first step on the road to recovery.

To remain competitive amid widespread uncertainty in the international community, we have to make our organization more resilient. We will no doubt make mistakes or take a tumble, but we have to strengthen our ability to bounce back and recover from any setbacks by improving our project management skills, technical expertise and workforce skills. Increasing the resilience of our employees is vital to strengthening our workforce.

Advances in AI and IoT are not only changing the way we work, but also raising questions about what it means to be a true professional in our industry. These are questions that we need to seriously consider as a

company.

**Matsushima** As a company active in the global market, we need to raise our game in two key areas. The first is business acumen. To reliably deliver projects in today's highly uncertain and fluid international business environment, we have to do more than simply avoid risk. JGC needs to improve its business acumen to understand country risk and a whole host of other risks. That means carefully analyzing what type of risks our business faces and where those risks are likely to come from as part of the risk management process.

The second is multifaceted thinking. Today's world maps are largely based on the 16th century Mercator projection, but looking at the world using satellite imagery and other modern viewpoints shows more clearly that around 70% of the earth's surface is covered by ocean. That hints at the opportunities in the offshore space – a potentially vast market for JGC. And just as our concept of time in Japan differs to the way it is perceived in other countries and regions, there are contrasting viewpoints in the plant sector about the outlook for the oil and gas sector. Some say the oil and gas era is over, while others say there are still major opportunities for growth, spurred by rising demand for natural gas. In short, JGC has to be less myopic - and I include myself in that - and use a multifaceted approach to tackle issues in its business.

**Endo** JGC is anchored by a workforce of highly capable people. They are our greatest strength.

The plant facility market is on track for recovery, but we have to consistently put the highest priority on training personnel, whatever the conditions in the market. As an outside director, I plan to make my views clear on how JGC should improve the mindset and actions of its employees.

**Matsushima** I believe one of my jobs as an outside director is to give JGC's executives and employees a fresh perspective by introducing different opinions from outside the company. Most of all, I intend to actively give advice to the board about how I think JGC should sustain growth over the medium and long term.



## **Corporate Governance**

#### **Basic Stance**

JGC's priority management goal is to achieve sustained improvement in corporate value. To realize that goal, we need a corporate governance system that ensures fair, transparent and efficient management in order to win and retain public trust. JGC is also working to strengthen compliance in accordance with the values of the JGC Group, which stress upholding high ethical principles and acting with honesty. Going forward, we will continue to engage with shareholders and investors while also monitoring the effectiveness of the Board of Directors, designing appropriate executive remuneration systems and improving compliance.

We will also further enhance corporate governance to support sustained growth in corporate value in response to the Corporate Governance Code, which was revised on June 1, 2018.

#### **Corporate Governance Framework**

JGC is a company with a Board of Directors and an Audit & Supervisory Board. We have also introduced an executive officer system to clarify responsibility and authority in business execution and to improve the speed and efficiency of decision-making and business execution. To reinforce management oversight and enhance transparency, we have appointed outside directors and outside audit & supervisory board members who satisfy the criteria for independent officers. The main elements of JGC's corporate governance system are described below.

#### Board of Directors

The Board of Directors has 11 directors, including two outside directors. The Company's five audit & supervisory board members, including three outside members, also attend meetings, which are held once a month in principle.

#### Audit & Supervisory Board

The Audit & Supervisory Board has five members, including three outside audit & supervisory board members. In principle, meetings are held once a month.

#### Nominating Committee and Remuneration Committee

Outside directors sit on the Nominating Committee and the Remuneration Committee to enhance fairness and transparency in decisions related to executive

appointments and compensation. In principle, the committees meet once a year.

#### **Operations Steering Committee**

In principle, the Operations Steering Committee meets twice a month to discuss items related to business execution by JGC and the JGC Group. The committee is made up of members appointed by the president. Audit & supervisory board members also attend meetings.

#### Strategy Committee for EPC/Business Investment Projects

In principle, the council meets once a month to discuss tender strategies related to JGC's and the JGC Group's EPC project and business investment. The council mainly comprises directors and executive officers.

#### **Investment and Loan Committee**

In principle, the committee meets once a month to discuss JGC's and the JGC Group's investments and loans. The committee mainly comprises directors and executive officers.

#### Independent Auditor

The certified public accountants (CPA) who audit JGC's accounts are Michitaka Shishido and Yoshinori Saito of KPMG AZSA LLC. Four other CPAs and eight other individuals assist in carrying out these audits.



#### Status of Internal Control System

JGC's Board of Directors determines the basic principles of the internal control system and revises them as necessary. The Internal Auditing Office monitors, evaluates and improves the effectiveness of the internal control systems of JGC and the JGC Group and conducts separate audits as necessary. We have also formulated rules assigning management

#### **Executive Remuneration**

The basic principle of executive remuneration at JGC is to attract the necessary management personnel to increase JGC's global competitiveness as an engineering company and to deliver sustained growth in corporate value. In line with that principle, remuneration received by executives is decided within the limits approved at the 113th Ordinary General Meeting of Shareholders held on June 26, 2009. Currently, the combined upper limits are ¥690 million for directors and ¥88 million for audit & supervisory board members.

Remuneration for directors comprises fixed remuneration and performance-based remuneration. The fixed portion is determined by the position and duties of the director. The performance-based portion is paid from a total pool of up to 1% of net income for each fiscal year and is designed to incentivize directors to improve the Company's earnings. In the mainstay EPC business, it typically takes several years for projects to

#### Breakdown of Executive Remuneration

		Breakdown of remuneration, etc.					
Category	Total value	Fixed re	muneration	Performance-based remuneration			
outogory	of remuneration, etc.	Number of eligible executives	Total amount provided	Number of eligible executives	Total amount provided		
Ten directors (Outside directors not eligible)	394.57 million yen	Ten	322.05 million yen	Nine	72.52 million yen		
Two audit & supervisory board members (Outside audit & supervisory board members not eligible)	33.60 million yen	Two	33.60 million yen	-	-		
Five outside executives (Two outside directors and three outside audit & supervisory board members)	39.12 million yen	Five	39.12 million yen	-	-		

(Note 1) The figure for fixed remuneration above includes remuneration for one who stepped down at the conclusion of the 121th Ordinary General Meeting of Shareholders held on June 29, 2017. (Note 2) As of the end of fiscal 2017, the Board of Directors comprised 11 directors (including two outside directors) and the Audit & Supervisory Board comprised five audit & supervisory board members (including three outside audit & supervisory board members)

authority, which regulate the duties and authority of executives and employees, resulting in clear lines of responsibility in corporate management and business execution. We have also formulated and implemented management rules for Group companies to ensure efficient and appropriate operations across the Group.

be delivered from the time orders are received. Given the nature of the EPC business, we take into account medium- to long-term improvements in corporate value when evaluating operations supervised by each director and their contribution to earnings in each fiscal year. To ensure objectivity in performance evaluations, the contribution to earnings is discussed and decided by the Assessment Committee, which includes outside directors. Outside directors receive only fixed remuneration to ensure they appropriately oversee management from a standpoint that is independent of business execution.

Audit & supervisory board members also receive only fixed remuneration due to the Audit & Supervisory Board's position as an independent body overseeing the executive actions of directors to ensure the appropriate operation of the corporate governance system.



# **Risk Management**

#### **Basic Stance**

The JGC Group classifies risks that inhibit sustained corporate growth into two categories: "corporate risk" associated with the survival of the company and safety of employees, such as natural disasters, large-scale accidents, violations of laws and ordinances, and information leakage, and "project risks" that significantly impact income (loss). The JGC Group has established a management system to comprehensively reduce risks by systematically assessing and managing the management items and risk items specified in each category.

In particular, among JGC's businesses, overseas sales in the total engineering business generates more than 80% of total net sales, and as such, we recognize that it is essential to expeditiously and appropriately respond to various risks in countries where we implement projects and surrounding areas.

#### Role of Risk

Category Details	
Corporate Risk	Risks associated with the survival of the company and safety of the lives of employees
Project Risk	Risks associated with project profitability and the income (loss) of the company as a whole

#### **Corporate Risk**

JGC undertakes maximum efforts on a daily basis to mitigate and prevent risks, mainly at the Corporate Administrative & Financial Affairs Division, Security Management Office, Quality Assurance, Safety & Environment Office, Legal & Compliance Office, and other corporate affairs divisions, as well as the Data Intelligence Division. At the same time, when risks materialize, JGC works to minimize the impact of, and loss from such risks, by responding expeditiously and appropriately.

#### Risk area

Risk area
Natural disaster
Large-scale accident
Act of terrorism
Deterioration of work environment
Violation of laws and ordinances
Information leakage

#### Response to corporate risk

**Response policy** <At the time of prevention> Mitigation and prevention of risks <At the time of materialization> Minimize the impact through an appropriate and expeditious response

#### **Department in charge**

Corporate Administrative & Financial Affairs Division (General Affairs Dept., Public Relations & Investor Relations Dept., Finance & Accounting Dept., Talent & Organization Development Dept., Group Companies Management Office)

Legal & Compliance Office

Security Management Office

Data Intelligence Division

Quality Assurance, Safety & Environment Office

#### **TOPICS** Ensuring the safety of employees as a top priority

JGC recognizes that protecting its employees, who represent its only asset, from natural disasters, large-scale accidents, acts of terrorism, and other risks and ensuring their safety is a top-priority risk measure. We are able to provide 24/7 support in times of emergency, in order to ensure the safety of employees who make more than 5,000 overseas trips each year and roughly 500 personnel who are stationed overseas in 30 countries. In addition, during normal times, we proactively conduct activities to prevent such risks, including reinforcement of the collection and analysis of information on local conditions. enhancement of preventive measures, and implementation of awareness-raising activities.

#### **Project Risk**

The occurrence of risks during project execution may not only adversely affect the profitability of the project, but also significantly impact the income (loss) of the company, as a whole.

JGC has long been making efforts to strengthen its risk management capabilities in project execution. We conduct risk evaluation/analysis

#### Project Risk Management Flow

Identification
Risk area
roject Estimate/ lection bidding stage stage
Feasibility of project plan pertise,
berience of services
Requirements and difficulty level of the technology and untry risk delivery schedule
Whether or not there is excessive
signment
Supply-demand trends for materials and equipment
Whether or not
npetitive collaborators

#### Information Security Response to Prevent Information Leakage

Handling large volumes of information (specification documents, design plans, reports, etc.) is a natural part of project execution, in particular. Much of this information consists of confidential data, including the know-how of clients and business partners. Protecting such information is one of our expected responsibilities.

We continuously invest in information-related systems, including information security measures, to prevent the leakage of confidential data of clients and business partners.

(risk assessment) of projects during the project selection and bidding stage, and formulate a risk control policy for each risk area at the project planning stage. Risk management is then carried out, based on that policy during project execution.



## Compliance

#### **Basic Stance**

Governance

Guided by our corporate philosophy, the JGC Way, the JGC Group has positioned compliance as the cornerstone of management, based on two keywords in its list of shared values – Respect and Integrity.

As a member of the international community, the JGC Group believes that compliance with the laws of Japan and all other countries where the Group operates, as well as fair and equitable business practices in accordance with corporate ethics, are essential to the pursuit of sustainable business development. Based on this belief, the Group has developed the JGC Group Code of Business Conduct. The code, which must be followed by all employees, contains key points to ensure that the JGC Group's corporate philosophy is implemented in practice.

#### Establishing the JGC Group Code of Business Conduct

Although the company formulated the Code of Business Conduct in 2002, since then the demands of society towards compliance efforts required of companies have become more diverse and in-depth. In April 2018, the JGC Group revised the previous Code of Business Conduct in response to these changes in social conditions, and established the new JGC Group Code of Business Conduct in order to make its contents more comprehensive and concrete.

This JGC Group Code of Business Conduct specifically indicates the standards for actions and decisions that we should follow, as we put our corporate philosophy, the JGC Way, into practice.



The JGC Group Code of Business Conduct http://www.jgc.com/en/01\_about\_jgc/ code\_of\_business\_conduct.html

#### **Group Compliance System**

The JGC Group has established a Group compliance system that ensures business activities conform to the highest ethical principles at all Group companies. Each Group company has appointed compliance officers,

creating a single contact point for compliance issues in order to improve the effectiveness of compliance activities. The compliance officers are responsible for evaluating compliance risks specific to their companies and develop and implement compliance measures tailored to those risks. Compliance officers from across the Group regularly meet to share information and promote closer cooperation, while also working to develop systems and implement measures that raise awareness about compliance issues. In fiscal 2017 compliance officers from domestic and overseas Group companies gathered at our Head Office and in Singapore (JGC SINGAPORE PTE LTD) to attend Group Compliance Conferences. The conferences featured lively discussions about the issues and risks faced by each company, as well as ideas about effective measures to resolve and mitigate risks and issues.



Compliance personnel of JGC and overseas Group companies

#### The Key Compliance Personnel Program

Since the beginning of fiscal 2017, we have deployed key compliance personnel to each department for the purpose of promoting mutual communication between the JGC Compliance Office and our employees, in order to foster an awareness of compliance. During fiscal 2017, we held activities led by these key compliance personnel to check the knowledge and compliance awareness in each department, and to provide feedback from the JGC Compliance Office regarding questions and opinions received from employees in this process. These key compliance personnel have also led activities such as making posters with managers of all departments at the company pledging to observe compliance, as well as displaying these posters in common areas within the company.

#### Measures to Prevent Bribery

JGC works to ensure fair business practices, in line with its basic policy of complying with all anti-bribery rules and regulations, such as provisions in Japan's Unfair Competition Prevention Law prohibiting the bribing of foreign public officials, the US Foreign Corrupt Practices Act (FCPA) and

		The JGC Group's cor
	T	he JGC Group Code o
		Bribery Preventic
Regulations to prevent bribery by employees		Regulations to prevent bribe
Gifts, entertainment and travel policy	]	Anti-corruption policy for internation
Policy on charitable donations	]	Anti-corruption policy
Policy on political contributions	]	Anti-corruption policy for ve

#### Preventing Bribery by Suppliers and Subcontractors

JGC requires all suppliers and subcontractors to comply with rules and regulations prohibiting bribery. Before starting a business relationship with a company, JGC assesses the company's links with public officials and evaluates its governance and compliance systems. Business partners are also required to sign declarations or business contracts agreeing

#### Initiatives in Regions with a High Risk of Bribery

JGC addresses risks specific to each project, conducting assessments at the bidding stage to identify the risk of bribery in the order and implementation phases of each project.

For projects in regions with a high risk of bribery, the JGC Compliance Office takes a rigorous approach, visiting construction sites midway through project implementation to conduct intensive monitoring, evaluate efforts to prevent bribery and recommend any necessary improvements. ent Base 🛛 Environment and Society Initiatives



Posters on display

the UK Bribery Act 2010.

The table below shows the JGC Group's regulations and programs related to preventing bribery, based on provisions in the JGC Group's corporate philosophy and Code of Business Conduct.

#### rporate philosophy

#### of Business Conduct

#### on Regulations

#### ery by business partners

Re

onal commercial representative

y for joint ventures

endor and subcontractor

egulations to ensure effective operation of bribery prevention programs
Rules related to the JGC Group Compliance Hotline
Bribery risk management guidelines
Bribery prevention training guidelines
Compliance monitoring guidelines

to JGC's anti-bribery policy and stating a commitment that they will not engage in bribery. In cases where the risk of bribery is deemed to be high, JGC conducts a further round of rigorous due diligence and only decides to begin a business relationship if all concerns have been completely eliminated.

## Number of EPC projects under way, order backlog in countries ranked in bottom 20 in Corruption Perceptions Index

	2013	2014	2015	2016	2017
Number of EPC projects under way	2	2	2	1	1
Outstanding contracts (Billions of yen)	31.3	27.7	24.1	23.4	23.1



#### **Compliance Training**

JGC conducts compliance training programs tailored to different employee grades and topics in order to raise compliance awareness.

#### Objectives and number of participants (course completion rate) for employee grades-based training

	Objective	2013	2014	2015	2016	(FY) 2017
New employees	Acquire essential knowledge about compliance as a member of society and learn about JGC's compliance systems	86	95	105	67	81
(April and October)		(100%)	(100%)	(100%)	(100%)	(100%)
Basic compliance training	Acquire fundamental understanding of compliance, learn about global trends and understand issues related to compliance during project implementation	_	_	48 (8%)	117 (27%)	80 (40%)
Intermediate compliance training	Acquire compliance knowledge needed for managerial positions and	44	84	46	67	21
	consider corporate ethics issues	(51%)	(53%)	(54%)	(62%)	(74%)
High-level compliance training	Understand the role senior managers need to play to foster ethical	21	78	19	13	20
	corporate behavior and rigorous compliance	(74%)	(73%)	(80%)	(84%)	(89%)

\* The low course completion rate for basic compliance training is mainly due to the relatively recent start of the course (fiscal 2015). JGC aims to improve the completion rate by continuing to implement the course

(EV)

#### Topic-Based Training

In addition to grade-based training, JGC runs topic-based training targeting specific areas of compliance, such as bribery, anti-social forces, anti-monopoly law and business ethics for engineers. These courses are designed for specific employee groups and are run intensively at certain times to achieve the greatest impact. They typically pinpoint key topics, such as risk areas identified in internal compliance awareness surveys or risk assessments, or issues raised by corporate scandals in the news.

Courses are led by employees with in-depth experience in each field or by external experts. The hybrid programs of lectures, workshops and case study methods ensure thorough learning and long-term awareness of each topic.

In addition, in fiscal 2017, harassment workshops were held for multiple departments and three Group companies, further strengthening internal training initiatives.

#### Number of topic-based training courses and participants

	2013	2014	2015	2016	2017
Number of courses	8	8	19	14	13
Participants	220	312	600	434	418

JGC Group Compliance Hotline

We have established the JGC Group Compliance Hotline to help rapidly identify, mitigate and prevent compliance risks. The hotline allows employees to seek advice or report any concerns related to compliance violations or activities that may constitute a violation of compliance rules. Any reports or requests for advice about violations are investigated thoroughly and appropriate responses or feedback are implemented and provided on a timely basis.

Extreme care is taken to ensure whistleblowers do not suffer detrimental treatment

#### Number of Reports Received by Hotlines

2013	2014	2015	2016	2017
2	3	5	12	18

The JGC Group Compliance Hotline has two contact points - one internal (English language) and one external (Japanese language).

The former is run by the Compliance Department and the latter by a thirdparty organization that specializes in whistleblower reporting. Employees can report concerns anonymously by phone or email.

Gray is almost black

0120-075-538

JGC

Internal Whistleblowing System Publicity poster



# **Quality Management System**

#### **Basic Stance**

In our business, quality assurance is an essential part of achieving safe plant operation and stable production. Led by the Quality Assurance Committee, JGC's quality management system is designed to achieve continuous improvements in quality. Each department and section sets its own quality targets and works to address quality issues, aiming to nip any issues in the bud and identify underlying causes as part of a proactive stance on resolving quality issues.

#### Using QMS to Improve Quality Performance

JGC obtained ISO 9001 certification for its quality management system (QMS) in 1993. At the time, QMS certification was essential, especially for overseas projects, and we worked to acquire and retain QMS certification from a third-party certifying body.

Since 2009, we have implemented fundamental QMS reforms and actively improved our organization on a continuous basis, led by the Quality Assurance Committee, with the aim of improving organizational performance as appropriate to the type of work performed.

Every year, JGC's president releases an operating policy. This policy is treated as a quality policy by each department and section, which set

#### **Quality Assurance Committee**

The Quality Assurance Committee meets monthly and reports directly to the president. The committee is chaired by the senior general manager of the Design Engineering Division and comprises executive-level general managers.

The Quality Assurance Committee implements a range of remedial measures to ensure the quality of products and services provided to clients consistently meets their specifications.

It also evaluates the impact of those measures to drive ongoing improvements.

Once a year, the president conducts a management review of the Quality Assurance Committee's activities, with the president leading efforts to continuously improve the quality assurance organization.



quality targets in line with the policy. Each fiscal year, they identify any organizational issues and formulate operating policies and action plans ("Plan"), implement them ("Do"), evaluate them ("Check") and improve them on the basis of the evaluation process ("Act"). This PDCA cycle is designed to drive continuous improvement in organizational performance. ISO 9001 was significantly revised in 2015. Using that as an opportunity to further improve JGC's organizational performance, we revised our QMS in line with the updated 2015 version of ISO 9001 and started operation of the new QMS in February 2017.

#### **Role of Quality Assurance Committee**





# **Occupational Health and Safety**

#### **Basic Stance**

Safety is one of the highest priorities for an engineering contractor. In accordance with JGC's Health and Safety Policy, and under the leadership of senior management, JGC works to prevent worksite accidents and traffic accidents involving its own employees and those of partner companies. In the last few years, our Incident- and Injury-Free (IIF) activities, which are implemented at all worksites, have achieved a dramatic improvement in awareness about occupational health and safety and traffic safety at construction projects in Japan and overseas. Going forward, we will continue to rigorously enforce worksite and traffic safety measures across the JGC Group.

