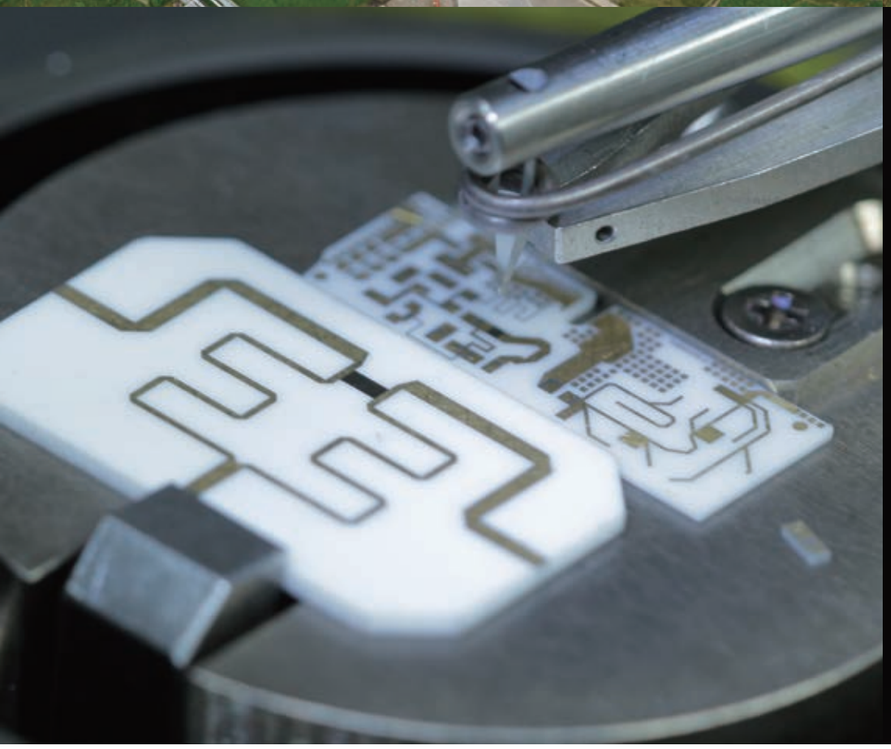


CHAPTER 6

Business Outlook

This chapter describes our Total Engineering and Functional Materials Manufacturing operations, growth opportunities in each segment, and mid- to long-term risks.

CHAPTER 6 Business Outlook

Total Engineering Business

Overseas Oil & Gas Sector

Satoshi Sato
Director,
Company President,
Oil & Gas Project Company,
JGC CORPORATION

Covered Sectors

Engineering, procurement and construction of plants and facilities in sectors such as crude oil and gas gathering, refinery, gas processing, LNG (liquefied natural gas) and petrochemicals

New Contracts in Fiscal 2019	New Contracts Targeted for Fiscal 2020
approx. 55 billion yen	400 billion yen

Growth Opportunities	• Increasing energy demand, driven in part by global population growth • Increased demand for LNG and other fossil fuels with lower environmental impact
Mid-to Long-term Risks	• Lower demand for fossil fuels as a whole • Postponement of client capital investment plans from resource market stagnation

Business Policy

Orders in fiscal 2019 remained low. Factors included postponement of the final investment decision for a large-scale LNG plant construction project in Mozambique awarded in October 2019, in the wake of a global economic slowdown from the pandemic outbreak of COVID-19 and sharp drops in crude oil prices. Although the fiscal 2020 market environment is still uncertain, we will continue working to secure orders for projects expected to move ahead, such as a planned Middle East refinery upgrading project. We are targeting 400 billion yen in orders.

In the medium to long term, solid capital investment in oil and gas is expected, in consideration of increasing energy demand from global population growth. Through greater competitiveness driven by digital technologies, and by introducing low-carbon / decarbonized technologies, we are pursuing sustained growth in this core JGC Group business.

Overseas Infrastructure Sector

Terumitsu Hayashi
Director,
Company President,
Infrastructure Project Company,
JGC CORPORATION

Covered Sectors

Engineering, procurement, and construction of infrastructure facilities focused on renewable energy power generation (solar, biomass, wind), LNG/LPG terminals, waste power generation, pharmaceuticals and food factories, hospitals, airports, non-ferrous metal smelting, etc.

New Contracts in Fiscal 2019	New Contracts Targeted for Fiscal 2020
approx. 5 billion yen	140 billion yen

Growth Opportunities	• Increasing demand for new infrastructure, as populations in emerging markets grow • Increasing demand for renewable energy, toward a low-carbon society
Mid-to Long-term Risks	• Sluggish capital investment from an economic slowdown in emerging markets

Business Policy

The low level of orders in fiscal 2019 can be attributed to factors such as FID postponement for an LNG Receiving Terminal construction project in Southeast Asia for which JGC was a preferred bidder. The outlook in fiscal 2020 remains uncertain due to the impact of the pandemic, but we will be working toward steady orders for projects that are expected to advance, including Non-Ferrous Metals projects in Southeast Asia, as we continue to pursue order targets.

In this key Southeast Asia region, higher infrastructure demand is expected. We will be coordinating projects through attentive proposals to potential clients from the upstream planning stage, as we take an account-focused approach aimed at securing continuous orders. By steadily receiving and executing projects with ample margins, we will be developing overseas infrastructure as a second profitable pillar of JGC Group business following overseas oil and gas.

