

Securities Code Number: 5351

Shinagawa Update

Results for Fiscal Year Ended March 2018

June 15, 2018



— Supporting the World's Key Industries Through Technologies —

 SHINAGAWA REFRACTORIES CO.,LTD.

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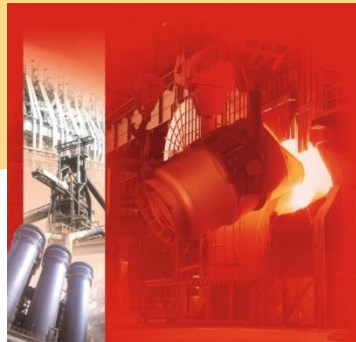
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I. Overview of Financial Results for 2017 (Fiscal Year ended March 2018)

1. Consolidated Financial Highlights for Fiscal Year Ended March 2018

(Unit: million JPY)

	FY 2016	FY 2017	YoY
	Results	Results	
Net Sales	103,722	102,749	- 0.9%
Operating Income	6,344	6,049	- 4.7%
Ordinary Income (ROS)	6,365 (6.1%)	6,322 (6.2%)	- 0.7% (+ 0.1pt)
Profit attributable to owners of parent	3,602	3,419	- 5.1%

- Net sales: Slight decrease (- 0.9%) due to less available projects for engineering segment, while sales of refractories and ceramic fiber products remained strong.
- Operating income: Slight decrease (- 4.7%) due to rapid and significant cost increases of raw materials imported from China, while increased sales of value added ceramic fiber products positively contributed to profit growth.

【Japanese Annual Crude Steel Production】

2015: 104,2 Million tons

2016: 105.2 Million tons (+ 0.9% over 2015)

2017: 104.8 Million tons (- 0.3% over 2016)

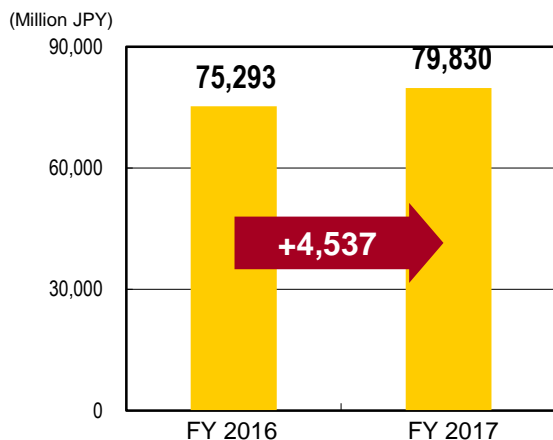
2. Net Sales by Business Segment

(Unit: million JPY)

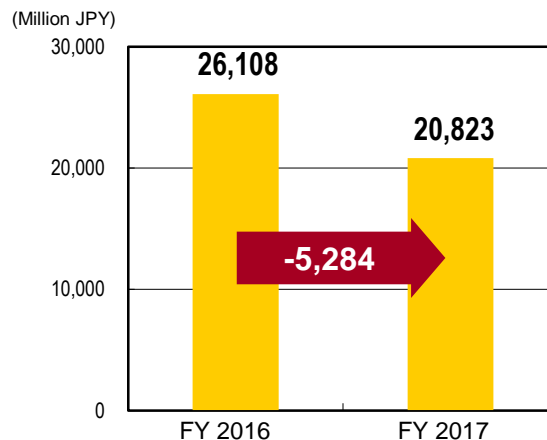
	FY 2016	FY 2017	YoY
	Results	Results	
Refractories and related products	75,293 [72.6]	79,830 [77.7]	+ 6.0%
Furnace construction and engineering	26,108 [25.2]	20,823 [20.3]	- 20.2%
Real estate and other businesses	2,320 [2.2]	2,095 [2.0]	- 9.7%
Total	103,722 [100.0]	102,749 [100.0]	- 0.9%

Note: Figures in square brackets [] indicate net sales share (%) by business segment.

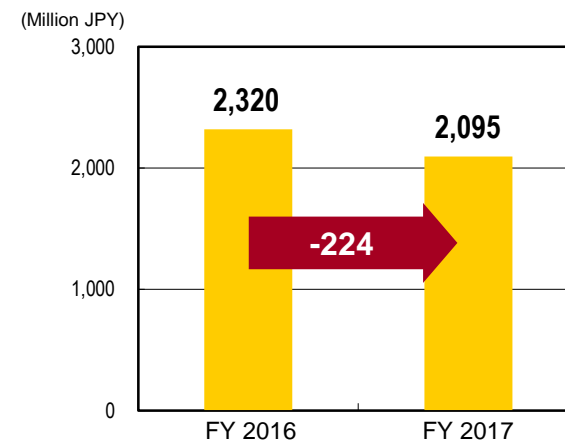
Refractories and related products



Furnace construction and engineering



Real estate and other businesses



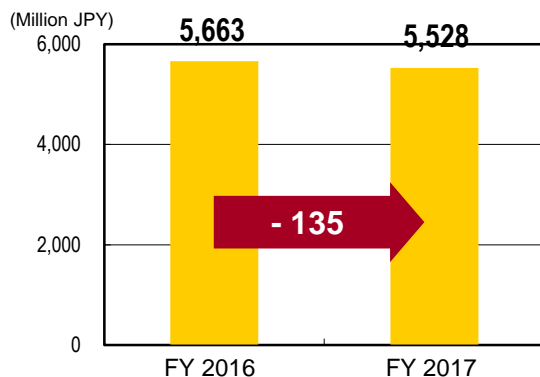
3. Operating Income by Business Segment

(Unit: million JPY)

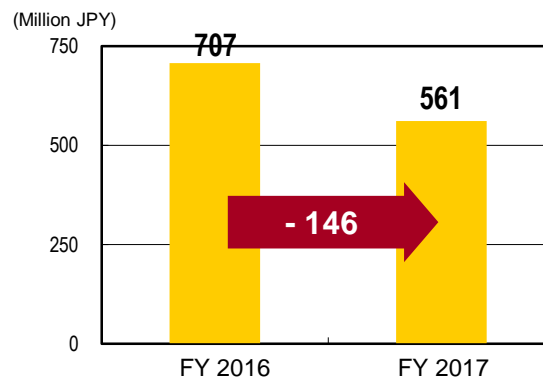
	FY 2016	FY 2017	YoY
	Results	Results	
Refractories and related products	5,663 [75.6]	5,528 [77.3]	- 2.4%
Furnace construction and engineering	707 [9.4]	561 [7.8]	- 20.7%
Real estate and other businesses	1,121 [15.0]	1,058 [14.8]	- 5.6%
Total	7,493 [100.0]	7,148 [100.0]	- 4.6%
Adjustment	- 1,148	- 1,098	—
Total operating income	6,344	6,049	- 4.7%

Note: Figures in square brackets [] indicate operating income share (%) by business segment.

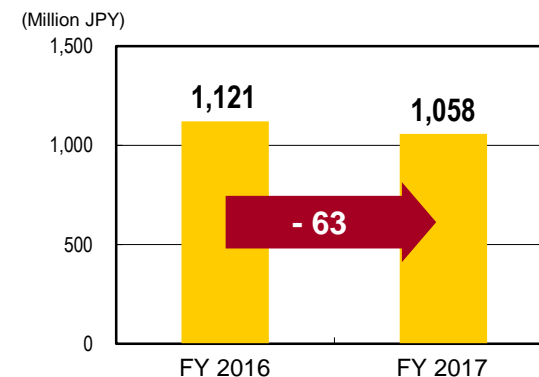
Refractories and related products



Furnace construction and engineering

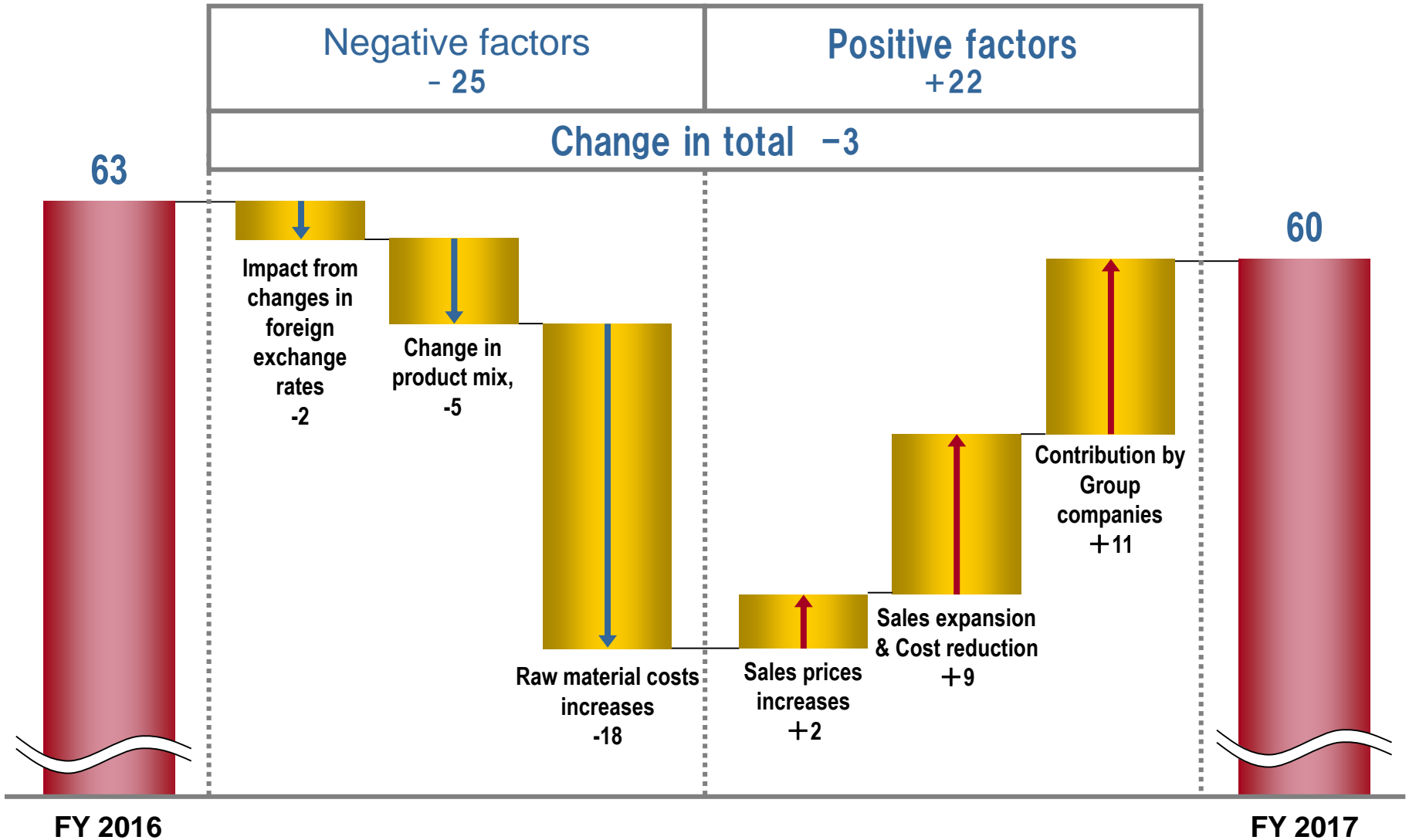


Real estate and other businesses



4. Factors Behind Changes in Operating Income (Year-on-Year Comparison)

(Unit: 100 million JPY)



5. Balance Sheets (Consolidated)

(Unit: million JPY)

	FY 2016	FY 2017	Change	
Current assets	64,690	66,141	+ 1,451	▪ Merchandise and finished goods: +1,191 ▪ Raw materials and supplies: +1,672 ▪ Work in process: +2,449 ▪ Securities: -4,200
Fixed assets	41,817	41,194	- 623	▪ Machinery, equipment and vehicles: - 361
Total assets	106,507	107,335	+ 828	
Current liabilities	36,828	35,886	- 942	▪ Short-term loans payable: -1,220 ▪ Accounts payable – other: -1,862
Fixed liabilities	15,492	13,979	- 1,513	▪ Long-term loans payable: -559 ▪ Net defined benefit liability: -685
Total liabilities	52,320	49,865	- 2,455	
Shareholders' equity	46,307	48,721	+ 2,414	▪ Retained earnings: +2,716
Accumulated other comprehensive income	1,363	1,278	- 85	▪ Valuation difference on available-for-sale securities: -73
Non-controlling interests	6,515	7,469	+ 954	
Total net assets	54,186	57,470	+ 3,284	
Total liabilities and net assets	106,507	107,335	+ 828	