#### **Basic Policy**

We established universal principles for HSSE and formulated the JGC Group Basic HSSE\* Guidelines with a view toward sharing them with the whole JGC Group, and distributed them to employees across the JGC Group. In project execution conducted by the JGC Group in Japan and overseas, we undertake sincere initiatives related to HSSE as a common pursuit that is in line with these guidelines, an attitude which has been highly appreciated by our clients.



To create safe, secure and healthy workplaces in which all staff can carry out their functions with confidence

**HSSE Slogan** Respect & Care



 Be a willing observer of basic rules. •Be mutually supportive, and appreciate the contributions made by others

- Be prepared to take the lead
- ' HSSE stands for Health, Safety, Security and the Environment.

#### **HSSE** Organization

The HSSE Committee discusses and deliberates on important safety matters for the whole JGC Group. It also reports to the Operations Steering Committee chaired by the president. Matters decided by the HSSE Committee are promptly implemented by the Company's divisions. An audit group appointed by the chairman of the HSSE Committee is tasked with conducting health and safety audits at principal construction sites in Japan and overseas and submits audit reports to the Operations Steering Committee

#### **HSSE** Organization



#### **HSSE Management System**

JGC has established a mechanism to systematically monitor the status of activities, in order to ensure that measures based on the HSSE Guidelines are implemented at construction sites. Through a PDCA cycle of formulating measures based on JGC's HSSE Guidelines ("Plan"),

implementing them ("Do"), monitoring and evaluating them ("Check"), including internal audits conducted twice per year, and providing guidance and making corrections ("Action") at construction sites, we are aiming to continuously raise the level of HSSE across the entire JGC Group.

#### HSSE Management System Process Flow

Phase 1	Phas
Identification of major risks and measures Review of the necessary documents and health, safety, and environment management plan for commencement of initial construction Planning of education at the time of entrance and special education regarding dangerous tasks Planning and thorough communication of emergency responses Deployment of guidelines concerning the health, safety, and environment management required for initial construction	<ul> <li>Planning of the contact method, of health, safety and environment mana</li> <li>Establishment of basic worksite rules environment management</li> <li>Implementation of a waste managem</li> <li>Risk management meetings, regis major risks, and formulation of meaning</li> </ul>
Stage 2 Evaluation of implementation status a	and corrections Three months a
Stage 2 Evaluation of implementation status a Phase 4	and corrections Three months a Phase

#### Overview of Fiscal 2017 Activities

In fiscal 2017, under the leadership of top management, we implemented activities to further increase an awareness of HSSE among JGC Group employees, with the aim of further disseminating the JGC Group Basic HSSE Guidelines, which were formulated in 2015, within the Group. We have introduced a new program called "Starting Strong," and made a commitment to ensure safety from the start of a project, by all of the staff involved in the project

Regarding Groupwide disaster statistics for 2017, the Lost Time Incident Rate (LTIR)<sup>\*1</sup> was 0.02, while the Total Recordable Injury Rate (TRIR)<sup>\*2</sup> was 0.14, both of which fell within the targets. However, regarding major disasters, due to one fatal accident each at projects undertaken in Japan and overseas in fiscal

#### JGC Safety Day 2017

#### JGC Safety Day Campaign

From June to July every year, JGC conducts a Groupwide campaign that focuses on traffic and construction site safety. In addition to the Yokohama Head Office, this campaign covers all of the Group's construction sites, offices and affiliates in Japan and overseas.

At the HSSE Forum/Conference held at our Yokohama Head Office on July 25, 2017, representatives from the Group's work sites and overseas bases each explained the safety activities and initiatives that were carried out with a focus on "Returning to basics," and held lively discussions to enhance HSSE performance. During the campaign period, a poster contest was held based on the theme of safety for the JGC Group's employees and their families, in an effort to raise HSSE awareness across the entire Group.



Management Structure 🗌 Data Section

2017, we failed to achieve our priority target of zero fatal accidents for two consecutive years. Based on this result, we are currently running a Groupwide campaign aimed at eliminating major disasters.

On the other hand, regarding our road safety program, as a result of the thorough enforcement of our Seven Golden Rules for Safe Driving, no major traffic accidents occurred.

#### \*1 Lost Time Incident Rate (LTIR)

= (Number of accidents accompanied by lost work time) x 200,000 / (Total project working hours) (OSHA base)

#### \*2 Total Recordable Injury Rate (TRIR)

= (Total number of recordable accidents) x 200,000 / (Total project working hours) (OSHA base)



HSSE Conference held on July 25, 2017



IR Initiatives in Fiscal 2016

(i) Promote dialogue by the new president

increase corporate value.

have promoted dialogue by

the new president through

carefully explaining not only

the new president's operating

policy, but also the specific

initiatives, achievements, and

humanity of the president,

(ii) Enhancing the disclosure of information

among other points.

# **IR** Activities

#### **Basic Stance**

In response to the needs of all of our shareholders and investors, we

conducted IR activities last fiscal year with a particular awareness of the

following four points, in order to realize continued growth and further

In the fiscal year that ended March 31, 2017, JGC reported losses in

its core EPC business in the oil and gas area. A new president was

appointed to tackle the urgent task of rebuilding the EPC business. In the IR activities following the appointment of the new president, we

president.

With the aim of holding constructive dialogue with our shareholders and

investors, we began disclosing the contents of Q&A conducted in results

briefings and conference calls, as well as summaries of financial results,

on our website. In this manner, we enhanced the fairness of opportunities

Press conference to announce the appointment of the new

The JGC Group recognizes that dialogue (engagement) with shareholders and investors is vital to increasing corporate value. Based on this premise, we proactively provide information to stakeholders through the timely disclosure of information, business briefings by senior management, Q&A sessions at results brief also listen carefully to the opinions of shareholders and investors regarding our busi management, in order to further increase corporate value and create the right condition JGC, over the long term.

to access information that

affects investment decisions,

while enhancing the disclosure

of information.

briefin	gs, and o	other mean	is. We		Dir
siness,	and refle	ect feedbac	k into		
tions fo	or stably	holding sha	ires in		
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#### Investor Relations (IR) information is shown on the JGC website

No. of

No. of

2810

#### (iii) Changes in market conditions

The plant market was weak due to a decline in motivation for capital investment by clients, as a result of a drop in the crude oil price from late 2014. However, since the crude oil price has stabilized since 2016, the market is beginning to shift toward a recovery. We conducted IR activities with the intention of giving investors hope for JGC's mediumto long-term growth, by carefully explaining in detail this trend in market conditions to the stock market.

#### (iv) Enhancing the Integrated Report

Main IR Activities

We identified improvements to be made through dialogue with ESG investors, for the purpose of enhancing the contents of the Integrated Report. Through this effort, we enhanced the contents of ESG-related information with the cooperation of relevant departments in the company, in addition to JGC's value creation model. As a result, in 2017, JGC was selected for publishing a "Most-improved Integrated Report" by the domestic asset managers entrusted by the GPIF.

#### Annual IR Activity Schedule



	uounny	cases	companies
1	Response to request for information, phone calls from institutional investors in Japan / overseas	192	216
2	Results briefing conference call	2	113
3	Results briefing by senior management	2	119
4	ESG-related meetings	4	4
5	Oversease IR road shows by senior management	2	11

#### **Management Structure**

(As of June 28, 2018)

Representative Chairman and Chief Masavuki Sato Executive )irectors Officer (CEO) President and Chief Tadashi Ishizuka Operating Officer (COO) Senior Executive Vice Yutaka Yamazaki President and Chief Project Officer (CPO) irectors Tsutomu Akabane Satoshi Sato Eiki Furuta Chief Financial Office Kiyotaka Terajima (CE0) Masanori Suzuki Tetsuya Muramoto Outside Shiaeru Endo Director Masayuki Matsushima Outside )irector Audit & Yukihiro Makino Supervisory **Board Members** Yasumasa Isetani Masao Mori Outside Auditor Koichi Ohno Outside Auditor Norio Takamatsu Outside

Senior Executive

Vice Presidents

Executive

Officers

Yutaka Yamazaki\*

Tsutomu Akabane\*

routornu / itabario
Satoshi Sato*
Eiki Furuta*
Hitoshi Kitagawa
Kiyotaka Terajima*
Kenichi Yamazaki
Masanori Suzuki*
Shigeru Abe
Terumitsu Hayashi
Yasuhiro Okuda
Masurao Fujii
Akio Yoshida
Tetsuya Muramoto*
Masahiro Aika
Hisakazu Nishiguchi
Nobuhiro Kobayashi
Toru Amemiya
Masayasu Endo
Yuji Tanaka
Takaya Matsuoka
Aya Yamazaki
Yasuharu Yamaguchi
Takuya Hanada
Takeshi Kawasaki
Tadashi Yamagishi
Hiroyuki Ishizaki
Mutsuto Tone
Yutaka Yamanaka
Katsuki Yamamoto
Katsuki Yamamoto Shoji Yamada
Shoji Yamada
Shoji Yamada Akira Sugiyama

\*Concurrently Serving as Director

## **ESG Data Highlights**

This table introduces our initiatives related to the environment, society, and governance (ESG) and our key performance indicators (KPI).

