

# 三菱マテリアル

## MITSUBISHI MATERIALS

### IR Meeting Handout

### November, 2019



# Contents

## ○ **Corporate Profile / Business Situation**

- ▶ Corporate Profile p5-9
- ▶ Progress on the Medium-Term Management Strategy p11-18

## ○ **Business Strategy & Overview by Segment**

- ▶ Advanced Products p21-27
- ▶ Metalworking Solutions Business \*  
p29-33
- ▶ Metals Business p35-39
- ▶ Cement Business p41-44
- ▶ Others Business p46

## ○ **(FYI) Medium-Term Management Strategy**

**(Announced on May 16, 2017)** p48-59

\* As of October 1, 2018, “Advanced Materials & Tools Company” changed its name to “Metalworking Solutions Business Company.”

# Corporate Profile / Business Situation

# Corporate Profile

# Corporate Profile

Company Name : Mitsubishi Materials Corporation  
Head Office : 2-3, Marunouchi 3-chome, Chiyoda-ku,  
Tokyo 100-8117 Japan  
Chief Executive Officer : Naoki Ono  
Capital Stock : ¥119,457 million (as of Mar. 31, 2019)  
Year of Establishment : 1950  
Number of Employees : Consolidated 28,426 (as of Mar. 31, 2019)  
Non-consolidated 4,807 (as of Mar. 31, 2019)  
Consolidated Subsidiaries : 152 (as of Mar. 31, 2019)  
Affiliated company accounted for by the equity-method : 16 (as of Mar. 31, 2019)  
(The group has established about 165 operating bases in about 30 countries.)

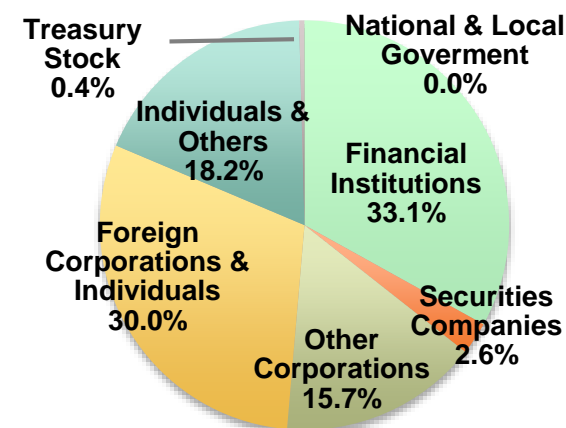


## Common Stock (Ticker symbol : 5711)

■ Shares of issued and Outstanding: 131 million  
Number of Unit Shareholders: 70,630  
Share Unit Number: 100

\*as of March 31, 2019

■ Distribution of shareholders  
\*as of Mar. 31, 2019



# Business Structure

## Cement



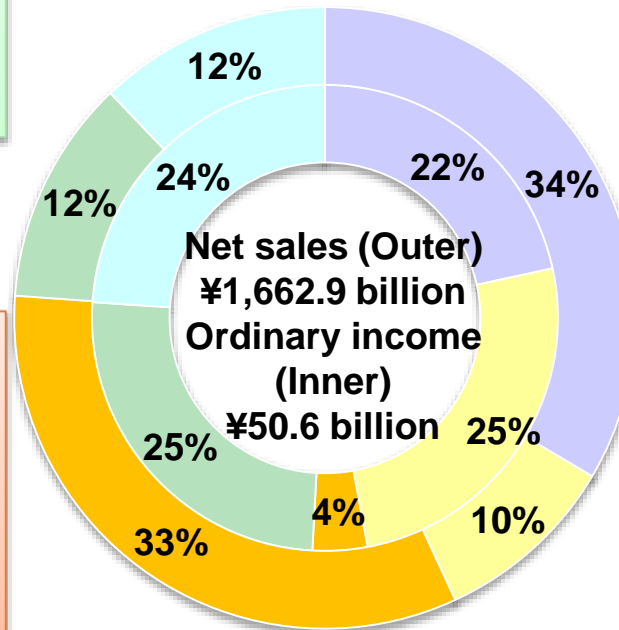
- Cement
- Aggregate
- Ready-mixed concrete
- Concrete products

## Advanced Products



- Copper and copper alloy products
- Electronic materials & components
- Aluminum products

## Financial Performance by segment (FY2019)



## Metals



- Copper mining
- Copper smelting and refining

## Metalworking Solutions



- Cemented carbide products
- Sintering parts, etc.

## Others

### Environment & Energy

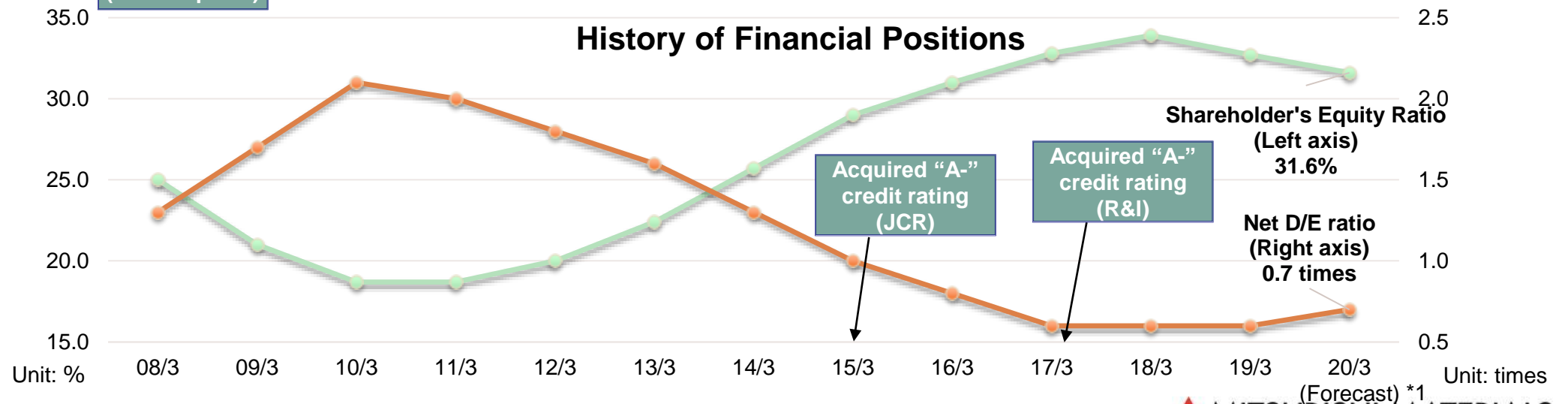
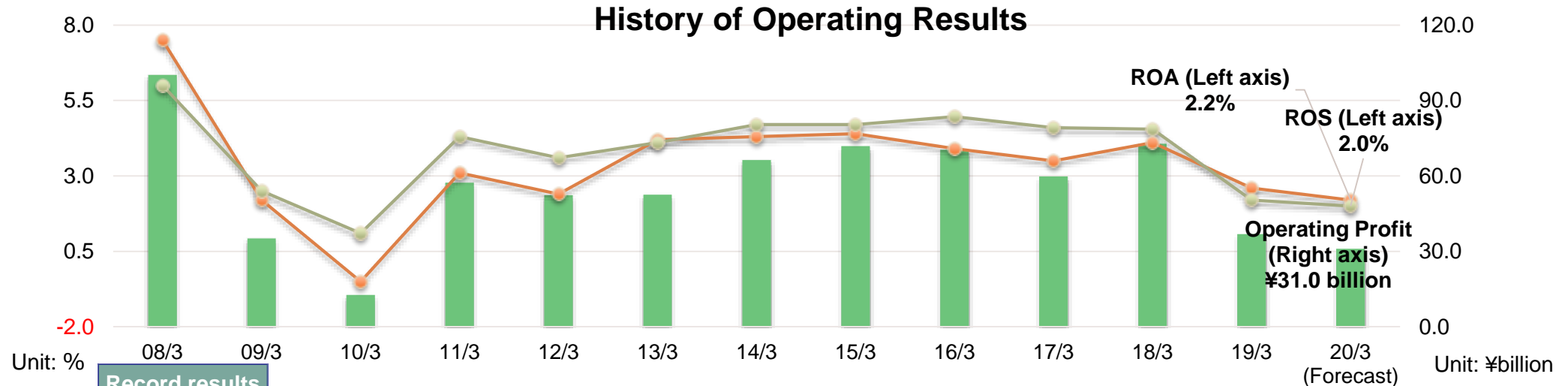


### Others

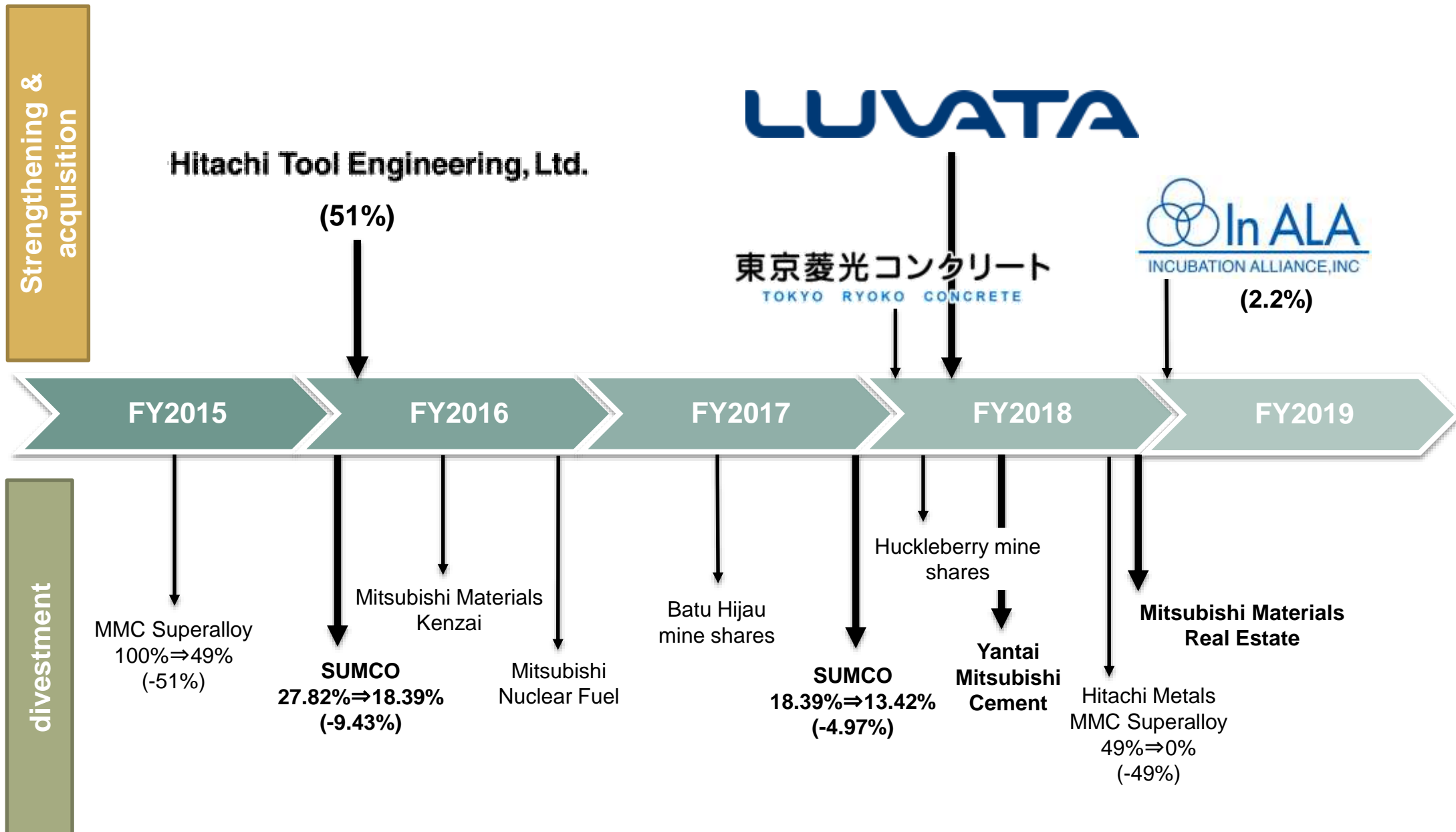
- Engineering
- Others etc.

# History of Operating Results

09/3-11/3: Following the Lehman shock, introduced comprehensive management measures to strengthen the corporate constitution  
 12/3-14/3: Medium-term Management Plan (Materials Premium 2013 - Aiming for New Creation)  
 Twin focus on growth strategy and enhancement of financial position  
 15/3-17/3: Medium-term Management Plan (Materials Premium 2016 - Challenge to become the world's leading business group)  
 Fortifying the foundation  
 18/3-20/3: Medium-term Management Strategy (- Transformation for Growth -)



# History of Business Restructuring





# History of Provision for Environmental Measures

Provision for environmental measures  
at abandoned mines has completed in FY2019

Provision for environmental measures at  
abandoned mines

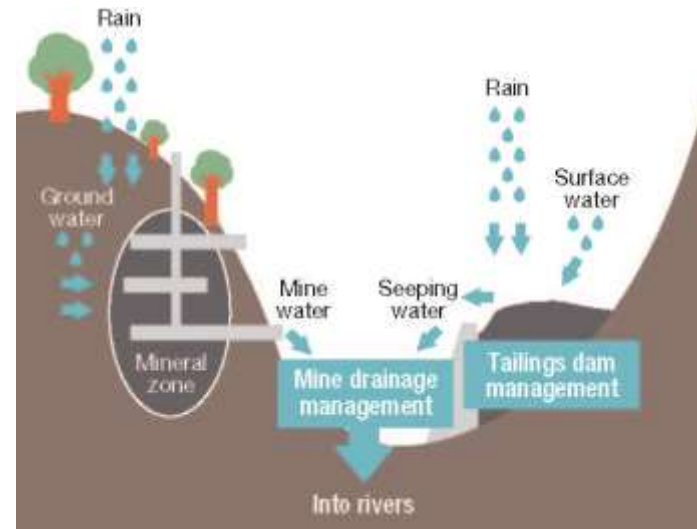
## 1. Tailings Dam Reinforcement

Construction work to design and implement stability measures at  
the tailings dam

## 2. Countermeasure work to prevent mining-induced pollution

Measures for the prevention of dumping untreated water with a  
focus on the reinforcement of water treatment capacity in  
response to the changes in the natural environment in recent  
years

Overview of Wastewater Treatment  
in Abandoned Mines



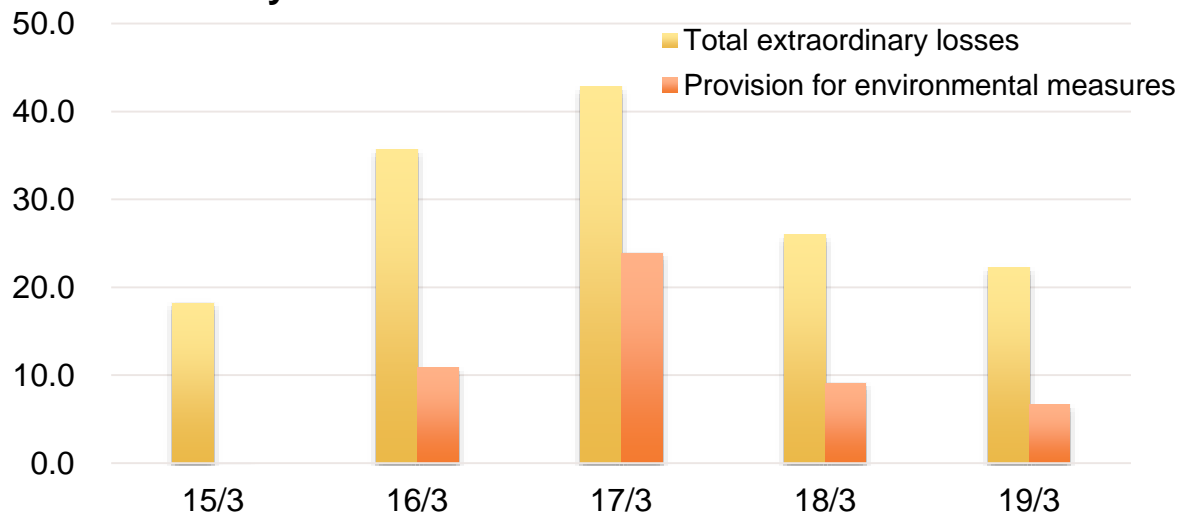
Reinforcement work on the Yotani  
Mine Tailings Dam No.1



Contamination containment work at  
Komagi Mine: membrane section  
waterproofing

Unit: ¥billion

## History of Provision for Environmental Measures



## Results of Provision for Environmental Measures

FY2016 ¥10.8billion

Countermeasure work to prevent mining-induced pollution  
Tailings Dam Reinforcement (2sites)

FY2017 ¥3.9billion

Tailings Dam Reinforcement (4sites)  
Countermeasure work to prevent mining-induced pollution