	FY 2016	FY 2017
ROE (Return on Equity)	7.8%	7.0%

6. Cash Flows (Consolidated)

(Unit: million JPY)

	FY 2016	FY 2017	Change
Cash flows from operating activities	5,459	1,578	- 3,881
Cash flows from investing activities	- 1,825	- 1,623	- 202
Cash flows from financing activities	- 2,526	- 3,011	+ 485
Cash and cash equivalents at the end of period	13,627	10,620	- 3,007

• Interest-bearing debt/cash flow ratio: 10.8 years
(2016: 4.9 years, 2017: 3.5 years)

[Main contents of cash flows from operating activities]

- Income before income taxes : 6,152
- Depreciation : 2,330
- Decrease (increase) in inventories : -5,387
- Income taxes paid: -1,656

[Main contents of cash flows from investing activities]

- Net increase (decrease) in short-term investment securities : +899
- Purchase of property, plant and equipment: -2,340

[Main contents of cash flows from financing activities]

- Proceeds from long-term loans payable: +800
- Repayments of long-term loans payable: -1,722
- Net increase (decrease) in short-term loans payable : -742
- Cash dividends paid: -703

7. Financial Targets & Strategies

1 Shareholder Returns

1. Increased fiscal year-end dividend per share from 35 JPY to 45 JPY

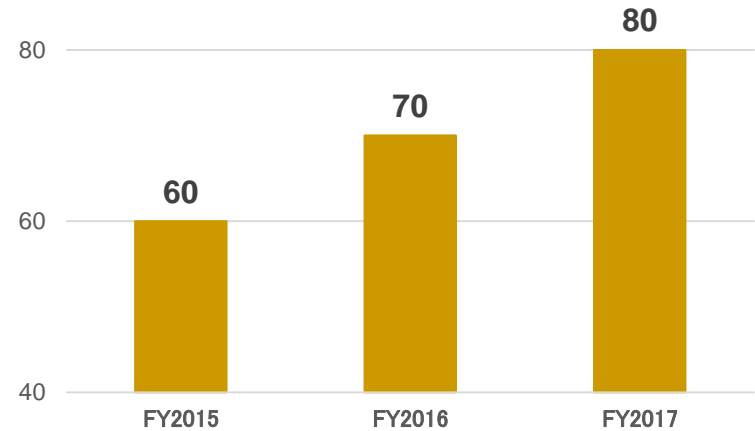
[Actual dividend payout for the fiscal year ended March 2018] (Dividend per share)

- Interim dividend: 35.0 JPY*
- Year-end dividend: 45.0 JPY

Annual dividend: 80.0 JPY

Dividend per share

(JPY)



*A 10-for-1 reverse stock split of common shares was implemented, with an effective reverse split date of October 1, 2017. For the purpose of year-on-year comparisons for these financial statements, we retroactively implemented the reverse stock split to the start of FY 2015.

2. Stock Buybacks

In August 2017, implemented a stock buyback program with a ceiling for total acquisitions of 300 million JPY

Total return ratio increased from 18.3% to 26.6% (FY 2016 consolidated basis)

2 Investment for Future Growth

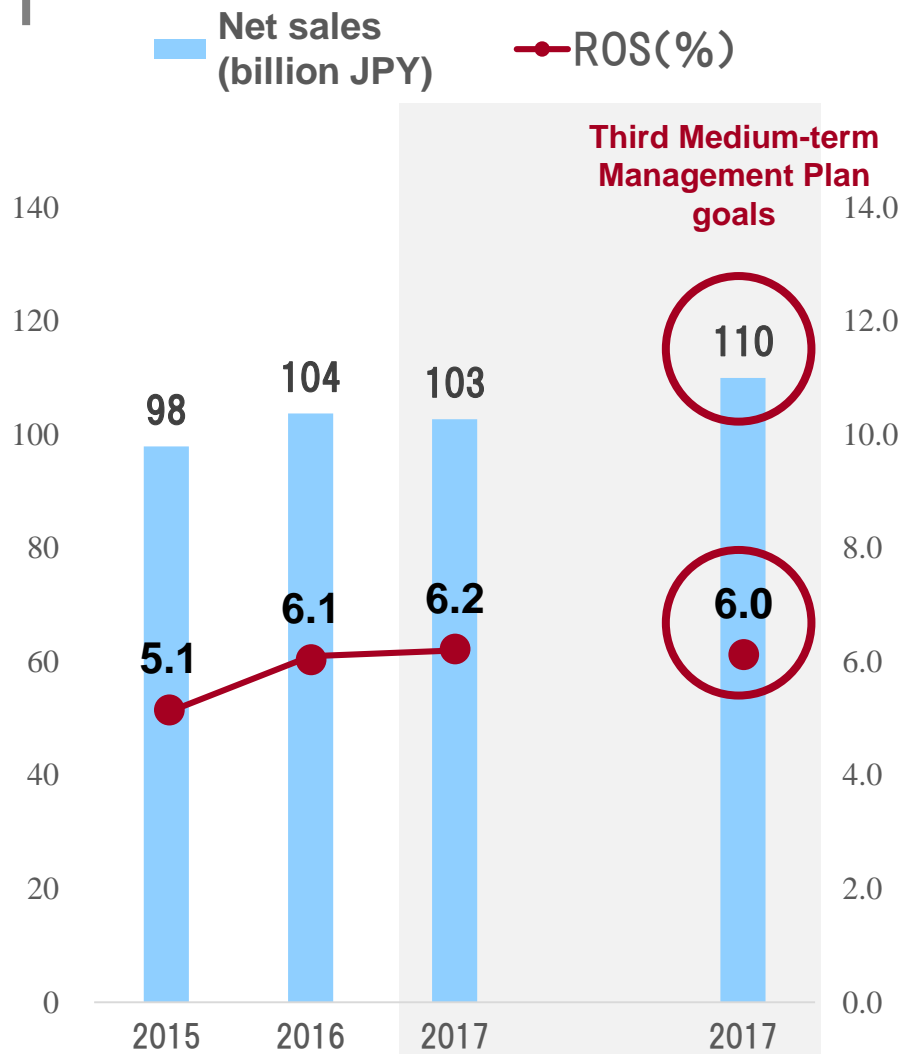
- In the Third Medium-term Management Plan, we implemented a total capital expenditure of **8.0 billion JPY (consolidated)**

Investments for Main Production Infrastructure

FY 2015	New Press for manufacturing SN Plates and New Drying Furnace
FY 2016	New Press for manufacturing Magnesia-Carbon Brick
FY 2017	New Baking Furnace for manufacturing SN Plates

- We plan on implementing also **8.0 billion JPY (consolidated)** in the Fourth Medium-term Management Plan to continue increasing our capacities and reinforcing our competitiveness

8. Review of Third Medium-term Management Plan



Third Medium-term Management Plan

Goals for final year of the Third Medium-term Management Plan (FY 2017)

【Net Sales】
110 billion JPY

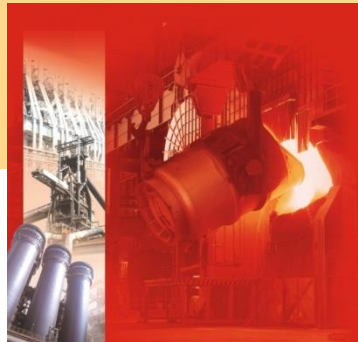
Shortfall of 7 billion

【ROS】
6%

Goal Accomplished

Factors behind Shortfall in Sales

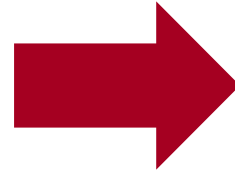
- Less than expected crude steel production in Japan (5% below plan)
- Sales expansion behind schedule due to unfavorable economic condition
- Postponing of New Large-scale construction projects (coke-oven furnace, hot stove for blast furnace)



II. Business Strategies

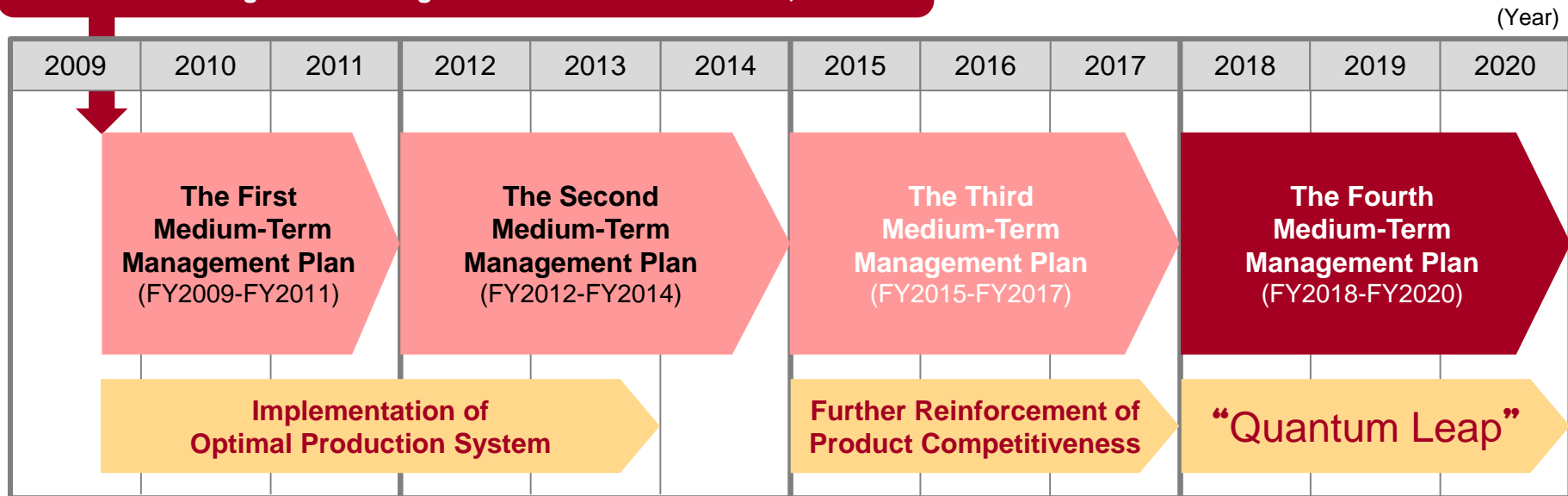
1. Fourth Medium-Term Management Plan

Optimal production system and strong product competitiveness have been established through The First to The Third Medium-term Management plan



Goals of The Fourth Medium-term Management Plan
“Quantum Leap”

Shinagawa Refractories Co., Ltd. was established as a result of a merger between Shinagawa Shirorenga and JFE Rozai on October 1, 2009.



1 World Economy → From recovery to accelerated growth

- 【USA】 Strong economy supported by expansionary fiscal policy
- 【Europe】 Continued growth supported by accommodative monetary policy
- 【Emerging markets】 Continued strong economic growth

2 Japanese Economy → Continued steady recovery

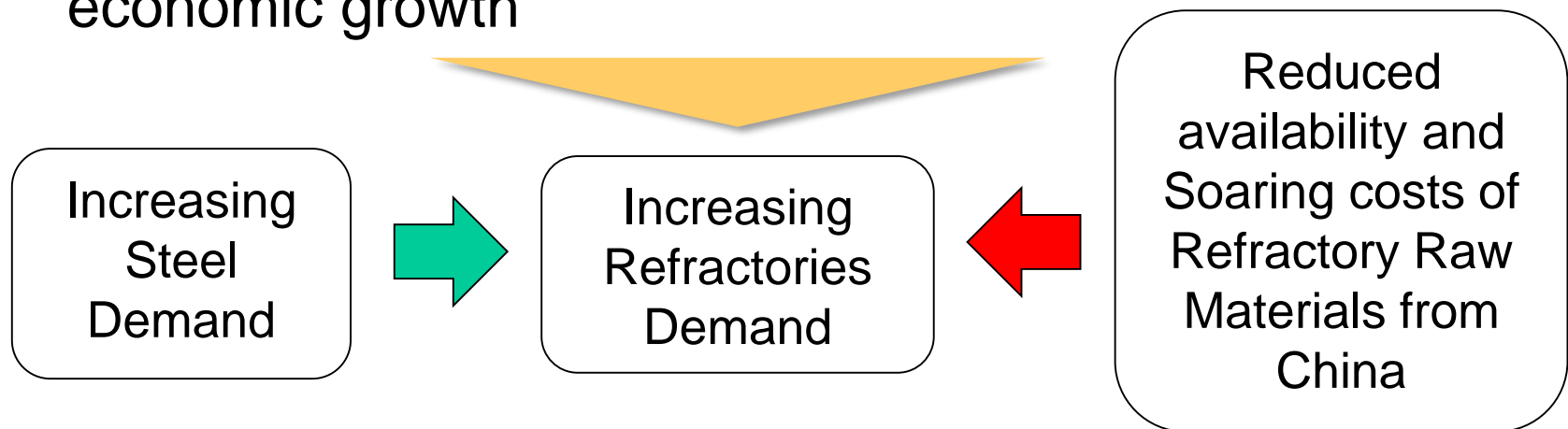
Key factors expected to boost economy

- Accelerated growth in the global economy
- Ongoing improvement to employment conditions
- Rising trends in capital investments