Initializes related number of anomaly set of head and submitted in anomaly set of anomal		JGC's main KPI	Units	Fiscal 2013	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017
Iteration         Iteration         N         74.2         74.1         76.1         76.1         77.2           Interaction         Interaction         Interaction         Interaction         0         0         0         0         0         1           Environment Interaction         Interaction         Space (1)	Report on Environmental Initiatives (E)							
etc. (Dimension and personal construction sites)         inclusions         0			%	94.2	94.1	96.3	98.1	97.7
Initiality         Important         <			Incidents	0	0	0	0	1
Inviorance         Energy consumption (Violational Hadding)         Courts of the approximate protocol         Courts of the approximate protocol <thcourts approximate="" of="" protocol<="" th="" the="">         Courts of the</thcourts>			kgCO <sub>2</sub> /hr	0.58	0.63	0.64	1.43	3.52
- printing the principal set of the set		Rate of diffusion of electronic manifests	%	-	-	79.4	96.0	64.2
Line with Our Boulcess       Beach Purchasing (Mochane Head Offici)       Nm       100 </td <td rowspan="2"><ul><li>Contribution to environmental protection</li><li>Environmental Improvement Activities in</li></ul></td> <td>Energy consumption (Yokohama Head Office) (*1)</td> <td></td> <td>2,908</td> <td>2,770</td> <td>2,579</td> <td>2,405</td> <td>2,248</td>	<ul><li>Contribution to environmental protection</li><li>Environmental Improvement Activities in</li></ul>	Energy consumption (Yokohama Head Office) (*1)		2,908	2,770	2,579	2,405	2,248
Initializes related to human rights and balances         Number of sensing provide the sensing provide human Field Office         1,000 MM         19,058         17,112         16,195         15,257         14,0           Consumption of chilled welf by Yokohama Head Office         1,000 MM         8,617         8,252         8,021         8,886         9,11           Volume of waste disposal by Yokohama Head Office         1,000 MM         8,617         8,252         8,021         8,886         9,11           Report on Social Initiatives (5)         Number of women in management positions         Persons         10         11         15         17         15           Report on Social Initiatives (5)         Number of women in management positions         Persons         10         11         15         17         15           Report on Social Initiatives (6)         Number of women in management positions         Persons         10         11         15         17         15           Report on Social Initiatives (6)         Number of women in management positions         Persons         10         11         15         17         15           Number of ensition in an adage childcave lines (Mile         Persons         71         85         77         26         100         27         10         27 <td< td=""><td></td><td>%</td><td>100</td><td>100</td><td>100</td><td>100</td><td>100</td></td<>			%	100	100	100	100	100
office         1         1000 NM         17,112         16,173         13,833         14,43           Consumption of stam by Yokohama Head Office         1000 MJ         8,617         8,252         8,021         8,8866         9,11           Valuer of vacatic dipocal by Yokohama Head Office         5         65.4         63.2         66.6         64.9         65.5           Report on Social Initiatives (5)         Number of vacatic pays and office         5         65.1         63.2         66.6         64.9         65.5           Number of vacatic pays and office         5         10         11         15         17         15         18.1         1.8         1.9 <td< td=""><td>Promotion of the Zero Emissions Initiative</td><td>Yokohama Head Office power consumption</td><td>1,000 kWh</td><td>7,530</td><td>7,308</td><td>6,720</td><td>5,974</td><td>5,571</td></td<>	Promotion of the Zero Emissions Initiative	Yokohama Head Office power consumption	1,000 kWh	7,530	7,308	6,720	5,974	5,571
Volume of weste disposal by Yokohama Head Office         1.000 kg         3.09         2.58         2.24         2.09         2.11           Report on Social Initiatives (5)         Number of women in maragement positions         Persons         10         11         15         17         15           Report on Social Initiatives (5)         Number of women in maragement positions         Persons         10         11         15         17         181         18.8           Number of molyopest of popolyses (7)         Persons         191         209         208         189         185           Number of employmees taking Dilicare lever (Male)         Persons         0         2         1         2         8           Number of employmees taking Dilicare lever (Male)         Persons         75         76         72         811         81           Number of employmees taking Dilicare lever (Male)         Persons         119         113         125         115         12           Support for employmees taking Dilicare lever (Male)         Persons         119         113         125         115         12           Support for employmees taking Diricare lever (Male)         Persons         11         2         2         1         115         115         12			1,000 MJ	19,058	17,112	16,195	15,857	14,071
Report on Social Initiatives (S)         Number of women in management positions         Persons         10         11         15         17         115           Report on Social Initiatives (S)         Number of women in management positions         Persons         10         11         15         17         15           Run de or polyces (The po		Consumption of steam by Yokohama Head Office	1,000 MJ	8,617	8,252	8,021	8,886	9,153
Report on Social Initiatives (S)         Number of works in management positions         Persons         10         11         15         17         18           Rate of employment of people with disabilities         %         1.70         1.91         1.75         1.81         1.81           Number of the employment of non-Japanes employees tain giving employees employemployees employees employees employees employemploy		Volume of waste disposal by Yokohama Head Office	1,000 kg	309	258	224	209	212
Number of women in management positions         Persons         10         11         15         17         19           Rate of employees call         employees (**)         Persons         191         2.09         2.08         189         15           Number of re-employees (**)         Persons         191         2.09         2.08         189         15           Number of mon-lagarese employees (**)         Persons         0         2         1         2         8           Number of emathemployees (**)         Persons         0         2         1         2         8           Number of emathemployees (**)         Persons         0         2         1         2         8           Number of emathemployees (**)         Persons         0         2         1         2         8           Promotion of diversity         •         Number of emathemployees taking probleme taking pr		Rate of recycling of waste by Yokohama Head Office	%	65.4	63.2	66.6	64.9	65.7
Rate of employment of people with disabilities       %       1.70       1.91       1.75       1.81       1.8         Number of re-employee employees for       Persons       191       209       208       189       15         Number of employees taking childcare leave (Male)       Persons       0       2       1       2       8         Number of employees taking childcare leave (Male)       Persons       0       2       1       2       8         Number of employees taking childcare leave (Male)       Persons       0       2       1       2       8         Number of employees taking spousal childbirth leave       Persons       75       76       72       81       81         Person of on diversity       Number of employees taking temporary refirment       Persons       1       2       1       115       12         Number of employees taking temporary refirment       Persons       3       2       4       8       24       8       24       8       24       115       12       115       12       115       12       115       12       115       12       12       12       12       14       8       26       72       115       12       12       9       6 </td <td>Report on Social Initiatives (S)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Report on Social Initiatives (S)							
Number of re-employed employees <sup>10</sup> Persons       191       209       208       189       15         Number of re-employees taking projects <sup>10</sup> Persons       71       85       97       94       100         Number of remployees taking projects taking project		Number of women in management positions	Persons	10	11	15	17	19
Number of non-Japanese employees 120       Persons       71       85       97       94       10         Number of employees taking childcare leave (Male)       Persons       0       2       1       2       8         Initiatives related to human rights and taking childcare leave (Male)       Persons (%)       12 (94.7)       20 (100)       27 (96)       24 (11)         Promotion of diversity       Number of employees taking shildcare leave (Male)       Persons (%)       12 (94.7)       20 (100)       27 (96)       24 (11)         Promotion of diversity       Number of employees taking shildcare leave (Male)       Persons (11)       113       125       115       12         • Support for employee career formation       Number of employees taking thing unsing care leave       Persons (11)       1       2       2       1         Number of employees taking employees taking thing unsing care leave       Persons (11)       1       2       2       1         Number of employees diving reduced hours for persons (0)       0       1       1       2       2       1         Number of employees distarched to oversas       Persons (11)       125       98       62       72         Number of employees distarched to oversas       Persons (11)       10.309       206,831       185,433 <td></td> <td>Rate of employment of people with disabilities</td> <td>%</td> <td>1.70</td> <td>1.91</td> <td>1.75</td> <td>1.81</td> <td>1.82</td>		Rate of employment of people with disabilities	%	1.70	1.91	1.75	1.81	1.82
Number of employees taking childcare leave (Male)Persons02128Number of employees taking childcare leave (Male)Persons (%)12 (94.7)20 (100)29 (100)27 (96)24 (1Initiatives related to human rights and tabolNumber of employees taking sicks or injured childcarePersons7576728181Number of employees taking sicks or injured childcarePersons11911312511512Support for employee career formationNumber of employees taking nursing care leavePersons324820Number of employees taking emporary refirement for nursing carePersons11221Number of employees taking emporary refirement for nursing carePersons3733374442Number of employees working reduced hours for nunsing carePersons00112Rate of utilization of annual leave%4850535355Number of employees dispatched for onsite training/ norstie instructionPersons33255Number of employees dispatched for onsite training/ in instein emprotedNumber of employees dispatched for onsite training/ instruction110,00 hrs.140,309206,831185,433128,03681,0Number of employees dispatched to overseas companies, etc.Persons33121489Number of employees dispatched for onsite training/ 		Number of re-employed employees (*2)	Persons	191	209	208	189	159
Initiatives related to human rights and labor precises       Number of employees taking sublace labor tawe)       Persons (%)       12 (94.7)       20 (100)       29 (100)       27 (96)       24 (1         Initiatives related to human rights and labor precises       Number of employees taking sublace and buildbirth leave support for realization of work-life balance       Persons (%)       12 (94.7)       20 (100)       29 (100)       27 (96)       24 (1         Number of employees taking sublace and provides       Number of employees taking sublace and provides       Persons (%)       12 (94.7)       20 (100)       29 (100)       27 (96)       24 (1         Number of employees taking sublace and provides       Number of employees taking running care leave       Persons (%)       12 (94.7)       20 (100)       29 (100)       27 (96)       24 (1         Number of employees taking sublace and provides       Persons (%)       12 (94.7)       20 (100)       29 (100)       27 (96)       24 (1         Number of employees taking number of provides taking number of provides taking number of provides       Persons (%)       12 (94.7)       20 (100)       29 (100)       27 (96)       24 (1         Number of employees taking number of provides taking number of provides taking number of provides       Persons (%)       12 (94.7)       20 (100)       29 (100)       27 (96)       24 (10)         Number of emplo		Number of non-Japanese employees (*2)	Persons	71	85	97	94	100
Initialities related to human rights and tape practices Formotion of diversity Support for enployee taking spousal childbirth leave practices Formotion of diversity Support for enployee taking spousal childbirth leave practices Support for enployee career formation Mumber of employees taking spousal childbirth leave practices Support for enployee career formation Mumber of employees taking reduced hours for or unusing care Number of employees taking reduced hours for pursting care Number of employees taking reduced hours for pursting care Number of employees taking reduced hours for pursting care Number of employees dispatched for onsite training/ practices Persons 11 12 22 11 13 12 22 14 8 22 11 13 12 22 14 8 24 8 24 8 24 8 24 8 24 8 26 27 14 28 26 11 12 29 20 11 12 20 1000 27 96 24 11 20 112 20 113 12 20 110 113 12 20 110 113 12 20 110 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 111 12 20 112 12 20 12 </td <td></td> <td>Number of employees taking childcare leave (Male)</td> <td>Persons</td> <td>0</td> <td>2</td> <td>1</td> <td>2</td> <td>8</td>		Number of employees taking childcare leave (Male)	Persons	0	2	1	2	8
Initiatives related to human rights and labor practices       Number of employees taking spousal childbirth leave Persons of viersity       Persons       75       76       72       81       81         • Support for engloyee career formation • Support for employee career formation • Support for employees taking nursing care leave • Support for employees taking temporary retirement for nursing care       Persons       3       2       4       82         Number of employees taking temporary retirement for nursing care       Persons       1       1       2       2       1         Number of employees taking temporary retirement for nursing care       Persons       3       3       37       44       42         Number of employees working reduced hours for nursing care       Persons       0       0       1       1       2       2       1         Number of employees dispatched for onsite training/ existic are tor investing a dualitation of annual leave tor investing a dualitation of annual leave invisitig care       %       48       50       53       53       55         Number of employees dispatched to overseas tor investine training in the or employees dispatched to overseas tor investine training investreated to the promotion of information security endecat		of reinstatement of female employees taking childcare	Persons (%)	12 (94.7)	20 (100)	29 (100)	27 (96)	24(100)
Immber of employees taking sick or injured childcare       Persons       119       113       125       115       12         • Promotion of diversity       • Support for employee career formation       Number of employees taking nursing care leave       Persons       3       2       4       8       20         • Support for employee career formation       Number of employees taking nursing care leave       Persons       1       1       2       2       1         • Support for employee career formation       Mumber of employees taking temporary reference       Persons       37       33       37       44       420         • Number of employees working reduced hours for childcare       Persons       0       0       1       1       2       2       1         • Number of employees displatched for onsite training/ care       Persons       0       0       1       1       2       2       1         • Initiatives related to health and safety       • Initiation of annual leave       %       4.8       50       53       53       55         • Initiatives related to health and safety       • Iola project working flours       1,000 hrs.       140,309       206,831       185,433       128,036       81,0         • Iongoing implementation of Ininse satety measures       • Unther		Number of employees taking spousal childbirth leave	Persons	75	76	72	81	81
<ul> <li>Support for realization of work-life balance</li> <li>Support for realization of work-life balance</li> <li>Support for employee career formation</li> <li>Support for employee career formation</li> <li>Support for employee career formation</li> <li>Support for employees care formation</li> <li>Support for employees career formation</li> <li>Support for employees working reduced hours for employees working reduced hours for employees dispatched for onsite training/ onsite instruction</li> <li>Number of employees dispatched for onsite training/ onsite instruction</li> <li>Number of employees dispatched for onersteas companies, etc.</li> <li>Support for the employees dispatched to overseas companies, etc.</li> <li>Support for employees dispatched to overseas companies, etc.</li> <li>Support for the employees dispatched to overseas companies, etc.</li> <li>Support for the employees dispatched to overseas companies, etc.</li> <li>Support for the employees dispatched to overseas companies, etc.</li> <li>Support of table careers in the other formation and safely ducation</li> <li>Number of table careers on work</li> <li>Number of accidents accompanied by lost work time</li> <li>Accidentis</li> <li>Accidentis</li> <li>Support of table construction</li> <li>Read of frequency of accidents accompanied by lost work time</li> <li>Conditions</li> <li>Preformation management</li> <li>Number of employees receiving compliance training implemented/</li> <li>Support for the promotion of information security related</li> <li>Number of employees careadiance training implemented/</li> <li>Number of serious i</li></ul>	practices						115	123
- Support for employee career formation Number of employees taking temporary retirement Persons 1 1 1 2 2 1 1 Vumber of employees working reduced hours for Persons 37 33 37 44 44 44 44 44 44 44 44 44 44 44 44 44	,	Number of employees taking nursing care leave	Persons	3	2	4	8	20
childare       1       1       2       1       1       2       1       1       2         Number of employees working reduced hours for number of employees dispatched for onsite training/ onsite instruction       Persons       0       0       1       1       2         Rate of utilization of annual leave       %       4.8       50       5.3       5.3       5.3       5.7         Number of employees dispatched for onsite training/ onsite instruction       Persons       112       125       9.8       6.2       72         Number of employees dispatched to overseas companies, etc.       Persons       3       3       2       5       5         Initiatives related to health and safely of investment of INSE management of investment of INSE management system for investment projects       Number of restrictions on work       Restrictions       4.8       6.0       3.7       2.5       6         Number of conditions requiring specialized treatment for investment projects       Number of conditions requiring specialized treatment for investment of INSE for anagement safety education       Number of conditions requiring specialized treatment work time <sup>1/3</sup> 0.004       0.012       0.012       0.012         Relate of trequency of recordable accidents <sup>1/4</sup> 0.18       0.19       0.16       0.1       0.16       0.1			Persons	1	1	2	2	1
nursing care       0       0       1       1       2         Rate of utilization of annual leave       %       4.8       5.0       5.3       5.3       5.7         Number of employees dispatched for onsite training/ Pressens       Persons       1.12       1.25       9.8       6.2       7.2         Number of employees dispatched to overseas companies, etc.       Persons       3       3       2       5       5         Initiatives related to health and safely       Fostering of culture of health and safely       Total project working hours       1,000 hrs.       140,309       206,831       185,433       128,036       81,0         Initiatives related to health and safely       Total project working hours       0       0       0       3       2       5         Initiatives related to thealth and safely       Total project working hours       1,000 hrs.       140,309       206,831       185,433       128,036       81,0         Initiatives related to faita accidents       Accidents       Accidents       3       12       14       8       9         Initiatives related by investore of accidents accompanied by lost work time       Accidents       3       12       14       8       9         Initiatives related to fities construction       Numbe			Persons	37	33	37	44	42
Number of employees dispatched for onsite training/ onsite instructionPersons112125986272Number of employees dispatched to overseas ompanies, etc.Persons33255Initiatives related to health and safely • Costering of culture of health and safely • Estering of culture of health and safely • ESSE teadership by top management • EssEs teadership by top management • Enhancement of HSSE management system or investment projects • Ongoing implementation of traffic safety measuresTotal project working hours1,000 hrs.140,309206,831185,433128,03681,00Number of scatches is a companied by lost work time tor investment projects • Ongoing implementation of traffic safety measuresNumber of accidents accompanied by lost work time Number of cacidents accompanied by lost work time Number of conditions requiring specialized treatment • Einthancement of Head Office construction HSSE functionsNumber of conditions requiring specialized treatment • Onditions0.0040.0120.0150.0120.01Report on Governance (G)Number of times compliance training implemented/ information security - related incidentsNumber of serious information security-related incidents0000000Number of serious information security-related incidentsNumber of serious information security-related incidents000000Number of serious information security-related incidentsNumber of serious information security-related incidents000000			Persons	0	0	1	1	2
onsite instructionrrr </td <td></td> <td>Rate of utilization of annual leave</td> <td>%</td> <td>48</td> <td>50</td> <td>53</td> <td>53</td> <td>57</td>		Rate of utilization of annual leave	%	48	50	53	53	57
companies, etc.Persons3323Initiatives related to health and safety Fostering of culture of health and safety Fostering of culture of health and safety HSSE leadership by top management settering of culture of health and safety For investment of HSSE management system for investment projectsTotal project working hours1,000 hrs.140,309206,831185,433128,03681,0Number of fatal accidentsAccidents00032Ongoing implementation of traffic safety measuresNumber of accidents accompanied by lost work time neasuresAccidents3121489Further development of in-house health and safety education Enhancement of Head Office constructionNumber of conditions requiring specialized treatment work time (*a)Conditions77124996541Report on Governance (G)Number of times compliance training implemented/ information securityNumber of serious information security-related incidentsNumber of serious information security-related incidents000000Initiatives related to the promotion of information securityNumber of serious information security-related incidentsIncidents000000Initiatives related to the promotion of incidentsNumber of serious information security-related incidentsIncidents000000Initiatives related to the promotion of incidentsNumber of serious information security-related incidents <td< td=""><td></td><td></td><td>Persons</td><td>112</td><td>125</td><td>98</td><td>62</td><td>72</td></td<>			Persons	112	125	98	62	72
Fostering of culture of health and safety     HSSE leadership by top management     Enhancement of HSSE management system     Further development of in-house health and     Safety education     Enhancement of Head Office construction     HSSE functions     HSSE functions     HSSE functions     Report on Governance (G)     Initiatives related to fair business practices     Number of serious information security     Information management awareness verifi-     cation surveys and voluntary inspections     Number of serious information security-related     Incidents     Incidents			Persons	3	3	2	5	5
• HSSE leadership by top management       Number of tatal accidents       Accidents       0       0       0       3       2         • HSSE leadership by top management       • Enhancement of HSSE management system for investment projects       Number of accidents accompanied by lost work time       Accidents       3       12       14       8       9         • Ongoing implementation of traffic safety measures       • Further development of in-house health and safety education       Number of conditions requiring specialized treatment       Conditions       77       124       99       65       41         • Enhancement of Head Office construction       • Rate of frequency of accidents accompanied by lost work time (*)       0.004       0.012       0.015       0.012       0.012         • Enhancement of Head Office construction       • Rate of frequency of recordable accidents (*)       0.18       0.19       0.16       0.16       0.1         • Report on Governance (G)       • Relization of increased compliance awareness       • Number of serious information security-related       Incidents       0	5	Total project working hours	1,000 hrs.	140,309	206,831	185,433	128,036	81,072
• Enhancement of HSSE management system for investment projectsNumber of accidents accompanied by lost work timeAccidents3121489• Ongoing implementation of traffic safety measuresNumber of restrictions on workRestrictions486037256• Further development of in-house health and safety educationNumber of conditions requiring specialized treatmentConditions77124996541• Enhancement of Head Office constructionRead of frequency of accidents accompanied by lost work time (*3)0.0040.0120.0150.0120.012• Enhancement of Head Office constructionRead of frequency of accidents accompanied by lost work time (*3)0.180.190.160.160.11• Enhancement of Ide Set functionsNumber of times compliance training implemented/ number of employees receiving compliance trainingTimes (People)8 (220)8 (312)19 (600)14 (434)13 (4• Realization of information security • Information management awareness verifi- cation surveys and voluntary inspectionsNumber of serious information security-related incidents00000• Drills against targeted threatsNumber of serious information security-related incidentsIncidents00000		Number of fatal accidents	Accidents	0	0	0	3	2
for investment projects       Ongoing implementation of traffic safety measures       Number of restrictions on work       Restrictions       48       60       37       25       6         Initiatives related to fair business practices       Number of restrictions on work       Restrictions       77       124       99       65       41         Report on Governance (G)       Number of times compliance training implemented/ number of employees receiving compliance training       0.18       0.19       0.16       0.16       0.1         Initiatives related to the promotion of information security       Number of serious information security-related incidents       Incidents       0       0       0       0       0       0         Ouries related threats       Ouries against targeted threats       Number of serious information security-related incidents       Incidents       0       0       0       0       0	<ul> <li>Enhancement of HSSE management system</li> </ul>	Number of accidents accompanied by lost work time	Accidents	3	12	14	8	9
Origing implomentation or number of trained statisty measures         • Further development of in-house health and safety education         • Enhancement of Head Office construction         • Enhancement of Head Office construction         • Enhancement of Head Office construction         • Report on Governance (G)         • Realization of increased compliance awareness         • Initiatives related to the promotion of information security         • Initiatives related to the promotion of information security         • Initiatives related to the promotion of information security         • Initiatives related to the promotion of information security         • Initiatives related to the promotion of information security         • Initiatives related to the promotion of information security         • Initiatives related to the promotion of information security         • Initiatives related to the promotion of information security incidents         • Initiatives related to the promotion of information security-related         • Incidents       0       0       0         • Durils against targeted threats       • Number of serious information security-related       Incidents       0       0       0	for investment projects		Restrictions	48	60	37	25	6
Further development of in-house health and safety education     Enhancement of Head Office construction     Fate of frequency of accidents accompanied by lost     O.004     O.012     O.015     O.012     O.01     Report on Governance (G)     Initiatives related to fair business practices     Realization of increased compliance awareness     Number of times compliance training implemented/     number of employees receiving compliance training     Number of serious information security     Information management awareness verification surveys and voluntary inspections     O		Number of conditions requiring specialized treatment						41
• Enhancement of Head Office construction HSSE functions         Rate of frequency of recordable accidents (*4)         0.18         0.19         0.16         0.16         0.1           Report on Governance (G)           Initiatives related to fair business practices • Realization of increased compliance awareness         Number of times compliance training implemented/ number of employees receiving compliance training         Times (People)         8 (220)         8 (312)         19 (600)         14 (434)         13 (4           Initiatives related to the promotion of information security         Initiatives related to the promotion of information security         Number of serious information security-related incidents         Incidents         0         0         0         0         0           • Drills against targeted threats         • Drills against targeted threats         Incidents         0         0         0         0	safety education	Rate of frequency of accidents accompanied by lost	Conditione					0.022
Report on Governance (G)         Initiatives related to fair business practices         • Realization of increased compliance awareness         • Realization of increased compliance awareness         • Initiatives related to the promotion of information security         • Initiatives related to the promotion of information management awareness verification surveys and voluntary inspections         • Drills against targeted threats				0.18	Π 19	Π 16	Π 16	0.14
Realization of increased compliance awareness     Number of times compliance training implemented/ Number of employees receiving compliance training     Times (People) 8 (220) 8 (312) 19 (600) 14 (434)     13 (4     13 (4     11 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     12 (434)     13 (4     13 (4     12 (434)     13 (4      13 (4     1				0.10	0.17	0.10	0.10	0.14
Initiatives related to the promotion of information security - related Incidents 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Initiatives related to fair business practices		Times (People)	8 (220)	8 (312)	19 (600)	14 (434)	13(418)
Reinforcement of governance system Number of outside directors Persons 1 1 1 2 <b>2</b>	Initiatives related to the promotion of information security • Information management awareness verifi- cation surveys and voluntary inspections	Number of serious information security-related	Incidents	0	0	0	0	0
	Reinforcement of governance system	Number of outside directors	Persons	1	1	1	2	2

(\*1) Energy consumption (Yokohama Head Office): Targets for fiscal 2015 and fiscal 2016 have been set as an average annual reduction of 1%, with 2013 as the base year. (\*2) Number of re-employed employees and number of non-Japanese employees = (Number of employees in April + Number of employees in March) ÷ 2 (\*3) Rate of frequency of accidents accompanied by lost work time = Number of accidents accompanied by lost work time × 200,000 ÷ Total project working hours

(\*4) Rate of frequency of recordable accidents = (Number of fatal accidents + Number of accidents accompanied by lost work time + Number of restrictions on work + Number of conditions requiring specialized treatment) × 200,000 + Total project working hours



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## **Six-Year Summary**

(As of March 31 of each year)

#### Consolidated

					(Millions of yen)
2013	2014	2015	2016	2017	2018
624,637	675,821	799,076	879,954	693,152	722,988
64,123	68,253	29,740	49,661	(21,497)	21,495
46,179	47,178	20,628	42,793	(22,058)	16,589
460,231	575,886	533,538	522,747	480,866	532,974
262,439	333,353	286,533	225,203	226,458	215,773
197,792	242,533	247,005	297,544	254,408	317,200
175.4	172.8	186.2	232.1	212.3	247.0
71,708	70,290	78,560	76,255	69,878	55,222
628,757	746,102	719,754	689,782	646,292	685,002
336,083	379,882	388,496	419,673	383,260	395,779
594,091	818,161	769,680	320,626	506,293	547,826
1,549,813	1,767,814	1,772,036	1,192,625	1,019,621	886,601
182.91	186.90	81.73	169.60	(87.42)	65.75
45.5	46.5	21.0	42.5	30.0	25.0
6,721	7,005	7,332	7,489	7,554	7,610
	624,637 64,123 46,179 460,231 262,439 197,792 175.4 71,708 628,757 336,083 594,091 1,549,813 182.91 45.5	624,637         675,821           64,123         68,253           46,179         47,178           460,231         575,886           262,439         333,353           197,792         242,533           175.4         172.8           71,708         70,290           628,757         746,102           336,083         379,882           594,091         818,161           1,549,813         1,767,814           182.91         186.90           45.5         46.5	624,637675,821799,07664,12368,25329,74046,17947,17820,628460,231575,886533,538262,439333,353286,533197,792242,533247,005175.4172.8186.271,70870,29078,560628,757746,102719,754336,083379,882388,496594,091818,161769,6801,549,8131,767,8141,772,036182.91186.9081.7345.546.521.0	624,637675,821799,076879,95464,12368,25329,74049,66146,17947,17820,62842,793460,231575,886533,538522,747262,439333,353286,533225,203197,792242,533247,005297,544175.4172.8186.2232.171,70870,29078,56076,255628,757746,102719,754689,782336,083379,882388,496419,673594,091818,161769,680320,6261,549,8131,767,8141,772,0361,192,625182.91186.9081.73169.6045.546.521.042.5	624,637675,821799,076879,954693,15264,12368,25329,74049,661(21,497)46,17947,17820,62842,793(22,058)460,231575,886533,538522,747480,866262,439333,353286,533225,203226,458197,792242,533247,005297,544254,408175.4172.8186.2232.1212.371,70870,29078,56076,25569,878628,757746,102719,754689,782646,292336,083379,882388,496419,673383,260594,091818,161769,680320,626506,2931,549,8131,767,8141,772,0361,192,6251,019,621182.91186.9081.73169,60(87.42)45.546.521.042.530.0

#### Our View of the Operating Environment

During the consolidated fiscal year under review, the JGC Group's operating environment continued to improve, despite some uncertainties, with stable oil prices since 2016 spurring oil- and gas-producing countries to restart capital investment programs. JGC expects oil- and gas-producing countries to push ahead with investment in major oil and gas projects to address growing demand for energy and electricity amid population growth and economic expansion in their own countries, and to increase energy exports as a source of foreign currency.

#### **Results of Operations**

In the consolidated fiscal year under review, the JGC Group reported net sales of ¥722,988 million (up 4.3% year on year), operating income of ¥21,495 million (compared with an operating loss of ¥21,497 million in the previous fiscal year), and net income attributable to owners of parent of ¥16,589 million (compared with a net loss of ¥22,058 million in the previous fiscal year). ROE was 4.3%.

#### Assets

As of March 31, 2018, current assets totaled ¥532,974 million, an increase of ¥52,108 million from the end of the previous fiscal year. That mainly reflected a combined increase of ¥54,809 million for short-term loans receivable and accounts receivable, outweighing a decline of ¥14,392 million for costs on uncompleted construction contracts. Non-current assets totaled ¥152,028 million, a decline of ¥13,397 million from the end of the previous fiscal year. The main reason for the decline was a drop of ¥14,655 million for property, plant and equipment, which outweighed an increase of ¥816 million for investments and other assets. As a result, total assets at the end of fiscal 2017 were ¥685,002 million, an increase of ¥38,710 million from the end of the previous fiscal year.

## **Analysis of Performance and Financial Position**

#### Liabilities

As of March 31, 2018, current liabilities totaled ¥215,773 million, a decline of ¥10,683 million from the end of the previous fiscal year, largely reflecting a drop of ¥9,442 million for provision for loss on construction projects. Long-term liabilities totaled ¥73,450 million, an increase of ¥36,875 million from the end of the previous fiscal year. Long-term loans payable declined ¥8,336 million, but the main factor behind the increase in non-current liabilities was ¥50 billion in corporate bonds issued to meet the JGC Group's funding needs.

As a result, total liabilities at the end of fiscal 2017 were  $\pm$ 289,223 million, an increase of  $\pm$ 26,192 million from the end of the previous fiscal year.

#### Net Assets

As of March 31, 2018, net assets totaled ¥395,779 million, an increase of ¥12,518 million from the end of the previous fiscal year. The main items in net assets were net income attributable to owners of parent of ¥16,589 million and cash dividends paid of ¥7,569 million. As a result, the shareholders' equity ratio was 57.6%, compared with 59.1% at the end of the previous fiscal year.

#### Segment Information

#### • Total Engineering Business

In the engineering, procurement and construction (EPC) business, JGC worked to secure orders in Japan, Southeast Asia, the Middle East, Africa, North America, Russia/CIS and other markets. In the oil & gas area, JGC was awarded a contract for the construction of a floating liquefied natural gas (FLNG) facility offshore the Republic of Mozambique in June 2017, and JGC and Group company JGC Algeria S.p.A. won an order for the construction of crude oil gathering and processing facilities in Algeria, also in June 2017. In July 2017, JGC and its partners secured an order for the construction of a large-scale LNG plant in the US. However, the client is likely to make the final investment decision on the project in 2019, so JGC expects to book the order amount in 2019 or later. In addition, in December 2017, JGC and Group company PT. JGC Indonesia were awarded a contract for the construction of a gas processing plant in Indonesia. In the infrastructure area, JGC and Group company JGC Vietnam Co., Ltd. secured an order in March 2018 to construct a mega-solar power generation plant in Vietnam.

In the investment business, JGC made the decision in November 2017 to take a stake in a business that owns and charters floating production storage and offloading (FPSO) vessels for oil and gas fields offshore Ghana, aiming to gain broader knowledge and expertise in the offshore field.

#### • Functional Materials Manufacturing Business

In the catalysts business, the Group focused on winning back market share in Japan, increasing sales in export projects, and maintaining and increasing collaboration with clients. Those efforts led to growth in sales of FCC catalysts and supported firm sales of chemical catalysts and environmental catalysts. In the fine chemicals business, shipments of cosmetics ingredients, functional coating materials and other products increased, and the business secured strong orders for components used in semiconductor cleaning equipment and OLED exposure equipment.