FY2018 ¥9.1billion

Countermeasure work to prevent mining-induced pollution

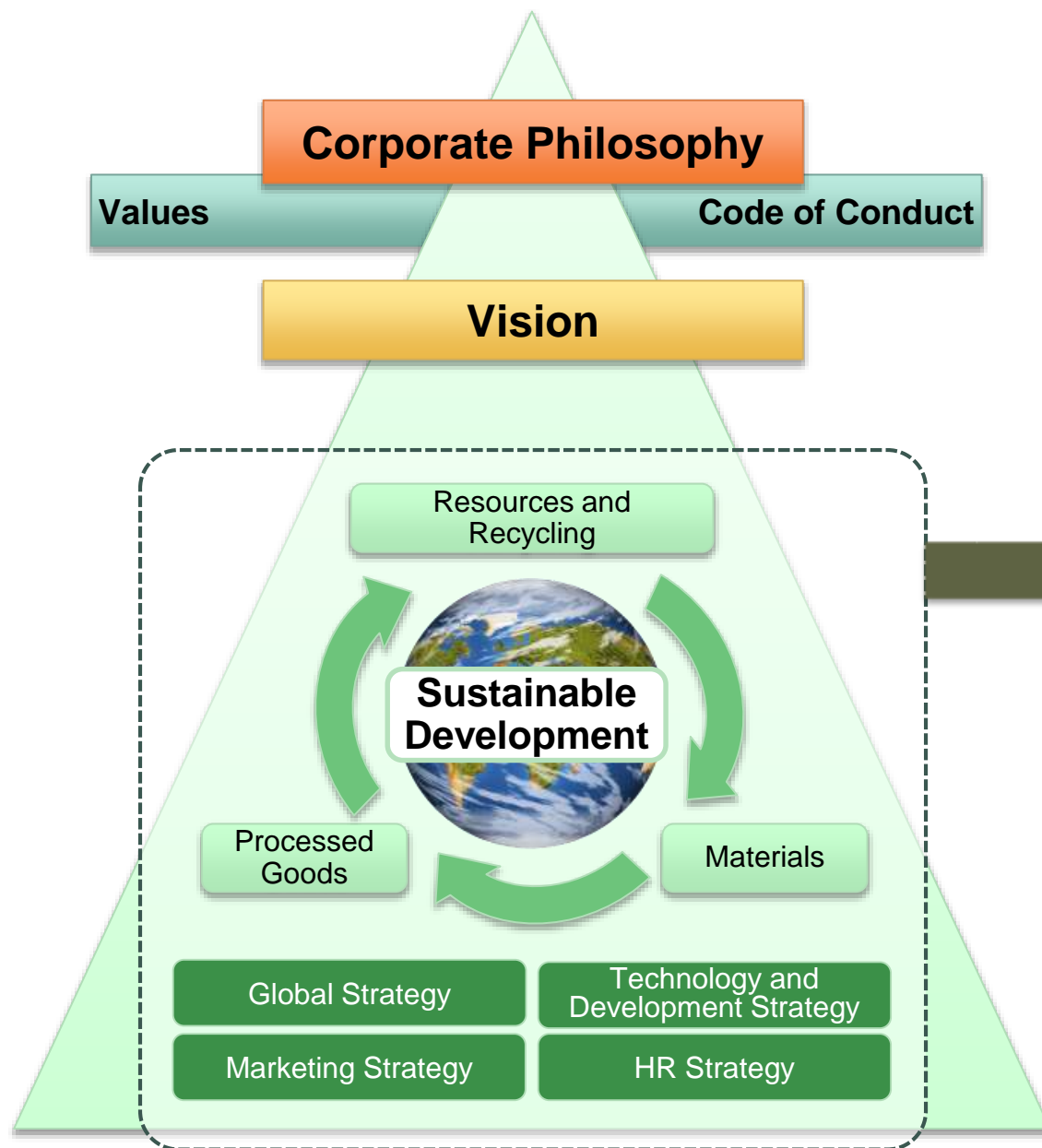
FY2019 ¥6.6billion

Tailings Dam Reinforcement (4sites)

Total ¥50.4billion

# **Progress on the Medium-term Management Strategy**

# Overview of FY2020 Strategy



## Long-term Management Policy

### Medium- to Long-term Goals (the company in the future)

- ◆ Leading company in domestic and overseas key markets
- ◆ Achieving high profitability and efficiency
- ◆ Achieving growth that exceeds the market growth rate

### Group-wide Policy

- ◆ Optimization of business portfolio
- ◆ Comprehensive efforts to increase business competitiveness
- ◆ Creation of new products and businesses

## Medium-term Management Strategy

### Key Strategies in FY2020 Strategy

- ◆ Achieve growth through innovation
- ◆ Create value by building a recycling-oriented society
- ◆ Increase the company's market presence through investment for growth
- ◆ Increase efficiency through continuous improvement

# Progress on the Medium-Term Management Strategy

## ◆ Medium-Term Management Strategy

Review the growth strategy and investment plan for upcoming three years once a year



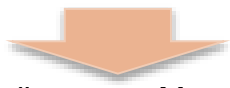
## ◆ Rolling Review of the Medium-Term Management Strategy (FY2020 Strategy)

Growth strategies: No major changes

Investment plan: No major changes

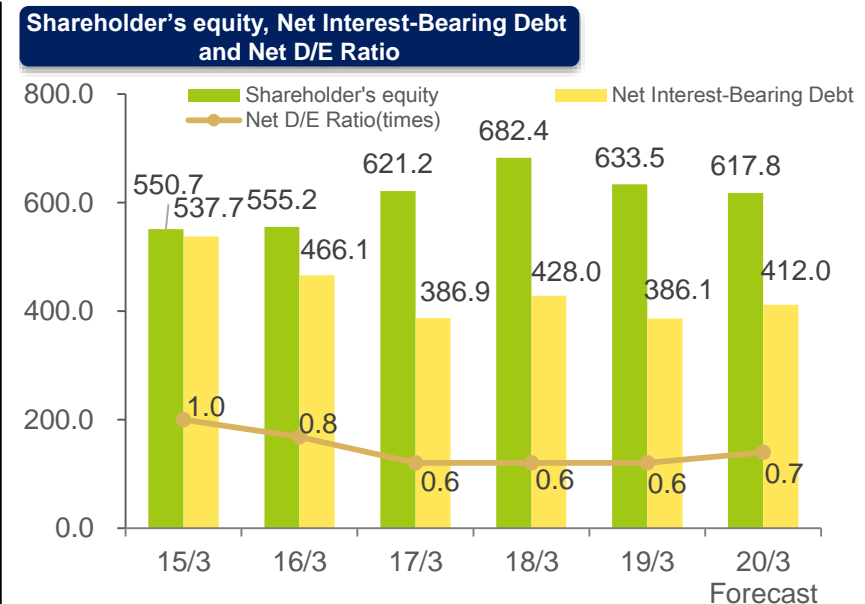
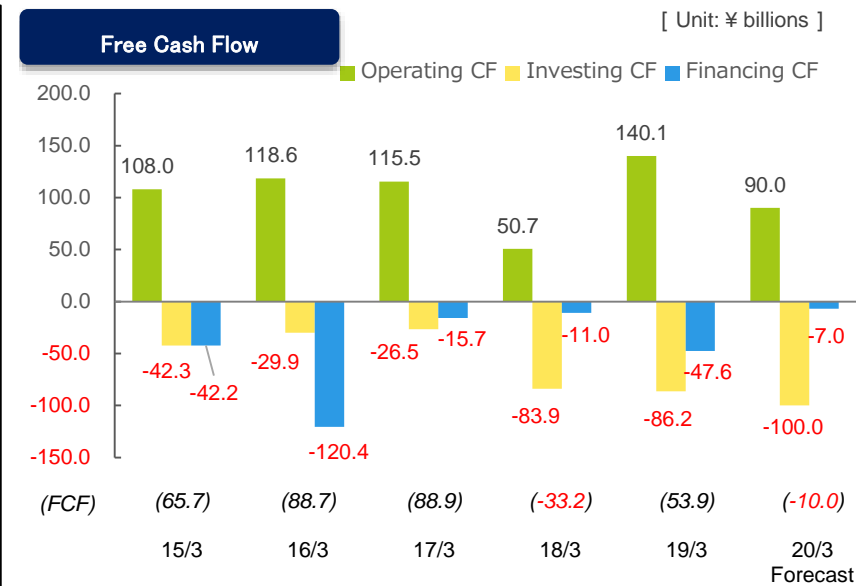
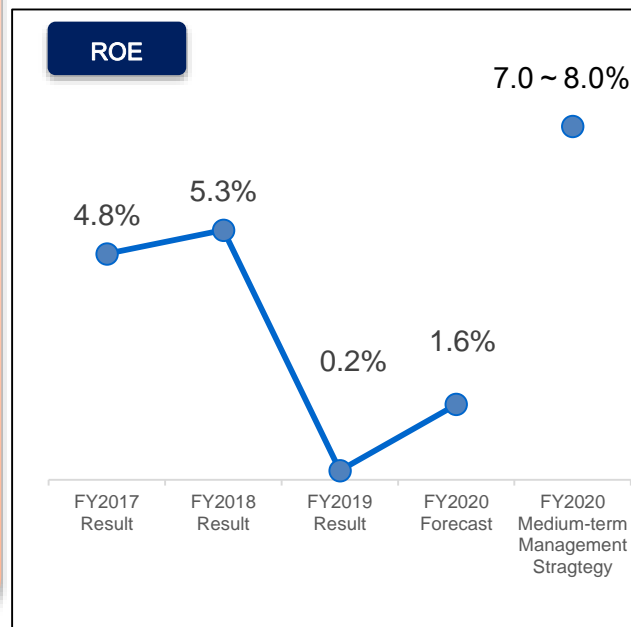
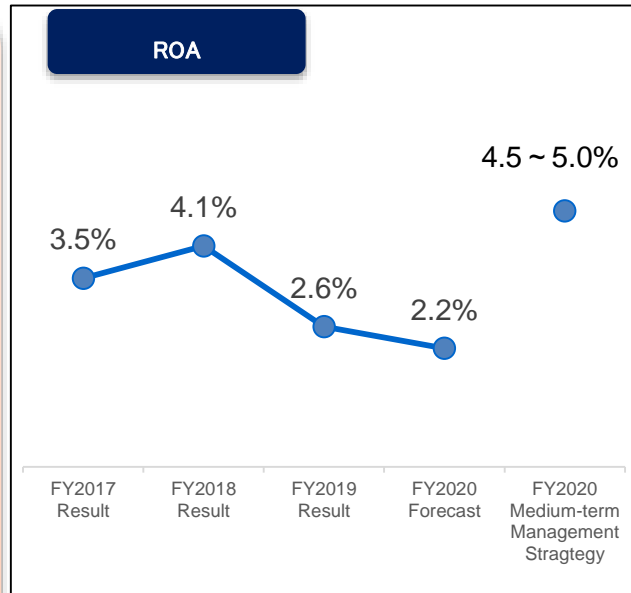
## ◆ Optimization of business portfolio

- New establishment of the “Advanced Products Company” (2018)
- Absorption-type Merger of the consolidated subsidiary Mitsubishi Shindoh Co., Ltd. (2019)
- Sales of all shares in Kobelco & Materials Copper Tube Co., Ltd. (2019)



## ◆ Next Medium-term Management Strategy

Currently being prepared  
(scheduled for announcement at the end of FY2020)



# Optimization of Business Portfolio

- ◆ To integrate three product manufacturing businesses and establish the Advanced Products Company in October, 2018
- ◆ Newly set a EBITDA growth rate as the most important indicator of the Advanced Products Company

			Direction	(Indicator to watch)
Product manufacturing	Growth promotion business	Advanced Products (Copper & Copper Alloy Products) Metalworking Solutions *	<ul style="list-style-type: none"> <li>◆ Promote growth by matching customer and market needs and the Company's strength</li> <li>◆ Business development in adjacent fields and global markets</li> </ul>	EBITDA growth rate
	Profitability restructuring business	Advanced Products (Electronic Materials & Components) Advanced Products (Aluminum)	<ul style="list-style-type: none"> <li>◆ Work promptly to solve issues and define the future direction of growth.               <ul style="list-style-type: none"> <li>• Make investments in competitive advantages and support technological development</li> <li>• Ensure thorough selection and concentration</li> </ul> </li> </ul>	
Process manufacturing	Stable growth business	Metals (smelting) Cement Recycling Renewable energy	<ul style="list-style-type: none"> <li>◆ Aim to strengthen the business foundation by increasing and maintaining cost competitiveness using recycling revenues, etc. and seek carefully selected opportunities for large investments</li> </ul>	ROA

\* As of October 1, 2018, "Advanced Materials & Tools Company" has changed its name to "Metalworking Solutions Business Company."

# Key Measures to Strengthen and Restructure the Business Since April 2017

Black: FY2018 and FY2019  
Red: FY2020

Segment	Results
Advanced Products	<ul style="list-style-type: none"> <li>• “Luvata Special Products Division” became a consolidated subsidiary through completion of the acquisition of shares</li> <li>• Development of Flake-type thermistors for high-precision temperature control (the world’s smallest and with long-term reliability) of laser diodes for optical communication</li> <li>• To begin collaboration with Denka Company Limited for full-fledged mass-production of ceramic insulated circuit substrates with high thermal conductivity for eco-friendly vehicles</li> <li>• Joint development with Mitsubishi Shindoh Co., Ltd. regarding corrosion protective plating technology for the terminal connectors of aluminum wire harnesses which is expected to contribute for reducing the weight of automobiles</li> <li>• Development of two types of copper sintering bonding materials for next-generation power modules capable of solving problems that arise in conventional solder</li> <li>• Development of uniformity electrodeposition coating technology for highly heat-resistant and highly insulating resin for next-generation vehicles</li> <li>• <u>Developed compact high-performance multiband antennas for IoT devices that use cellular communications (LTE / 3G)</u></li> <li>• <u>Aiming to become the leading global company in the industry of copper &amp; copper alloy products through the absorption merger of consolidated subsidiary Mitsubishi Shindoh Co., Ltd.</u></li> <li>• <u>Sold all shares in Kobelco &amp; Materials Copper Tube Co., Ltd.</u></li> </ul>
Metalworking Solutions Business	<ul style="list-style-type: none"> <li>• "Central Japan Technical Center" was established</li> <li>• All shares in “Hitachi Metals MMC Superalloy, Ltd.” were sold</li> <li>• "TianJin LingYun tool Design Co., LTD. (China)" was relocated, and improved and expanded</li> <li>• Tungsten recycling capacity at Japan New Metals Co., Ltd. was increased 1.5 times</li> <li>• "Machining Technology and Education Center in North America (United States)" was relocated, and improved and expanded</li> <li>• <u>"Stuttgart Technical Center (Germany)" was established</u></li> <li>• <u>"Queretaro Technical Center (Mexico)" was established</u></li> </ul>
Metals Business	<ul style="list-style-type: none"> <li>• "MM Metal Recycling B.V.", an E-Scrap sampling facility established in the Netherlands, went into operation</li> </ul>
Cement Business	<ul style="list-style-type: none"> <li>• Capacity of waste plastic processing at Kyushu Plant increased 1.7 times</li> </ul>

# Key Measures to Strengthen and Restructure the Business Since April 2017

Segment	Results	Profitable: FY2018 and FY2019 Unprofitable: FY2020
Others Business (Environment & Energy Business)	<ul style="list-style-type: none"> <li>• "KitaKyushu Ash Recycle Systems Co., Ltd.", which is engaged in the treatment of incineration fly ash, went into operation</li> <li>• To Begin the Joint development of Recycling Technology of Cobalt, Nickel and Other Metals with Nippon Magnetic Dressing Co., Ltd.</li> <li>• "New Energy Fujimino Co., Ltd." was established for operating a business of producing biogas from food waste</li> <li>• <u>Began operations of Wasabizawa Geothermal Power Plant</u></li> <li>• <u>Started construction of Appi Geothermal Power Plant</u></li> <li>• <u>Started demonstration testing of technology to diagnose deterioration of in-vehicle lithium-ion batteries</u></li> <li>• <u>Strengthened structure of business to produce biogas from food waste</u></li> </ul>	
Common	<ul style="list-style-type: none"> <li>• All shares in "Mitsubishi Materials Real Estate Corporation" were sold</li> <li>• Investment in "Incubation Alliance, Inc.," which is involved in the development and manufacture of the new carbonaceous material, graphene</li> <li>• "New Business Development &amp; Promotion Division" and "EV Material Development &amp; Recycling Business Promotion Dept." were established</li> <li>• Establishment of "MMC Innovation Investment Limited Partnership," which will invest in venture companies that have material technologies</li> <li>• <u>Established Smart Factory Promotion Center to further advance the digitization and automation of production sites</u></li> </ul>	

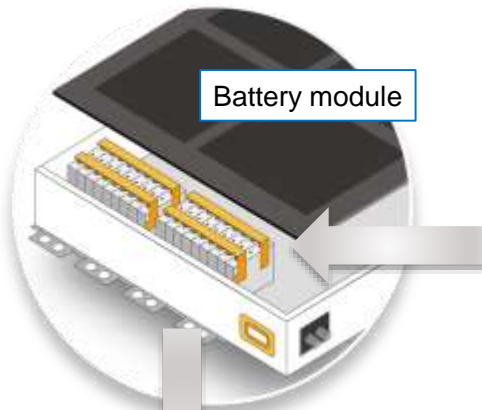


# Creation of New Products and Businesses

## From battery pack, materials for interior and exterior to recycling

The Company provides unique products and recycle technology with the keywords "Manufacturing", "Use" and "Revival" that are indispensable for electric vehicles.