2. Business Environment (2/2)

③ Steelmaking Industry → Increasing demand globally

- Japan: High level of steel demand continues with domestic economic recovery
- World: Gradual increase in steel demand with accelerated economic growth

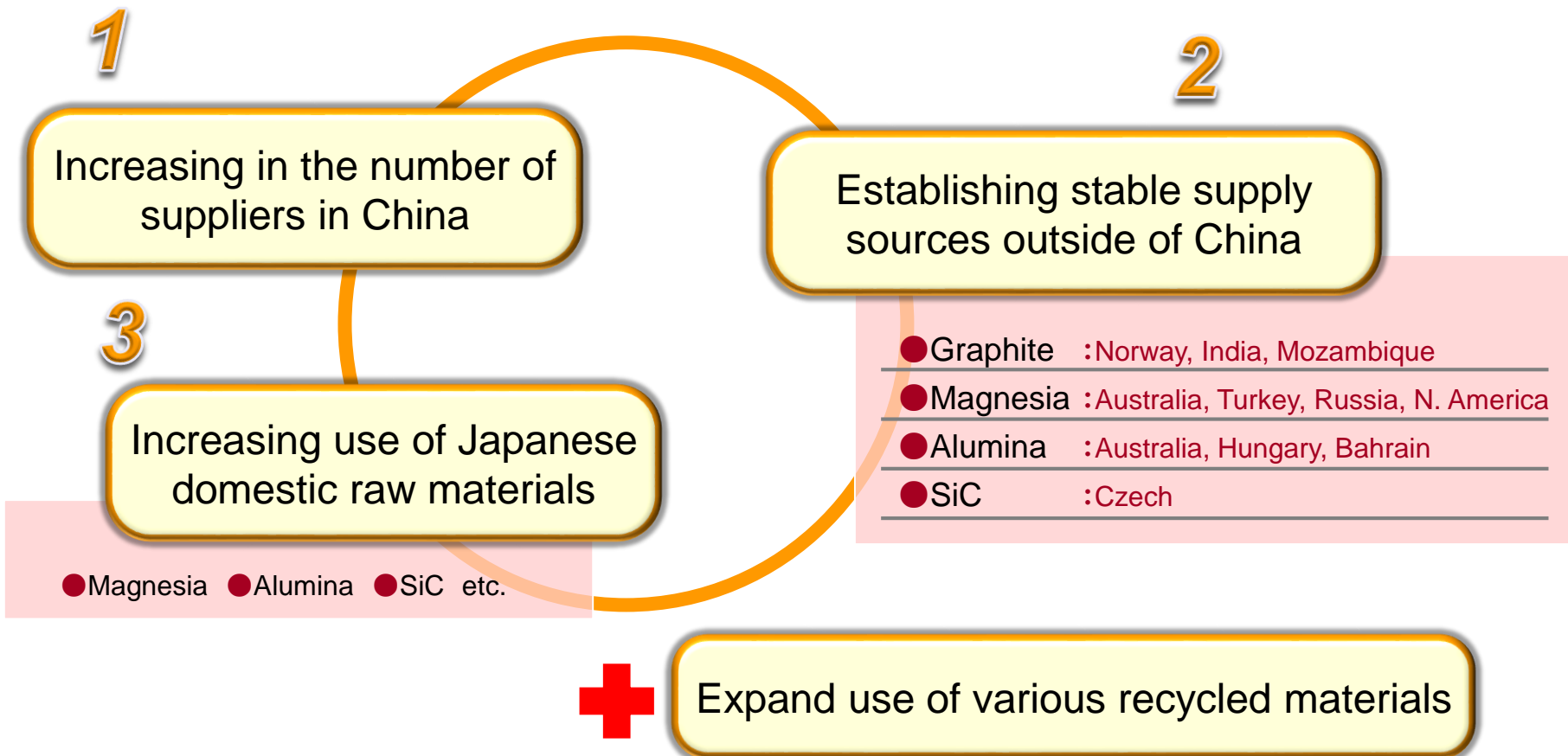


Well managed coordination among Procurement, Production and Supply is critical more than ever

2. Business Environment: Raw Materials Procurement (1/2)

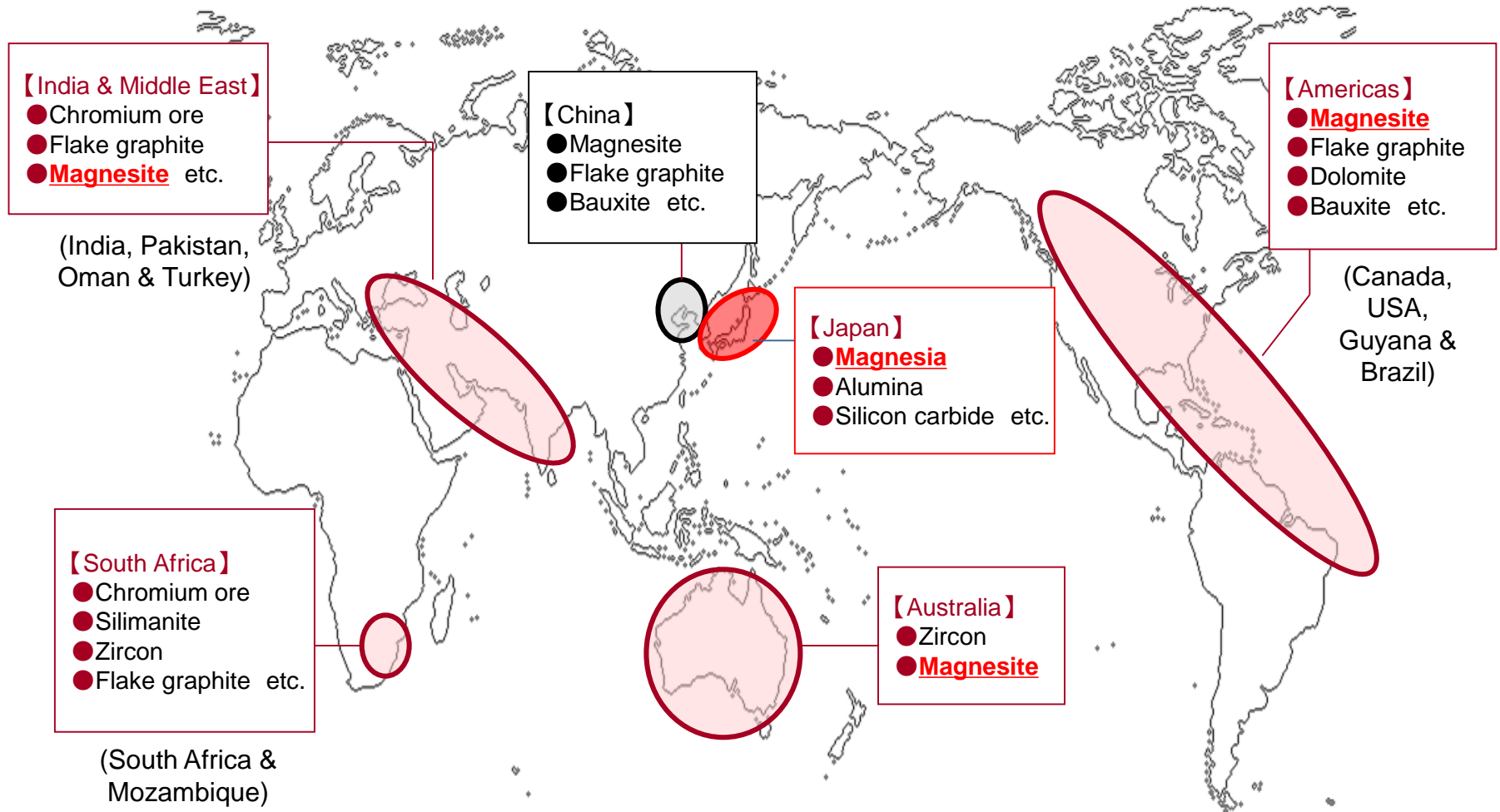
Optimal Raw Materials Procurement

- Further diversification of suppliers' portfolio to reduce high dependence on China
- Aiming for long term price stability



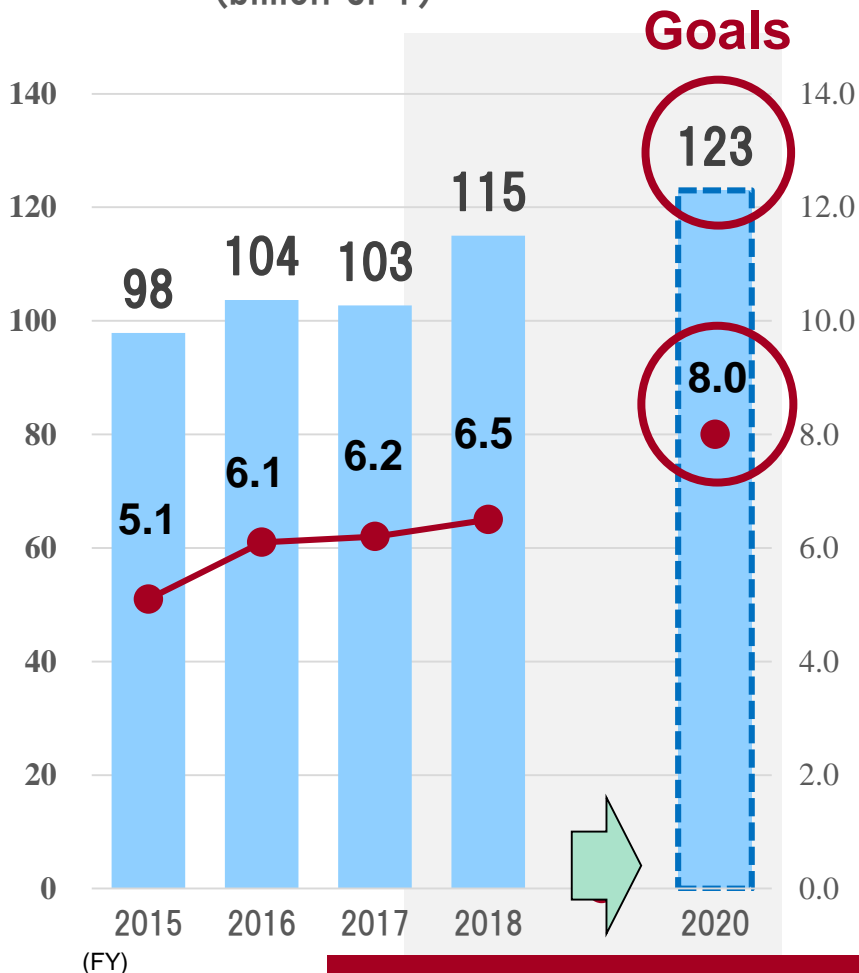
2. Business Environment: Raw Materials Procurement (2/2)

【Establishing stable supply sources outside of China】



3. Fourth Medium-term Management Plan: Goals (1/2)

Net Sales (billion JPY) ROS(%)



Goals

Goals for final year of the Fourth Medium-term Management Plan (FY 2020)

【Net sales】
123
billion JPY

【ROS】
8%-plus

Action Plans

- **Expand refractory sales**
 - New Market
 - "Shinagawa Solution"
- **Cost reduction**
 - Streamlining Process
 - Productivity Improvement
- **Improving margin**
 - Effective Global Supply Chain
 - Proper Pricing Policy
- **Sales increase by group companies**
 - Active Investment for Capacity Increases

Fourth Medium-term Management Plan

3. Fourth Medium-term Management Plan: Goals (2/2)

Action Plans for Sales Growth

Domestic Sales: +14 billion JPY

- Market Dominance at Steel markets: BOF & EOF
- Further Market Penetration at Cement & Lime markets
- New Market Development: Specialty steels, Non-ferrous and Glasses
- Large-scale Construction Projects

Global Sales: +6 billion JPY

- China, Taiwan & South Korea: Expand Powder business in China, Secure Market Dominance in Taiwan & Further Market Penetration in South Korea
- India: Expand Tap Hole Clay business at the Fastest Growing Steel Market
- Oceania & ASEAN: Secure Dominant Position in Oceania & Capture Growing Demand in ASEAN
- Americas: Expand Powder Business in USA/Canada with New Spray Dried Powders & Promoting Tie-In Sale of Refractories in the Americas

Priority Area of Focus for “Quantum Leap”

- 1 Completion of Production Facilities Upgrade
- 2 Achieving Highest Level of Product Competitiveness
- 3 Capturing Opportunities in New Growing Market
- 4 Strengthening HR Infrastructure
- 5 Safe & Comfortable Workplace based on 5S Method

*5S: "Sort", "Set In order", "Shine", "Standardize" and "Sustain"

5. Area of Focus 1: Completion of Production Facilities Upgrade

Completion of Production Facilities Upgrade

Third Medium-term Management Plan

**Total Capex 8.0 billion JPY
(consolidated)**

Introducing Cutting-edge Technologies for Major Manufacturing Processes

- Large press
- Combustion furnace
- Drying furnace etc.