#### Other Business

In the other business, JGC continued to operate independent water and power (IWPP) businesses in the Middle East and large-scale solar power generation (mega-solar) businesses in Japan. On March 1, 2018, wholly owned consolidated subsidiary Kamogawa Mirai Solar Co.,

Ltd. sold its solar power generation business.

Net Sales by Reporting Segment



#### Cash Flow

On a consolidated basis, cash and cash equivalents for the consolidated fiscal year under review ("net cash"), increased ¥49,791 million from the end of the previous fiscal year to ¥235,394 million. Net cash provided in operating activities was ¥5,539 million, compared with net cash used in operating activities of ¥28,884 million in the previous fiscal year. The main uses of cash were before income taxes of ¥31,666 million and decrease in inventories. Net cash used in investing activities was ¥11,737 million, compared with net cash used of ¥12,979 million in the previous fiscal year. The main uses of cash were proceeds from sales of property and proceeds from business separation. Net cash used in financing activities was ¥33,782 million, mainly reflecting issuance of bonds.



	2016.3	2017.3	2018.3
Shareholders' equity ratio	60.7	59.1	57.6
Shareholders' equity ratio (market basis)	61.6	75.5	85.2
Interest-bearing liabilities to cash flow ratio	_	—	12.2
Interest coverage ratio	_	_	12.1

Notes: Shareholders' equity ratio:

Interest-bearing liabilities to cash flow ratio: Interest-bearing liabilities / Cash flow Interest coverage ratio:

(Total net assets - Minority interests) / Total assets Shareholders' equity ratio (market basis): Total market capitalization / Total assets

Data Section

Cash flow / Interest expense

\* All indicators are calculated using consolidated financial figures.

\* "Interest-bearing liabilities" includes all liabilities on the consolidated balance sheet on which interest is paid. "Cash flow" is cash flow from operating activities shown in the consolidated statements of cash flow. "Interest expense" is the amount of interest paid shown in the consolidated statements of cash flows

\* In fiscal years where cash flow is negative, the interest-bearing liabilities to cash flow ratio and the interest coverage ratio are denoted by a dash.

#### Free Cash Flows


### **Business Risks**

#### **Analysis of New Contracts**

In the fiscal year under review, orders received totaled ¥547,826 million. The tables below provide a breakdown of new contracts in the total engineering business by sector and region.

New Contracts by Business	(Billions of yen)		
	2017.3	2018.3	2018.3 (Percentage of new contracts)
Oil and gas development projects	1,595	1,299	23.7%
Petroleum refining projects	254	199	3.6%
LNG projects	1,026	2,245	41.0%
Chemical projects	504	772	14.1%
Other projects	1,681	961	17.6%

New Contracts by Regio	n		(Billions of yen)
	2017.3	2018.3	2018.3 (Percentage of new contracts)
Japan	1,946	1,495	27.3%
Asia	458	594	10.8%
Africa	1,280	1,786	32.6%
Middle East	327	479	8.7%
Oceania and Other	1,048	1,122	20.6%

#### Business Outlook

#### Total Engineering Business

In the plant market, the implementation of capital investment projects is gradually gaining momentum amid a projected increase in demand for energy due to population growth in emerging economies. In addition, despite some uncertainties, the Group's operating environment continues to improve, including emerging signs of a pickup in large LNG projects. JGC will continue to focus on securing projects with adequate margins by increasing added value and improving competitiveness. In line with the medium-term business plan, "Beyond the Horizon," JGC will also expand the Group's operations further by growing the EPC business in the infrastructure field, while also continuing to develop the EPC business in the core oil and gas field.

#### • Functional Materials Manufacturing Business

In the catalysts business, realignment in the oil refining industry is leading to the integration of facilities and oil refiners are increasingly focusing on improving productivity and supplying high-value-added products. Amid those trends, the Group will develop new catalysts, increase overseas sales and domestic market share for FCC catalysts, establish a new business to sell catalyst raw material zeolite to external customers, and actively market NOx removal catalysts, particularly in Southeast Asia.

The fine chemicals business will actively respond to rising demand for optical communication components, work to win orders for energy-related substrates and abrasives, expand sales and applications for functional coating materials, and further increase cosmetics ingredient supply capacity.

The following describes business and other risks faced by the JGC Group that may have a material impact on investment decisions.

Forward-looking statements in this section are based on information available as of March 31, 2018 and take into account the whole JGC Group.

#### 1. Overseas Risk

Overseas businesses generate more than 80% of the JGC Group's total net sales. Such businesses are subject to country risks including economic risks and socio-political risks. Specific risks include political instability, war, revolution, civil unrest, terrorism, changes in economic policy or conditions, default on foreign debt and changes to exchange and taxation systems. To minimize the impact of those risks on its businesses, the JGC Group continuously reviews and reinforces its risk management system, uses trade insurance, recovers project receivables as early as possible, forms joint ventures and takes various other steps. However, the JGC Group's performance may be affected if changes in the business environment are more extreme than anticipated and projects are canceled, suspended or delayed.

#### 2. Project Execution Risk

Most contracts for projects in which the JGC Group participates are lump-sum, fullturnkey contracts. However, to hedge some of the risks in these contracts, the Group uses cost-plus-fee contracts and contracts based on the cost disclosure estimate method, depending on the project. The JGC Group draws fully on its past experience to anticipate and incorporate into each contract provisions for dealing with risks that could materialize during project execution. However, the profitability of projects may be adversely affected due to unforeseen impediments to project execution, including sudden steep rises in the costs of materials, equipment, machinery and labor, natural disasters and outbreaks of disease, or if the JGC Group's actions or a problem during project execution should cause a major accident, which may affect the JGC Group's performance.

#### 3. Investment Risk

The JGC Group conducts investments in such areas as the oil and gas development business, the power generation and desalination business, and the agriculture, urban development and infrastructure maintenance business. The JGC Group conducts appropriate risk management by carrying out risk assessments when making new investments and reinvestments and by performing timely monitoring of existing businesses. However, the JGC Group's performance may be affected by unanticipated events such as dramatic changes in the investment environment exemplified by sudden price changes for oil, gas and other energy resources, as well as changes in estimated reserves.

#### 4. Foreign Exchange Risk

Almost all the JGC Group's overseas sales are paid under agreements denominated in foreign currencies. The JGC Group uses a number of approaches to hedge associated exchange rate risks, such as executing project contracts denominated in multiple currencies, conducting overseas procurement, securing orders in overseas currencies and entering into forward foreign exchange agreements. However, sudden exchange rate fluctuations may affect the JGC Group's performance.

# **Consolidated Balance Sheets**

(March 31, 2018 and 2017)

	(Millions of year	(Millions of yen)			
SSETS	Year ended March 31, 2018	Year ended March 31, 2017	Year ende March 31, 201		
CURRENT ASSETS:					
Cash and deposits (Notes 3, 12 & 16)	¥195,394	¥ 185,603	\$ 1,839,175		
Notes and accounts receivable (Notes 2 & 16)	186,672	196,200	1,757,078		
Inventories (Note 4)	29,881	43,970	281,260		
Short-term loans receivable (Notes 2, 9,12 & 16)	46,475	11,663	437,453		
Deferred tax assets (Note 11)	11,654	12,412	109,695		
Other current assets (Notes 2, 9 & 16)	63,189	32,530	594,776		
Allowance for doubtful accounts	(291)	(1,512)	(2,739		
TOTAL CURRENT ASSETS	532,974	480,866	5,016,698		
PROPERTY AND EQUIPMENT (Note 3):					
Land (Notes 13 & 15)	18,550	25,046	174,60		
Buildings and structures (Note 15)	56,057	62,369	527,64		
Machinery and equipment	64,357	71,217	605,770		
Construction in progress	2,386	284	22,459		
Other	4,385	4,436	41,274		
	145,735	163,352	1,371,753		
Less accumulated depreciation	(90,513)	(93,474)	(851,968		
NET PROPERTY AND EQUIPMENT	55,222	69,878	519,78		
INVESTMENTS AND OTHER ASSETS:					
Investments in unconsolidated subsidiaries and affiliates (Notes 8 & 16)	30,220	21,450	284,450		
Investment securities (Notes 3, 8 & 16)	39,599	38,380	372,733		
Long-term loans receivable (Notes 2 & 16)	3,368	5,731	31,702		
Deferred tax assets (Note 11)	5,076	12,447	47,779		
Net defined benefit asset (Note 5)	425	190	4,000		
Other	18,118	17,350	170,53		
TOTAL INVESTMENTS AND OTHER ASSETS	96,806	95,548	911,201		

The accompanying notes are an integral part of these statements.

LIABILITIES AND NET AS	SSETS						
CURRENT LIABILITIES:							
Short-term loans and c	urrent maturities of long-term debt (Notes 2 & 3)						
Notes and accounts pay	Notes and accounts payable (Notes 2 & 16)						
Advances received on u	uncompleted contracts (Note 2)						
Reserve for job warrant	ty costs						
Reserve for losses on c	contracts						
Income taxes payable							
Provision for loss on gu	arantees						
Other current liabilities	(Notes 2, 3, 9 & 16)						
TOTAL CURRENT LI	ABILITIES						
LONG-TERM LIABILITIES	:						
	urrent maturities (Notes 3 & 16)						
Net defined benefit liab							
	or land revaluation (Notes 11 & 13)						
Other non-current liabil							
TOTAL LONG-TERM							
TOTAL LIABILITIES	LIADILITIES						
NET ASSETS (Note 7): SHAREHOLDERS' EQUITY	Y						
SHAREHOLDERS' EQUIT	Y						
Common stock							
Authorized — 60							
	9,052,929 shares in 2018 and 2017						
Capital surplus							
Retained earnings							
Treasury stock, at cost							
6,744,765 shares I	n 2017 and 6,745,465 shares in 2018						
	COMPREHENSIVE INCOME						
Net unrealized holdin	g gains on securities (Notes 8 & 16)						
Deferred losses on he	edges (Note 9)						
Revaluation reserve f	or land (Note 13)						
Foreign currency tran	slation adjustments						
Remeasurements of o	defined benefit plans (Note 5)						
TOTAL ACCUMULAT	ED OTHER COMPREHENSIVE INCOME						
NON-CONTROLLING INTE	ERESTS						
TOTAL NET ASSETS	3						
TOTAL LIABILITIES	AND NET ASSETS						

(Thousands of U.S. dollars) (Note 1)	(Millions of yen)	
Year ended March 31, 2018	Year ended March 31, 2017	Year ended March 31, 2018
\$ 125,781	¥ 14,052	¥ 13,363
839,270	97,613	89,164
446,423	45,041	47,428
13,592	2,850	1,444
205,375	31,262	21,819
45,322	3,523	4,815
_	2,815	_
355,233	29,302	37,740
2,030,996	226,458	215,773
511,060	12,631	54,295

151,741	16,210	16,121
9,554	3,126	1,015
19,004	4,607	2,019
691,359	36,574	73,450
2,722,355	263,032	289,223

23,511	23,511	221,301
25,609	25,609	241,048
355,572	341,764	3,346,875
(6,737)	(6,736)	(63,413)
397,955	384,148	3,745,811
11,169	7,955	105,130
(518)	(432)	(4,876)
(10,919)	(6,131)	(102,777)
(1,170)	(756)	(11,013)
(1,816)	(2,569)	(17,093)
(3,254)	(1,933)	(30,629)
1,078	1,045	10,147
395,779	383,260	3,725,329
¥ 685,002	¥ 646,292	\$ 6,447,684

# **Consolidated Statements of Operations**

March 31, 2018 and 2017

	(Millions)	(Millions of yen)		
	Year ended March 31, 2018	Year ended March 31, 2017	Year ende March 31, 201	
NET SALES (Note 10)	¥ 722,988	¥ 693,152	\$ 6,805,23	
COST OF SALES	678,039	691,700	6,382,14	
Gross profit	44,949	1,452	423,08	
SELLING, GENERAL AND ADMINISTRATIVE EXPENSES	23,454	22,949	220,76	
Operating income (loss)	21,495	(21,497)	202,32	
OTHER INCOME (EXPENSES):				
Interest and dividend income	5,681	6,504	53,47	
Interest expense	(512)	(662)	(4,81	
Gain on sales of investment securities	51	1,648	48	
Loss on impairment of fixed assets (Notes 10 & 17)	—	(5,928)	-	
Exchange loss, net	(2,620)	(1,534)	(24,66	
Equity in earnings of affiliates	814	632	7,66	
Reversal of allowance for investment loss	774	3,399	7,28	
Gain on liquidation of subsidiary	_	1,867	-	
Gain on sales of fixed assets (Note 15)	6,549	86	61,64	
Loss on provision for guarantees	—	(1,514)	-	
Loss on valuation of investment securities (Notes 8 & 11)	(5,198)	(2,926)	(48,92	
Provision of allowance for doubtful accounts	(4,909)	—	(46,20	
Gain on sales of shares of subsidiaries and affiliates	1,394	13	13,12	
Gain on transfer from business divestitures	8,936	—	84,11	
Bond issuance cost	(213)	—	(2,00	
Other, net (Note 15)	(576)	562	(5,42	
	10,171	2,147	95,73	
Income (loss) before taxes on income	31,666	(19,350)	298,06	
TAXES ON INCOME (Note 11):				
Current	10,591	9,974	99,68	
Deferred	4,263	(7,481)	40,12	
NET INCOME (LOSS)	16,812	(21,843)	158,24	
NET INCOME ATTRIBUTABLE TO NON-CONTROLLING INTERESTS	223	215	2,09	
NET INCOME (LOSS) ATTRIBUTABLE TO OWNERS OF JGC CORPORATION	¥ 16,589	¥ (22,058)	156,14	
	Yer	·	U.S. dollars (Not	
AMOUNTS PER SHARE OF COMMON STOCK:				
Net income (loss)	¥ 65.75	¥ (87.42)	\$ 0.6	
Cash dividends applicable to the year	¥ 25.00	¥ 30.00	\$ 0.2	

The accompanying notes are an integral part of these statements.

# **Consolidated Statements of Comprehensive Income**

March 31, 2018 and 2017

	(Millions of ye	n)	(Thousands of U.S. dolla (Note
	Year ended March 31, 2018	Year ended March 31, 2017	Year ende March 31, 201
NET INCOME (LOSS)	¥ 16,812	¥ (21,843)	\$ 158,24
OTHER COMPREHENSIVE INCOME (Note 18):			
Net unrealized holding gains on securities (Notes 8 & 16)	3,214	890	30,25
Deferred gains (losses) on hedges (Note 9)	(73)	87	(68
Translation adjustments	(414)	(4,828)	(3,89
Remeasurements of defined benefit plans (Note 5)	726	265	6,8
Share of other comprehensive income (loss) of affiliates accounted for using equity method	28	(2)	20
TOTAL OTHER COMPREHENSIVE INCOME	¥ 3,481	¥ (3,588)	\$ 32,7
TOTAL COMPREHENSIVE INCOME	¥ 20,293	¥ (25,431)	\$ 191,0
Comprehensive income attributable to owners of JGC Corporation	¥ 20,057	¥ (25,661)	\$ 188,7
Comprehensive income attributable to non-controlling interests	¥ 236	¥ 230	\$ 2,2

# **Consolidated Statements of Changes in Net Assets**

Common stock

March 31, 2018 and 2017

Net unrealized 
 Notifing gains on Deferred losses
 Revaluation
 Foreign currency
 Non-securities

 (Notes 8 & 16)
 (Note 9)
 (Note 13)
 adjustments
 defined benefit plans
 Interests
 Retained Amount Capital surplus earnings Treasury stock, at cost Shares (Thousands of shares) (Millions of yen) ¥ 7,065 ¥ 23,511 ¥ 25,609 ¥ 4,072 ¥ (2,832) ¥ 978 Balance at April 1, 2016 ¥ 374.625 ¥ (6,736) ¥ (503) ¥ (6,115) Net loss attributable to owners of JGC Corporation (22,058) Effect of change in scope of consolidation (96) (10,723) Cash dividends Decrease of land revaluation 16 Gain on disposal of treasury stock 0 Net unrealized holding gains on 890 securities Net deferred losses on hedges 71 Foreign currency translation adjustments (4,828) Increase of treasury stock (1) Remeasurements of defined benefit 263 plans Net changes during the year (16 67 Balance at March 31, 2017 259,053 ¥ 23,511 ¥ 25,609 ¥ 341,764 ¥ (6,736) ¥ 7,955 ¥ (432) ¥ (6,131) ¥ (756) ¥ (2,569) ¥ 1,045 Net income attributable to owners 16,589 of JGC Corporation Cash dividends (7,569) Decrease of land revaluation 4.788 Gain on disposal of treasury stock 0 0 Net unrealized holding gains on 3,214 securities Net deferred losses on hedges (86) Foreign currency translation adjustments (414) Increase of treasury stock (1) Remeasurements of defined benefit 753 plans (4.788) 33 Net changes during the year Balance at March 31, 2018 259,053 ¥ 23,511 ¥ 25,609 ¥ 355,572 ¥ (6,737) ¥ 11,169 ¥ (518) ¥ (10,919) ¥ (1,170) ¥ (1,816) ¥ 1,078

	Common stock	Capital surplus	Retained earnings	Treasury stock, at cost	Net unrealized holding gains on securities (Notes 8 & 16)	Deferred losses on hedges (Note 9)	Revaluation reserve for land (Note 13)	Foreign currency translation adjustments	Remeasurements of defined benefit plans	Non- Controlling Interests
				()	housands of U.S.	dollars)(Note 1)				
Balance at April 1, 2017	\$ 221,301	\$ 241,048	\$ 3,216,905	\$ (63,404)	\$ 74,878	\$ (4,067)	\$ (57,709)	\$(7,116)	\$ (24,181)	\$ 9,836
Net income attributable to owners of JGC Corporation			156,146							
Cash dividends			(71,244)							
Decrease of land revaluation			45,068							
Gain on disposal of treasury stock		0		0						
Net unrealized holding gains on securities					30,252					
Net deferred losses on hedges						(809)				
Foreign currency translation adjustments								(3,897)		
Increase of treasury stock				(9)						
Remeasurements of defined benefit plans									7,088	
Net changes during the year							(45,068)	)		311
Balance at March 31, 2018	\$ 221,301	\$ 241,048	\$ 3,346,875	\$ (63,413)	\$ 105,130	\$ (4,876)	\$ (102,777	) \$ (11,013)	\$ (17,093)	\$ 10,147

The accompanying notes are an integral part of these statements.

# **Consolidated Statements of Cash Flows**

March 31, 2018 and 2017

	(Millions of yen)		(Thousands of U.S. dolla (Note
	Year ended March 31, 2018	Year ended March 31, 2017	Year ender March 31, 201
CASH FLOWS FROM OPERATING ACTIVITIES:			
Income (loss) before taxes on income and Non-Controlling Interests in earnings of consolidated subsidiaries	¥31,666	¥ (19,350)	\$298,06
Adjustments to reconcile income before taxes on income and Non-Controlling interests in			
earnings of consolidated subsidiaries to net cash provided by (used in) operating activities:			
Depreciation and amortization	7,427	8,013	69,90
Increase in allowance for doubtful accounts	6,445	785	60,66
(Decrease) Increase in reserve for losses on contracts	(9,214)	10,157	(86,72
(Decrease) Increase in net defined benefit plans	(65)	614	(61
Interest and dividend income	(5,681)	(6,504)	(53,47
Interest expense	512	662	4,8
Exchange loss	112	546	1,05
Equity in earnings of affiliates	(814)	(632)	(7,66
Gain on sales of investment securities	(51)	(1,648)	(48
Gain on sales of property and equipment	(6,542)	(45)	(61,57
Loss on valuation of investment securities	5,198	2,926	48,92
Loss on impairment of fixed assets	—	5,928	-
Gain on liquidation of subsidiary	—	(1,867)	-
Gain on transfer from business divestitures	(8,936)	—	(84,11
Gain on sales of shares of subsidiaries and affiliates	(1,394)	(13)	(13,12
Decrease (Increase) in notes and accounts receivable	5,061	(21,439)	47,63
Decrease in inventories	13,931	6,386	131,12
(Increase) Decrease in other assets	(21,377)	1,497	(201,21
Decrease in notes and accounts payable	(5,612)	(11,239)	(52,82
Increase in advances received on uncompleted contracts	2,515	7,035	23,6
Other	(3,855)	(6,464)	(36,28
Subtotal	9,326	(24,652)	87,78
Interest and dividends received	6,104	6,707	57,4
Interest paid	(460)	(630)	(4,33
Income taxes paid	(9,431)	(10,309)	(88,77
NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES	5,539	(28,884)	52,1
CASH FLOWS FROM INVESTING ACTIVITIES:			
Payments for purchases of property and equipment	(7,190)	(6,175)	(67,67
Proceeds from sales of property and equipment	15,238	1,107	143,4
Payments for purchase of investment securities	(7,329)	(635)	(68,98
Proceeds from sales of investment securities	1,947	3,324	18,3
Proceeds from business separation	14,879	—	140,0
Increase in short-term loans receivable	(4,993)	(6,016)	(46,99
Other	(815)	(4,584)	(7,67
NET CASH PROVIDED BY (USED IN) INVESTING ACTIVITIES	11,737	(12,979)	110,4
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from issuance of bonds	50,000	—	470,63
Proceeds from long-term loans	3	3	:
Repayments of long-term loans	(7,270)	(8,060)	(68,43
Payments for purchase of treasury stock	(1)	(0)	(
Cash dividends paid	(7,569)	(10,724)	(71,24
Cash dividends paid to non-controlling interests	(204)	(164)	(1,92
Other	(1,177)	(729)	(11,08
NET CASH PROVIDED BY (USED IN) FINANCING ACTIVITIES	33,782	(19,674)	317,97
EFFECT OF EXCHANGE RATE CHANGES ON CASH AND	(1,267)	(809)	(11,92
CASH EQUIVALENTS NET INCREASE (DECREASE) IN CASH AND	49,791	(62,347)	468,6
CASH EQUIVALENTS	40,101	(02,047)	400,0
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR	185,603	247,948	1,747,0
INCREASE IN CASH AND CASH EQUIVALENTS FROM NEWLY CONSOLIDATED SUBSIDIARIES	_	2	

The accompanying notes are an integral part of these statements.