Battery pack top cover Flame retardant resins  
【Advanced Products (Copper & Copper Alloy Products)】



xEV Lithium-ion battery pack

Electronic components  
【Advanced Products (Electronic Materials & Components)】



Spring and Contact for Power Relay  
【Advanced Products (Copper & Copper Alloy Products)】



Copper materials for electrical connectors  
【Advanced Products (Copper & Copper Alloy Products)】



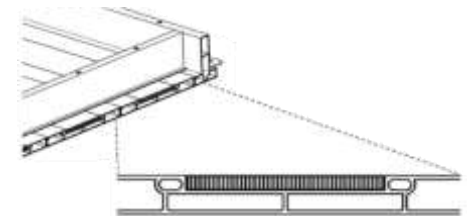
Bus bar  
【Advanced Products (Copper & Copper Alloy Products)】



Tab lead  
【Advanced Products (Copper & Copper Alloy Products)】



Battery pack floor case  
【Advanced Products (Aluminum)】





# Creation of New Products and Businesses

## Battery module

Negative active materials coating on copper foil for current collector

Positive active materials coating on aluminum foil for current collector

Press winding to rolls

1st resistance welding  
(electrode sheets + collector terminal)

Welding Electrode  
(Copper material)

Welding Electrode  
(Tungsten material)

Collector terminal  
(Copper material)

Electrode Sheet

2nd resistance welding  
(output terminal + collector terminal)

Slot die  
(Metalworking Solutions /  
Cemented Carbide Products)

Aluminum foil products  
(Advanced Products / Aluminum)



Ionic liquids  
(Advanced Products /  
Electronic Materials & Components)



Tungsten tri-oxide; WO<sub>3</sub> powder  
(Metalworking Solutions /  
Cemented Carbide Products)



Cell cap  
Output terminal

Collector terminal

Stack insertion to box

Bus bar welding  
(external connect)



Cell cap welding  
(seal) / Fill hole

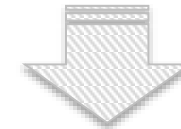


## <Recycling>

Recycling technology for Lithium-ion battery for xEV by solvent extraction process



Solvent extraction separator

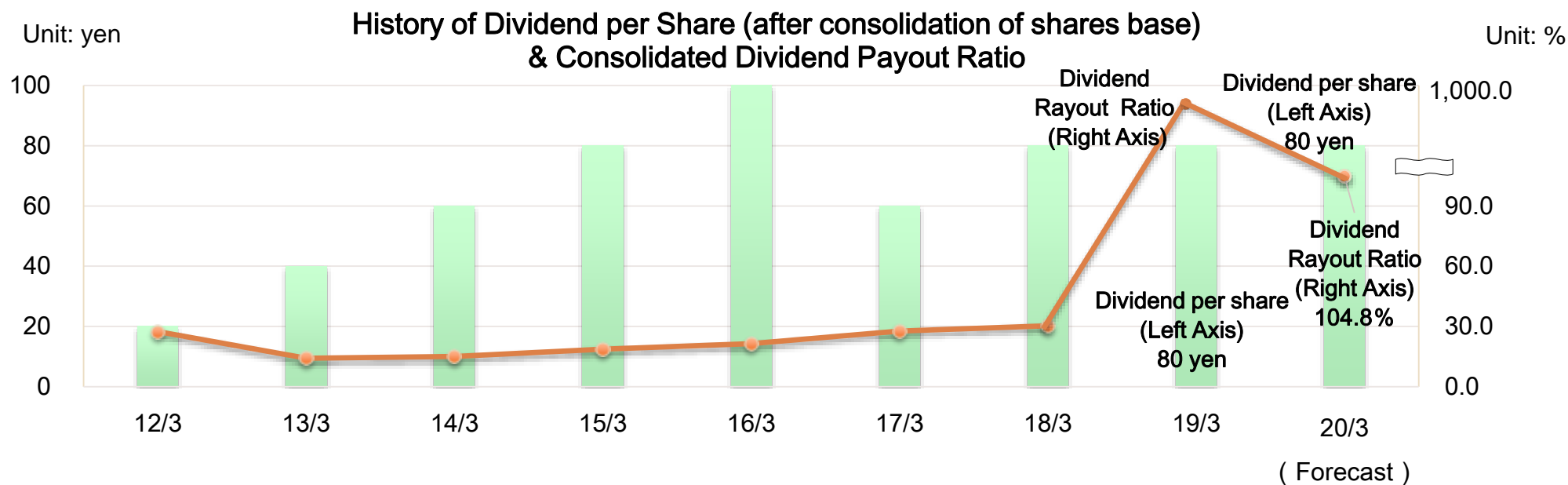


LiOH



CoSO<sub>4</sub>

# Shareholder Return



	17/3 (Results)	18/3 - 20/3
Dividend	60 yen/share *	80 yen/share

- ◆ While the Company's performance is changed, its policy is to maintain stable dividends, and annual dividends during the FY2018-2020 period will be **80 yen per share** (same as dividend in FY2018).
- ◆ If the consolidated dividend payout ratio is lower than 25%, however, the Company will temporarily increase the dividend or purchase treasury stock.

\* A consolidation of shares of the Company's common stock at a 10:1 ratio was executed, with an effective date of October 1, 2016. According to this, dividend per share for FY2012 to FY2017 are calculated on the assumption that the consolidation of its shares was conducted at the beginning of the FY2012.

# Business Strategy & Overview by Segment

# Advanced Products

# Advanced Products Overview

## Copper Processing

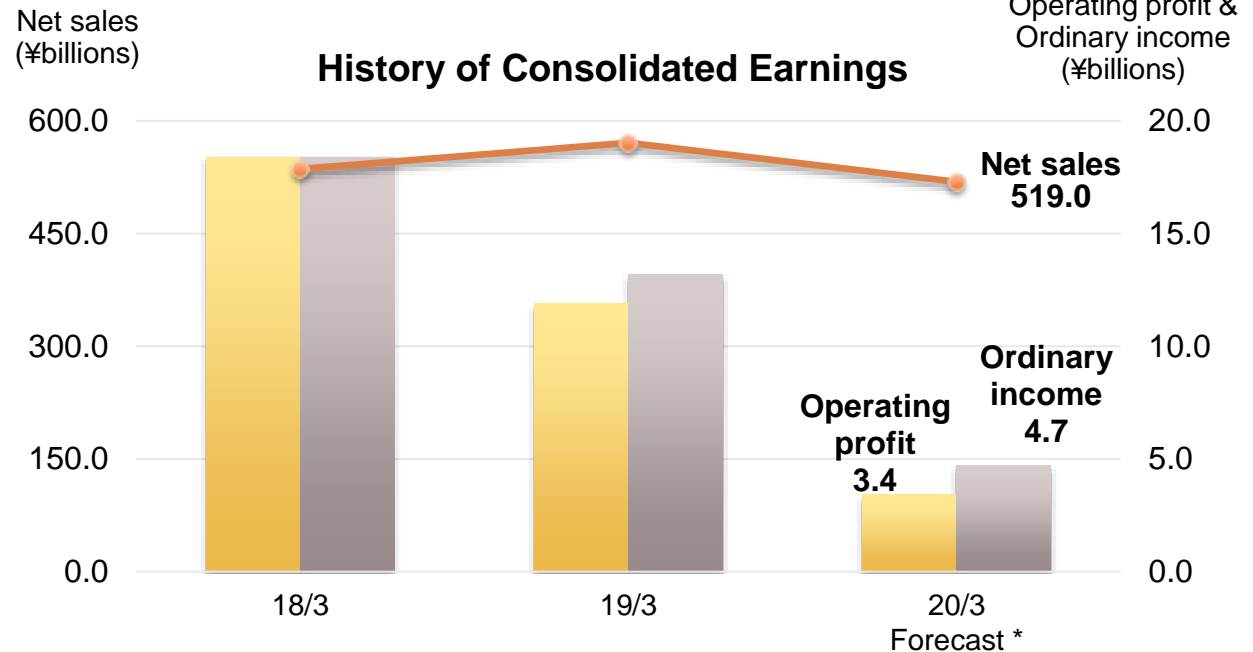
- **Mitsubishi Shindoh:**  
Experiences a decline in sales of terminal materials for automobiles due to production adjustments by automotive component manufacturers.
- **Luvata:**  
Experiences a decline in sales of welding-related products for automotive manufacturers in China and elsewhere, and declining in sales of conductive components for automotive and other sectors in Europe and Asia.

## Electronic Materials & Components

- **Electronic Materials:**  
Sales of products for semi-conductors and electronics decline due to decelerating growth of the smartphone market and worsening of semiconductor market conditions.
- **Electronic Components:**  
Sales of electronic device products also decline due to worsening market conditions in China attributable to trade friction between China and the United States.

## Aluminum

- **Mitsubishi Aluminum:**  
Experiences declining sales of heat exchanger sheet materials for automobiles and extrusion products for trucks and automobiles due to harsh market conditions and other factors.
- **Universal Can:**  
Expands sales with the market launch of upsized aluminum bottle cans, but due to the ongoing impact from PET bottles for coffee beverages, sales of aluminum bottle cans decline.



\* Announced on November 7, 2019

## Establishment of Advanced Products Company (October, 2018)

### ◆ Change of the organization

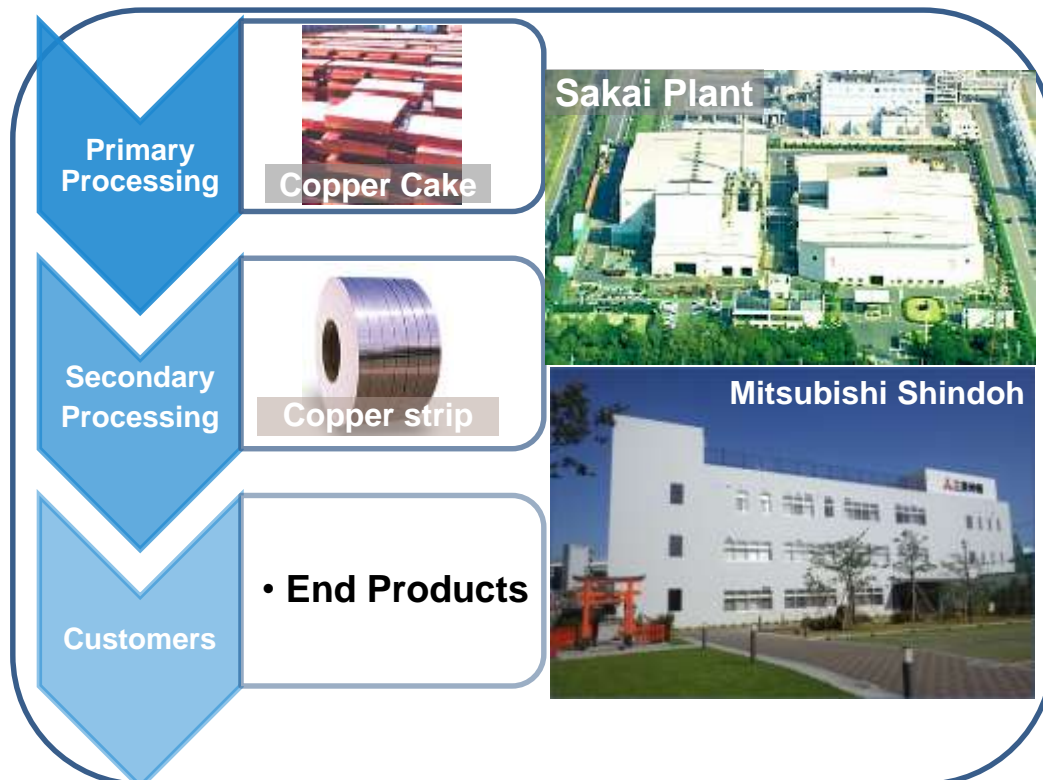
- To integrate three product manufacturing businesses and establish a new in-house company

### ◆ Purpose

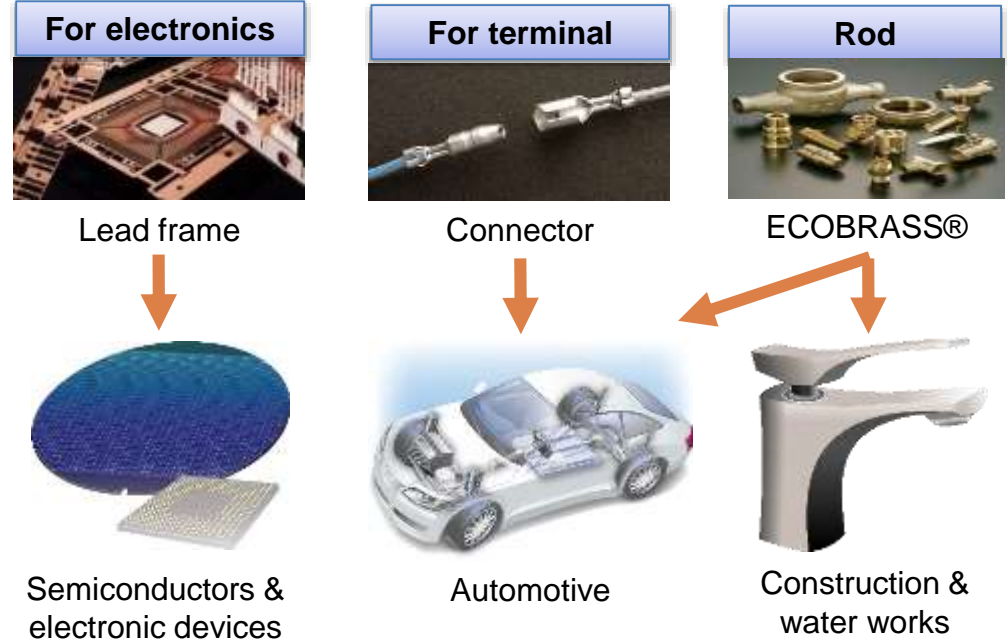
- To promote the creation of new products and businesses in product manufacturing business, establishing cross-functional organization to develop and strengthen target products and business from a long-term perspective
- Establishing the system to appropriately respond to customer needs and contribute to customers

# Advanced Products - Copper & Copper Alloy (1) -

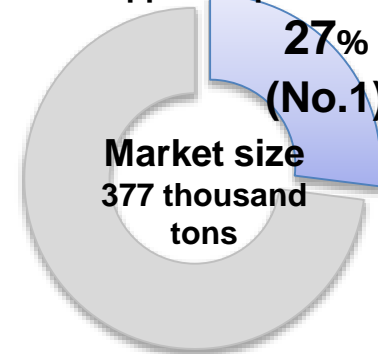
**Operation system:**  
Supply of our copper strip to our group company



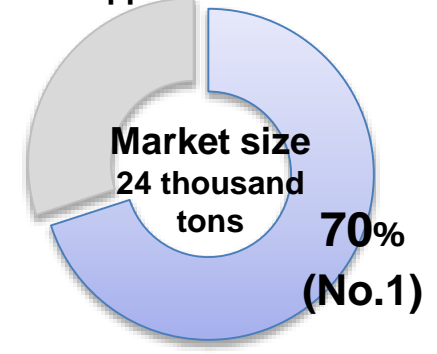
**Application for main products of Mitsubishi Shindoh**



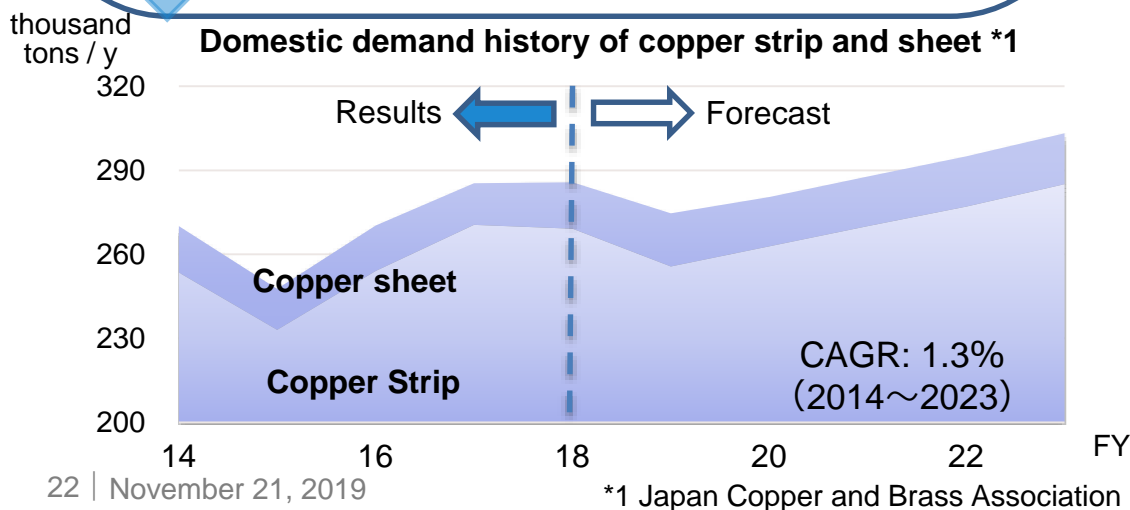
**Domestic market share of copper strip \*2**



**Domestic market share of copper sheet \*2**



\*2 Weight base, Japan Copper and Brass Association (FY2019)





# Advanced Products - Copper & Copper Alloy (2) -

## Absorption-type Merger of Mitsubishi Shindoh

July, 2019 Announcement of the merger  
April, 2020 Scheduled date of the merger

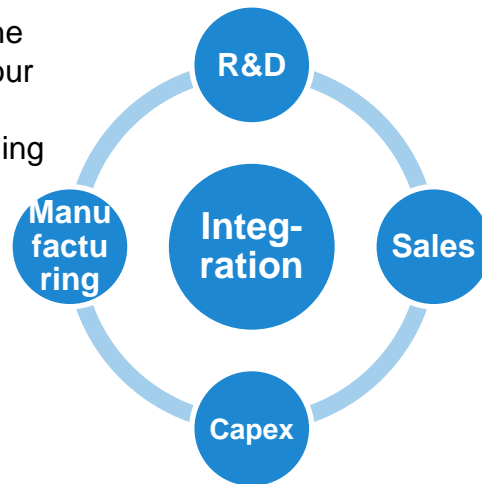
### ◆ Positions of Copper & Copper Alloy



### ◆ Purpose of the absorption-type merger

To integrate Mitsubishi Shindoh into the Company and cooperatively operate our management resources.

We will aim to become the global leading company in the industry of copper & copper alloy products by improving our presence globally and capturing new demand.