Maximizing Benefit by Minimizing Start-up Time

Fourth Medium-term Management Plan

**Total Capex 8.0 billion JPY
(consolidated)**

Shinagawa

Investment for Streamlining Manufacturing Processes and Improving Productivity



Group Companies

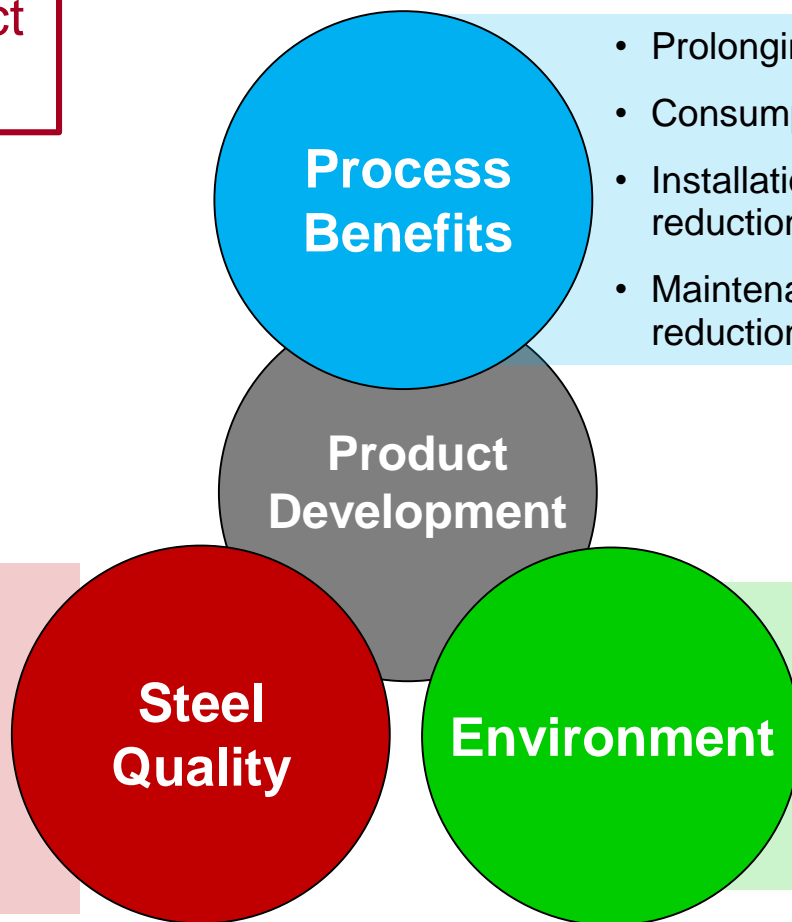
Investment for increasing Production Capacities

- (1) Increasing production capacity for ceramic fibers
- (2) Increasing production capacity for continuous casting mold powder

5. Priority Measure 2: Achieving Highest Level of Product Competitiveness (Product Development) 1/2

Keywords for Product Development

- Reactivity between molten steel and refractory
- Promotion of inclusions flotation
- Optimization of molten steel flow in mold
- Control of heat transfer in mold



- Prolonging service life
- Consumption reduction
- Installation time reduction
- Maintenance downtime reduction

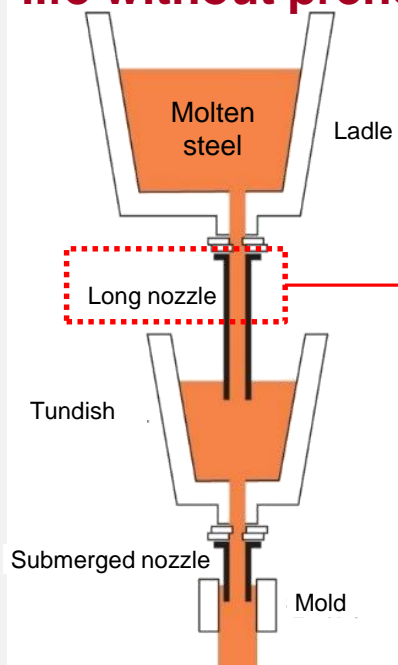
- Heat loss reduction
- Recycling
- Eliminating hazardous substances
- Go fiber-less

5. Priority Measure 2: Achieving Highest Level of Product Competitiveness (Product Development) 2/2

Achieving Highest Level of Product Competitiveness and Marketability

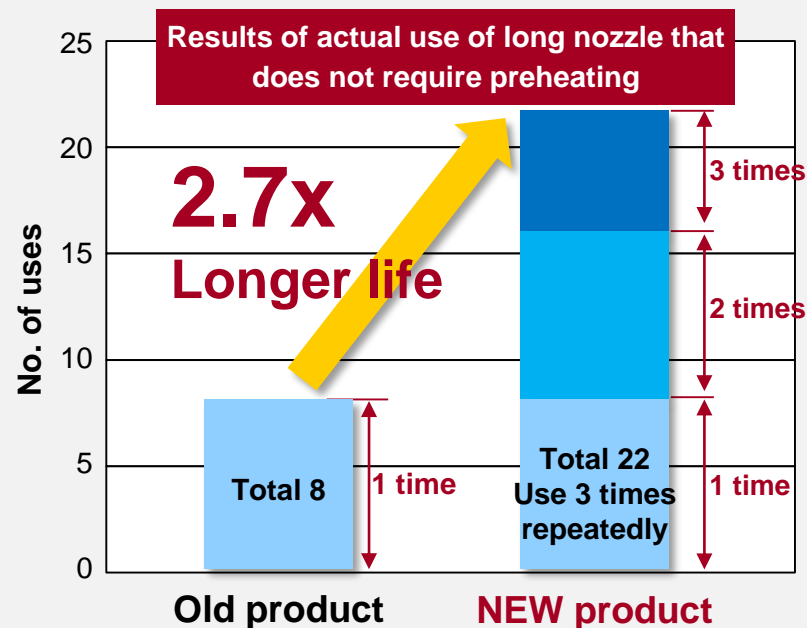
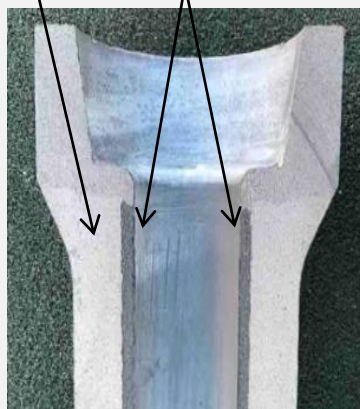
New Strategic Products

Long Nozzles with a longer useable life without preheating requirement



Awarded "Refractory Systems Best Paper Award" by Association for Iron & Steel Technology (**First Japanese company to be awarded**)

Strong durable body material
Inner-pipe with thermal shock reduction layer



The non-carbon structure is made from highly durable AG materials. Can be used several times repeatedly. Extended service life by around 2.7x.

5. Priority Measure 2: Achieving Highest Level of Product Competitiveness (Domestic Business Development) 1/3

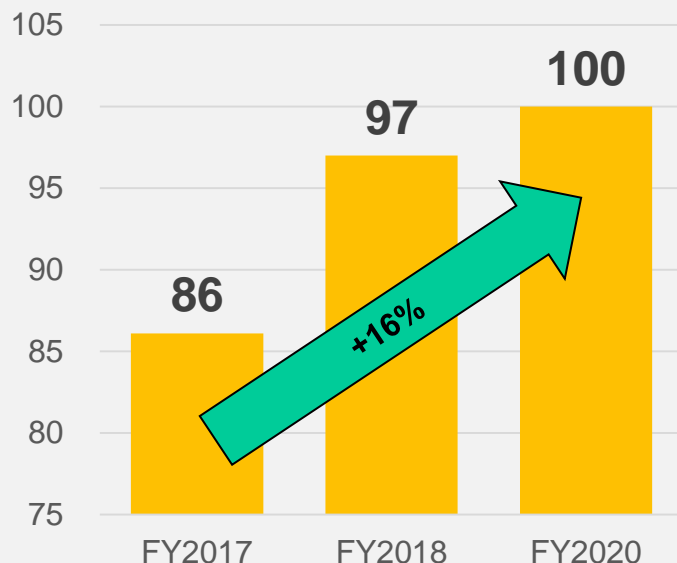
Achieving Highest Level of Product Competitiveness and Marketability

Domestic Business Expansion

Sales Goal = 100 billion JPY in FY 2020

Unit: 100 billion JPY

Net Sales



- Sales expansion by fully pursuing customer benefits with improving service life and better maintenance technologies
- Steel market:
 - Further customer satisfaction improvement
- Specialty steel, non-ferrous, cement and other markets:
 - Introduce new, highly-functional products
- Establishing Fair Pricing considering the market

5. Priority Measure 2: Achieving Highest Level of Product Competitiveness (Domestic Business Development) 2/3

Achieving Highest Level of Product Competitiveness and Marketability

Domestic Business Expansion (1) : Steel and Non-Ferrous Industries

Target: Further customer satisfaction improvement

Measures in blast/electric furnace markets

- Fortify sales expansion of products that improve steel quality
Plates, nozzles, powders, etc.
- Fortify sales expansion of high function, irregular shapes
Expand product groups, including precast products
- Contribute to reduction of steel cost
Minimize use of materials via recycling
Use monolithic repair parts/materials to extend life of flash furnace

Expand sales to specialty steel/non-ferrous metal manufacturers



Develop market through the expanded use of complex structure, high-function precast blocks (Contribute to work efficiency and improvement of product quality)

5. Priority Measure 2: Achieving Highest Level of Product Competitiveness (Domestic Business Development) 3/3

Achieving Highest Level of Product Competitiveness and Marketability

Domestic Business Expansion (2) : Cement and other Industries

Target: New Market Development with Shinagawa's Advanced Technologies and Strong Reputation for Reliability

Sales Expansion to Cement & Lime Industries

- Provide Reliable and Stable Supply: Diversified Supply Sources for Raw Materials and Products
- Improve Cost Performances by Providing Optimal Products for Furnace Relining
- Optimally Combining Shaped and Monolithic Products to Precisely Meets Market Demands

Sales Expansion to Spot Markets

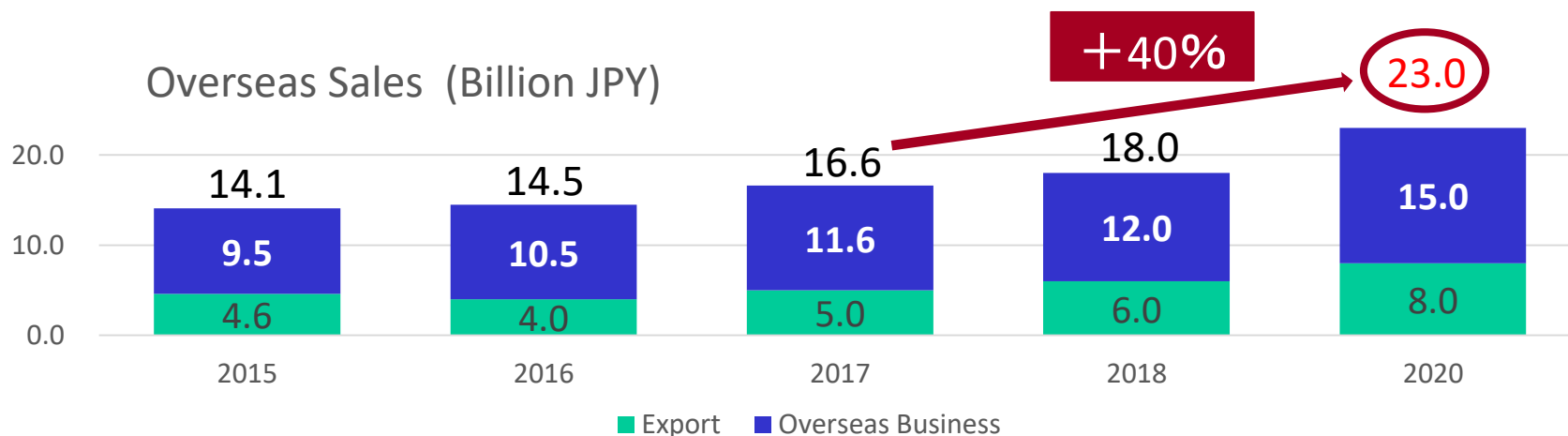
- Chimney Bricks for Glass Furnaces
- Refractories for Relining at Shaft Furnace & Melting Furnace
- Refractories for Reheating Furnaces (Newly-Built and Relining: Tie-in with Ceramic Fibers by Isolite)