### (Thousands of U.S. dollars)

### **Notes to Consolidated Financial Statements**

#### Note 1 : SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(a) BASIS OF PRESENTING CONSOLIDATED FINANCIAL STATEMENTS The accompanying consolidated financial statements of JGC Corporation (Nikki Kabushiki Kaisha, the "Company") and its consolidated subsidiaries have been prepared in accordance with the provisions set forth in the Japanese Financial Instruments and Exchange Act and its related accounting regulations, and in conformity with accounting principles generally accepted in Japan ("Japanese GAAP"), which are different in certain respects as to application and disclosure requirements from International Financial Reporting Standards.

The accounts of consolidated overseas subsidiaries are prepared in accordance with either International Financial Reporting Standards or U.S. generally accepted accounting principles, with adjustments for the specified four items as applicable. The accompanying consolidated financial statements have been translated into English (with some expanded descriptions) from the consolidated financial statements of the Company prepared in accordance with Japanese GAAP and filed with the appropriate Local Finance Bureau of the Ministry of Finance as required by the Japanese Financial Instruments and Exchange Act. Certain supplementary information included in the statutory Japanese language consolidated financial statements, but not required for fair presentation, is not presented in the accompanying consolidated financial statements.

In addition, certain reclassifications have been made to present the accompanying consolidated financial statements in a format which is more familiar to readers outside Japan. Furthermore, certain reclassifications of previously reported amounts have been made to reconcile the consolidated financial statements for the year ended March 31, 2017 to the 2018 presentation.

The translation of the Japanese yen amounts into U.S. dollars is included solely for the convenience of readers outside Japan, using the prevailing exchange rate at March 31, 2018, which was ¥106.24 to U.S. \$1. The convenience translations should not be construed as representations that the Japanese yen amounts could be converted into U.S. dollars at this or any other rate of exchange.

#### (b) PRINCIPLE OF CONSOLIDATION

The consolidated financial statements include the accounts of the Company and its significant subsidiaries that include less than 50% owned affiliates controlled through substantial ownership of majority voting rights or existence of substantial control. All significant inter-company transactions and account balances are eliminated in consolidation.

Investments in non-consolidated subsidiaries and affiliates over which the Company has the ability to exercise significant influence over operating and financial policies of the investees are accounted for by the equity method.

The number of consolidated subsidiaries and affiliates accounted for using the equity method at March 31, 2018 and 2017, was as follows:

	2018	2017
Consolidated subsidiaries	19	19
Affiliates under the equity method	1	1

Consolidated subsidiaries and affiliates accounted for using the equity method at March 31, 2018 and 2017, was as follows:

Consolidated subsidiaries	Location	ocation Capital Share	
	-	2018	2017
JGC PLANT INNOVATION CO., LTD.	Japan	100%	100%
JGC PLANTECH AOMORI CO., LTD.	Japan	100%	100%
JGC Catalysts and Chemicals Ltd.	Japan	100%	100%
JAPAN FINE CERAMICS CO., LTD.	Japan	100%	100%
NIKKI BUSINESS SERVICES CO., LTD.	Japan	100%	100%
JAPAN NUS CO., LTD.	Japan	89%	89%
JGC-ITC Rabigh Utility Co., Ltd.	Japan	100%	100%
JGC Mirai Solar Co., Ltd.	Japan	51%	51%
Kamogawa Mirai Solar Co., Ltd	Japan	100%	100%
JGC SINGAPORE PTE LTD	Singapore	100%	100%
JGC PHILIPPINES, INC.	Philippines	100%	100%
JGC Gulf International Co. Ltd.	Saudi Arabia	100%	100%
JGC Gulf Engineering Co. Ltd.	Saudi Arabia	75%	75%
JGC OCEANIA PTY LTD	Australia	100%	100%
JGC America, Inc.	U.S.A.	100%	100%
JGC (GULF COAST), LLC *1	U.S.A.	100%	100%
JGC Exploration Eagle Ford LLC	U.S.A.	100%	100%
JGC EXPLORATION CANADA LTD.	Canada	100%	100%
PT. JGC INDONESIA	Indonesia	100%	100%
Affiliates under the equity method	Location _	Capital	
		2018	2017
Nikki -Universal Co., Ltd.	Japan	50%	50%

Investments in non-consolidated subsidiaries and affiliates not accounted for by the equity method are carried at cost, adjusted for any substantial and non-recoverable decline in value. The effect on net income and retained earnings from those investments not accounted for under the equity method is immaterial.

- \*1 At the year ended March 31, 2017, JGC (GULF COAST), LLC was included in the scope of consolidation because its effect on the consolidated financial statement became significant.
- \*2 At the year ended March 31, 2017, JGC Energy Development (USA) Inc. and JMD Greenhouse-Gas Reduction Co., Ltd. were excluded from the scope of consolidation and the equity method respectively, because these companies were liquidated during this fiscal year.

#### (c) CONSOLIDATED STATEMENTS OF CASH FLOWS

In preparing the consolidated statements of cash flows, cash on hand, readily available deposits and short-term highly liquid investments with negligible risk of changes in value, and maturities not exceeding three months at the time of purchase are considered to be cash and cash equivalents.

# (d) CONVERSION OF FOREIGN CURRENCIES AND TRANSLATION OF STATEMENTS

Receivables and payables denominated in foreign currencies are translated into Japanese yen at the year-end rates.

Balance sheets of consolidated overseas subsidiaries are translated into Japanese yen at the year-end rates except for net assets accounts, which are

translated at the historical rates. Income statements of consolidated overseas subsidiaries are translated at average rates except for transactions with the Company, which are translated at the rates used by the Company.

#### (e) UNIFICATION OF ACCOUNTING POLICIES APPLIED TO FOREIGN SUBSIDIARIES FOR CONSOLIDATED FINANCIAL STATEMENTS

The Accounting Standards Board of Japan has issued ASBJ Practical Issues Task Force No. 18 "Practical Solution on Unification of Accounting Policies Applied to Foreign Subsidiaries for Consolidated Financial Statements" ("PITF No. 18"). PITF No. 18 requires that accounting policies and procedures applied by a parent company and its subsidiaries to similar transactions and events under similar circumstances should, in principle, be unified for the preparation of the consolidated financial statements. PITF No. 18, however, as a tentative measure, allows a parent company to prepare consolidated financial statements using foreign subsidiaries' financial statements prepared in accordance with either International Financial Reporting Standards or U.S. generally accepted accounting principles. In this case, adjustments for the following four items are required in the consolidation process so that their impacts on net income are accounted for in accordance with Japanese GAAP unless the impact is not material.

- (1) Goodwill not subjected to amortization
- (2) Actuarial gains and losses of defined benefit plans recognized outside profit or loss
- (3) Capitalized expenditures for research and development activities

(4) Fair value measurement of investment properties, and revaluation of property, plant and equipment, and intangible assets

#### (f) ALLOWANCE FOR DOUBTFUL ACCOUNTS

Notes and accounts receivable, including loans and other receivables, are valued by providing for individually estimated uncollectible amounts plus the amounts for probable losses calculated by applying a percentage based on collection experience to the remaining accounts.

In Investments And Other Assets, the amount of Allowance for doubtful accounts is deducted from long-term loans receivable and other.

#### (g) MARKETABLE SECURITIES, INVESTMENTS IN UNCONSOLIDATED SUBSIDIARIES AND AFFILIATES, AND INVESTMENT SECURITIES

The Company and its consolidated subsidiaries are required to examine the intent of holding each security and classify those securities as (1) securities held for trading purposes, (2) debt securities intended to be held to maturities, (3) equity securities issued by subsidiaries and affiliates, and (4) all other securities that are not classified in any of the above categories (hereafter, "available-for-sale securities"). The Company and its consolidated subsidiaries did not have the securities defined as (1) above for the years ended March 31, 2018 and 2017.

Available-for-sale securities with available fair market values are stated at fair market value. Unrealized gains and losses on these securities are reported, net of applicable income taxes, as a separate component of net assets. Realized gains and losses on the sale of such securities are computed using the moving-average method. Other securities with no available fair market value are stated at moving-average cost. Equity securities issued by subsidiaries and affiliates, which are not consolidated or accounted for using the equity method, are stated at moving-average cost.

If the market value of available-for-sale securities declines significantly, such securities are restated at fair market value and the difference between fair market value and the carrying amount is recognized as loss in the period of decline (See Note 8). For equity securities with no available fair market value, if the net asset value of the investee declines significantly, such securities are required to be written down to the net asset value with the corresponding losses in the period of decline. In these cases, such fair market value or the net asset value will be the carrying amount of the securities at the beginning of the next year.

#### (h) ALLOWANCE FOR LOSSES ON INVESTMENT

To prepare for estimated losses to be incurred in the future, allowance for losses on investment is stated in amounts considered to be appropriate based on financial condition of investments. In Investments And Other Assets, the amount of Allowance for losses on investment is deducted from Investments in unconsolidated subsidiaries and affiliates and Investment securities.

#### (i) PROVISION FOR LOSSES ON GUARANTEES

To provide for losses on guarantees, the Company makes a provision for potential losses at the end of the fiscal year.

### (j) RECOGNITION OF SALES, CONTRACT WORKS IN PROGRESS AND ADVANCES RECEIVED ON UNCOMPLETED CONTRACTS

Sales on contracts for relatively large projects, which require long periods for completion and which generally include engineering, procurement (components, parts, etc.) and construction on a full-turnkey basis, are recognized on the percentage-of-completion method, primarily based on contract costs incurred to date compared with total estimated costs for contract completion.

Contract works in progress are stated at cost determined by a specific identification method and comprised of direct materials, components and parts, direct labor, subcontractors' fees and other items directly attributable to the contract, and job-related overheads. Selling, general and administrative expenses are charged to operations as incurred and are not allocated to contract job work costs.

The Company normally receives payments from customers on a progress basis in accordance with the terms of the respective construction contracts.

#### (k) INVENTORIES

Inventories of the Company and its consolidated subsidiaries are stated at cost determined using the moving-average method (which writes off the book value of inventories based on decreases in profitability) except for contract works in progress as stated in Note 1(j).

#### (I) OPERATING CYCLE

Assets and liabilities related to long-term contract jobs are included in current assets and current liabilities in the accompanying consolidated balance sheets, as they will be liquidated in the normal course of contract completion, although it may require more than one year.

#### (m) PROPERTY AND EQUIPMENT, DEPRECIATION AND FINANCE LEASES

Property and equipment are stated at cost, except for certain revalued land as explained in Note 13. Depreciation of property and equipment is calculated primarily using the straight-line method for buildings used for business operation and structures which were acquired since April 1, 2016, and the declining-balance method for other property and equipment over the estimated useful lives of the assets based on the Corporate Tax Code of Japan.

Expenditures for new facilities and those that substantially increase the useful lives of existing property and equipment are capitalized. Maintenance, repair and minor renewals are charged to expenses as incurred.

The cost and accumulated depreciation applicable to assets retired or otherwise disposed of are eliminated from the related accounts and the gain or loss on disposal is credited or charged to income.

#### (n) IMPAIRMENT OF FIXED ASSETS

The Company and its consolidated subsidiaries review their long-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset or asset group may not be recoverable. An impairment loss would be recognized if the carrying amount of an asset or asset group exceeds the sum of the undiscounted future cash flows expected to result from the continued use and eventual disposition of the asset or asset group. The impairment loss would be measured as the amount by which the carrying amount of the asset exceeds its recoverable amount, which is the higher of the discounted cash flows from the continued use and eventual disposition of the asset or the net selling price at disposition.

#### (0) RETIREMENT AND SEVERANCE BENEFITS AND PENSION COSTS

(1) Employees' severance and retirement benefits

The Company and its consolidated subsidiaries provide two types of postemployment benefit plans, unfunded lump-sum payment plans and funded non-contributory pension plans, under which all eligible employees are entitled to benefits based on the level of wages and salaries at the time of retirement or termination, length of service and certain other factors.

The Company and its certain consolidated subsidiaries also have a defined contribution pension plan, which was transferred from a portion of defined benefit pension plan.

The Company and its consolidated subsidiaries provided allowance for employees' severance and retirement benefits at March 31, 2018 and 2017, based on the estimated amounts of projected benefit obligation, actuarially calculated using certain assumptions and the fair value of the plan assets at that date.

The method of attributing the amount of expected retirement benefit in each period is a benefit formula basis.

The Company and its consolidated subsidiaries recognize past service costs as expenses using the straight-line method over 12 years within the average of the estimated remaining service lives of the employees, and actuarial gains and losses as expenses using the declining-balance method over 12 years within the average of the estimated remaining service lives.

However, certain consolidated subsidiary recognized actuarial differences as expenses in the period incurred.

#### (2) Officers' severance and retirement benefits

Consolidated domestic subsidiaries provide for liabilities in respect of lumpsum severance and retirement benefits to directors and corporate statutory auditors computed on the assumption that all officers retired at a year-end.

#### (p) RESEARCH AND DEVELOPMENT COSTS

Research and development costs for the improvement of existing skills and technologies or the development of new skills and technologies, including basic research and fundamental development costs, are charged to income in the period incurred. The total amount of research and development expenses, included in Costs of Sales and Selling, General and Administrative expenses, was ¥5,875 million (\$55,299 thousand) and ¥5,175 million, respectively, in 2018 and 2017.

#### (q) TAXES ON INCOME

The Company and its consolidated subsidiaries provide tax effects of temporary differences between the carrying amounts and the tax basis of assets and liabilities. The asset and liability approach is used to recognize deferred tax assets and liabilities for the expected future tax consequences of temporary differences.

#### (r) RESERVE FOR JOB WARRANTY COSTS

A reserve for the estimated cost of warranty obligations is provided for the Company's engineering, procurement and construction work at the time the related sales on contracts are recorded.

#### (s) RESERVE FOR LOSSES ON CONTRACTS

A reserve for losses on contracts is provided for an estimated amount of probable losses to be incurred in future years in respect of construction projects in progress.

#### (t) PER SHARE INFORMATION

Net income (loss) per share is computed by dividing net income available to common shareholders by the weighted-average number of common shares outstanding for the period.

Cash dividends per share have been presented on an accrual basis and include dividends to be approved after the balance sheet date but applicable to the year then ended.

#### (u) AMORTIZATION OF GOODWILL

Goodwill is amortized over five years on a straight-line basis. Negative goodwill is recognized in income statement immediately.

#### (v) DERIVATIVE TRANSACTIONS AND HEDGE ACCOUNTING

The accounting standard for financial instruments requires companies to state derivative financial instruments at fair value and to recognize changes in the fair value as gains or losses unless the derivative financial instruments are used for hedging purposes.

If derivative financial instruments are used as hedges and meet certain hedging criteria, the Company and its consolidated domestic subsidiaries defer recognition of gains or losses resulting from changes in fair value of derivative financial instruments until the related losses or gains on the hedged items are recognized.

However, in cases where foreign exchange forward contracts are used as hedges and meet certain hedging criteria, foreign exchange forward contracts and hedged items are accounted for in the following manner (Allocation Method):

- If a foreign exchange forward contract is executed to hedge an existing foreign currency receivable or payable,
  - (i) The difference, if any, between the Japanese yen amount of the hedged foreign currency receivable or payable translated using the spot rate at the inception date of the contract and the book value of the receivable or payable is recognized in the statement of income in the period which includes the inception date, and
  - (ii) The discount or premium on the contract (that is, the difference between the Japanese yen amount of the contract translated using the contracted forward rate and that translated using the spot rate at the inception date of the contract) is recognized over the term of the contract.
- (2) If a foreign exchange forward contract is executed to hedge a future transaction denominated in a foreign currency, the future transaction will be recorded using the contracted forward rate, and no gains or losses on the foreign exchange forward contract are recognized.

Also, where interest rate swap contracts are used as hedges and meet certain hedging criteria, the net amount to be paid or received under the interest rate swap contract is added to or deducted from the interest on the liabilities for which the swap contract was executed (Special method for interest rate swap).

#### (w) ACCRUED BONUSES TO DIRECTORS AND CORPORATE AUDITORS

Accrued bonuses to directors and corporate auditors are provided by the estimated amounts, which are obligated to pay to directors and corporate auditors after the fiscal year-end, based on services provided during the current period.

#### (x) ACCRUED BONUSES TO EMPLOYEES

Accrued bonuses to employees are provided by the estimated amounts, which are obligated to pay to employees after the fiscal year-end, based on services provided during the current period.

### (y) ACCOUNTING STANDARDS NOT YET APPLIED, ETC

(Accounting standard for revenue recognition, etc.)

- "Accounting Standard for Revenue Recognition" (ASBJ Statement No. 29 on March 30, 2018, Accounting Standards Board of Japan)
- Implementation Guidance on Accounting Standard for Revenue Recognition" (ASBJ Guidance No.30 on March 30, 2018, Accounting Standards Board of Japan)
- (1) Overview

The International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) in the United States jointly developed comprehensive accounting standards for revenue recognition and published the "Revenue from Contracts with Customers" (IFRS 15 in the IASB and Topic 606 in the FASB) in May 2014. Given that IFRS 15 will be applied from a fiscal year starting on or after January 1, 2018 and that Topic 606 will be applied from a fiscal year starting after December 15, 2017, the Accounting Standards Board of Japan (ASBJ) has developed comprehensive accounting standards for revenue recognition and published them in step with the Implementation

Guidance.

The basic policy of the ASBJ in developing accounting standards for revenue recognition is thought to be setting accounting standards, with the incorporation of the basic principles of IFRS 15 as a starting point, from a standpoint of comparability between financial statements, which is one of the benefits of ensuring consistency with IFRS 15, and to be adding alternative accounting treatments without losing comparability if there is an item that we should take into account in practices, etc. that have been conducted in Japan.

## (2) Planned date of applicationTo be applied from the beginning of the fiscal year ending March 31, 2022.

(3) Impact of the application of the accounting standards, etc. The amount of the impact on consolidated financial statements is currently under review.

#### (z) CHANGES IN PRESENTATION

#### (Consolidated balance sheets)

"Short-term loans receivable", which was included in "Other current assets" under "Current Assets" in the previous fiscal year, is presented separately for the fiscal year ended March 31, 2018 due to its increased materiality. As a result, ¥11,663 million included in "Other current assets" under "Current Assets" on the consolidated balance sheets for the previous fiscal year has been reclassified as "Short-term loans receivable".

#### (Consolidated statements of operations)

"Gain on sales of fixed assets" and "Gain on sales of affiliate's securities", which were included in "Other, net" under "Other Income (Expenses)" in the previous fiscal year, are presented separately for the fiscal year ended March 31, 2018 due to its increased materiality. As a result, ¥86 million and ¥13 million included in "Other, net" under "Other Income (Expenses)" on the consolidated statements of operations for the previous fiscal year has been reclassified as "Gain on sales of fixed assets" and "Gain on sales of affiliate's securities", respectively.