Total Engineering Business

Domestic Sector

Shoji Yamada
Representative Director,
President,
JGC JAPAN CORPORATION

Covered Sectors

Engineering, procurement, construction and maintenance of plants and facilities for oil and gas, chemicals, pharmaceuticals and laboratories, healthcare (medical and welfare), renewable energy power generation, nuclear energy-related, and more

New Contracts in Fiscal 2019	New Contracts Targeted for Fiscal 2020
approx. 130 billion yen	130 billion yen

Growth Opportunities	• Increasing demand for maintenance as refining and petrochemical plants deterioration • Increasing demand for renewable energy, toward a low-carbon society • Increased capital investment in life sciences from a declining birthrate and aging population • Increased nuclear power plant decommissioning related
Mid-to Long-term Risks	• Less new large-scale capital investment in refining and petrochemicals from lower fossil fuel demand and stagnation of crude oil prices • Sluggish capital investment in infrastructure field from a domestic economic slump

Business Policy

Orders on the level expected were secured in fiscal 2019, supported by a robust maintenance sector and a series of orders in areas such as biomass and solar power plants, pharmaceutical plants, laboratories, and health care facilities.
In fiscal 2020 as well, we will continue to fulfill a supporting role in steady group earnings by expanding orders centered on infrastructure projects not easily swayed by the pandemic or crude oil price fluctuations, such as biomass power generation plants, decommissioning nuclear power facilities services, pharmaceutical plants, health care facilities, and chemical projects.
We will continue to hone our technologies and expand operations, hoping to contribute domestically as Japan pioneers solutions to a declining birthrate, aging population, and other issues faced by industrialized nations.

Functional Materials Manufacturing Business

Catalysts and Fine Chemicals Sector

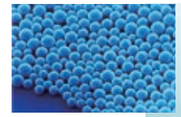
Covered Sectors

Development and production of catalysts used in petroleum refining, chemical, and environmental conservation and of fine chemical products used as materials in semiconductor, IT/electronics, optics, cosmetics, and other applications

Growth Opportunities	• Expanding demand for new chemical refining catalysts at petroleum refineries • Increased demand for environmental catalysts and cosmetics ingredients made with silica beads, reflecting increased environmental awareness • Increased demand for anti-reflective materials, semiconductor abrasives, and other functional coating materials from adoption of HDTVs and 5G technology
Mid- to Long-term Risks	• Slowdown in exports of functional coating materials from economic stagnation in China • Declining demand for petroleum refining catalysts from lower crude oil prices

Toshiharu Hirai
Representative Director,
President,
JGC Catalysts and Chemicals Ltd.

Oil Refining Catalysts (FCC Catalysts)



Silica Beads

Cosmetics Ingredients
(Silica Beads, an Environmentally Friendly Inorganic Material)

Business Policy

Favorable orders for fluid catalytic cracking (FCC) catalysts, chemical catalysts, and environmental conservation catalysts in fiscal 2019 were offset by a slowdown in exports of functional coating materials and other fine chemicals due to factors such as U.S.-China trade friction.
Pandemic impact was minimal in fiscal 2019, but in fiscal 2020, it is expected to act in concert with lower crude oil prices to undermine catalyst demand. We are monitoring developments carefully. Looking ahead, we will seek expanded orders by enlarging our share of the domestic FCC catalyst market and branching out overseas, cultivating new chemical catalyst opportunities, promoting sales and developing more applications for functional coating materials, and enhancing productivity in cosmetics materials.

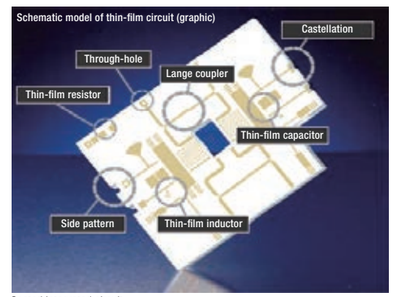
Fine Ceramics Sector

Covered Sectors

Development and production of ceramic materials for semiconductor, automotive, telecommunications, industrial, medical, and aerospace applications

Growth Opportunities	• Increased demand for parts used in optical communication and semiconductor applications from adoption of 5G • Increased demand for high-thermal-conductivity silicon nitride substrates from adoption of electric and hybrid vehicles
Mid- to Long-term Risks	• Postponement of semiconductor investment plans from Chinese economic stagnation

Hiroshi Tanaka
Representative Director,
President,
Japan Fine Ceramics Co., Ltd.



Coated integrated circuit

Business Policy

5G adoption in China was slower than expected in fiscal 2019, and orders were sluggish for components used in optical communication and in semiconductor deposition and etching equipment. In fiscal 2020, we will continue to monitor the market impact of the global economic slowdown from the pandemic. We will be seizing new opportunities in circuit boards used for optical communication and looking to venture into wireless communication, LEDs, sensors, and other fields Meanwhile, we are looking forward to a smooth startup at a new factory for high-thermal-conductivity silicon nitride substrates used in power units of electric vehicles, where we will seek quality and productivity for volume production as we develop this business into a pillar of profitability.