5. Priority Measure 3: Capturing Opportunities in New Growing Market (Exports & Overseas Businesses) 1/4

Growth Strategy: Export and Overseas Business Expansion

Overseas Business Expansion

Sales Goal = 23 billion JPY in FY 2020



【Export】

Sales Expansion to Americas (through SAM: Shinagawa Advanced Materials Americas), Korea and India, fully utilizing JFE Group Companies overseas network

【Overseas Business】

In addition to our successful mold powder productions in China/USA and monolithic productions in Australasia, launching tap hole clay productions in India

5. Priority Measure 3: Capturing Opportunities in New Growing Market (Exports & Overseas Businesses) 2/4

Export Business Expansion

(1) Collaboration with Shinagawa's Overseas Companies

Combining Export from Japan with Local Production to better fulfill Customers' Needs

(2) Association with JFE Steel

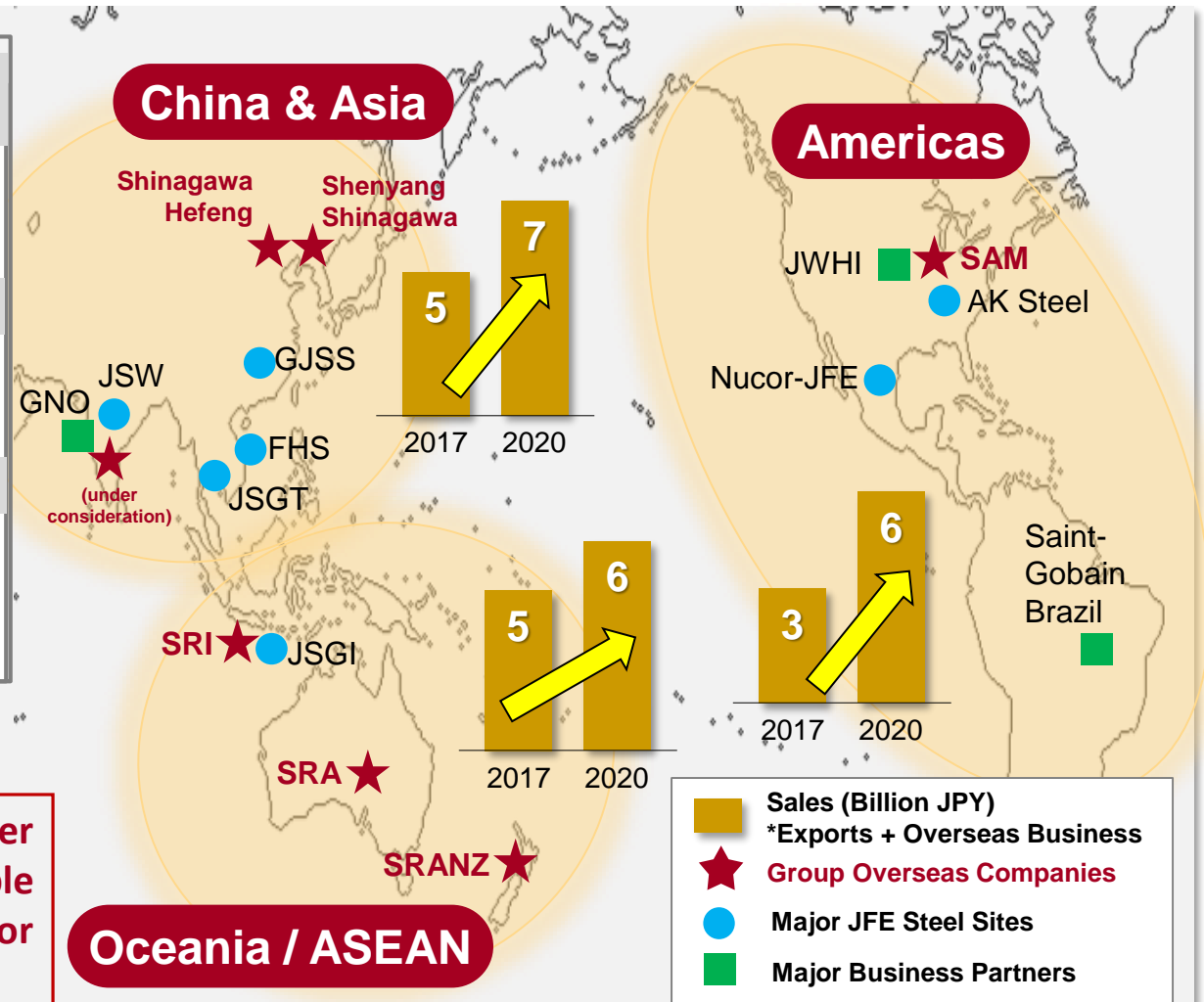
Cooperating with JFE Steel's Overseas Network

(3) Alliance with Business Partners

Collaborating with Local Business Partners in Selected Strategic Target Markets



Expand Export Business together with Introduction of Multiple Vendor Sourcing Policy by Major Customers



5. Priority Measure 3: Capturing Opportunities in New Growing Market (Exports & Overseas Businesses) 3/4

Export Business Expansion

★: Shinagawa's Overseas Operations ○: Alliance with Business Partners

Product		Region	China	Americas		Oceania & ASEAN		Future
				USA	Brazil	Australia & New Zealand	Indonesia	
Mold Powders for CC			★ Shengyang ^{*1} Shinagawa ★ Shinagawa Hefeng	★ SAM ^{*2}				○ India
Monolithics	Tap Hole Clays				○	★ SRA ^{*3} ★ SRA-NZ		★ India ○ N. America ○ Europe
	Castables				○		★ SRI	
Shaped	BOF Bricks		○		○			

^{*1} 2016: Facilitie Upgrade, 2018: Opening of Shinagawa's Shanghai Office

^{*2} 2016: Started combining sales of Mold Powders and Imported Refractories, 2018: New Mold Powders facilities (Under Construction)

^{*3} 2017: Started local productions replacing imports from Japan

^{*4} 2014: Established in October to capture Growing Infrastructure Demand



Secure Business Oportunities and Increase Overseas Sales in our existing markets by further strengthening Products Competitiveness

Capture New Business Oportunities in Growing Markets

**Overseas Business
Sales Expansion**

**FY 2017
11.6 Billion JPY**



**FY 2018
12.0 Billion JPY**



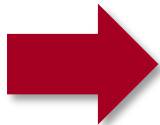
**FY 2020
15.0 Billion JPY**

5. Priority Measure 3: Capturing Opportunities in New Growing Market (Exports & Overseas Businesses) 4/4

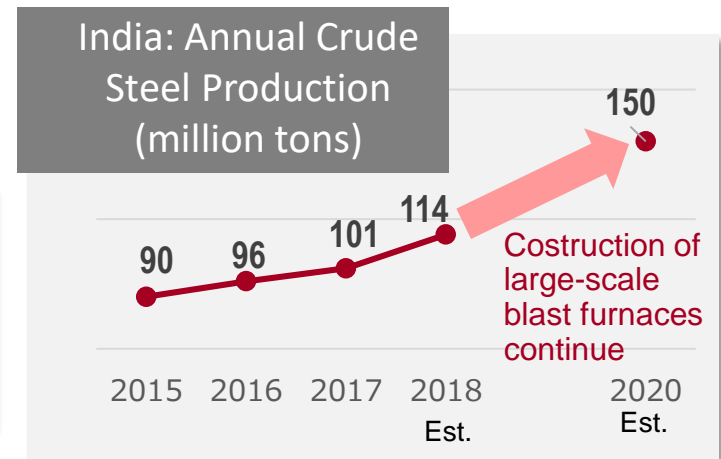
Business Expansion in Growing New Markets

(1) 【India】 Early Implementation of Tap Hole Clay's Local Production

To Date: Secured business through exports from Japan



- Establish JV with our Local Business Partner
- Secure Long-term Presence in the World's Fastest Growing Market

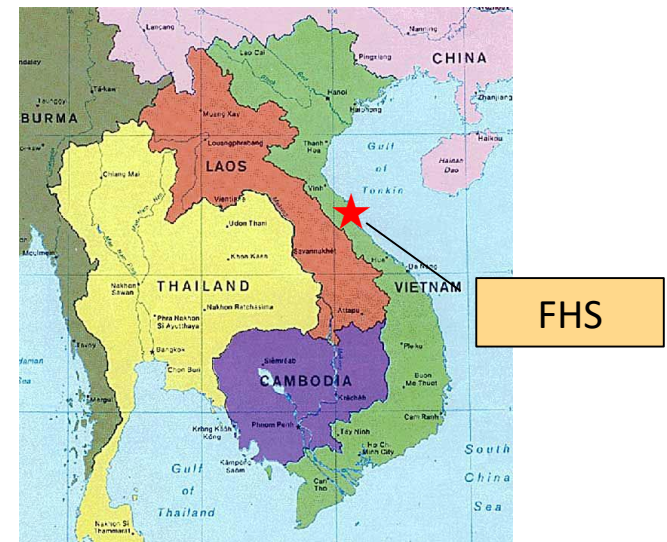


(2) 【Vietnam】 Start Supply to FHS (Formosa Ha Tinh Steel)

- Started operation in May 2017 as Vietnam's first Fully Integrated Steel Manufacturing Company
- JFE Steel and Taiwan CSC (one of our major customers) have taken a stake with providing Technical Support

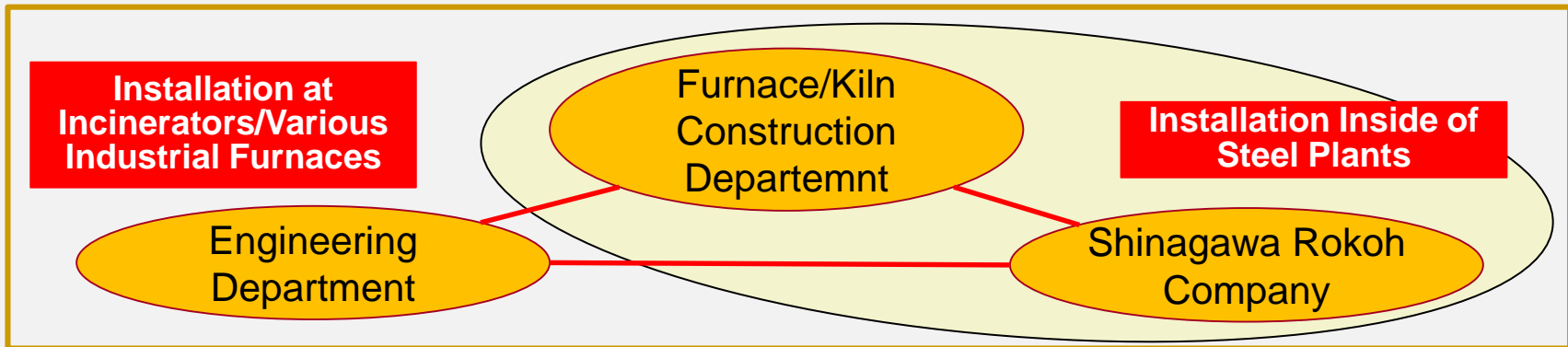


- Started supplies of Tap Hole Clays and Mold Powders
- Aim for further businesses with their Capacity Expansion (Total Crude Steel Output Capacity: 7 million tons/year)



5. Priority Measure 3: Capturing Opportunities in New Growing Market (Construction Business)

Introducing Optimal Installation System as Shinagawa Group



Comprehensive Installation Technology

Comprehensively utilizing our Unique Technical Expertise of each business area, i.e. Furnace Design, Highly Durable Monolithic Products, Large Blocks, and other Installation Technologies and Furnace Diagnostic technologies)



Integrated Installation Management System

Leveraging Comprehensive Strengths and Synergies among each area by fully integrating Installation Management System

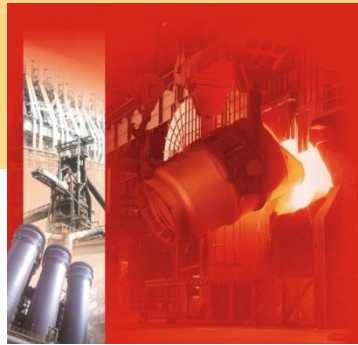
Timely and Flawless Execution of Orders & Further Development of New Markets

6. FY2018 Management Plan: Financial Targets

(Unit: million JPY)

	FY 2017	FY 2018	YoY
	Results	Forecast	
Net Sales	102,749 [100.0]	115,000 [100.0]	+ 11.9%
Operating Income	6,049 [5.9]	7,400 [6.4]	+ 22.3%
Ordinary Income	6,322 [6.2]	7,500 [6.5]	+ 18.6%
Profit attributable to owners of parent	3,419 [3.3]	4,500 [3.9]	+ 31.6%

Note: Figures in square brackets [] indicate ratios against net sales (%).