#### (Consolidated statements of cash flows)

- (1) "Loss on valuation of investment securities" and "Gain on sales of affiliate's securities", which were included in "Other'' under "Cash flows from operating activities" in the previous fiscal year, are presented separately for the fiscal year ended March 31, 2018 due to their increased materiality. As a result, ¥2,926 million and ¥13 million included in "Other," under "Cash flows from operating activities" on the consolidated statements of cash flows for the previous fiscal year have been reclassified as "Loss on valuation of investment securities" and "Gain on sales of affiliate's securities", respectively. And "Loss on sales and disposal of property and equipment", which was stated as a separate account item under "Cash flows from operating activities' in the previous fiscal year, is incorporated in "Other", for the fiscal year ended March 31, 2018 due to its decreased materiality. As a result, ¥188 million presented as "Loss on sales and disposal of property and equipment'' under "Cash flows from operating activities" on the consolidated statements of cash flows for the previous fiscal year, is incorporated in "Other", for the fiscal year ended March 31, 2018 due to its decreased materiality. As a result, ¥188 million presented as "Loss on sales and disposal of property and equipment'' under "Cash flows from operating activities" on the consolidated statements of cash flows for the previous fiscal year has been reclassified as "Other".
- (2) "(Increase) Decrease short-term loans", which was stated as a separate

account item under "Cash flows from financing activities'' in the previous fiscal year, is incorporated in "Other", for the fiscal year ended March 31, 2018 due to its decreased materiality. As a result, ¥406 million presented as "Decrease short-term loans'' under "Cash flows from financing activities" on the consolidated statements of cash flows for the previous fiscal year has been reclassified as "Other".

### Note 2 : RECEIVABLES FROM AND PAYABLES TO UNCONSOLIDATED SUBSIDIARIES AND AFFILIATES

Significant receivables from and payables to unconsolidated subsidiaries and affiliates at March 31, 2018 and 2017, were as follows:

	(Millions	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Notes and accounts receivable	¥ 989	¥ 1,197	\$ 9,309
Short-term loans receivable	425	_	4,000
Other current assets	4,510	1,454	42,451
Long-term loans receivable	1,880	2,477	17,696
Short-term loans	90	69	847
Notes and accounts payable	670	933	6,306
Advances received on uncompleted contracts	—	937	—
Other current liabilities	286	266	2,692
Other non-current liabilities	10	10	94

#### Note 3 : BORROWINGS AND ASSETS PLEDGED AS COLLATERAL

Short-term loans consisted mainly of unsecured notes and bank overdrafts and bore interest at the annual rates of 2.31% and 1.40% at March 31, 2018 and 2017, respectively. Such loans are generally renewable at maturity.

Long-term debt consisted of the following:

	(Millions of	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Secured Loans 1.47% loans from banks due serially through 2029	¥ 4,088	¥ 11,254	\$ 38,479
Unsecured Debt 0.56% – 1.25% loans from banks and insurance companies due serially through 2020 (some debt has no fixed term)	2,124	2,183	19,992
0.09% - 0.20% bonds due serially through 2022	50,000	_	470,633
	56,212	13,437	529,104
Less current maturities	(1,917)	(806)	(18,044)
Long-term debt due after one year	¥ 54,295	¥ 12,631	\$ 511,060

Assets pledged as collateral for short-term loans, long-term debt, other current liabilities and other non-current liabilities at March 31, 2018 and 2017, were as follows:

	(Millions of	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Land	¥ —	¥ 4,280	\$—
Buildings and structures, at net book value	211	2,749	1,986
Machinery and equipment, at net book value	4,649	11,271	43,759
Cash and deposits	1,041	1,850	9,799
Investments securities	1,638	1,638	15,418
Total	¥ 7,539	¥ 21,788	\$ 70,962

The annual maturities of long-term debt outstanding at March 31, 2018 were as follows:

	Amo	unt
Year ending March 31,	(Millions of yen)	(Thousands of U.S. dollars) (Note 1)
2019	¥ 1,917	\$ 18,044
2020	434	4,085
2021	20,359	191,632
2022	362	3,408
2023 and thereafter	33,140	311,935
Total	¥ 56,212	\$ 529,104

#### Note 4 : INVENTORIES

Inventories at March 31, 2018 and 2017 were summarized as follows:

	(Millions (	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Inventories:			
Contract works in progress	¥ 20,634	¥ 35,026	\$ 194,221
Finished goods and merchandise	3,958	3,765	37,255
Works in process	2,453	2,211	23,089
Raw materials and others	2,836	2,968	26,695
Total	¥ 29,881	¥ 43,970	\$281,260

#### **Note 5 : RETIREMENT BENEFIT PLAN**

The significant components of the pension plans as of and for the years ended March 31, 2018 and 2017 were summarized as follows:

#### (a) DEFINED BENEFIT PLAN

(1) Movement in retirement benefit obligations

	(Millions o	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Balance at beginning of year	¥ 51,025	¥ 50,642	\$ 480,280
Service cost	2,138	2,100	20,124
Interest cost	223	218	2,099
Actuarial loss	6	376	56
Benefits paid	(2,138)	(2,192)	(20,124)
Past service costs	(178)	-	(1,675)
Other	(71)	(119)	(668)
Balance at end of year	¥ 51,005	¥ 51,025	\$ 480,092

#### (2) Movement in plan assets

	(Millions of yen)		(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Balance at beginning of year	¥ 35,280	¥ 35,465	\$ 332,078
Expected return on plan assets	524	524	4,932
Actuarial gain	416	33	3,916
Contributions paid by the employer	992	997	9,337
Benefits paid	(1,581)	(1,648)	(14,881)
Other	(30)	(91)	(282)
Balance at end of year	¥ 35,601	¥ 35,280	\$ 335,100

### (3) Reconciliation from retirement benefit obligations and plan assets to net defined benefit liability and asset.

	(Millions o	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Funded retirement benefit obligations	¥ 38,117	¥ 38,570	\$ 358,782
Plan assets	(35,601)	(35,280)	(335,100)
	2,516	3,290	23,682
Unfunded retirement benefit obligations	12,888	12,455	121,310
Allowance for officers' lump-sum severance benefits	292	275	2,479
Total net defined benefit liability	¥ 15,696	¥ 16,020	\$ 147,741
Net defined benefit liability	16,121	16,210	151,741
Net defined benefit asset	(425)	(190)	(4,000)
Total net defined benefit liability	¥ 15,696	¥ 16,020	\$ 147,741

#### (4) Retirement benefit expenses

	(Millions o	f yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Service cost	¥ 2,139	¥ 2,100	\$ 20,134
Interest cost	223	218	2,099
Expected return on plan assets	(524)	(524)	(4,932)
Net actuarial gain and loss amortization	675	1,039	6,353
Past service cost amortization	(222)	(330)	(2,090)
Total retirement benefit expenses	¥ 2,291	¥ 2,503	\$ 21,564

#### (5) Remeasurements of defined benefit plans

	(Millions of	yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Actuarial losses	¥ 1,085	¥ 696	\$ 10,213
Past service costs	(44)	(330)	(414)
Others	6	8	56
Total balance	¥ 1,047	¥ 374	\$ 9,855

#### (6) Cumulative effect of remeasurements of defined benefit plans

	(Millions o	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Actuarial losses that are yet to be recognized	¥ (4,756)	¥ (5,890)	\$ (44,767)
Past service costs that are yet to be recognized	2,151	2,195	20,247
Total balance	¥ (2,605)	¥ (3,695)	\$ (24,520)

#### (7) Plan assets

Components of plan assets

	March 31, 2018	March 31, 2017
Bonds	66%	65%
Equity securities	18	18
Cash and cash equivalents	1	1
Other	15	16
Total	100%	100%

#### Long-term expected rate of return

Current and target asset allocations and historical and expected returns on various categories of plan assets have been considered in determining the long-term expected rate of return.

#### (8) Actuarial assumptions

The principal actuarial assumptions at March 31, 2018 and 2017 were as follows:

	March 31, 2018	March 31, 2017
Discount rate	Principally 0. 25%	Principally 0. 25%
Long-term expected rate of return	Principally 1.5%	Principally 1.5%
Expected rate of salary increase	Principally 4.1%	Principally 4.1%

#### (b) DEFINED CONTRIBUTION PENSION PLAN

The Company's contributions were ¥316 million (\$2,974 thousand) and ¥263 million for the years ended March 31, 2018 and 2017, respectively.

#### **Note 6 : CONTINGENCIES**

- It is a business practice in Japan for a company to guarantee the indebtedness of certain of its trading agents, suppliers, subcontractors and certain subsidiaries and affiliates. The aggregate amount of such guarantees was ¥6,045 million (\$56,899 thousand) and ¥6,287 million at March 31, 2018 and 2017, respectively.
- (2) The Company has guaranteed employees' housing loans and others from banks in the amount of ¥11 million (\$104 thousand) and ¥7 million at March 31, 2018 and 2017, respectively.

#### Note 7 : NET ASSETS

Under the Japanese Corporation Law ("the Law") and regulations, the entire amount paid for new shares is required to be designated as common stock. However, companies may, by a resolution of the Board of Directors, designate an amount not exceeding one-half of the price of the new shares as additional paid-in capital, which is included in capital surplus.

Under the Law, companies are required to set aside an amount equal to at least 10% of cash dividends and other cash appropriations in a legal earnings reserve until the total of the legal earnings reserve and additional paid-in capital equals 25% of common stock.

Under the Law, the legal earnings reserve and additional paid-in capital can be used to eliminate or reduce a deficit by a resolution of the shareholders' meeting or can be capitalized by a resolution of the Board of Directors.

Additional paid-in capital and legal earnings reserve may not be distributed as dividends. Under the Law, however, additional paid-in capital and legal earnings reserve may be transferred to retained earnings by a resolution of the shareholders' meeting as long as the total amount of the legal earnings reserve and additional paid-in capital remained equal to or exceeded 25% of common stock.

The maximum amount that the Company can distribute as dividends is calculated based on the non-consolidated financial statements of the Company in accordance with the Law.

At the annual shareholders' meeting of the Company held on June 28, 2018, the shareholders approved cash dividends amounting to ¥6,307 million (\$59,366 thousand). Such appropriations have not been accrued in the consolidated financial statements as of March 31, 2018. Such appropriations are recognized in the period in which they are approved by the shareholders.

#### **Note 8 : INFORMATION ON SECURITIES**

A. The following tables summarize acquisition costs and book values stated at the fair value of securities with available fair values as of March 31, 2018 and 2017.

AVAILABLE-FOR-SALE SECURITIES WITH AVAILABLE FAIR VALUES: (1) Securities with book values exceeding acquisition costs:

		(Millions of yen)	
March 31, 2018	Acquisition cost	Book value	Difference
Equity securities	¥ 10,132	¥ 25,817	¥ 15,685

		(Millions of yen)	
March 31, 2017	Acquisition cost	Book value	Difference
Equity securities	¥ 10,124	¥ 20,670	¥ 10,546

	(Thousand	ds of U.S. dollars) (Note 1)	)
March 31, 2018	Acquisition cost	Book value	Difference
Equity securities	\$ 95,369	\$ 243,006	\$ 147,637

#### (2) Securities with book values not exceeding acquisition costs:

		(Millions of yen)		
March 31, 2018	Acquisition cost	Book value	Difference	
Equity securities	¥ 908	¥ 908 ¥ 340 ¥ (56		
		(Millions of yen)		
	A constant of the second	Bask star	D'11	
March 31, 2017	Acquisition cost	Book value	Difference	

	(Thousands of U.S. dollars) (Note 1)		
March 31, 2018	Acquisition cost	Book value	Difference
Equity securities	\$ 8,546	\$ 3,200	\$ (5,346)

B. The following tables summarize book values of securities with no available fair values or securities not valued by fair market prices as of March 31, 2018 and 2017.

#### (a) AVAILABLE-FOR-SALE SECURITIES WITH NO AVAILABLE FAIR VALUES:

	(Millions	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Non-listed equity securities	¥ 12,484	¥ 16,916	\$ 117,508
Subscription certificate	38	38	358
Non-listed affiliate's bond	920	_	8,660
Total	¥ 13,442	¥ 16,954	\$ 126,526

#### (b) UNCONSOLIDATED SUBSIDIARIES AND AFFILIATES:

	(Millions of	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Securities of unconsolidated subsidiaries	¥ 5,957	¥ 2,942	\$ 56,071
Securities of affiliates	24,263	18,508	228,379
Total	¥ 30,220	¥ 21,450	\$ 284,450

#### (c) LOSS ON VALUATION OF INVESTMENT SECURITIES:

The Company recognized loss on valuation for investment securities in the amount of ¥5,198 million (\$48,927 thousand) and ¥2,926 million for the years ended March 31, 2018 and 2017, respectively.

The Company and its consolidated domestic subsidiaries follow a policy of devaluation of available-for-sale securities. The policy of devaluation for the Company and its consolidated domestic subsidiaries is that if the available fair value of the securities declines by 50% or more, compared with acquisition cost, all the corresponding securities are devalued as such decline is considered to be substantial and non-recoverable in value. In addition, in the case whereby the available fair value of the securities declines by more than 30% but by less than 50%, the Company and its consolidated domestic subsidiaries examine the recoverability of the fair value of the securities and devaluate if those securities are considered to be unrecoverable.

#### (d) SALES OF SECURITIES CLASSIFIED AS OTHER SECURITIES

	(Millions o	(Millions of yen)	
March 31,	2018	2017	2017
Equity securities:			
Sales proceeds	¥ 101	¥ 3,048	\$ 951
Aggregate gain	51	1,648	480
Aggregate loss	—	—	—

#### **Note 9 : DERIVATIVE TRANSACTIONS AND HEDGE ACCOUNTING**

As explained in Note 1 (v), the accounting standard for financial instruments requires companies to state derivative financial instruments at fair value and to recognize changes in the fair value as gains or losses unless derivative financial instruments are used for hedging purposes.

The Company utilizes foreign currency forward contracts and interest rate swap contracts as derivative financial instruments only for the purpose of mitigating

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future risks of fluctuation of foreign currency exchange rates with respect to foreign currency receivable and payable and mitigating future risks of interest rate increases and lowering the financing costs with respect to borrowings.

Foreign currency forward contracts and interest rate swap contracts are subject to risks of foreign exchange rate changes and interest rate changes, respectively.

The derivative transactions are executed and managed in accordance with the established policies and within the specified limit on the amounts of derivative transactions allowed.

The following summarizes hedging derivative financial instruments used by the Company and hedged items:

Hedging instruments:	Hedged items:
Foreign currency forward contracts	Foreign currency trade receivable, payable and future transactions denominated in a foreign currency
Foreign currency deposit	Foreign currency payable and future transactions denominated in a foreign currency
Interest rate swap contracts	Interest on loans payable

The Company evaluates hedge effectiveness semi-annually by comparing the cumulative changes in cash flows from or the changes in fair value of hedged items and the corresponding changes in the hedging derivative instruments. However, where the principal conditions underlying the hedging instruments and the hedged assets or liabilities are similar, the evaluation of hedge effectiveness is not performed.

The Company's financial instrument counter-parties are all prime banks with high ratings, and the Company does not expect non-performance by the counter-parties.

(a) FAIR VALUE OF UNDESIGNATED DERIVATIVE FINANCIAL INSTRUMENTS Fair value of undesignated derivative financial instruments as of March 31, 2018 and 2017, is summarized as follows:

			(Millions of yen)		
		Contract amount			
March 31, 2018	Due within one year	Due after one year	Total	Fair value	Profit or loss evaluation
Forward exchange contracts					
Sell U.S. dollars	¥ 36,971	¥ -	¥ 36,971	¥ (2)	¥ (2)
Buy Euro	264	-	264	2	2
Buy IDR	2,187	-	2,187	11	11
			(Millions of yen)		
		Con	tract amount		
March 31, 2017	Due within one year	Due after one year	Total	Fair value	Profit or loss evaluation
Forward exchange contracts					
Sell U.S. dollars	¥ 1,871	¥ —	¥ 1,871	¥ 109	¥ 109
Buy Euro	2,474	41	2,515	(139)	(139)

		(Thousands of U.S. dollars) (Note 1)							
		Con	tract amount						
March 31, 2018	Due within one year	Due after one year	Total	Fair value	Profit or loss evaluation				
Forward exchange contracts									
Sell U.S. dollars	\$ 347,995	\$—	\$ 347,995	\$ (19)	\$ (19)				
Buy Euro	2,485	_	2,485	19	19				
Buy IDR	20,585	_	20,585	104	104				

Fair value of forward exchange contracts is stated based on the quoted price from banks.

#### (b) FAIR VALUE OF DERIVATIVE FINANCIAL INSTRUMENTS DESIGNATED AS HEDGING INSTRUMENTS

Fair value of derivative financial instruments designated as hedging instruments as of March 31, 2018 and 2017 is summarized as follows:

March 31, 2018			Contract		
Accounting method	Hedging instruments	Hedged item	Contract amount	Portion over one year	Fair value
Allocation method	Forward exchange contracts				
(Note 1(v))	Buy Euro	Accounts payable	¥ 4,406	¥266	¥ (63)
Allocation method	Forward exchange contracts				
(Note 1(v))	Buy AUD	Short- term loans			
Principal method (Note	Interest rate swap contracts	receivable	13,618	-	(565)
1 (v))	Receive variable rate and Pay fixed rate swap	Long-term debt	3,536	3,244	(220)

			(	Millions of yen)	
March 31, 2017			Contract		
Accounting method	Hedging instruments	Hedged item	Contract amount	Portion over one year	Fair value
Allocation method	Forward exchange contracts				
(Note 1(v))	Buy Euro	Accounts payable	¥ 955	¥ 535	¥ 0
Principal method	Interest rate swap contracts				
(Note 1(v))	Receive variable rate and Pay fixed rate swap	Long-term debt	8,948	8,366	(721)

#### (Thousands of U.S. dollars) (Note 1) March 31, 2018 Contract amount Accounting Contract Portion over amount one year Fair value method Hedging instruments Hedged item Allocation Forward exchange method contracts (Note 1(v)) Buy Euro Accounts \$ 41,472 \$ 2,504 \$ (593) payable Allocation Forward exchange method contracts (Note 1(v)) Buv AUD Shortterm loans 128,181 receivable - (5,318) Principal Interest rate swap method contracts (Note 1(v)) Receive floating and Pay Long-term fixed swap debt 33,283 30,535 (2,071)

Fair value of forward exchange contracts is stated based on the quoted price from banks.

#### Note 10 : SEGMENT INFORMATION

#### (a) OVERVIEW OF REPORTED SEGMENTS

The reported segments of the Company are those units for which separate financial statements can be obtained among the constituent units of the Company and regularly examined by Chief Executive Officer for decisions on the allocation of management resources and for assessing business performance. The operations of the Company and its consolidated subsidiaries are classified into two reportable segments: the total engineering business and the catalysts and fine products business.

Major activities included in the total engineering business are design, procurement, construction and performance test services of machinery and plants for petroleum, petroleum refining, petrochemicals, gas, chemicals, nuclear energy, metal refining, biochemical, food, pharmaceuticals, medical, logistics, information technology, environment conservation and pollution control. Major activities in the catalysts and fine products business include manufacturing and distribution of chemical and catalyst products (FCC catalysts, hydro treating catalysts, deNOx catalysts, petrochemical catalysts, etc) and new functional material products (colloidal silica, coating materials for surface treatment on cathode ray tubes, material for semiconductors, cathode materials and cosmetic products, etc.).

The accounting policies of the segments are substantially the same as those described in the significant accounting policies in Note 1.

The following is information about sales and profit or loss by reported segments for the years ended March 31, 2018 and 2017:

	Rep	orted Segment					
	Catalysts and fine						
Year ended March 31, 2018	Total engineering	products	Sub-Total	Other	Total	Adjustment	Consolidated
Net sales:							
External customers	¥ 670,087	¥ 42,141	¥ 712,228	¥ 10,760	¥ 722,988	¥ —	¥ 722,988
Inter-segment	420	5	425	2,127	2,552	(2,552)	_
Total	¥ 670,507	¥ 42,146	¥ 712,653	¥ 12,887	¥ 725,540	¥ (2,552)	¥ 722,988
Segment profit	¥ 11,542	¥ 7,199	¥ 18,741	¥ 2,607	¥ 21,348	¥ 147	¥ 21,495
Segment assets	¥ 598,203	¥ 50,550	¥ 648,753	¥ 46,193	¥ 694,946	¥ (9,944)	¥ 685,002
Depreciation and amortization	¥ 2,933	¥ 2,426	¥ 5,359	¥ 2,124	¥ 7,483	¥ (56)	¥ 7,427
Capital expenditures	¥ 5,854	¥ 2,635	¥ 8,489	¥ 578	¥ 9,067	¥ —	¥ 9,067

\*1. The "Other" category includes business activities of information processing, consulting, management of real estate, power and water supply and oil and gas production. \*2. Adjustments for segment profit, segment assets and other items represent the elimination of intersegment transactions.

\*3. Segment profit is reconciled to operating income of consolidated statements of operations.