\*CASE: Connected, Autonomous, Shared & Services, Electric

### ◆ Market Needs

Higher current & Higher voltage

Computerized control



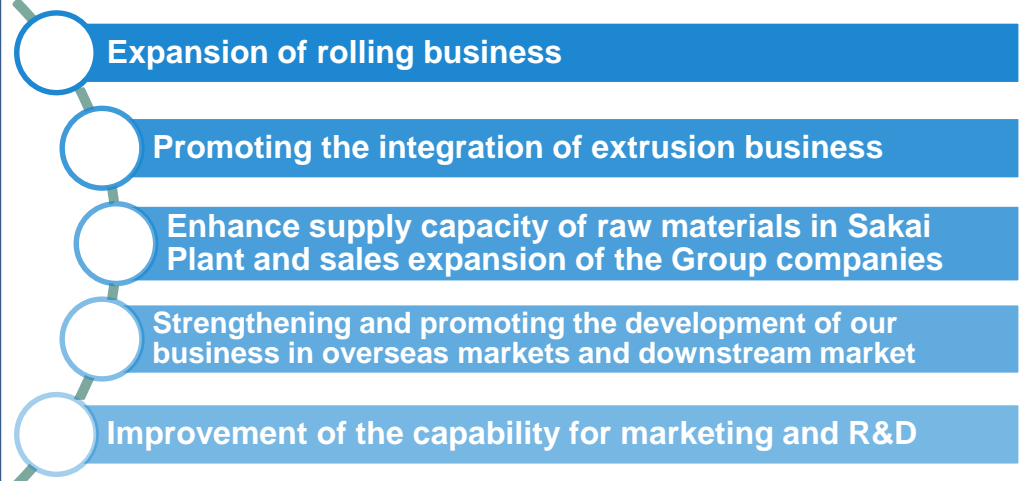
CASE \*

Reduction of the environmental impact



### ◆ Strategic Investment

Planning capex of approx. **¥30.0 billion in total** from FY2021 to 2027. To **increase our production capacity by about 30%** from the current level, mainly for automobile-related products in which strong demand is expected.



# Advanced Products - Copper & Copper Alloy (3) -

## Acquisition of Luvata SP Division

Sep., 2016: Conclusion of share sale and purchase agreement on acquisition of Luvata SP Division

May, 2017: Completed the transaction

# LUVATA

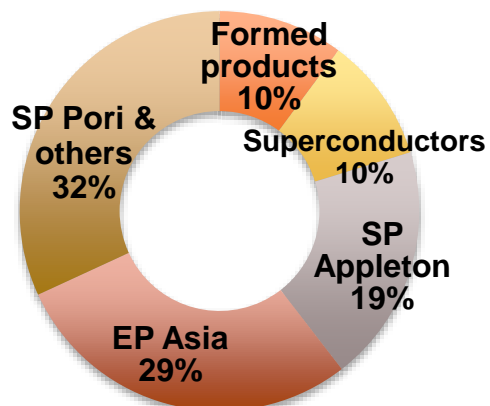
**Company profile** \* FY ending Dec. 31, 2018

- Head Office: Pori, Finland
- Net sales: €625 million
- Operation (Manufactures & Sales):  
12 entities, 7 countries
- Employees: 1,415

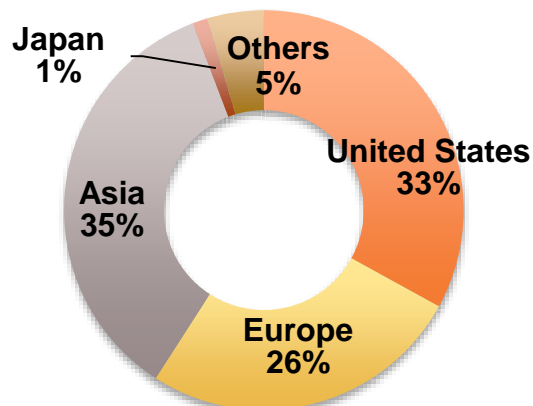


▲Copper Industrial Park in Pori

### Sales ratio by Business Units



### Sales ratio by Regions



## Various products for targeted markets

### Business Units

### Products

### End Markets

### Formed Products

### Welding Electrodes



### Hollow Conductors



### Busbar



### Cooling Elements



### Anodes



### Photovoltaic



### Superconducting Wires



### Automotive



### Infrastructure, Power & Energy and Others



### Infrastructure, Power & Energy and Others



### Health Care



SP Appleton / EP Asia / SP Pori & Others

Hollow Conductors (SP Pori)

Busbar (EP Asia, SP Pori)

Special Rods / Profiles (SP Pori)

Cooling Elements (SP Pori)

Battery Wire (SP Appleton)

Anodes (EP Asia, SP Pori)

Photovoltaic (Formed Products, SP Appleton, EP Asia, SP Pori)

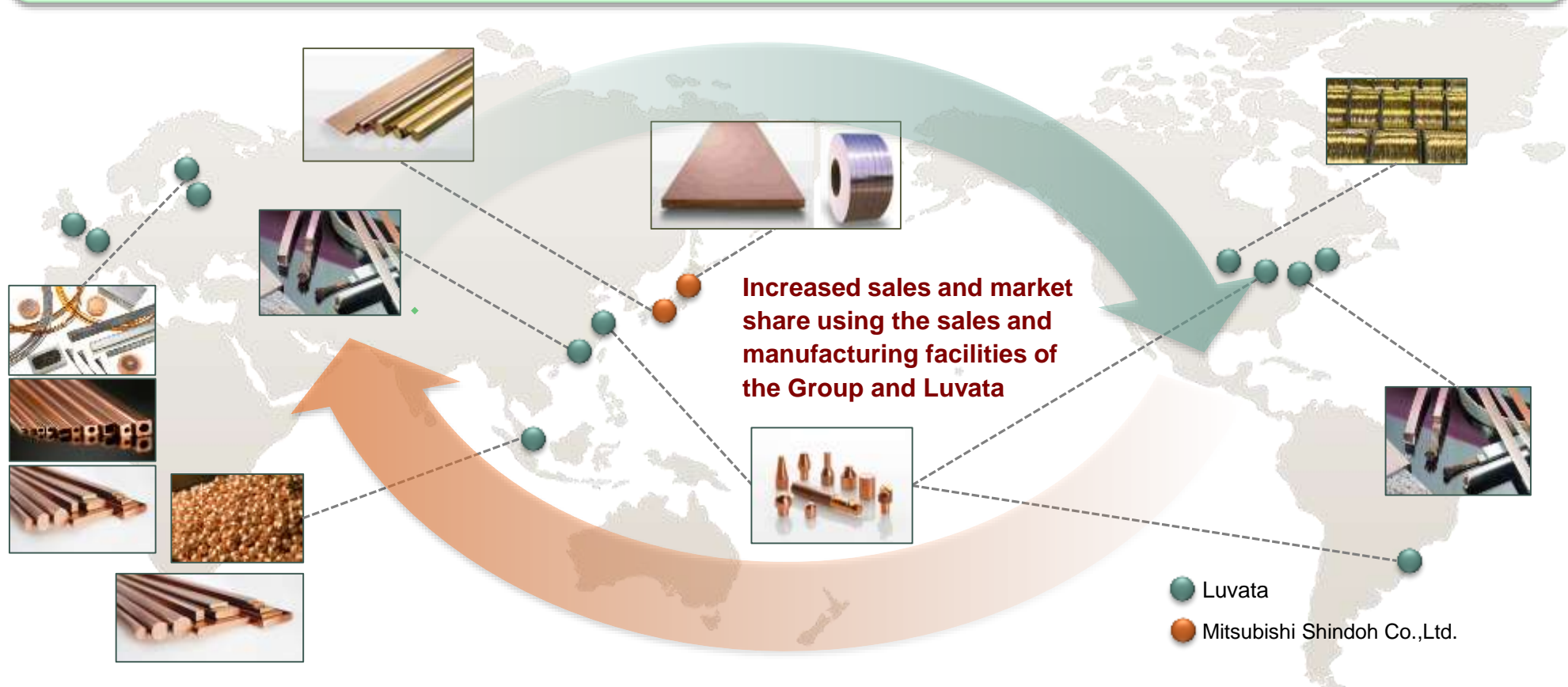
Other Products

Superconductors



# Advanced Products - Copper & Copper Alloy (4) -

## Priority measures: Synergy with Luvata



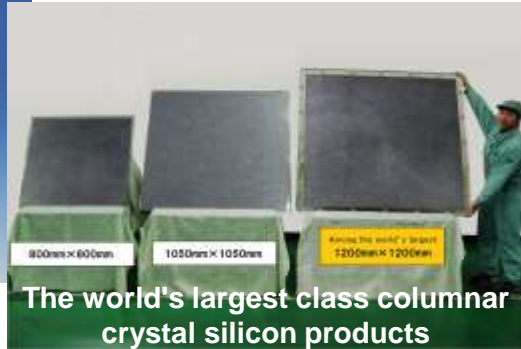
- ◆ Increased sales of copper & copper alloy products of the Group using the sales and manufacturing facilities of Luvata located mostly in North America and Europe
- ◆ Boost sales using the Company's domestic facilities for Luvata's products
  - ➡ Establish global sales and manufacturing systems using Luvata's facilities
  - ➡ Optimize product mix and increase market share with the cooperation of Luvata

# Advanced Products - Electronic Materials & Components -

Operation system: Electronic Materials, Electronic Components, Polycrystalline Silicon

## Electronic Materials & Chemical Products

### Precision Silicon Products



The world's largest class columnar crystal silicon products

## Polycrystalline Silicon

Production Capacity  
Yokkaichi Plant: 2,200t  
MIPSA : 1,550t



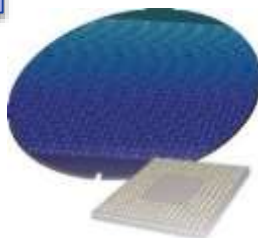
Monocrystalline Ingot,  
Silicon Wafer  
(SUMCO Corp.)  
Stake ratio approx. 13%



Semiconductor



▲ 11N Grade  
(99.999999999%)



## Key Strategies: New products and sales expansion in the IoT - related market

### ◆ Antenna

Development of multiband antennas for mobile type small payment terminal. (April, 2019)



### ◆ Thermistor sensors

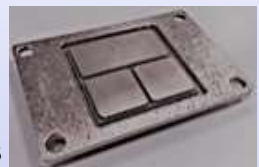
Increased market shares in the optical communication equipment market based on high reliability and compact-sizing as its strengths in FY2019.



## Key Strategies: New products and sales expansion in the next-generation vehicle market

### ◆ Insulated substrates with high thermal conductivity

Expanded production capacity for heat sink-integrated substrate in FY2019. Strengthening the business plans to continue in FY2020.



### ◆ In-vehicle sensors

Plan to increase sales of thermistors and surge absorbers in FY2020.



### ◆ Solar heat-ray shielding

Achieved sales exceeded the previous year result in FY2019. Plan to increase sales in FY2020.



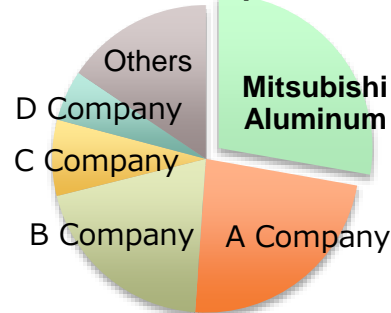
# Advanced Products - Aluminum Products-

## Mitsubishi Aluminum Company, Ltd.

Stake ratio: 90%

- Top-class market share of multi port flat aluminum tubes for automotive heat exchanger materials in the world.
- Shift to heat exchanger sheet materials for automobiles.  
⇒ Increase facilities

W/W production share of extruded multi-port tube \*1

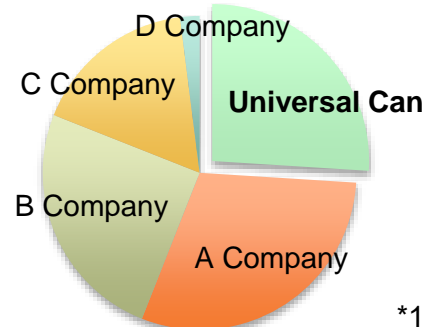


## Universal Can Corporation

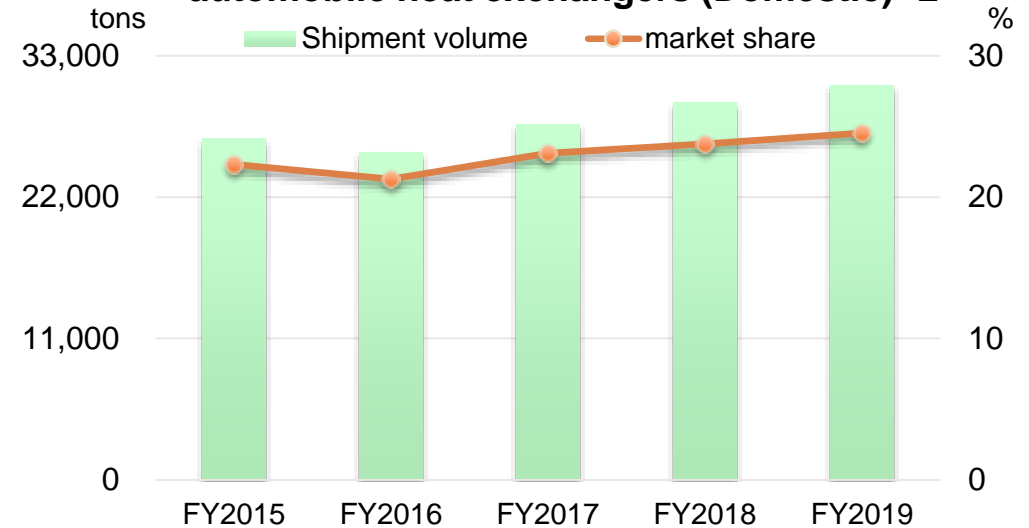
Stake ratio: 80%

- Top-class market share of beverage aluminum cans & bottles cans in Japan.
- Develop and launch bottle cans with weight saving & new shapes.  
⇒ Establishing a new production line at Gifu Plant  
(Started to operation in May, 2019)
- Development overseas business ⇒ Considering development business in the Southeast Asian market, etc.

Domestic Aluminum Beverage Can Market \*1

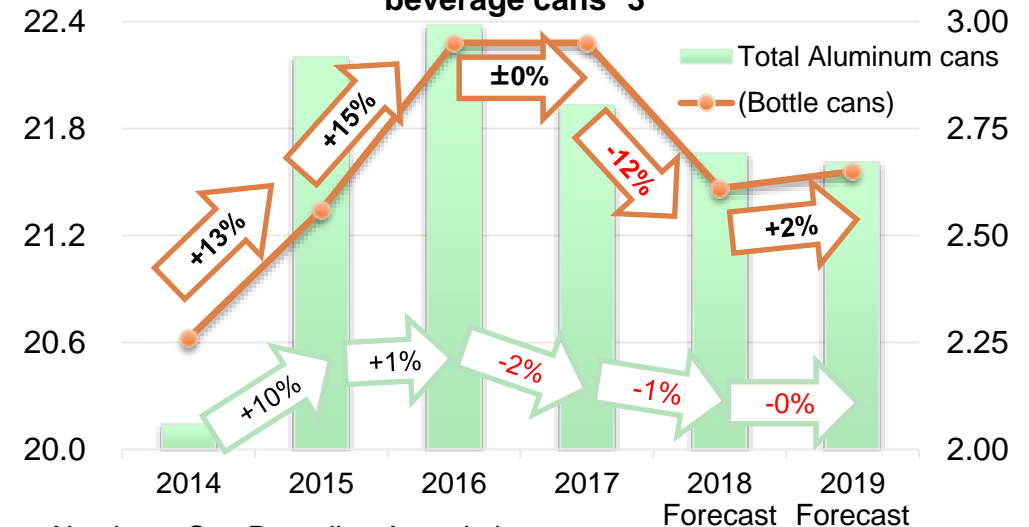


Trend of shipment volume and market share for automobile heat exchangers (Domestic) \*2



\*2 Japan Aluminum Association

Billion cans Demand history for domestic aluminum beverage cans \*3



\*3 Japan Aluminum Can Recycling Association

\*1 MMC's assumption

# Metalworking Solutions Business \*

\* As of October 1, 2018, “Advanced Materials & Tools Company” has changed its name to “Metalworking Solutions Business Company.”

# Metalworking Solutions Business Overview

## Cemented Carbide Products

### Main Products

Cutting tools for metal working industries (automotive & aerospace)

- Cutting tools (Insert, drills, and etc.)
- Wear Resistant Tools
- Rock Tools



## Sintering Parts, etc.

### Main Products

Key components of automotive engines & transmissions

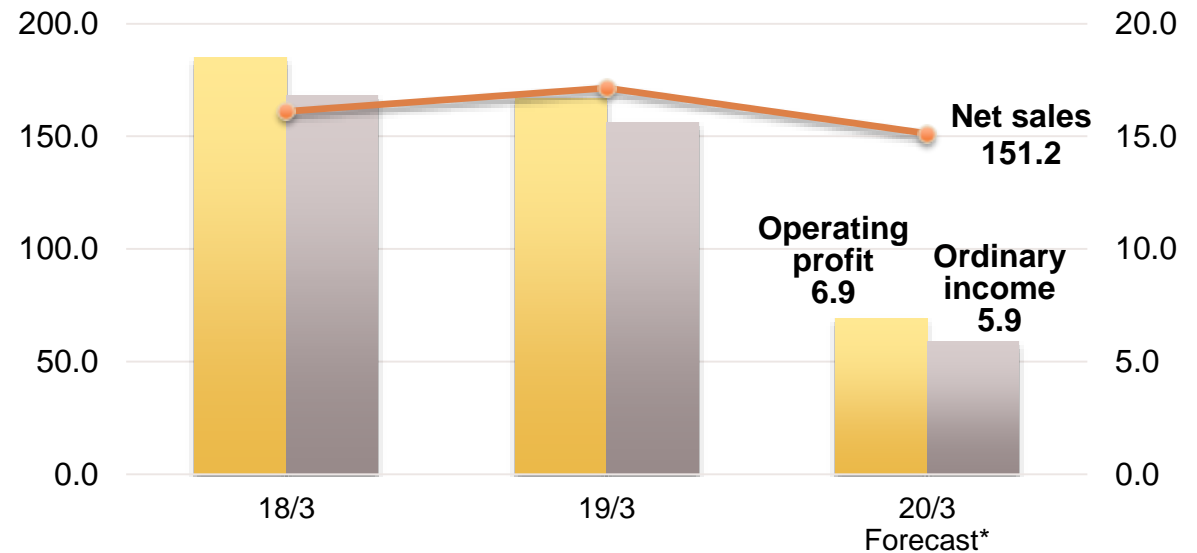
- Oil-retaining Bearing
- Parts for Variable Valve Units
- Transmission-related Parts



Net sales  
(¥billions)

### History of Consolidated Earnings

Operating profit &  
Ordinary income  
(¥billions)



\* Announced on November 7, 2019

### Demand and sales forecast (Cemented Carbide Products)

- Increase of sales according to reinforce and accelerate the key account strategy, expand sales to key industries - Automotive, Aerospace, Medical, and Mold & Die, and expenditures for sales expansion for the future are expected to the plan.