III. Supplementary Notes

1. History

[Established in 1875]

Shinagawa Refractories Co., Ltd.

(First private company in Japan to manufacture fire bricks)

[Established in 1938]

JFE Refractories Corporation

(Operated as a subsidiary of the Kawasaki Steel Corporation Group since 1944)

Increasing market presence and establishing reliable production infrastructure through further expansion of the refractories business

Merged on October 1, 2009

Shinagawa Refractories Co., Ltd.

“Streamlining operational infrastructure and effectivity coping with rapid changes in the business environment through the prompt realization of integration effects.”

2. Mission Statement

Mission Statement of Shinagawa Refractories

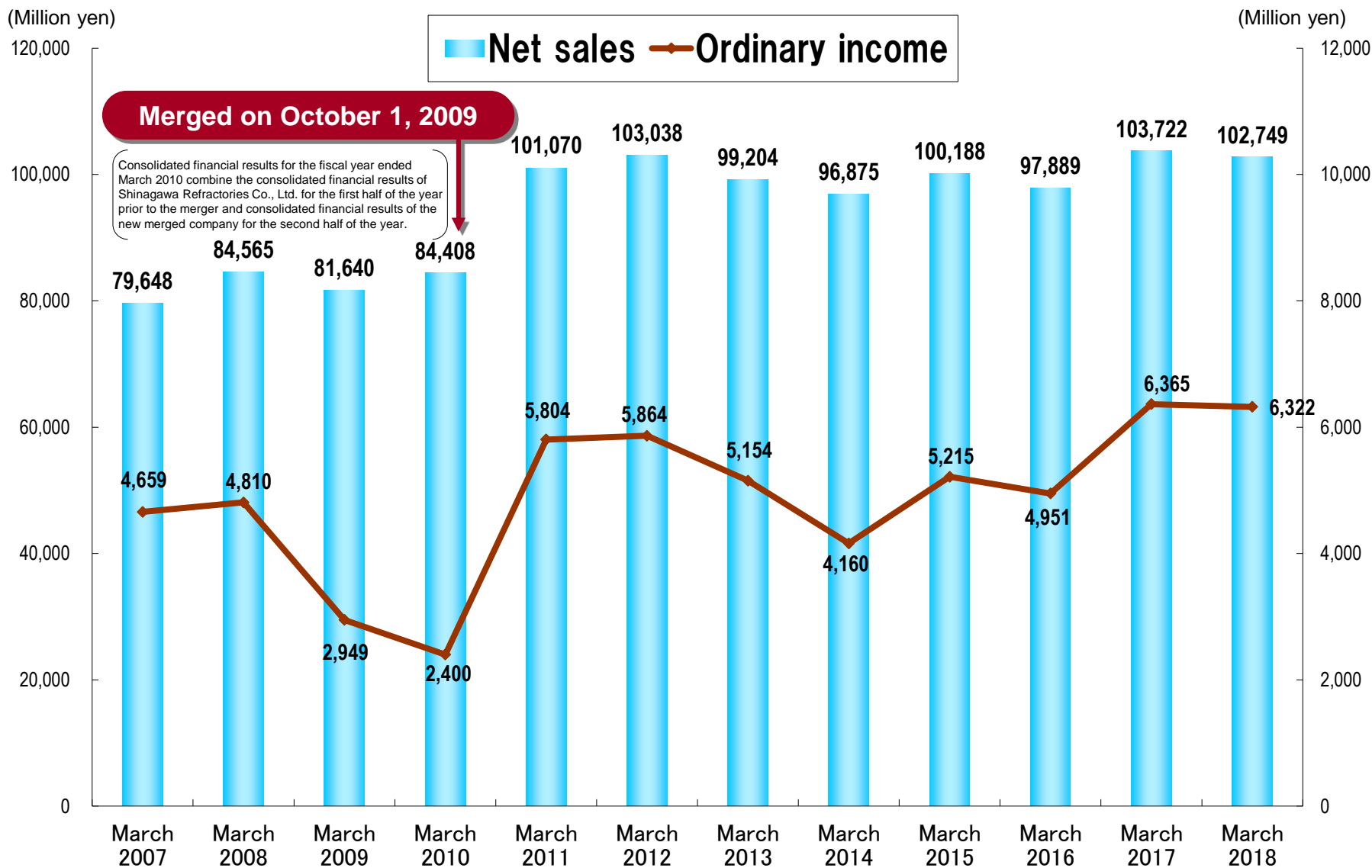
With our core philosophy of respecting the basics “Be BASIC,” Shinagawa Refractories is committed to contributing to the industrial development and the creation of affluent societies through providing high quality refractory products along with engineering services for furnace designs and construction.

Four Goals:

- 1) Be the world's leading supplier of a full range of refractory products
- 2) Be responsive to customers' needs
- 3) Be a reliable corporate citizen for all our stakeholders
- 4) Be an attractive company for employees by providing safe, pleasant and rewarding workplace

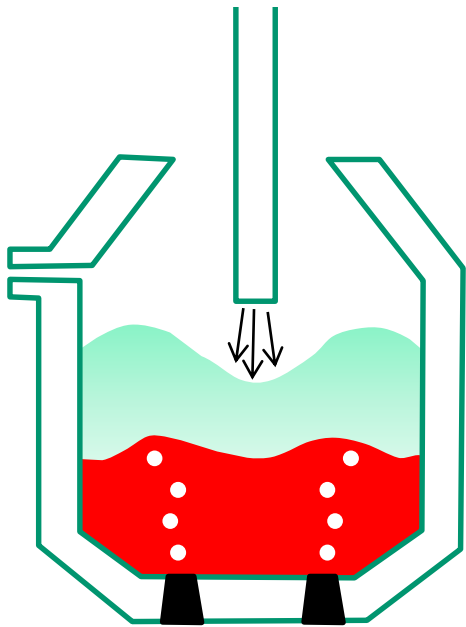
Shinagawa will strive to fully achieve these goals by pursuing excellence in developing human resources, promoting advanced technological capabilities and securing strong earning capacity along with solid financial foundation.

3. Changes in Net Sales and Ordinary Income During Past 12 Years (Consolidated Basis)

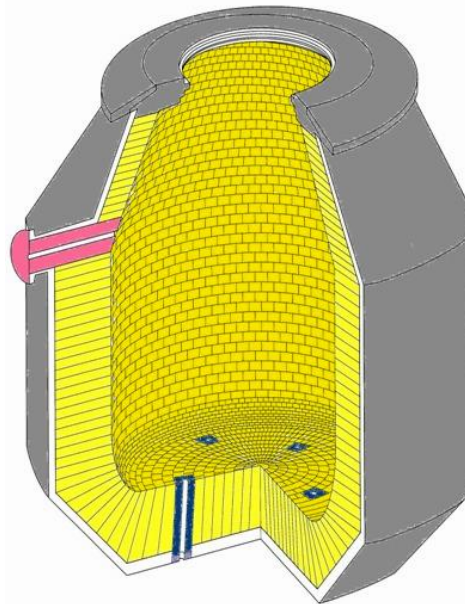


4. What are the roles of the "Refractory Industry"?

- Many varieties of materials used in public infrastructure such as iron and steel, nonferrous metals, cement, glass are manufactured in furnaces at extremely high temperature with refractory lining.
- The refractory industry provides foundational support to key industries through manufacturing of refractories and engineering services for furnace design, and construction.



Refining of molten steel in converter



Refractory lining



Fire bricks for converters



Furnace construction using fire bricks

5. Major Products 1/2

Refractories

Refractories are industrial materials that can resist ultra-high temperatures in excess of 1,500 degrees Celsius. Approximately 80% of refractory production is consumed by the steel industry.

Shaped refractories

Shaped refractories (“fire bricks”) provide basic support to industrial furnaces and ultra-high temperature processing facilities

- Magnesia-based bricks
- Carbon-containing bricks
- Fire-clay and high-alumina bricks
- Functional products for continuous casting
- Silicon carbide bricks
- Silica bricks, etc.



Monolithic refractories

A complete system package including “product, design, installation and after-sales service” that can suit a wide range of applications

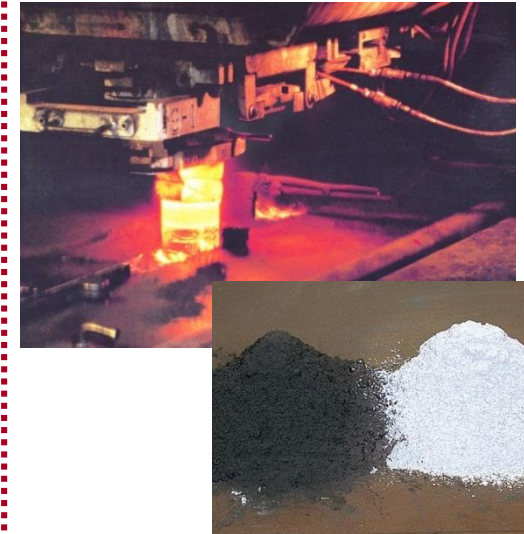
- Castable refractories
- Precast shapes
- Gunning refractories
- Plastic and ramming mixes
- Refractory mortars, etc.



Mold powder

An essential component of high-quality steel

(Powder-type material added to maintain the surface temperature inside casting molds. It prevents the steel from oxidizing and acts as a lubricant during the continuous casting process used to manufacture steel ingot plates and rods)



5. Major Products 2/2

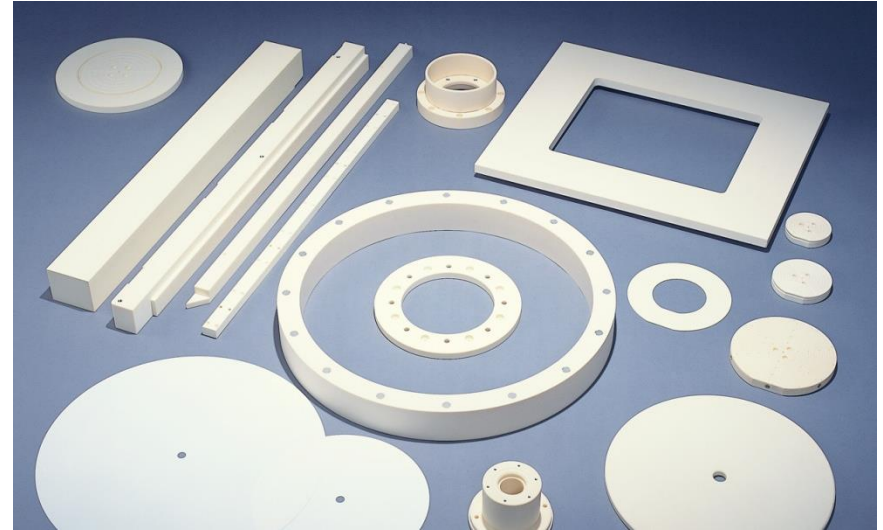
Ceramic fiber

Lightweight material featuring low thermal conductivity and high thermal insulation, making it essential for energy-saving



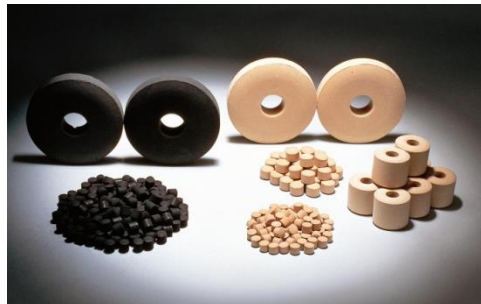
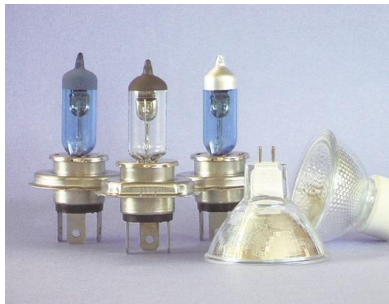
Advanced ceramics

Ceramic material with a broad range of characteristics including excellent electrical insulation properties, abrasion resistance, corrosion resistance, chemical stability, mechanical strength, etc.