	(Millions of yen)						
	Rep	orted Segment					
	C	atalysts and fine					
Year ended March 31, 2017	Total engineering	products	Sub-Total	Other	Total	Adjustment	Consolidated
Net sales:							
External customers	¥ 643,377	¥ 39,918	¥ 683,295	¥ 9,857	¥ 693,152	¥ —	¥ 693,152
Inter-segment	392	107	499	1,669	2,168	(2,168)	
Total	¥ 643,769	¥ 40,025	¥ 683,794	¥ 11,526	¥ 695,320	¥ (2,168)	¥ 693,152
Segment profit (loss)	¥ (29,399)	¥ 6,121	¥ (23,278)	¥ 1,607	¥ (21,671)	¥ 174	¥ (21,497)
Segment assets	¥ 563,620	¥ 47,674	¥ 611,294	¥ 55,239	¥ 666,533	¥ (20,241)	¥ 646,292
Impairment	¥ 653	¥ —	¥ 653	¥ 5,275	¥ 5,928	¥ —	¥ 5,928
Depreciation and amortization	¥ 3,466	¥ 2,356	¥ 5,822	¥ 2,247	¥ 8,069	¥ (56)	¥ 8,013
Capital expenditures	¥ 2,565	¥ 2,477	¥ 5,042	¥ 1,118	¥ 6,160	¥ —	¥ 6,160

\*1. The "Other" category includes business activities of information processing, consulting, management of real estate, power and water supply and oil and gas production. \*2. Adjustments for segment profit (loss), segment assets and other items represent the elimination of intersegment transactions.

\*3. Segment profit (loss) is reconciled to operating loss of consolidated statements of operations.

			(Thousan	ds of U.S. dollars) (Note 1)			
	Re	ported Segment					
	(	Catalysts and fine					
Year ended March 31, 2018	Total engineering	products	Sub-Total	Other	Total	Adjustment	Consolidated
Net sales:							
External customers	\$ 6,307,295	\$ 396,658	\$ 6,703,953	\$ 101,280	\$6,805,233	\$—	\$ 6,805,233
Inter-segment	3,953	47	4,000	20,021	24,021	(24,021)	_
Total	\$ 6,311,248	\$ 396,705	\$ 6,707,953	\$ 121,301	\$ 6,829,254	\$ (24,021)	\$ 6,805,233
Segment profit	\$ 108,641	\$67,761	\$176,402	\$ 24,539	\$ 200,941	\$ 1,384	\$ 202,325
Segment assets	\$ 5,630,676	\$ 475,809	\$ 6,106,485	\$ 434,799	\$ 6,541,284	\$ (93,600)	\$6,447,684
Depreciation and amortization	\$ 27,607	\$ 22,835	\$ 50,442	\$19,993	\$ 70,435	\$ (527)	\$ 69,908
Capital expenditures	\$ 55,102	\$ 24,802	\$ 79,904	\$ 5,441	\$ 85,345	\$—	\$85,345

#### (Millions of yen)

#### (Theusende of LLC, dellare) (Note 1)

#### (b) RELATED INFORMATION

#### I. INFORMATION BY GEOGRAPHY

#### (1) Net Sales

		Year en	ided March 31	, 2018		
Japan	East and Southeast Asia	Middle East	North America	Oceania	Other	Total
¥ 148,300	¥ 78,566	¥ 115,909	¥ 47,148	¥ 146,763	¥ 186,302	¥ 722,988

### \*1. Net sales are classified by the place of customers' address. \*2. Oceania includes Australia ¥146,763 million (\$1,381,429 thousand).

- \*3. Other includes Russia ¥107,044 million (\$1,007,568 thousand).

		Year er	nded March 31,	2017		
Japan	East and Southeast Asia	Middle East	North America	Oceania	Other	Total
¥ 138.831	¥ 100.047	¥ 127.031	¥ 33.864	¥ 125.336	¥ 168.043	¥ 693,152

#### \*1 Net sales are classified by the place of customers' address

- \*2. Oceania includes Australia ¥125,336 million.
- \*3. Other includes Russia ¥136,666 million.

#### Year ended March 31, 2018

Japan	East and Southeast Asia	Middle East	North America	Oceania	Other	Total
\$ 1,395,896	\$ 739,514	\$ 1,091,011	\$ 443,788	\$ 1,381,429	\$ 1,753,595	\$ 6,805,233

#### (2) Property and equipment

	(Millions	; of yen)	(Thousands of U.S. dollars) (Note 1)
	Years ended March 31,2018	Year ended March 31, 2017	March 31, 2018
Japan	¥ 49,471	¥ 65,870	\$ 465,653
Other	5,751	4,008	54,132
Total	¥ 55,222	¥ 69,878	\$ 519,785

#### II. INFORMATION BY MAJOR CUSTOMERS

The following is information on major customers which account for 10% or more of the net sales on the consolidated statements of operations for the years ended March 31, 2018 and 2017:

Year ended March 31, 2018	(Millions of yen)	(Thousands of U.S. dollars) (Note 1)	Related segments
Ichthys LNG Pty Ltd	¥ 138,850	\$ 1,306,947	Total engineering
JSC YAMAL LNG	¥ 106,703	\$ 1,004,358	Total engineering
Year ended March 31, 2017		(Millions of yen)	Related segments
JSC YAMAL LNG		¥ 136,567	Total engineering
Ichthys LNG Pty Ltd		¥ 116,157	Total engineering

#### III. INFORMATION ON IMPAIRMENT LOSS

This information is not disclosed, as this information is disclosed in Note 10 (a) for the years ended March 31, 2018 and 2017.

#### Note 11 : TAXES ON INCOME

Income taxes applicable to the Company and its domestic consolidated subsidiaries comprise corporate taxes, inhabitants' taxes and enterprise taxes which, in the aggregate, resulted in statutory tax rates of 30.9% for the years ended March 31, 2018 and 2017.

(1) The following table summarizes the differences between the statutory tax rate and the Company's and its consolidated subsidiaries' effective tax rate for financial statement purposes for the years ended March 31, 2018 and 2017, were as follows:

	2018	2017
Statutory tax rate	30.9%	-%
Non-deductible expenses	1.2	-
Non-taxable dividend income	(2.0)	-
Tax credit for research and development expenses	(1.6)	-
Foreign tax credit	5.5	-
Loss carryforwards with unrecognized tax effects	3.2	-
Valuation allowances	9.7	-
Other	(0.0)	-
Effective tax rate	46.9%	-%

This information is not disclosed, as loss before taxes on income was recorded for the year ended March 31, 2017.

(2) Significant components of the Company's and its consolidated subsidiaries' deferred tax assets and liabilities as of March 31, 2018 and 2017, were as follows:

	(Millions )	(Thousands of U.S. dollars) (Note 1)	
March 31,	2018	2017	2018
Current deferred taxes			
Deferred tax assets:			
Reserve for losses on contracts	¥ 5,962	¥ 7,579	\$ 56,118
Accrued employees' bonuses	2,070	1,864	19,484
Accounts payable	2,574	1,586	24,228
Reserve for job warranty costs	426	874	4,010
Other	753	623	7,088
Total current deferred tax assets	11,785	12,526	110,928
Deferred tax liabilities:			
Foreign currency hedge	_	(3)	_
Other	(131)	(111)	(1,233)
Total current deferred tax liabilities	(131)	(114)	(1,233)
Net current deferred tax assets	¥ 11,654	¥ 12,412	\$ 109,695

	(Millions)	of ven)	(Thousands o U.S. dollars (Note 1
- March 31,	2018	2017	2018
Non-current deferred taxes			
Deferred tax assets:			
Net defined benefit liability	¥ 4,656	¥ 4,752	\$ 43,825
The percentage-of-completion method	1,416	4,039	13,328
Tax loss carry forward	1,303	3,669	12,265
Loss on valuation of investment securities	1,946	1,946	18,317
Other	1,084	1,986	10,204
Total non-current deferred tax assets	10,405	16,392	97,939
Deferred tax liabilities:			
Net unrealized holding gains on securities	(4,925)	(3,508)	(46,357)
Other	(404)	(437)	(3,803)
Total non-current deferred tax liabilities	(5,329)	(3,945)	(50,160)
Net non-current deferred tax assets	¥ 5,076	¥ 12,447	\$ 47,779
Deferred tax liabilities for land revaluation	¥ 1,015	¥ 3,126	\$ 9,554
Undistributed earnings of foreign consolidated subsidiaries	¥ 240	¥ 236	\$ 2,259
Others	81	148	762

Others	81	148	762
Non-current deferred tax liabilities	¥ 321	¥ 384	\$ 3,021
For the years ended March 31	2018 and 2017	the valuation	allowances of

es of led March 31, 2018 and 2017, the valuation ¥23,327 million (\$219,569 thousand) and ¥20,941 million have been deducted from the gross amount of the non-current deferred tax assets, respectively.

#### Note 12 : NOTES TO THE CONSOLIDATED STATEMENTS OF CASH FLOWS

(1) Reconciliation of cash in the consolidated balance sheets and cash and cash equivalents in the consolidated statements of cash flows was as follows:

	(Millions	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Cash and deposits	¥ 195,394	¥ 185,603	\$ 1,839,175
Short-term loan receivable with a maturity date of three months or less	40,000	_	376,506
Cash and cash equivalents	¥ 235,394	¥ 185,603	\$ 2,215,681

#### (2) Significant non-cash transaction

- During the year ended March 31, 2018, the Company acquired shares by contribution in kind.
- Details of the movement resulting from the acquisition of shares by contribution in kind are as follows:

	(Millions of	yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Decrease in short-term loan receivables	¥ 5,525	-	\$ 52,005
Increase in investments in unconsolidated subsidiaries and affiliates	¥ 5,525	-	\$ 52,005

#### **Note 13 : LAND REVALUATION**

Pursuant to Article 2 of the Enforcement Ordinance for the Law Concerning Land Revaluation effective March 31, 1998, the Company recorded its owned land used for business at the fair value as of March 31, 2002, and the related revaluation difference, net of income taxes, was debited to Land revaluation, net of deferred tax portion in the Net Assets section. The applicable income tax portion was reported as Deferred Tax Liabilities for Land Revaluation in the consolidated balance sheets at March 31, 2018 and 2017. When such land is sold, land revaluation is reversed and debited to retained earnings.

Fair value of the revalued land as of March 31, 2018 was ¥1,667 million (\$15,691 thousand) less than the book value as of March 31, 2018.

#### **Note 14 : RELATED PARTY TRANSACTIONS**

This information is not disclosed, as this is immaterial for the years ended March 31, 2018 and 2017.

#### **Note 15 : RENTAL PROPERTY**

The fair value of investment and rental property on the consolidated financial statements at March 31, 2018 and 2017, were as follows:

	Book value (net of depreciation)			Fair value
	March 31, 2016	Decrease	March 31, 2017	March 31, 2017
Millions of yen	¥ 7,459	¥ (75)	¥ 7,384	¥ 6,410
	March 31, 2017	Decrease	March 31, 2018	March 31, 2018
Millions of yen	¥ 7,384	¥ (7,384)	¥ -	¥ -
Thousands of U.S dollars (Note1)	\$ 69,503	\$ (69,503)	\$ -	\$ -

Rental real estate assets are presented on the consolidated balance sheets net of accumulated depreciation and accumulated impairment loss.

The reason of the decrease was mainly due to the sales of the assets and the depreciation of the assets for the years ended March 31, 2018 and 2017, respectively.

The fair value was determined by the Company based on "the guidance for appraising real estate".

The Company has rental commercial properties (including land) in Kanagawa Prefecture. The rental incomes in the Other income were ¥400 million (\$3,765 thousand) and ¥443 million for the years ended March 31, 2018 and 2017, respectively. The gain on sales of the rental property in the Other income was ¥4,776 million (\$44,955 thousand) for the years ended March 31, 2018.

#### **Note 16 : FINANCIAL INSTRUMENTS**

A. QUALITATIVE INFORMATION ON FINANCIAL INSTRUMENTS (a) POLICIES FOR USING FINANCIAL INSTRUMENTS

The Company manages surplus capital using financial instruments that are shortterm and carry low risk. The Company uses derivatives to mitigate the risks that are described below, and does not use derivatives for speculative transactions.

#### (b) FINANCIAL INSTRUMENTS, ASSOCIATED RISKS AND THE RISK MANAGEMENT SYSTEM

Notes and accounts receivable expose the Company to customer credit risk. Investment securities are mainly related to the business and capital alliance companies and expose the Company to the changes in market prices. Loans receivable are mainly related to subsidiaries and affiliates.

Most notes and accounts payable are due within one year. Some accounts payable associated with purchasing machines and construction contracts are denominated in foreign currencies, which expose the Company to the risks of exchange rate fluctuations. The Company generally procures capital required under its business plan through bank loans. Some bank loans and bond expose the Company to the risks of interest rate fluctuations, which the Company uses interest rate swaps to hedge.

The Company uses derivatives transactions including foreign exchange forward contracts to hedge the risk of exchange rate fluctuations associated with accounts receivable and payable denominated in foreign currencies and interest rate swaps to hedge the risk of interest rate fluctuations associated with loans. "Derivative Transactions and Hedge Accounting" in Note 1(v) and Note 9 presented earlier explain hedge accounting issues including methods, hedging policies, hedged items and recognition of gain or loss on hedged positions.

#### (c) RISK MANAGEMENT SYSTEM FOR FINANCIAL INSTRUMENTS

(1) Credit risk management (counter-party risk)

The Company has established internal procedures for receivables under which the related divisions are primarily responsible for periodically monitoring counter-party status. The department manages amounts and settlement dates by counter-party and works to quickly identify and mitigate payment risk that may result from situations including deterioration of the financial condition of counter-parties. Consolidated subsidiaries are subject to the same risk management rules.

In using derivatives transactions, the Company mitigates counter-party risk by conducting transactions with highly creditworthy financial institutions.

(2) Market risk management (risk of exchange rate and interest rate fluctuations) The Company monitors the balance of the foreign currency receivable and payable by each currency and every month and utilizes foreign currency forward contracts and foreign currency deposit to hedge the risk of fluctuations. The Company uses interest rate swaps to mitigate the risk of interest rate fluctuations associated with loans.

Regarding marketable securities and investment securities, the Company periodically examines fair value and the financial condition of the issuing entities and revises its portfolio based on its relationships with issuing entities.

The derivative transactions are executed and managed by the Finance & Accounting Department in accordance with the established policies and within

the specified limit on the amounts of derivative transactions allowed. The Department periodically provides administrative reports on the results to the financial director and treasurer.

(3) Management of liquidity risk associated with capital procurement (payment default risk)

The Company manages liquidity risk by creating and updating a capital deployment plan based on reports from each division.

### (d) SUPPLEMENTAL INFORMATION ON THE FAIR VALUE OF FINANCIAL INSTRUMENTS

The fair value of financial instruments is based on market prices, or a reasonable estimate of fair value for instruments for which market prices are not available. Estimates of fair value are subject to fluctuation because they employ variable factors and assumptions.

In addition, the contractual amounts of the derivatives transactions discussed in B (a) below are not an indicator of the market risk associated with derivatives transactions

#### B. FAIR VALUES OF FINANCIAL INFORMATION

(a) FAIR VALUES OF FINANCIAL INSTRUMENTS

Fair values of financial instruments as of March 31, 2018 and 2017 were summarized as follows: The financial instruments, whose fair values were difficult to measure, were not included in the table below and were summarized in B (b).

			(Millions of	yen)		
		March 31, 2018			March 31, 2017	
	Carrying amount	Estimated fair value	Difference	Carrying amount	Estimated fair value	Difference
Cash and deposits	¥ 195,394	¥ 195,394	¥ —	¥ 185,603	¥ 185,603	¥ —
Notes and accounts receivable net*1	186,672	186,672	_	194,827	194,827	—
Short-term loans receivable	46,475	46,475	_	_	_	_
Other receivables*2	43,251	43,251	_	23,253	23,253	_
Investment securities	26,158	26,158	_	21,426	21,426	_
Long-term loans receivable, net*1	3,368	3,370	2	5,731	5,731	—
Total Assets	¥ 501,318	¥ 501,320	¥ 2	¥ 430,840	¥ 430,840	—
Notes and accounts payable	¥ 89,164	¥ 89,164	¥ —	¥ 97,613	¥ 97,613	¥ —
Long-term debt	54,295	54,430	135	12,631	12,643	12
Total Liabilities	¥ 143,459	¥ 143,594	¥ 135	¥ 110,244	¥ 110,256	¥ 12
Derivative financial instruments, net	¥ (838)	¥ (838)	¥ —	¥ (750)	¥ (750)	¥ —

	(Thousands of U.S. dollars)(Note 1)		
	March 31, 2018		
	Carrying amount	Estimated fair value	
Cash and deposits	\$ 1,839,175	\$ 1,839,175	
Notes and accounts receivable, net *1	1,757,078	1,757,078	
Short-term loans receivable	437,453	437,453	
Other receivables*2	407,107	407,107	
Investment securities	246,216	246,216	
Long-term loans receivable, net *1	31,702	31,721	
Total Assets	\$ 4,718,731	\$ 4,718,750	
Notes and accounts payable	\$ 839,270	\$ 839,270	
Long-term debt	511,060	512,331	
Total Liabilities	\$ 1,350,330	\$ 1,351,601	
Derivative financial instruments, net	\$ (7,888)	\$ (7,888)	

Derivative financial instruments, net \$ (7,888)

\*1 The amount of individual allowance for doubtful accounts is deducted from notes and accounts receivable and long-term loans receivable

\*2 Other receivables is included in other current assets on the consolidated balance sheets.



The following methods and assumptions were used to estimate the fair value of the financial instruments.

#### Cash and deposits, and Marketable securities

All deposits and negotiable certificates of deposit are short-term. Therefore, the carrying amount is used for the fair value of these items because these amounts are essentially the same.

#### Notes and accounts receivable

Notes and accounts receivable are short-term. Therefore, the carrying amount is used for the fair value of short-term receivables because these amounts are essentially the same.

#### Short-term loans receivable

Short-term loans receivable are short-term. Therefore, the carrying amount is used for the fair value of short-term receivables because these amounts are essentially the same.

#### Other receivables

Other receivables are short-term. Therefore, the carrying amount is used for the fair value of short-term receivables because these amounts are essentially the same.

#### Investment securities

Fair value of Investment securities is the price listed on securities exchanges for equities. In addition, Note 8 provides information on marketable securities by holding intent.

#### Long-term loans receivable

Fair value of long-term loans receivable is estimated as discounted present value of total principal and interest using assumed interest rates for equivalent new loans.

#### Notes and accounts payable

Notes and accounts payable are short-term. Therefore, carrying amount is used for the fair value of short-term payables because these amounts are essentially the same.

#### Long-Term Debt

Fair value of long-term debt is estimated as the discounted present value of total principal and interest using assumed interest rates for equivalent new loans or bonds. Interest rate swaps subject to special method are used for long-term floating-rate loans. Principal and interest of the loans in which these interest rate swaps are embedded are discounted using a reasonable estimate of the interest rate on the loan at the time of issue.

#### Derivative financial instruments

Please refer to "DERIVATIVE TRANSACTIONS AND HEDGE ACCOUNTING" in Note 1(v) and Note 9.

#### (b) FINANCIAL INSTRUMENTS, WHOSE FAIR VALUES WERE DIFFICULT TO MEASURE

The financial instruments, whose fair values were difficult to measure, as of March 31, 2018 and 2017, were summarized as follows:

	(Millions	of yen)	(Thousands of U.S. dollars) (Note 1)
March 31,	2018	2017	2018
Unconsolidated subsidiaries and affiliates	¥ 30,220	¥ 21,450	\$ 284,450
Non-listed equity securities	12,484	17,690	117,508
Subscription certificate	38	38	358
Non-listed affiliate's bond	920	-	8,660

It is difficult to measure the fair value of these financial instruments because there is no market price available and it is not practical to calculate future cash flow. Therefore, these financial instruments were not included in the Investment securities described in B (a).

#### (c) MATURITIES OF FINANCIAL INSTRUMENTS

The maturities of the financial instruments at March 31, 2018 were as follows:

(Millions of yen)			
2019	2020 - 2024	2025 - 2029	2030 and thereafter
¥ 195,394	¥ -	¥ -	¥ -
186,672	-	-	-
46,475	-	-	-
43,251	-	-	-
-	920	-	-
-	3,368	-	-
¥ 471,792	¥ 4,288	¥ -	¥ -
	¥ 195,394 186,672 46,475 43,251	2020 - 2019 2024 ¥ 195,394 ¥ - 186,672 - 46,475 - 43,251 - - 920 - 3,368	2020 -         2025 -           2019         2024         2029           ¥ 195,394         ¥ -         ¥ -           186,672         -         -           46,475         -         -           43,251         -         -           -         920         -           -         3,368         -

	(Thousands of U.S. dollars)(Note 1)			
Year ending March 31	2019	2020 - 2024	2025 - 2029	2030 and thereafter
Cash and deposits	\$ 1,839,175	\$ -	\$ -	\$ -
Notes and accounts receivable	1,757,078	-	-	-
Short-term loans receivable	437,453	-	-	-
Other receivable	407,107	-	-	-
Investment securities	-	8,660	-	-
Long-term loans receivable, net	-	31,702	-	-
Assets Total	\$ 4,440,813	\$ 40,362	\$ -	\$ -

Please see Note 3 for the maturities of long term-debt.