# Metalworking Solutions Business ~Cemented Carbide Products (1)~

Market Size of Cemented carbide tools approx. ¥2,000.0 billions \*

\*2018, MMC's assumption

Americas

30%

Europe

25%

Asia (Japan)

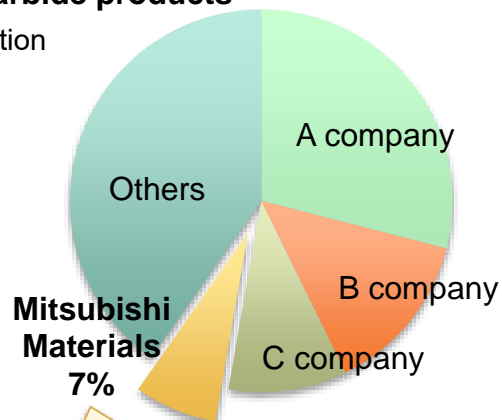
45%

11%

Market share: 4th grade in World Wide  
Top share in Japan

Global market share of  
cemented carbide products\*

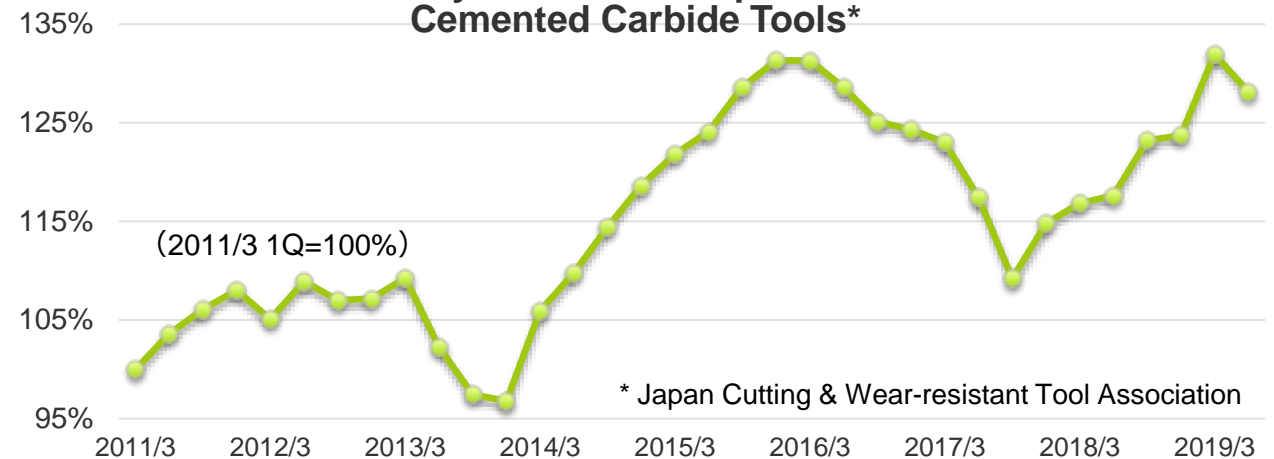
\* MMC's assumption



Acquired Hitachi  
Tool Engineering  
(April, 2015)



History of value of shipments for  
Cemented Carbide Tools\*



## Eliciting Synergies with Mitsubishi Hitachi Tool Engineering

### ◆ Major items where synergy will be generated

- R&D: Developing new products making the most of each other's strengths (MMC's materials technology, Mitsubishi Hitachi Tool Engineering's coating and forming technology)
- Production: Improving production efficiency by using each other's facilities (Elimination of bottlenecks, etc)
- Sales: Expanding sales globally mainly through mutual sales channels (United States and Southeast Asia)
- Other: Integrated purchasing of materials, integrating and sharing IT systems & logistics, etc.

### ◆ Expected effects of synergies (from FY2018 to FY2021)

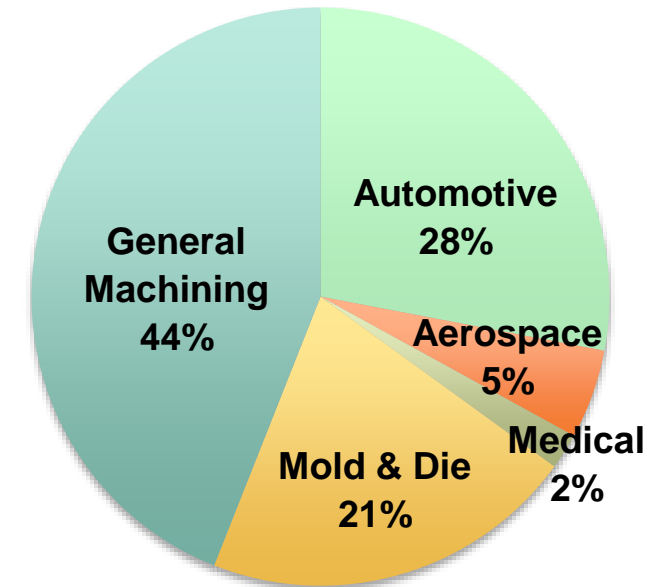
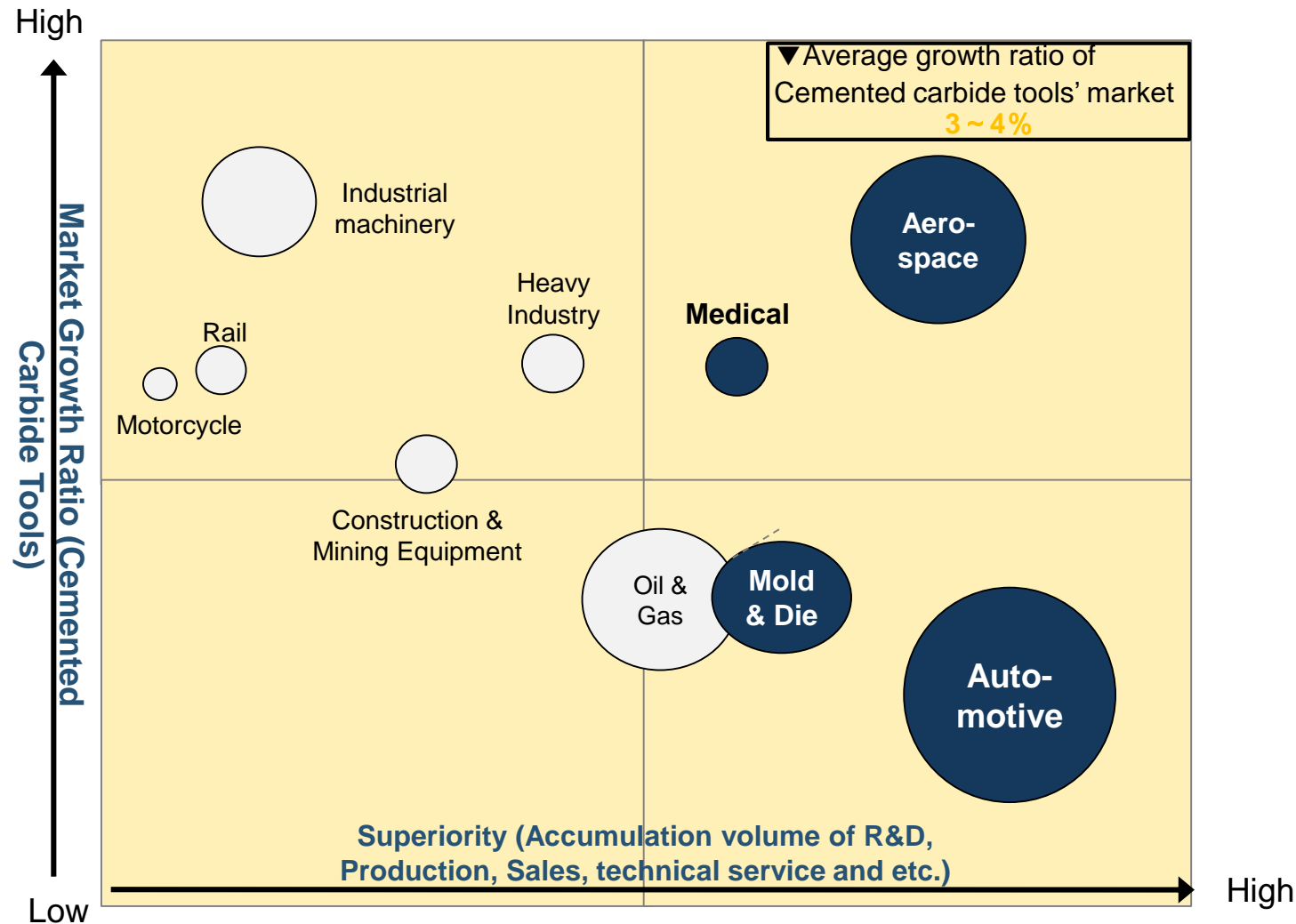
⇒ Effects of 0.5 to 1.0 billion yen annually are planned.

# Metalworking Solutions Business ~Cemented Carbide Products (2)~

## Importance analysis of each industry \*

\*MMC's assumption  
The size of circles represent market size.

## MMC's sales ratio of demand by industry (FY2019)



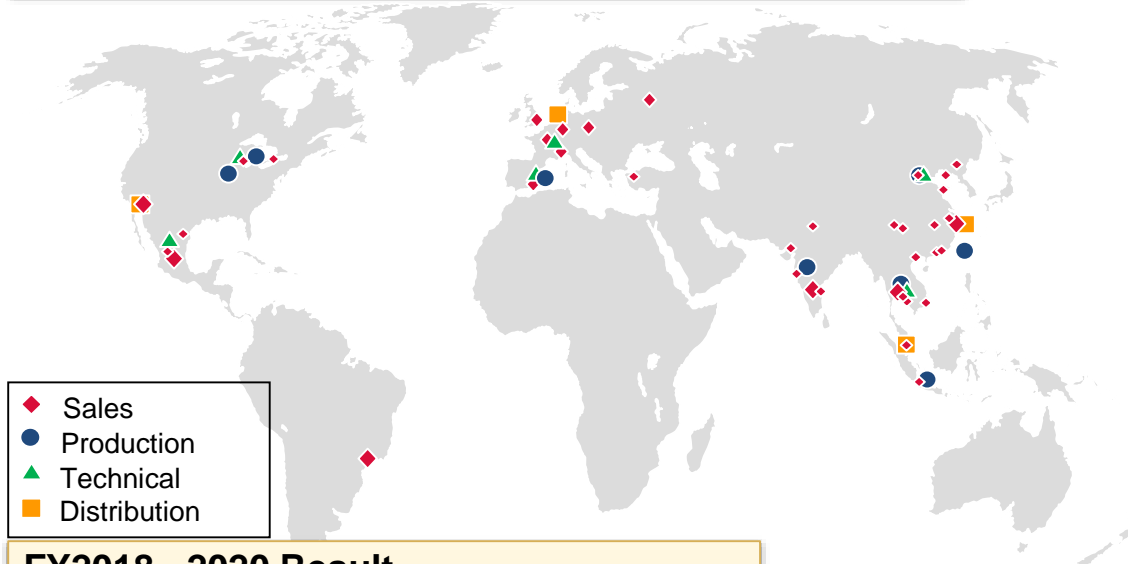
# Metalworking Solutions Business

## ~Cemented Carbide Products (3)~

### Expansion of sales & production networks

#### Cemented Carbide Tools network

- Sales sites: 38    ○ Production sites: 7
- Technical sites: 5    ○ Distribution sites: 4



#### FY2018 - 2020 Result

##### Technical sites:

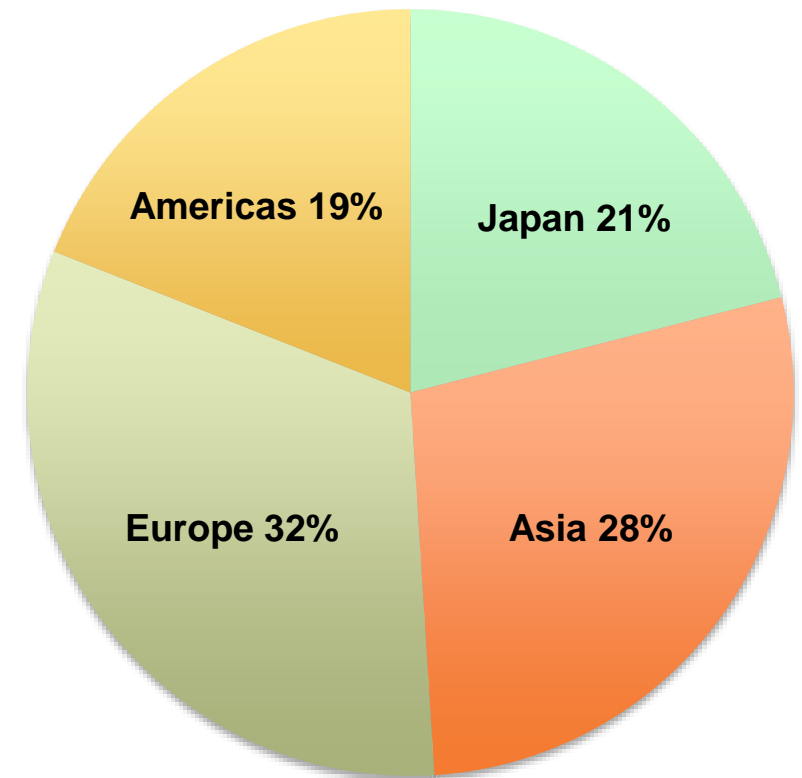
- June 2017: Central Japan Technical Center
- Oct. 2017: Relocation and expansion of the technical center in Tianjin, China
- Oct. 2018: Relocation and improvement of the Machining Technology and Education Center in North America
- June 2019: New Machining Technology and Education Center in Stuttgart, Germany
- September 2019: New Technology and Education Center in Querétaro, Mexico

#### Plan in the future

##### Technical sites:

Plan to establish new technical centers in India

#### Sales ratio of Cemented Carbide Tools by area (FY2019)



▲ Exterior of Machining Technology and Education Center in Stuttgart, Germany



# Metalworking Solutions Business ~Cemented Carbide Products (4)~

## ◆ Expand technical center networks

### MTEC North Carolina

(North Carolina, United States)  
Relocated, improved and expanded  
in 2018



### MTEC Valencia

(Valencia, Spain)  
Established in 2008



### MTEC Querétaro (Querétaro, Mexico)

Newly Established in 2019



### MTEC Stuttgart

(Stuttgart, Germany)  
Newly Established in 2019



**MTEC India**  
(Pune, India)  
\*Plan to establish

### East Japan Technical Center

(Saitama, Japan)  
Established in 2010



### Central Japan Technical Center

(Gifu, Japan)  
Established in 2017



### MTEC Bangkok

(Bangkok, Thai)  
Established in 2015



Sharing  
information

Utilizing mutual  
facilities

Experiment  
support

### MTEC Tianjin

TianJin LingYun tool  
Design Co.,LTD  
(TianJin, China)  
Relocated, improved and  
expanded in 2017