Chemical and other products

Heat-resistant paint, heat-resistant adhesives, multifunctional absorbent, desiccant, etc. with applicability to ceramic materials technologies



6. Key Features and Strengths

1

Leading company of ultra-high temperature technologies

2

Solid customer base with highly-advanced capabilities

3

Global business expansion

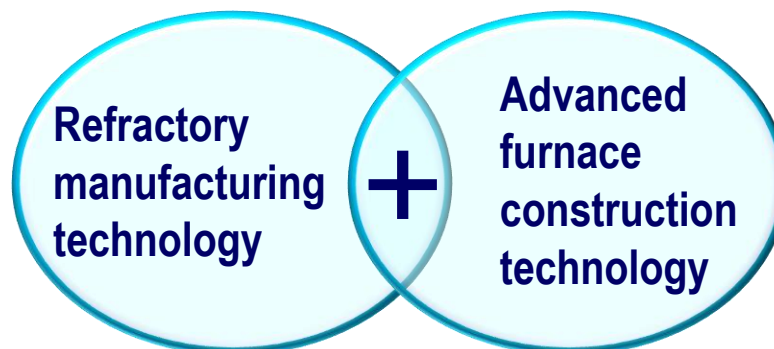
7. Key Features and Strengths

(1) Ultra-High Temperature Technology (i) Two Technologies

Leading company of ultra-high temperature technology

Solid technology development and commercialization capabilities supported by two technologies

- Refractories
- Ceramic fiber
- Advanced ceramics
- Chemical products and other products



- Furnace design
- Engineering services
 - Furnace construction work for blast furnaces, converters, incinerators, etc.
 - Ultra-fast relining of blast furnaces and hot stoves
 - Maintenance of furnaces used by iron and steelmaking works, etc.

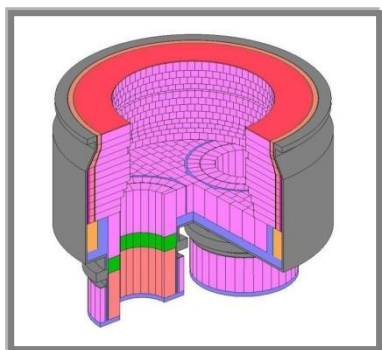
Customer-oriented technological response

Development capability to meet customer needs

7. Key Features and Strengths

(1) Ultra-High Temperature Technology (ii) Customer-Oriented Technological Response

Work closely with customers at all times backed up by technologies and long track records of four divisions covering design, manufacturing, furnace construction, and development.



Engineering Department



Technical Research Center



Works

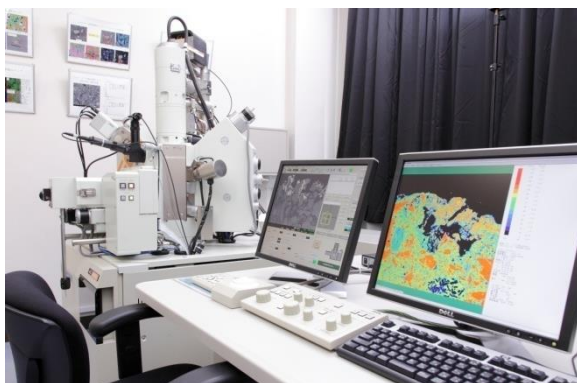


Furnace Construction Division

7. Key Features and Strengths

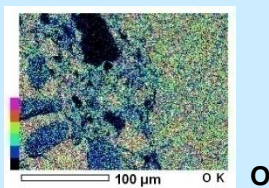
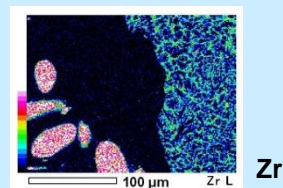
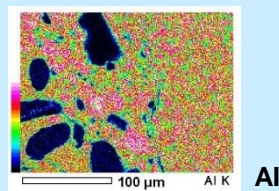
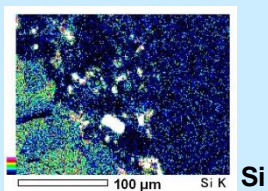
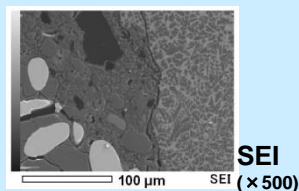
(1) Ultra-High Temperature Technology (iii) Development Capability to Meet Customer Needs

With world-class research facilities, the Research Center focuses on the development of products to meet the exact needs of customers

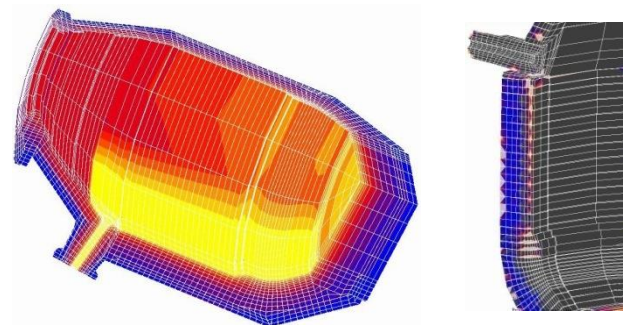


EDS analysis data
(color map)

Elements present in the area
can be detected in a short
period of time.



Analysis of microstructures of refractories



Structural analysis of converters



Water model simulation of
molten steel flow in the mold

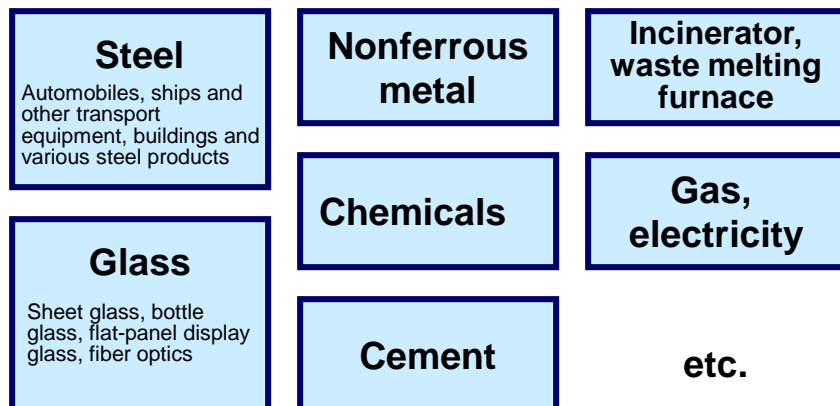
8. Key Features and Strengths (2) Solid Customer Base

Solid customer base with highly-advanced technological capabilities

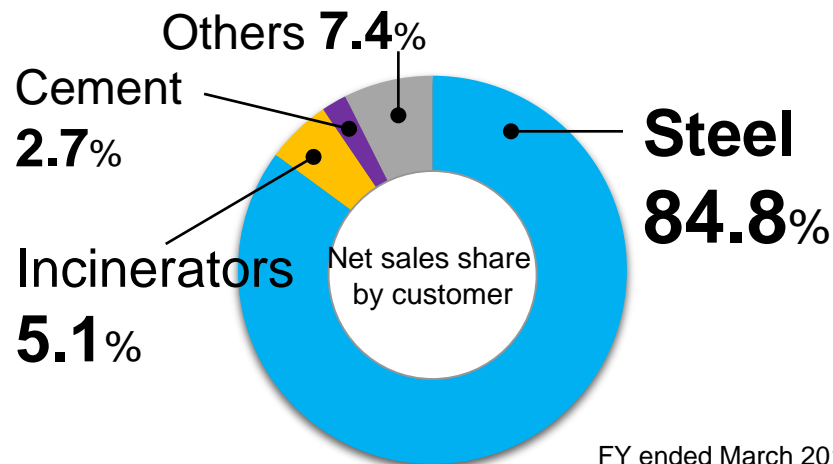
Meeting the exact needs of customers in various industries including the Japanese steelmaking industry, known for their best steelmaking technology in the world

Ultra-high temperature technologies are fundamental technologies for many industries

From the material industry to the field of energy production, environmentally friendly ultra-high temperature technologies are fundamental to all.



Steel industry is the main customer, accounting for approximately 80% of the total sales



FY ended March 2017
(non-consolidated)

9. Key Features and Strengths (3) Global Business Expansion

Global business expansion

Starting from our launch into China in 1997, the Company has continued to expand overseas, establishing production bases in Australia and the U.S.

[China] ← Entered market in 1997

- 1997: Established a joint venture company, Shenyang Shinagawa Glorious Metallurgy Materials Co., Ltd. (current Shenyang Shinagawa Metallurgy Materials Co., Ltd.)
- 2003: Made an equity investment in a joint venture company, Jinan Ludong Refractory Co., Ltd.
- 2008: Established a joint venture company, Liaoning Shinagawa Hefeng Metallurgical Material Co., Ltd.

[Australia] ← Entered market in 1998

- 1998: Established a joint venture general refractory company
- 2003: Fully consolidated the joint venture company and renamed it Shinagawa Refractories Australasia Pty. Ltd.