#### Note 17 : IMPAIRMENT OF FIXED ASSETS

As discussed in Note 1 (n), the Company and its consolidated subsidiaries have applied the accounting standard for impairment of fixed assets.

The Company and its consolidated subsidiaries have grouped their fixed assets principally based on their business segment, while considering mutual supplementation of the cash flows.

The following is information on impairment loss for the year ended March 31, 2017.

Location	Use	Type of assets
U.S.A.	Oil and gas production and sales business	Intangible and other assets

The Company grouped the assets for oil and gas production and sales business based on individual countries. Carrying amount of certain assets was devalued to their recoverable amounts, since oil and gas business environment had significantly adversely changed. As a result, the Company recognized loss on impairment in the amount of ¥5,274 million. The Company used the value in use which was calculated by discounting future cash flows at the discount rates of 10%.

Impairment losses other than aforementioned are not disclosed since they are immaterial.

This information is not disclosed, as this is no impairment loss for the year ended March 31, 2018.

#### Note 18 : OTHER COMPREHENSIVE INCOME

Reclassification adjustments of the Company's and consolidated subsidiaries' other comprehensive income for the years ended March 31, 2018 and 2017, were as follows:

			(Thousands of U.S. dollars)
_	(Millions o	(Note 1	
March 31,	2018	2017	2018
Net unrealized holding gains on securities			
Unrealized holding gains arising during			
the year	¥3,171	¥ 2,933	\$ 29,848
Reclassification adjustment	1,460	(1,650)	13,742
Sub-total	4,631	1,283	43,590
Deferred gains (losses) on hedges			
Deferred losses on hedges arising			
during the year	(711)	(8)	(6,692)
Reclassification adjustment	583	128	5,487
Sub-total	(128)	120	(1,205)
Translation adjustments			
Translation adjustments arising during			
the year	(414)	(2,961)	(3,897)
Reclassification adjustment	—	(1,867)	—
Sub-total	(414)	(4,828)	(3,897)
Remeasurements of defined benefit plans			
Defined benefit plans during the year	594	(335)	5,591
Reclassification adjustment	453	709	4,264
Sub-total	1,047	374	9,855
Equity for equity method affiliates			
Share of other comprehensive income of affiliates			
accounted for using equity method			
arising during the year	28	(2)	264
Sub-total	28	(2)	264
Before-tax amount	5,164	(3,053)	48,607
Income tax effect	(1,683)	(535)	(15,841)
Total other comprehensive income	¥ 3,481	¥ (3,588)	\$ 32,766

## **Independent Auditor's Report**

Tax effects allocated to each component of other comprehensive income for the years ended March 31, 2018 and 2017, were as follows:

	(Millions of yen)			
Year ended March 31, 2018	Before-tax amount	Income tax effect	Net-of-tax amount	
Net unrealized holding gains on securities	¥ 4,631	¥ (1,417)	¥ 3,214	
Deferred (losses) on hedges	(128)	55	(73)	
Translation adjustments	(414)	_	(414)	
Remeasurements of defined benefit plans	1,047	(321)	726	
Equity for equity method affiliates	28	_	28	
Other comprehensive income	¥ 5,164	¥ (1,683)	¥ 3,481	

	(Millions of yen)			
Year ended March 31, 2017	Before-tax amount	Income tax effect	Net-of-tax amount	
Net unrealized holding gains on securities	¥ 1,283	¥ (393)	¥ 890	
Deferred gains on hedges	120	(33)	87	
Translation adjustments	(4,828)	_	(4,828)	
Remeasurements of defined benefit plans	374	(109)	265	
Equity for equity method affiliates	(2)	—	(2)	
Other comprehensive income	¥ (3,053)	¥ (535)	¥ (3,588)	

	(Thousands of U.S. dollars) (Note 1)			
Year ended March 31, 2018	Before-tax amount	Income tax effect	Net-of-tax amount	
Net unrealized holding gains on securities	\$ 43,590	\$ (13,338)	\$ 30,252	
Deferred gains on hedges	(1,205)	518	(687)	
Translation adjustments	(3,897)	_	(3,897)	
Remeasurements of defined benefit plans	9,855	(3,021)	6,834	
Equity for equity method affiliates	264	_	264	
Other comprehensive income	\$ 48,607	\$ (15,841)	\$ 32,766	

#### To the Board of Directors of JGC Corporation:

We have audited the accompanying consolidated financial statements of JGC Corporation and its consolidated subsidiaries, which comprise the consolidated balance sheets as at March 31, 2018 and 2017, and the consolidated statements of operations, statements of comprehensive income, statements of changes in net assets and statements of cash flows for the years then ended, and a summary of significant accounting policies and other explanatory information.

#### Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in Japan, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatements, whether due to fraud or error.

#### Auditor's Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in Japan. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgement, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, while the objective of the financial statement audit is not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### Opinion

In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of JGC Corporation and its consolidated subsidiaries as at March 31, 2018 and 2017, and their financial performance and cash flows for the years then ended in accordance with accounting principles generally accepted in Japan.

#### **Convenience Translation**

The U.S. dollar amounts in the accompanying consolidated financial statements with respect to the year ended March 31, 2018 are presented solely for convenience. Our audit also included the translation of yen amounts into U.S. dollar amounts and, in our opinion, such translation has been made on the basis described in Note 1 to the consolidated financial statements.

KPMG AZSA LLC

KPMG AZSA LLC June 28, 2018 Tokyo, Japan

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### **Supplemental Explanation**

#### Internal Control over Financial Reporting in Japan

Under the Financial Instruments and Exchange Act in Japan ("the Act"), which was enacted in June 2006, the management of all listed companies in Japan are required to implement assessments of internal control over financial reporting ("ICOFR") as of the end of the fiscal year and the management assessment shall be audited by independent auditors, effective from the fiscal year beginning on or after April 1, 2008.

We have evaluated our ICOFR as of March 31, 2018, in accordance with "On the Revision of the Standards and Practice Standards for Management Assessment and Audit concerning Internal Control Over Financial Reporting (Council Opinions)" published by the Business Accounting Council on March 30, 2011.

As a result of conducting the evaluation of ICOFR for the year ended March 31, 2018, we concluded that our internal control system over financial reporting as of March 31, 2018 was operating effectively and reported as such in the Internal Control Report.

Independent Auditor, KPMG AZSA LLC, performed an audit of our management assessment on the effectiveness of ICOFR under the Act.

An English translation of the Internal Control Report and the Independent Auditor's Report filed under the Act is provided on the following pages.

**JGC** Corporation

## **Internal Control Report (Translation)**

#### NOTE

The following is an English translation of the report on internal control over financial reporting filed under the Financial Instruments and Exchange Act in Japan ("ICOFR under the Act"). This report is presented merely as supplemental information

There are differences between the management assessment of ICOFR under the Act and one conducted under the attestation standards established by the American Institute of Certified Public Accountants ("the AICPA"). In the management assessment of ICOFR under the Act, there is detailed ouidance on the scope of the management assessment of ICOFR, such as quantitative ouidance on business location selection and/or account selection In the management assessment of ICOFR under the attestation standards established by the AICPA, there is no such guidance. Accordingly, based on the quantitative guidance which provides an approximate measure for the scope of assessment of internal control over business processes, we used a measure of approximately two-thirds of total sales and others for the selection of significant locations and business units.

#### [TRANSLATION]

#### **Internal Control Report**

- 1 Framework of Internal Control Over Financial Reporting
  - Practice Standards for Management Assessment and Audit concerning Internal Control Over Financial Reporting (Council Opinions)". Because of its inherent limitations, internal control over financial reporting ("ICOFR") may not completely prevent or detect misstatements.

#### 2 Assessment Scope, Timing and Procedures

We have assessed our ICOFR as of March 31, 2018 in accordance with assessment standards for internal control over financial reporting generally accepted in Japan. We assessed the design and operation of our company-level control and based on this assessment, we analyzed business processes within the scope of the internal control to be assessed, identified a key control that would have a material impact on the reliability of financial reporting and assessed whether the basic components of internal control are operating with regard to the key control.

We assessed the effectiveness of ICOFR of the Company, consolidated subsidiaries and equity-method affiliates to the extent necessary in light of their degree of impact on the reliability of financial reporting.

In assessing the effectiveness of internal control, we decided on reasonable scope of assessment for the significant business processes in light of their degree of quantitative and qualitative impact on financial reporting based on the assessment of the company-level control.

Locations and business units that did not have a material effect on financial reporting were excluded from the scope of assessments. In assessing the period-end financial reporting process, we decided on reasonable scope of assessment in light of its degree of quantitative and qualitative impact on financial reporting in a similar manner as company-level control.

In assessing the business processes other than described above, based on the assessment of the company-level controls, we assessed the significant business locations based on sales levels until combined sales amounts reach approximately two-thirds on a consolidated basis and the business processes which impact the accounts (sales, accounts receivable and inventory) that were closely associated with the significant business locations' business objectives.

#### 3 Results of Assessment

As a result of the above assessment, the Company's management has concluded that, as of March 31, 2018, the Company's ICOFR was effective.

- 4 Supplementary Information Not applicable.
- 5 Other Not applicable

Masayuki Sato, Representative Director, Chairman and Chief Executive Officer (CEO), and Kiyotaka Terajima, Chief Financial Officer (CFO) of JGC Corporation ("the Company") are responsible for establishing and maintaining adequate internal control over financial reporting as defined in the rule "On the Revision of the Standards and

## **Independent Auditor's Report (Translation)**

#### NOTE

The following is an English translation of the Independent Auditor's Report filed under the Financial Instruments and Exchange Act in Japan ("the Act"). This report is presented merely as supplemental information.

There are differences between an audit of ICOFR under the Act and one conducted under the attestation standards established by the American Institute of Certified Public Accountants ("the AICPA"). In an audit of ICOFR under the Act, the auditor expresses an opinion on management's report on ICOFR and does not express an opinion on the company's ICOFR directly. In an audit of ICOFR under the attestation standards

Also in an audit of ICOFR under the Act, the auditor expresses an opinion on the company's ICOFR under the Act, the auditor expresses an opinion on the company's ICOFR under the Act, the auditor expresses an opinion on the company's ICOFR under the Act, there auditor expresses an opinion on the company's ICOFR under the Act, there auditor expresses an opinion on the company's ICOFR under the Act, there auditor expresses an opinion on the company's ICOFR under the Act, there auditor expresses an opinion of the ACT, the auditor expresses an opinion of the Act, there are a the Act, there is detailed guidance on the scope of an audit of ICOFR, such as quantitative guidance on business location selection and/or account selection. In an audit of ICOFR under the

attestation standards established by the AICPA, there is no such guidance. Accordingly, based on the quantitative guidance which provides an approximate measure for the scope of assessment of internal control over business processes, we used a measure of approximately two-thirds of total sales and others for the selection of significant locations and business units.

#### [TRANSLATION]

#### Independent Auditor's Report

To the Board of Directors of JGC Corporation

June 28, 2018

#### KPMG AZSA LLC

Designated Limited Liability Partner, Engagement Partner, Certified Public Accountant: Michitaka Shishido

Designated Limited Liability Partner, Engagement Partner, Certified Public Accountant: Yoshinori Saito

#### **Audit of Consolidated Financial Statements**

Pursuant to the first paragraph of Article 193-2 of the Financial Instruments and Exchange Act in Japan ("the Act"), we have audited the consolidated financial statements of JGC Corporation (the "Company") and its consolidated subsidiaries included in the Financial Section, namely, the consolidated balance sheet as of March 31, 2018, the consolidated statement of income, consolidated statement of comprehensive income, consolidated statement of changes in net assets and consolidated statement of cash flows for the fiscal year from April 1, 2017 to March 31, 2018, and a summary of significant accounting policies, other explanatory information and consolidated supplementary schedules.

#### Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in Japan, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatements, whether due to fraud or error.

#### Auditor's Responsibility

Our responsibility is to independently express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in Japan. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, while the objective of the financial statement audit is not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### Opinion

In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of JGC Corporation and its consolidated subsidiaries as of March 31, 2018 and their financial performance and cash flows for the year ended March 31, 2018, in accordance with accounting principles generally accepted in Japan.

#### Audit of Internal Control

Pursuant to the second paragraph of Article 193-2 of the Financial Instruments and Exchange Act in Japan, we also have audited the Company's report on internal control over financial reporting of the consolidated financial statements of JGC Corporation as of March 31, 2018 ("Internal Control Report").

#### Management's Responsibility for the Internal Control Report

Management is responsible for the design and operation of internal control over financial reporting and the preparation and fair presentation of the Internal Control Report in conformity with assessment standards for internal control over financial reporting generally accepted in Japan. Internal control over financial reporting may not completely prevent or detect financial statement misstatements.

#### Auditor's Responsibility

Our responsibility is to express an opinion on the Internal Control Report based on our internal control audit. We conducted our internal control audit in accordance with auditing standards for internal control over financial reporting generally accepted in Japan. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the Internal Control Report is free from material misstatement.

An internal control audit involves performing procedures to obtain audit evidence about the assessment of internal control over financial reporting in the Internal Control Report. The procedures selected depend on the auditor's judgment, including significance of effect on the reliability of financial reporting. Also, an internal control audit includes evaluating the appropriateness of the scope, procedures and result of the assessment determined and presented by management as well as evaluating the overall internal control report presentation.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### Opinion

In our opinion, the Internal Control Report, in which JGC Corporation states that internal control over financial reporting was effective as of March 31, 2018, presents fairly, in all material respects, the assessment of internal control over financial reporting in conformity with assessment standards for internal control over financial reporting generally accepted in Japan.

#### Interest

The firm and the engagement partners do not have any interest in the Company for which disclosure is required under the provisions of the Certified Public Accountants Act of Japan.



Equipment Procurement

◯ JGC Italy S. r. l.

O JGC Trading & Services Co., Ltd.

Specialized Consulting Services JAPAN NUS CO., LTD. Office Support Services

NIKKI BUSINESS SERVICES CO., LTD.

Water & Power Generation Business

Oil & Gas Production and Sales Business

JGC-ITC Rabigh Utility Co., Ltd.

JGC Mirai Solar Co., Ltd.

JGC (GULF COAST), LLC

**Total Engineering** 

Services

Engineering & Construction

Maintenance Services

Process Licensing Services

**Functional Materials Manufucturing** 

Business

JGC Exploration Eagle Ford LLC

JGC EXPLORATION CANADA LTD.

Others

## **Outline of JGC**

As of March 31, 2017

0	October 25, 1928		
Capital	¥23,511,189,612		
Number of Employees	2,291 (Consolidated: 7,610)		
Major Shareholders			
		Number of shares (Thousands)	Percentage of total
The Master Trust Bank of Japan,		33,142	13.13
Japan Trustee Services Bank, Lto		26,307	10.42
JGC Trading and Services Co., Lt		12,112	4.80
Sumitomo Mitsui Banking Corpor		11,000	4.35
JGC-S SCHOLARSHIP FOUNDAT		8,433	3.34
NORTHERN TRUST CO. (AVFC)		7,321	2.90
Japan Trustee Services Bank, Ltd		5,308	1.46
Japan Trustee Services Bank, Lto	td. (Rust Account 3)	3,581	1.40
DEUTSCHE BANK TRUST COMP		3,562	1.41
	45 thousand shares, approximately 2.60% of total shares issued.	0,002	
		Distribution of Observation (0/)	
Authorized Shares	600,000,000	Distribution of Shareholders (%)	
Issued and Outstanding Shares	259,052,929		Financial institutions 4
Number of Shareholders	17,394		Financial instruments firms
Administrator of the	Mitsubishi UFJ Trust and Banking Corp.		Other domestic corporations 1
Shareholders' Register	1-4-5, Marunouchi, Chiyoda-ku, Tokyo 100-8212, Japan		Individuals and others
			Foreign investors 3
			Treasury stock
Stock Price			Figures have been rounded to tw
JGC Stock Price (Yen)			
JUG SLOCK THEE (TEH)			
5.000			
5,000			
5,000 4,000			
4,000			
4,000 3,000			
4,000 3,000 2,000			
4,000 3,000 2,000 1,000 0 2015	2016 7 8 9 10 11 12 1 2 3 4 5 6 7 8	2017 3 9 10 11 12 1 2 3 4 5 6 7 8 9 1	2018 0 11 12 1 2 3 4 5 6
4,000 3,000 2,000 1,000 0 2015	2016 7 8 9 10 11 12 1 2 3 4 5 6 7 8	2017 3 9 10 11 12 1 2 3 4 5 6 7 8 9 1	2018 0 11 12 1 2 3 4 5 6
4,000 $3,000$ $2,000$ $1,000$ $0$ $2015$ $1 2 3 4 5 6$	2016 7 8 9 10 11 12 1 2 3 4 5 6 7 8	2017 3 9 10 11 12 1 2 3 4 5 6 7 8 9 1	2018 0 11 12 1 2 3 4 5 6
4,000 3,000 2,000 1,000 0 2015 1 2 3 4 5 6 Volume (Thousands of shares)	2016 7 8 9 10 11 12 1 2 3 4 5 6 7 8	2017 3 9 10 11 12 1 2 3 4 5 6 7 8 9 1	2018 0 11 12 1 2 3 4 5 6

60,000	
40,000	lihultar, .
20,000	
0	
2015	2016



uring	Company	Country	Capital	Capital Share	Other	
JGC Ca	talysts and Chemicals Ltd.	Japan	¥1,800,000,000	100%	outor	
JAPAN	FINE CERAMICS CO., LTD.	Japan	¥300,000,000	100%		
Nikki-U	niversal Co., Ltd.	Japan	¥1,000,000,000	50%		

Functional Materials Manufacturing

JGC Catalysts and Chemicals Ltd.

JAPAN FINE CERAMICS CO., LTD.

Nikki-Universal Co., Ltd.

Consolidated subsidiary • Equity-method subsidiary or affiliate O Non-equity-method subsidiary or affiliate

Other

Capital Share

100%

100%

100%

100%

100%

100%

100%

75%

50%

\* JGC 70%

\* JGC 92%

\* JGC 92%

\* JGC SINGAPORE 8%

\* JGC SINGAPORE 8%

#### Others

011613					
Business	Company	Country	Capital	Capital Share	Other
Equipment Procurement	JGC Trading and Services Co., Ltd.	Japan	¥40,000,000	24.5%	
Specialized Consulting Services	JAPAN NUS CO., LTD.	Japan	¥50,000,000	88.8%	
Office Support Services	NIKKI BUSINESS SERVICES CO., LTD.	Japan	¥1,455,000,000	100%	
Water & Power Generation Business	JGC-ITC Rabigh Utility Co., Ltd.	Japan	¥319,000,000	100%	
	JGC Mirai Solar Co., Ltd.	Japan	¥445,000,000	51%	
	Kamogawa Mirai Solar Co., Ltd.	Japan	¥231,000,000	100%	
Oil & Gas Production and Sales	JGC (GULF COAST), LLC.	U.S.A.	US\$77,350,000	100%	
Business	JGC Exploration Eagle Ford LLC	U.S.A.	US\$65,000,000	100%	
	JGC EXPLORATION CANADA LTD.	Canada	C\$105,885,000	100%	

Total Engineering

JGC CORPORATION

JGC PLANT INNOVATION CO., LTD.

JGC PLANTECH AOMORI Co., Ltd.

Nikki-Universal Co., Ltd.

JGC PHILIPPINES, INC.

JGC OCEANIA PTY LTD

JGC America, Inc.

Company

JGC PLANT INNOVATION CO., LTD.

JGC SINGAPORE PTE LTD

JGC Gulf International Co., Ltd.

JGC Gulf Engineering Co. Ltd.

JGC PLANTECH AOMORI Co., Ltd.

JGC PHILIPPINES, INC.

JGC OCEANIA PTY LTD

Nikki-Universal Co., Ltd.

PT. JGC INDONESIA

JGC America, Inc.

PT. JGC INDONESIA

JGC SINGAPORE PTE LTD

JGC Gulf International Co., Ltd.

JGC Gulf Engineering Co. Ltd.

Country

Japan

Singapore

Philippines

Indonesia

Australia

U.S.A.

Japan

Japan

Saudi Arabia

Saudi Arabia

Capital

¥830,000,000

S\$2,100,000

US\$1,600,000

A\$1,000,000

SAR500,000

¥50,000,000

¥1,000,000,000

SAR187,500,000

US\$346,200,000

PHP1,200,000,000

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Data Section