# Metals Business

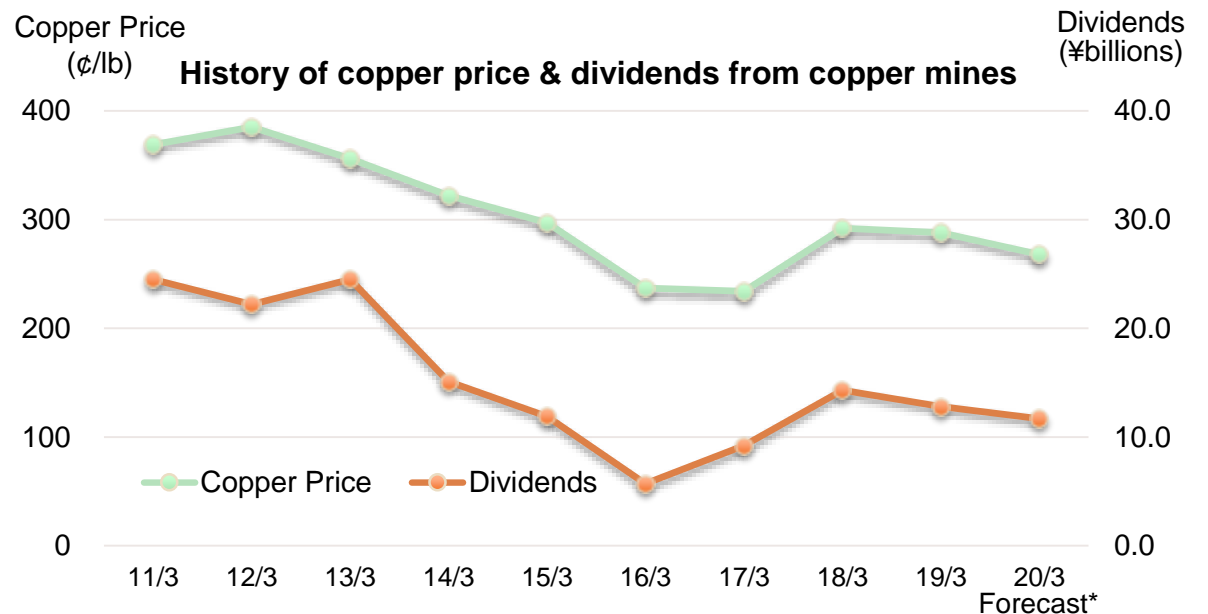
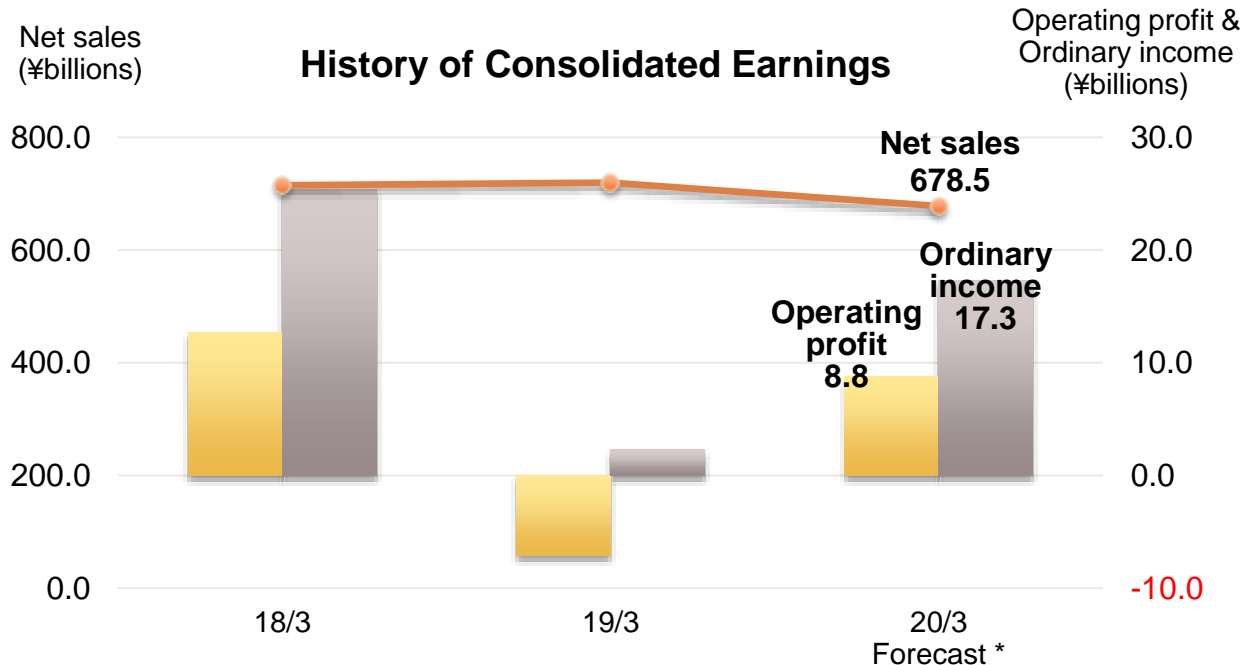
# Metals Business Overview

## Mining

- **FY2020 copper price outlook:** Average 268¢/lb
- **New mine development:** The feasibility study for the Zafranal mine is generally complete, and is currently under review. We plan to begin procedures to apply for an environment licenses and permits within the year.

## Smelting

- **Smelting margin:** The repairs of valuable metals is improving as planned.
- **Recycling business:** Development foundation for increasing E-Scrap recycling

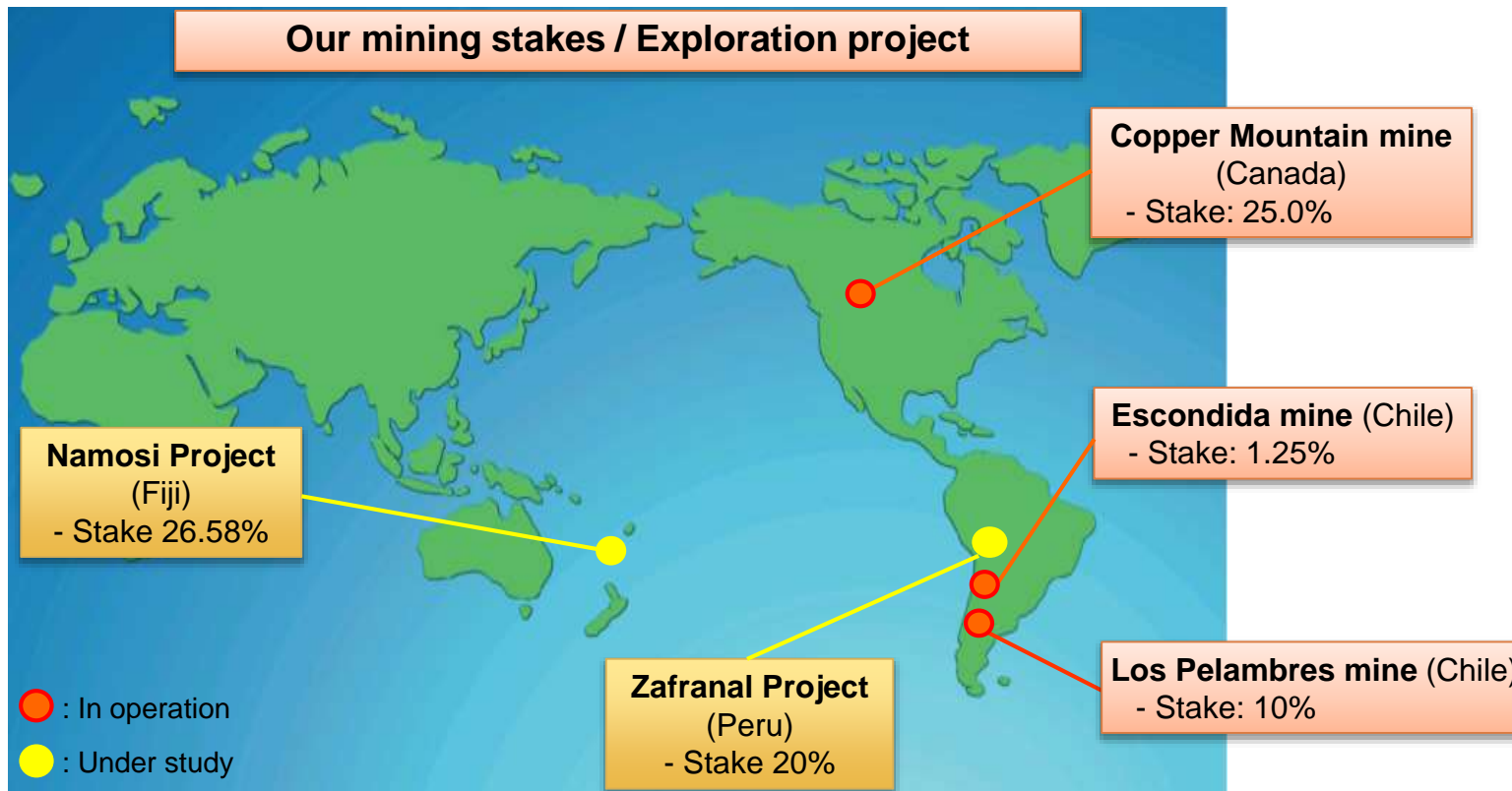


\* Announced on November 7, 2019

# Metals Business - Mining -

**Long-term Target: Controlled volume ratio\***  
**Approx. 30%  $\Rightarrow$  Approx. 50%**

\*Controlled volume ratio:  
The ratio of the volume of ore according to mining interests plus the volume under off-take agreements.



**Copper Mountain Mine (Canada)**



**Los Pelambres Mine (Chile)**



**Zafranal Project (Peru)**



# Metals Business - Smelting (1) -

**Operation system: Total 3 smelter  
(2 in Japan, and 1 in Indonesia)**

Naoshima Smelter & Refinery



Copper: 230,000 tons / year  
E-Scrap: 120,000 tons / year

Onahama Smelting & Refining

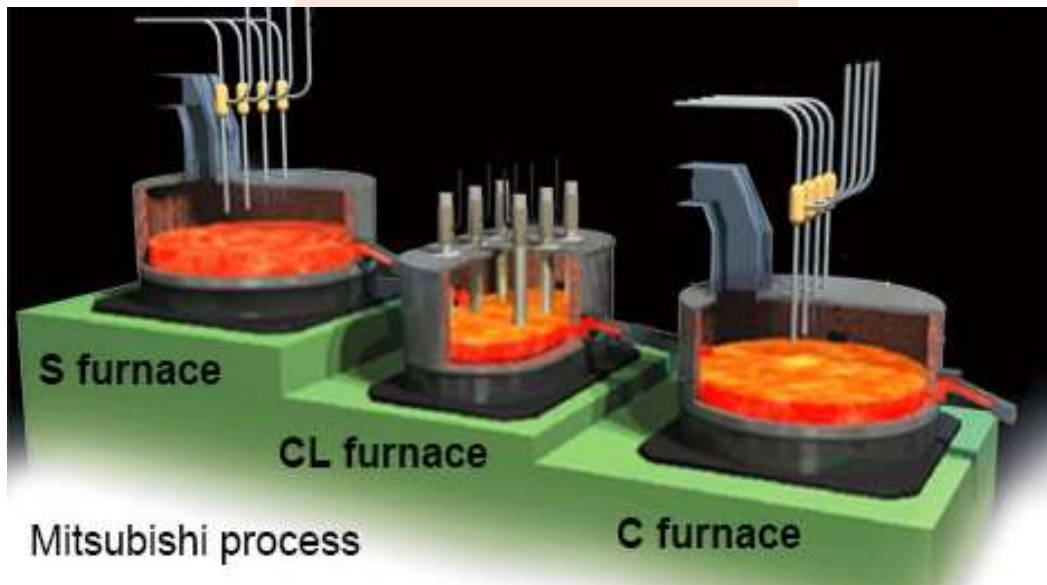


Copper: 300,000 tons / year  
E-Scrap: 40,000 tons / year

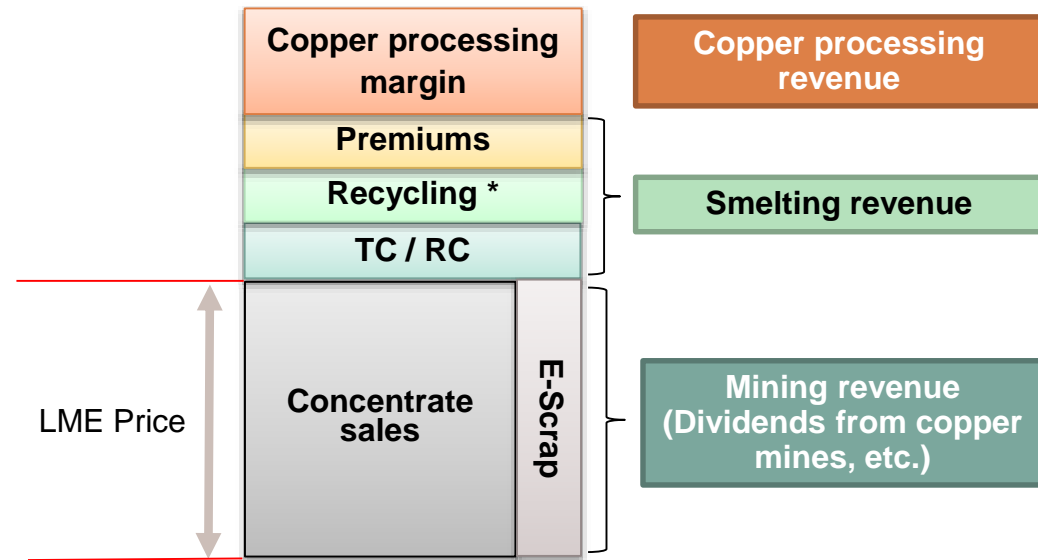
PT Smelting



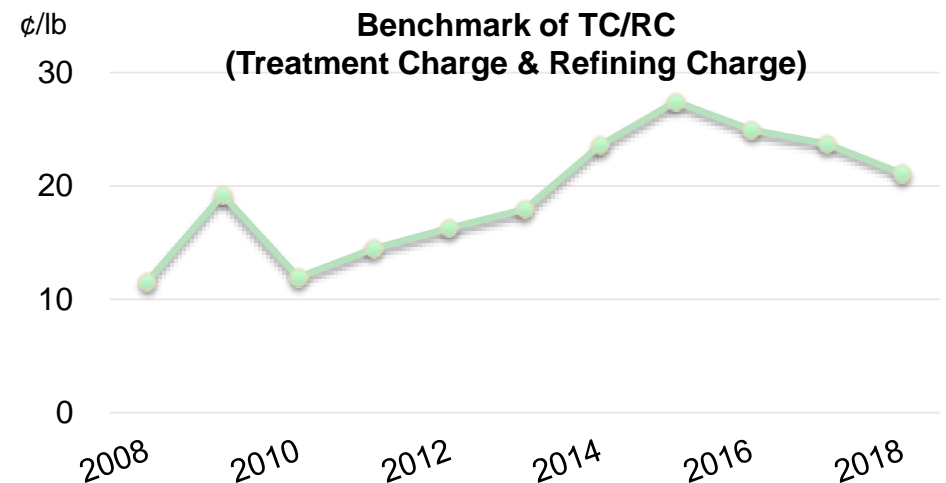
Copper: 300,000 tons / year



**Metals Business  
(Income breakdown image)**



\* Consist of the treatment charge and the profit of free metal income difference, etc.



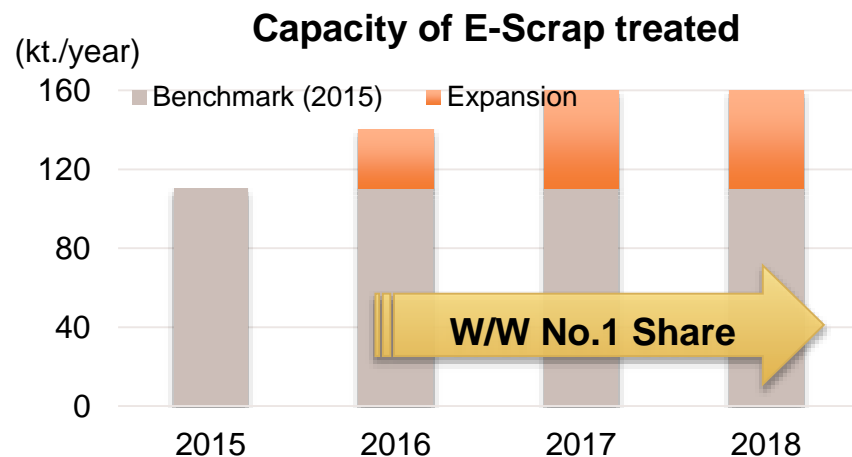
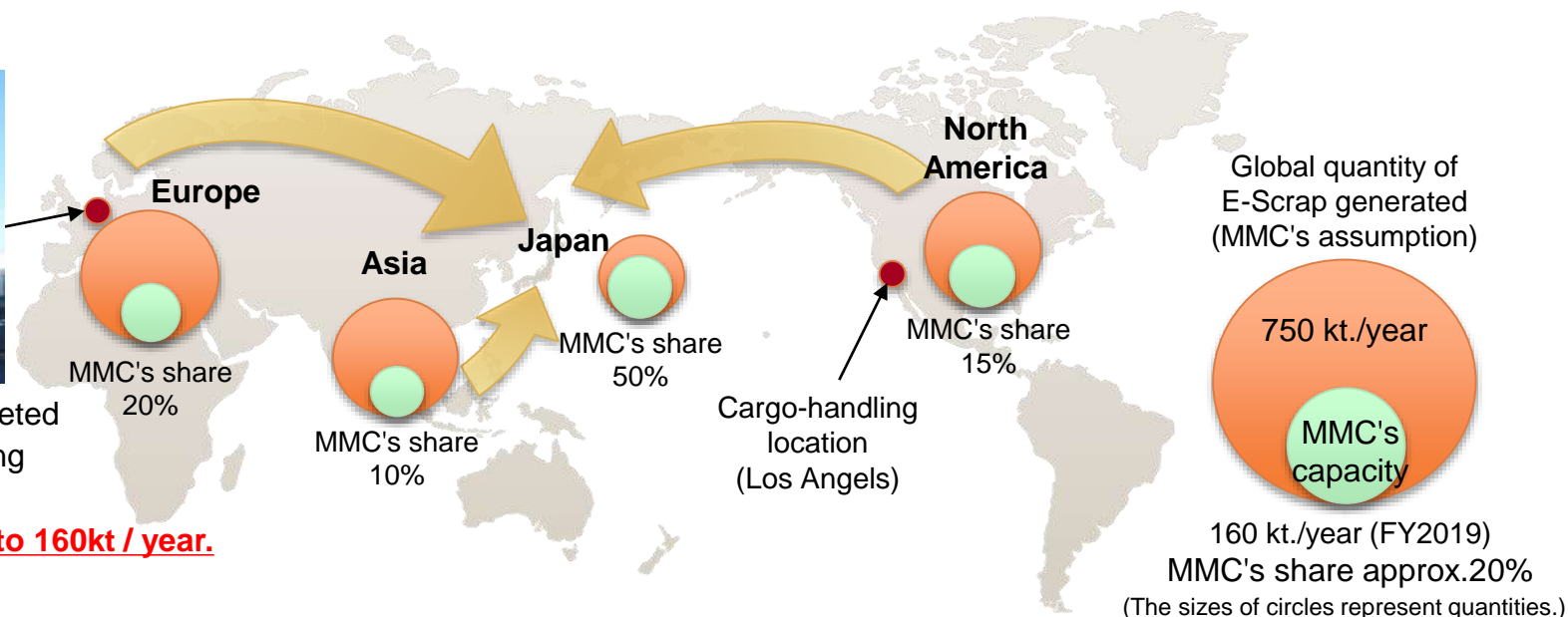
# Metals Business - Smelting (2) -

## Priority measures: Increasing E-Scrap recycling



MM Metal Recycling B.V. completed to establish the E-Scrap sampling facility in May, 2018.