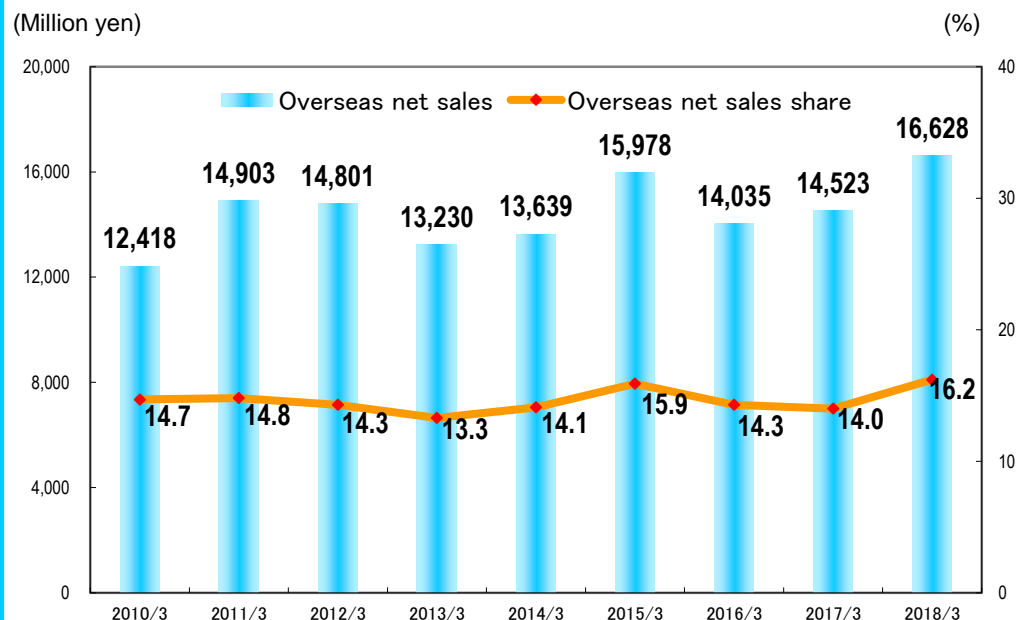
[U.S.] ← Entered market in 2006

- 2006: Established Shinagawa Advanced Materials Americas Inc. in Ohio

[Indonesia] ← Entered in 2014

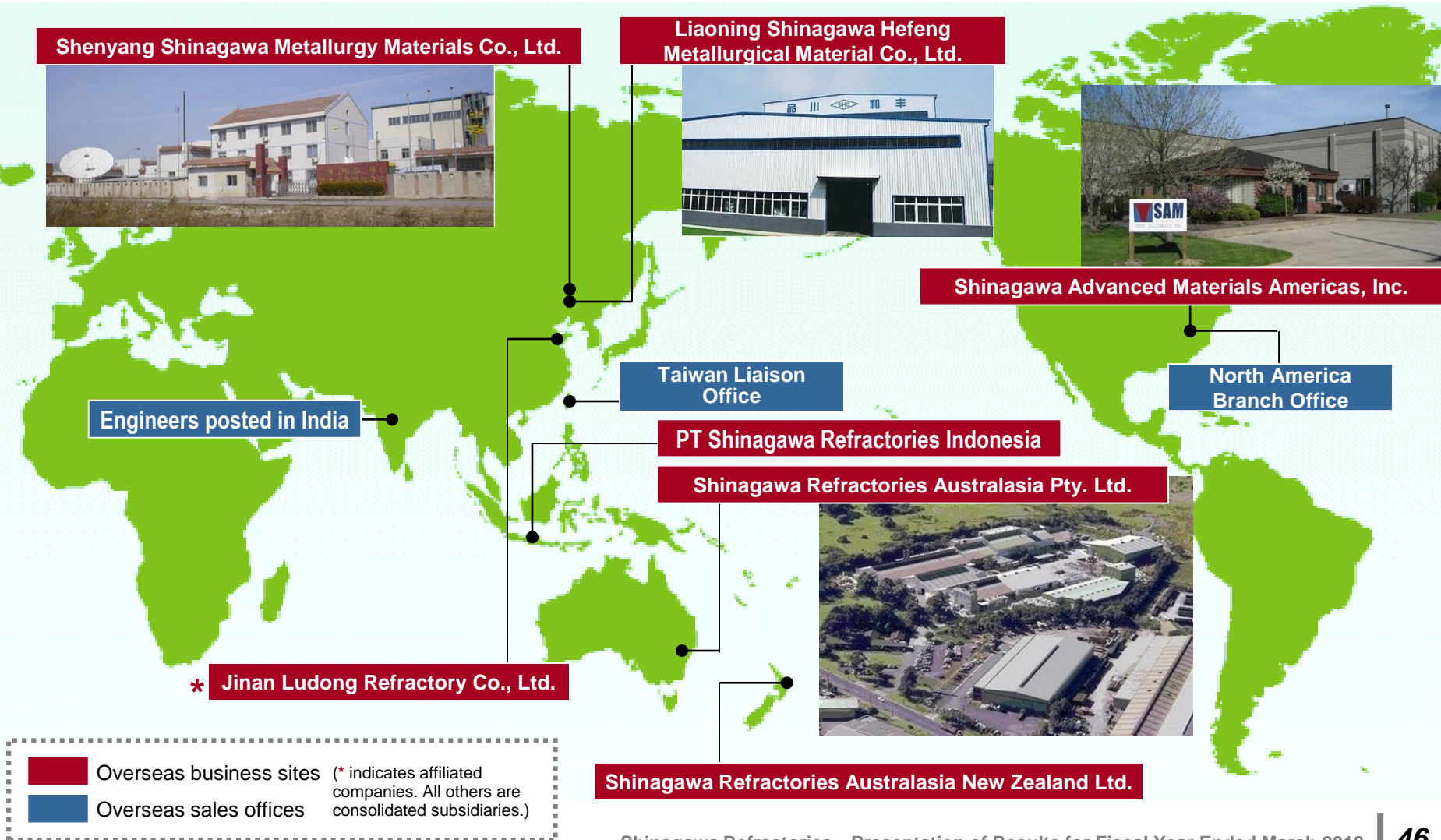
- 2014: Established PT Shinagawa Refractories Indonesia in Jakarta

Overseas net sales and market share (consolidated)



10. Current Status of the Expansion of Overseas Business Locations

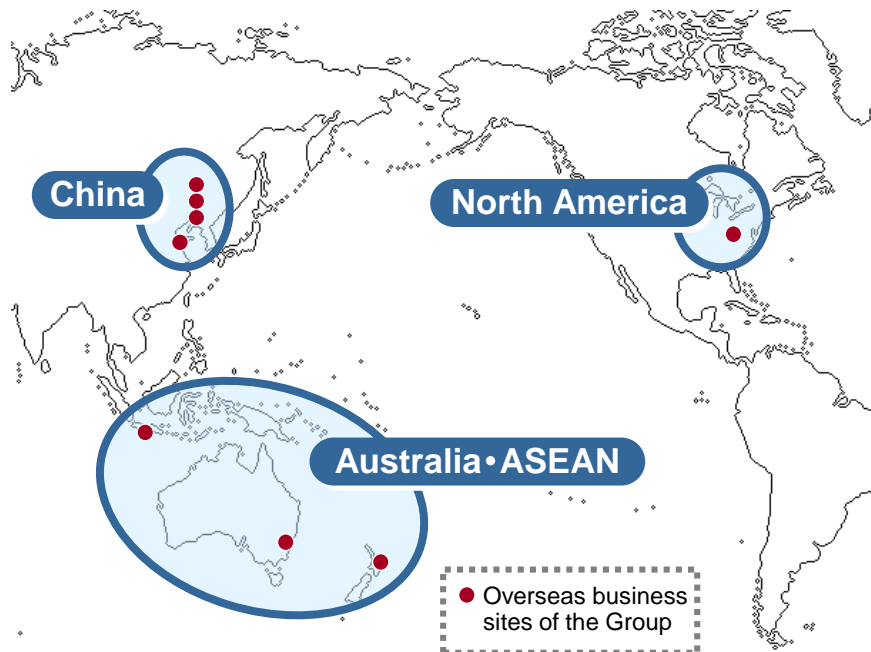
Expanding overseas business locations in China, Oceania, and the Americas with a focus on areas close to the production sites of our customers



11. Domestic and Overseas Production System

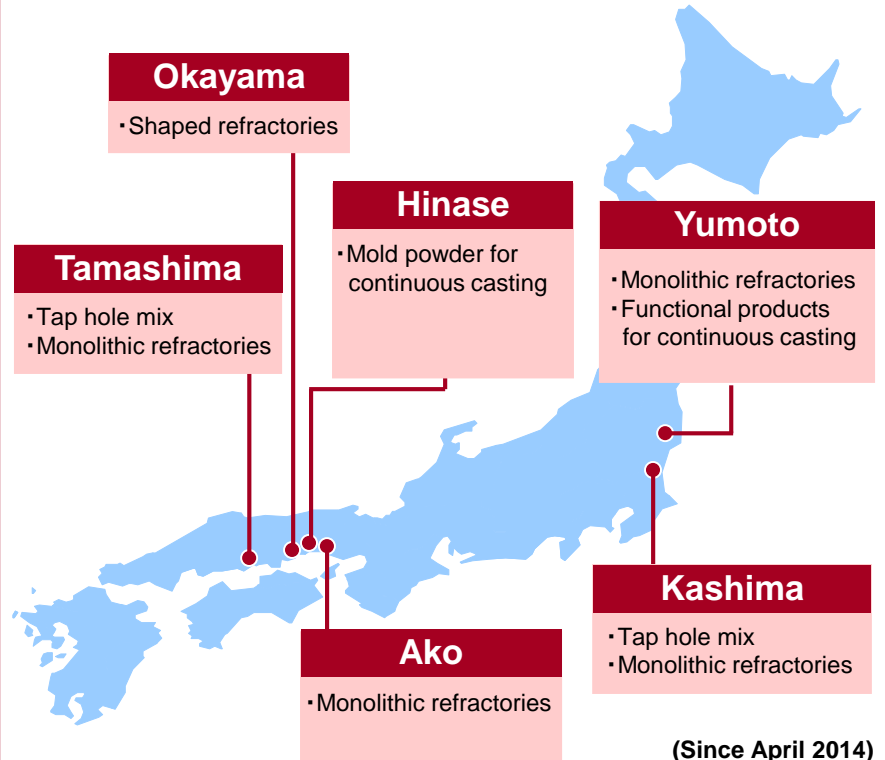
[Overseas]

Developing a stable supply system by establishing the Group's manufacturing sites closer to customers in order to customer needs responsive



[Japan]

Promoting the redevelopment of a reliable supply system with enhanced efficiency and effectiveness



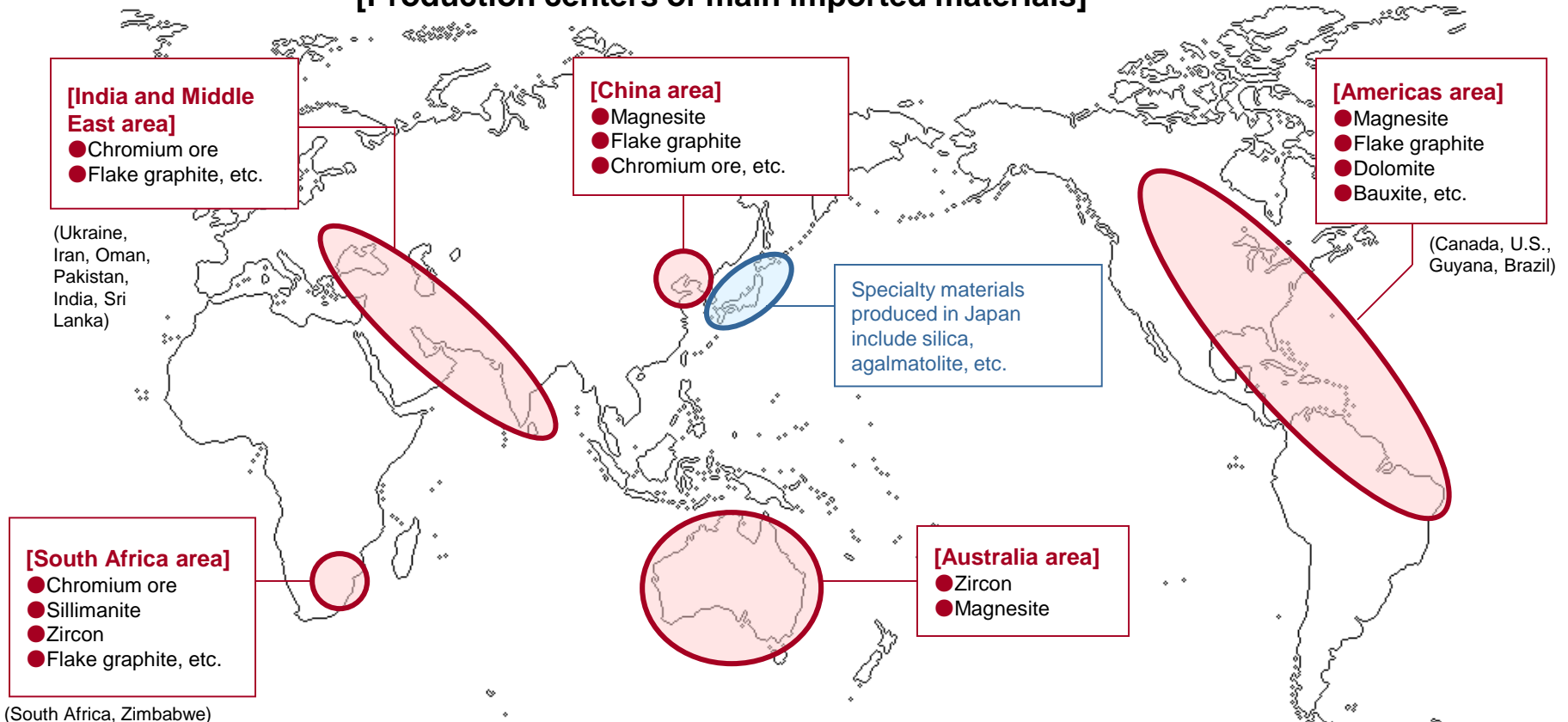
12. Global Procurement System

The Company depends on foreign sources for approximately 60% of refractory materials, 80% or more of which (approximately 50% of the total raw materials) are imported from China.



Amid such circumstances, the Company developed a balanced procurement system to source materials from production centers in five geographical areas around the world from the perspective of having balanced portfolio.

[Production centers of main imported materials]



Disclaimer

This document is intended to provide information on the results for the fiscal year ended March 2018 (April 2017 – March 2018) and is not intended to solicit investment in securities issued by the Company.

The document was prepared based on data available as of June 15, 2018. Opinions, forecasts, etc. described herein are based on the Company's judgment at the time of the preparation of the document. The Company does not warrant or guarantee the accuracy or completeness of the information contained herein, and such information may change without notice in the future.

Securities Code Number: 5351

Presentation Material

Results for Fiscal Year Ended March 2018

June 15, 2018



— Supporting the World's Key Industries Through Technologies —

 SHINAGAWA REFRACTORIES CO.,LTD.