**Capacity has increased 20kt, to 160kt / year.**



**Naoshima Smelter & Refinery**  
Increase in receiving, sampling, analysis, and treatment capacities (from 2016)



**Onahama Smelting & Refining Co., Ltd.**  
Increase in capacity +3kt./year (from 2018)

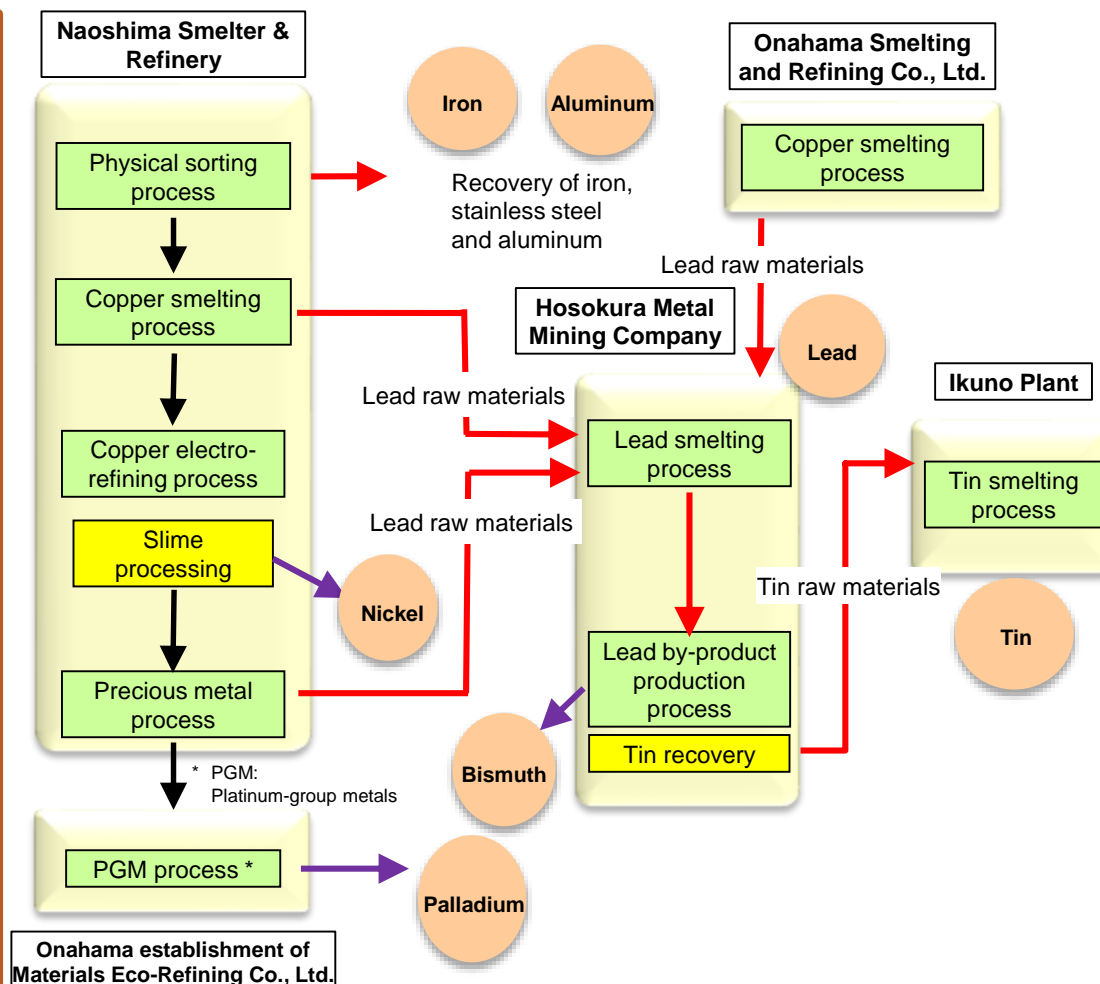
## Metals Business - Smelting (3) -

### ◆ Development foundation for increasing E-Scrap recycling

An increase in E-Scrap recycling resulted in growth in the load of impurities, which has begun to cause troubles. The Company positions the FY2020 as a “willful slowdown” and will actively undertake the sorting and recycling of impurities contained in E-Scrap and smelting metals from them utilizing the strength of smelter network in the Group.

Through this measures, troubles will be reduced. Furthermore, E-Scrap recycling will be also stabilized by acquiring a new income source, and we will expand processing amount in the future.

Item	FY2020 Plan	FY2020 Progress
Concentrate lead raw materials generated at two copper smelters, Naoshima and Onahama (increase the recovery of copper in lead raw materials)	Increase the amount of lead recovered from lead raw materials generated at copper smelters	Transportation of lead sediment from the Naoshima Smelter & Refinery to Onahama Smelting and Refining implemented. Operations concentrated at Onahama Smelting and Refining.
Improvements to the slime processing process at the Naoshima Smelter & Refinery	Plan to start construction (Plan to be completed in FY2021)	Installation work underway ahead of implementation from autumn 2020.
Recover tin at Hosokura Metal Mining Company	Plan to start and complete construction (operation will be started in FY2021)	Installation work underway ahead of implementation during FY2020
Increase palladium processing capacity at Onahama site of Materials Eco-Refining Co., Ltd.	Establish a system for increasing capacity of processing	The new line has been installed and is operating according to plan



# Cement Business



# Cement Business Overview

## Main Products

- Cement
- Aggregate
- Ready-mixed concrete
- Concrete products

## Production Capacity

### Japan

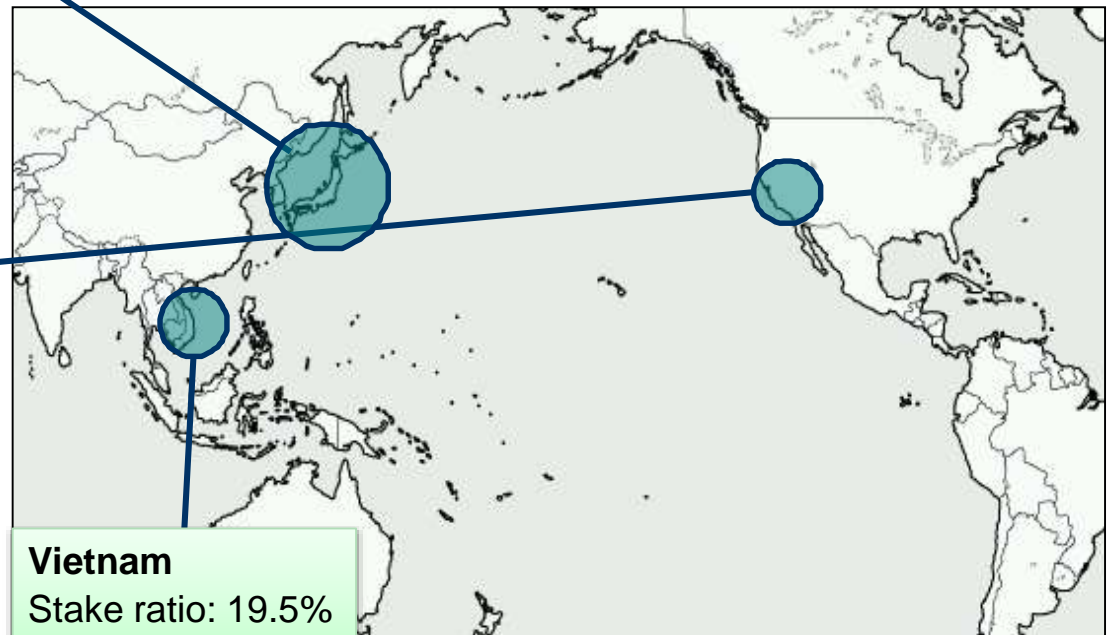
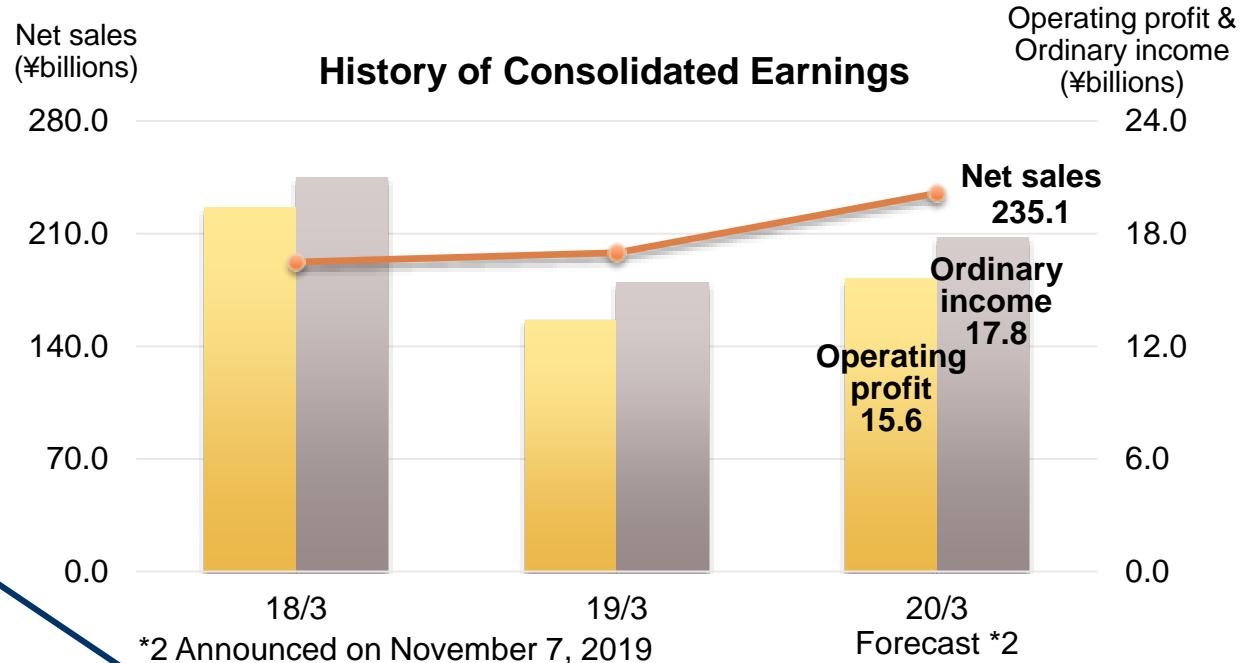
- Mitsubishi Materials (Production)  
Plant: Kyushu, Yokozoe, Iwate and Aomori  
Total production capacity (clinker):  
Approx. 8.5 million tons / year
- Ube-Mitsubishi Cement (Sales)

### California, USA

- Mitsubishi Cement (Production & Sales)  
Total production capacity:  
Approx. 1.6 million metric tons / year
- MCC Development  
(Ready-mixed concrete & aggregate)  
Ready-mixed concrete (RRM) : 53 plants  
Aggregate quarry (RRM) : 12 locations

\* RRM: Robertson's Ready Mix, Ltd.

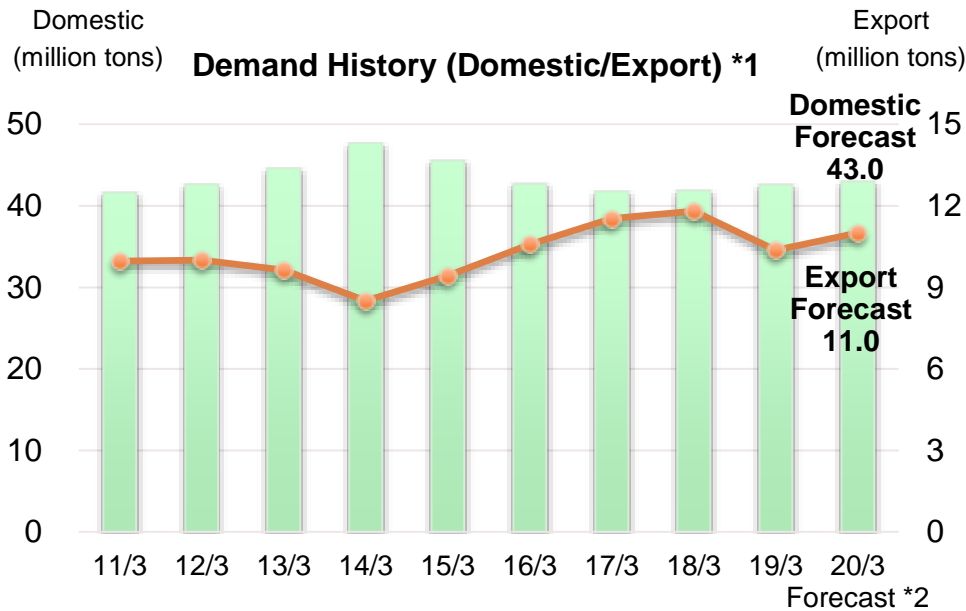
\*1 As of April 1, 2019, the coal-related business in the "Others business" changed to the "Cement business."



# Cement Business - Japan -

## Fortifying the domestic foundation for competitiveness

\*1 Japan Cement Association



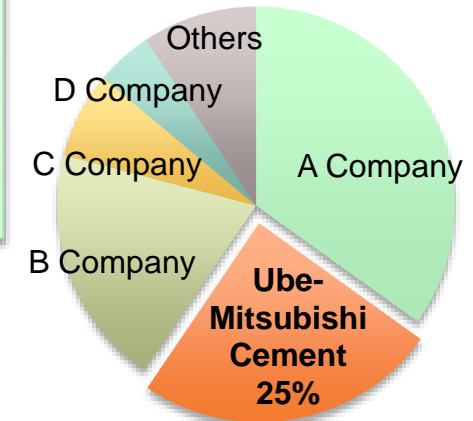
## Outlook for demand in Japan

- ◆ FY2019 Result: 42.59 million tons
- FY2020 Forecast (JCA): 43.00 million tons
- FY2020 Forecast (MMC): 42.50 million tons
- ◆ Announced raising the cement prices on Dec., 2017 - More than ¥1,000 / ton (from the shipment of April, 2018)
- To continue the sales price optimizations of cement in FY2020

## Export environment

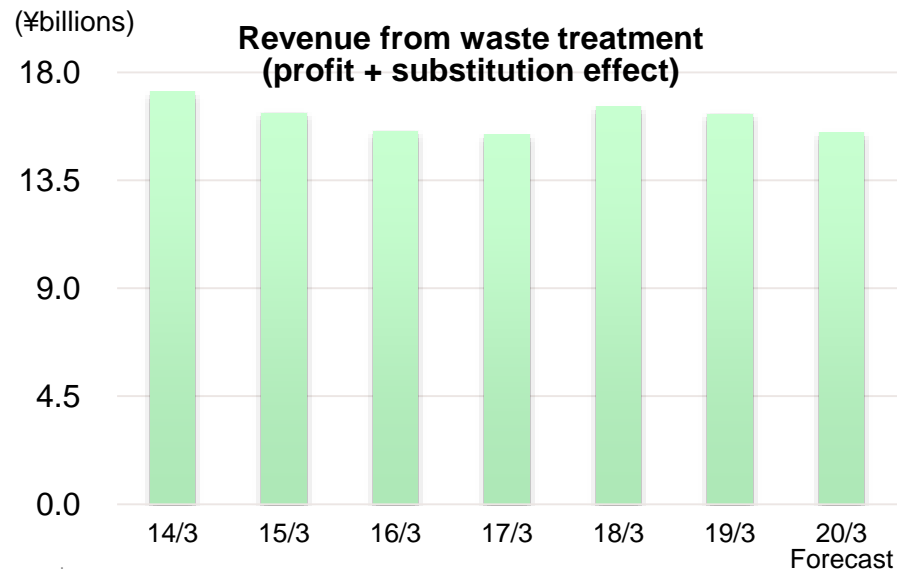
- ◆ Outlook for FY2020
- For Asia: Decrease
- For Oceania: Steady growth
- Total amount : YoY increase

## Domestic Market Share\*



\*MMC's assumption

## Recycling business



\*2 As of November 7, 2019 \*2

## Waste processing

Process the waste in cement manufacturing process  
Rising processing prices and expand the difficult-to-treat waste

### ◆ Coal ash:

Trying to secure the quantity by taking various measures.

### ◆ Waste plastic:

Capacity at Kyushu Plant increased 1.7 times. (operations began in February, 2018)

### ◆ Fly ash treatment:

KitaKyushu Ash Recycle Systems Co., Ltd. that plays role in the treatment of fly ash and cement recycling system started operation in April, 2018.

### ◆ Waste related natural disasters:

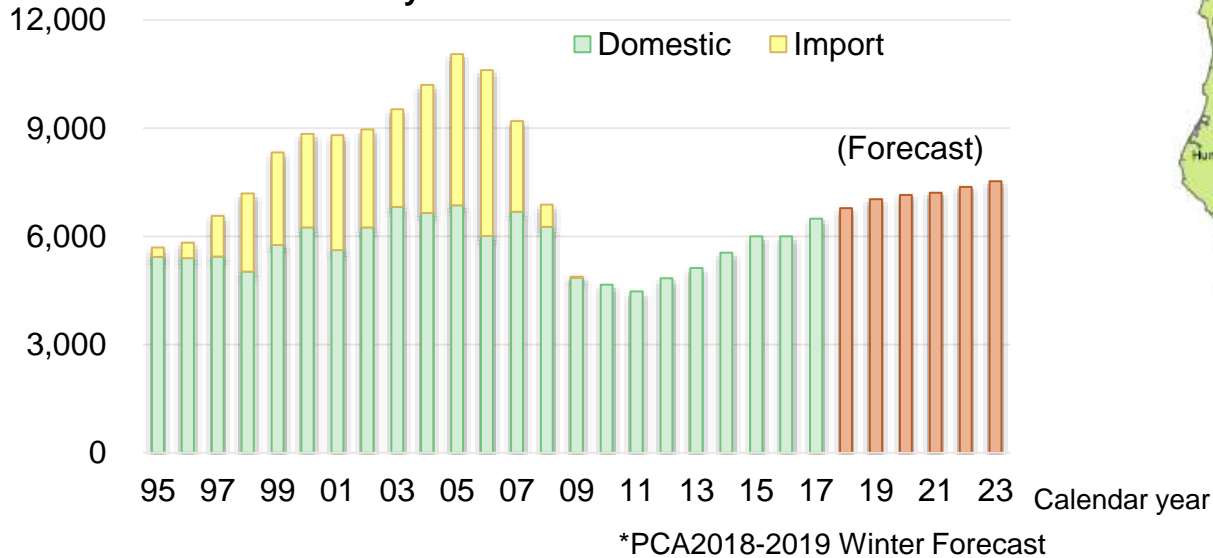
Making maximum efforts to accept waste related natural disasters such as earthquakes and torrential rains.

# Cement Business - United States (1) -

## Demand environment in the U.S.

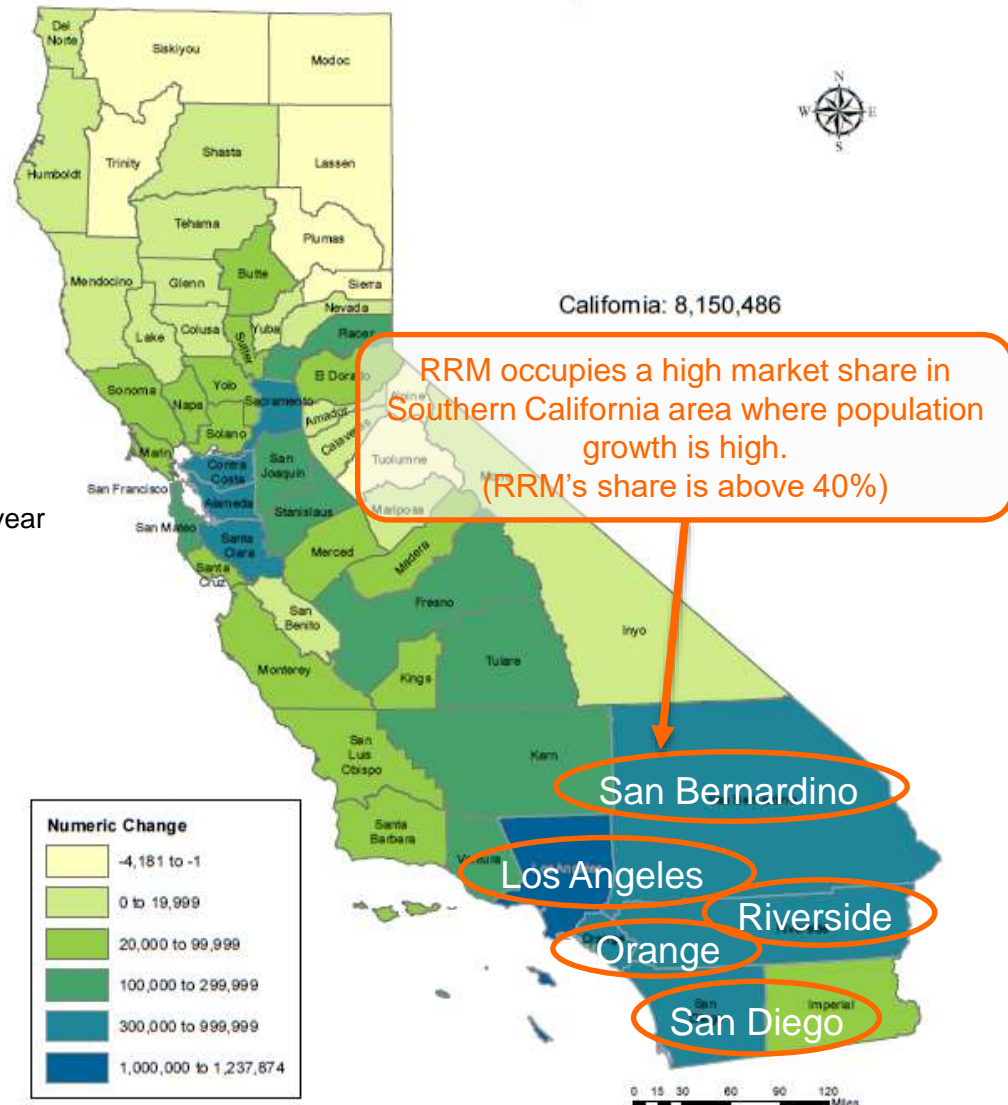
(thousand Mt)

### Demand history for cement in Southern California\*



▲ Ready-mixed concrete plant of Robertson's Ready Mix, Ltd.

## California Projected Population Growth (2010 to 2035, Numeric change)

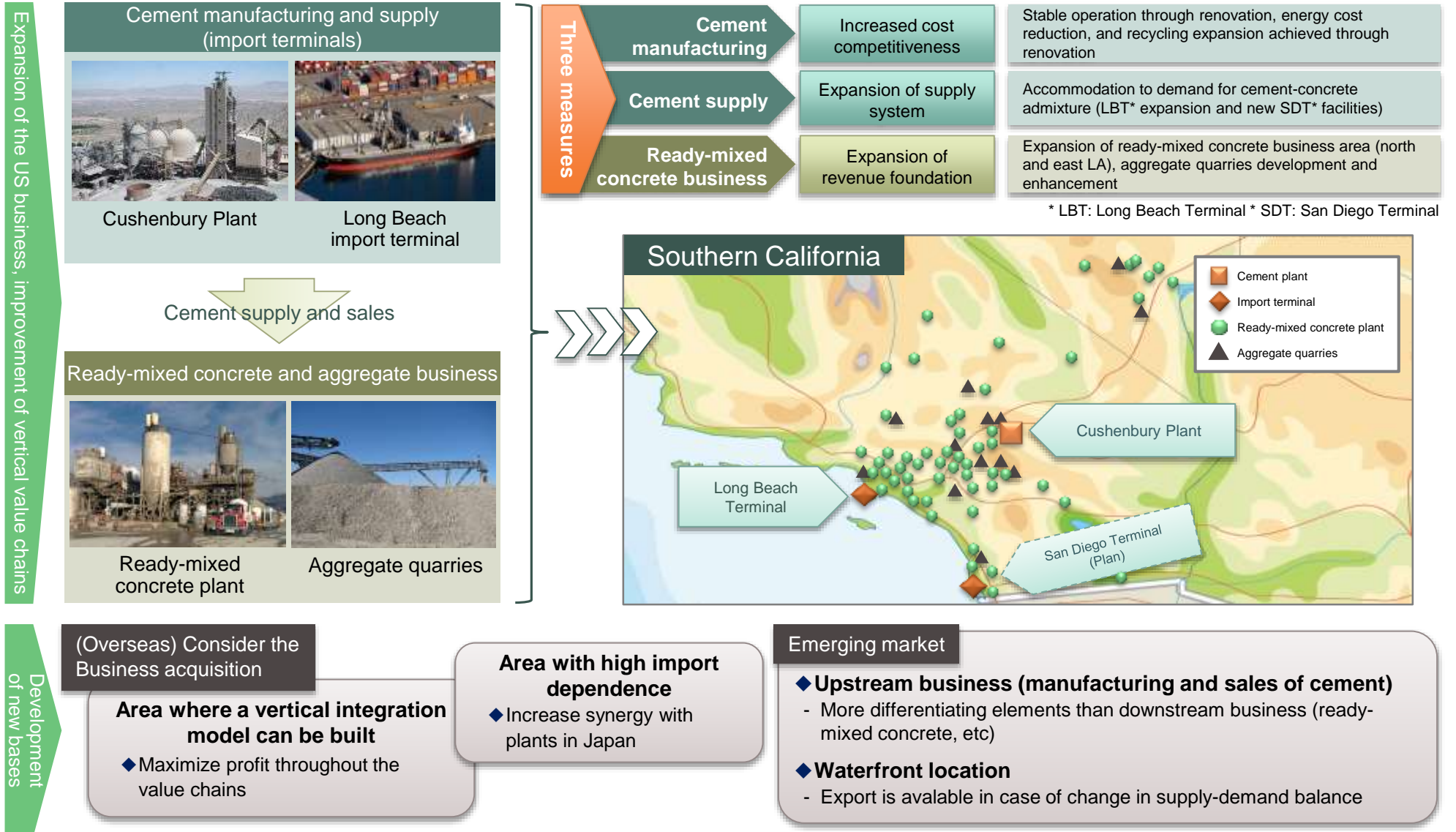


Source: California Department of Finance

MITSUBISHI MATERIALS

# Cement Business - United States (2) -

## Priority measures: Expansion of the US business and development of new business bases









# Others Business

# Other Business

## Efforts in environment and recycling

Play a part in the development of a recycling-oriented society by creating and expanding a recycling business that uses the characteristics and functions of the material industry without relying on landfill disposal, and that is trusted by stakeholders.

-  "E-waste" (used electronics and electrical products)
-  Automobile recycling
-  Fly ash treatment
-  Biogas



**Automobile recycling**



**"E-waste" (used electronics and electrical products)**  
Recycling process of refrigerators







**Fly ash treatment:**  
KitaKyushu Ash Recycle Systems Co., Ltd. began operations (April, 2018)



**Biogas:**  
New Energy Fujimino Co., Ltd." was established (May, 2018)

## Efforts in renewable energy business

Expand the renewable energy business based on the management resources developed by the Company and provide a stable supply of low environmental-load energies to contribute to the development of a sustainable society.

-  Geothermal energy  
() In the exploration stage
-  Hydroelectric
-  Mega solar



**Hydroelectric:** Moriyoshi Dam, Akita Pref.  
Komatagawa New Power Plant started construction (May, 2019)



**Mega solar:** Fukui Photovoltaic Power Plant, Fukui, Fukui Pref.



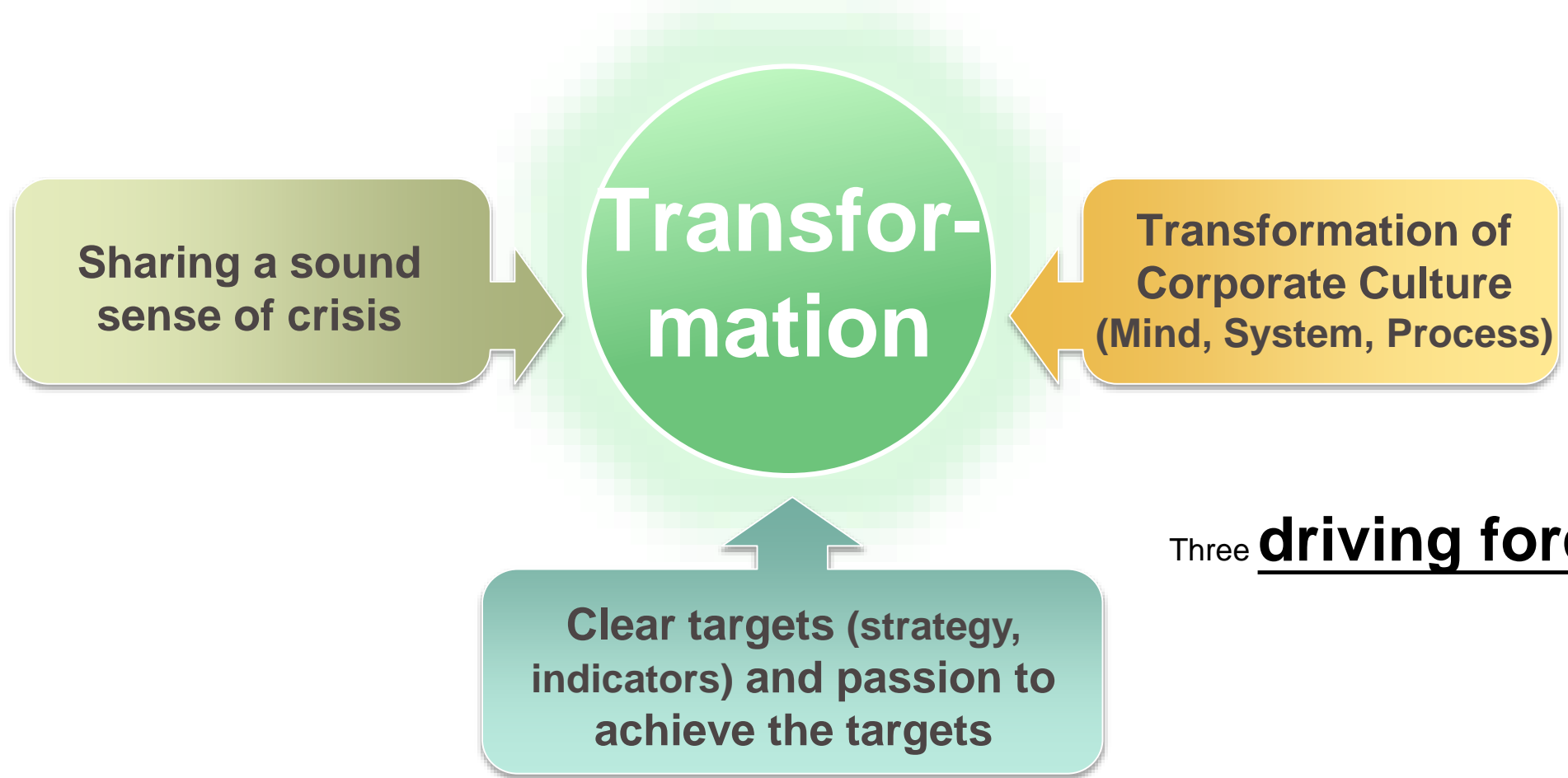
**Geothermal power:**  
Wasabizawa Geothermal Power Plant began in operation (May, 2019)



# **(FYI) Medium-Term Management Strategy (Announced on May 16, 2017)**

# Transformation for Growth

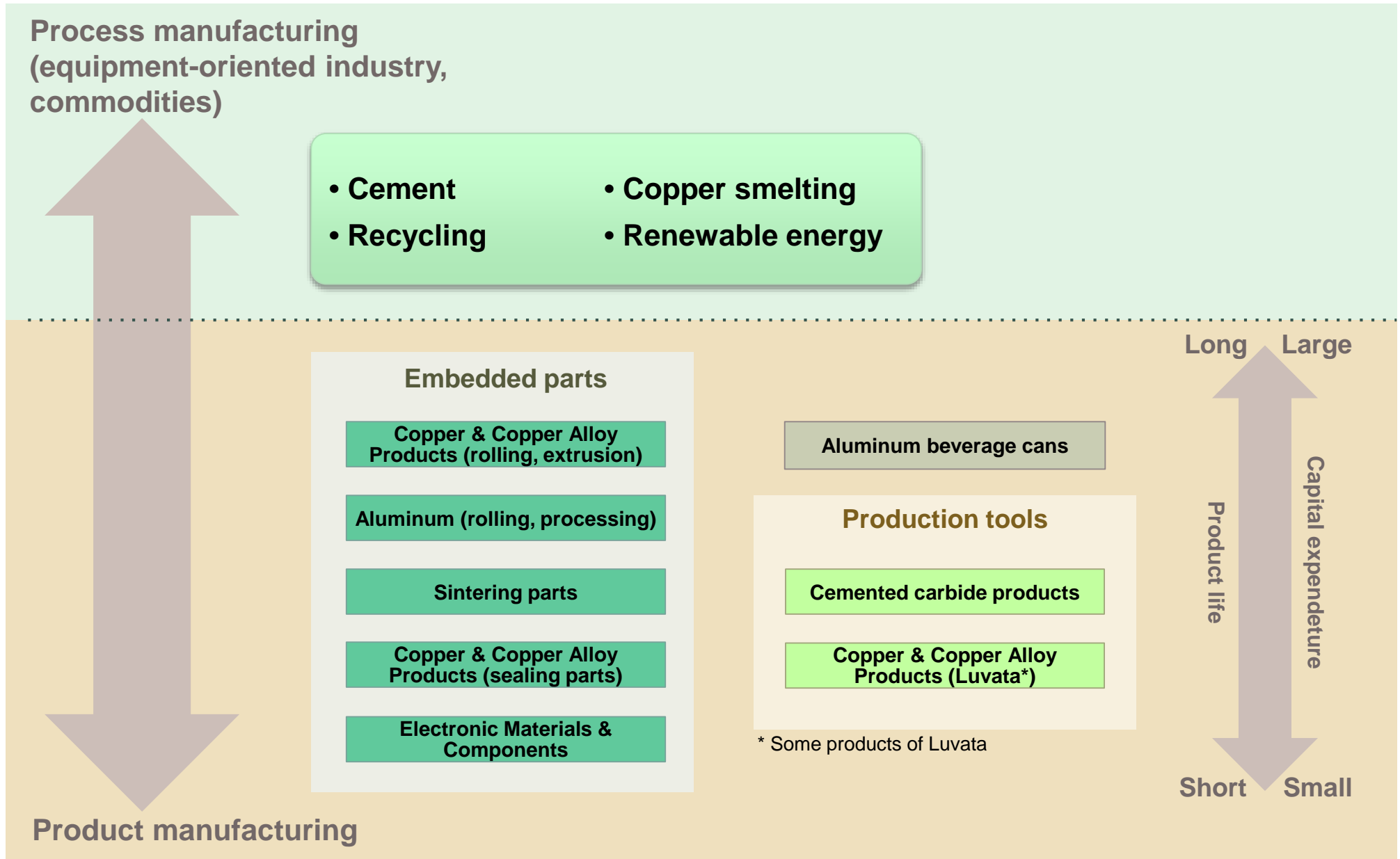
Undertake a range of **“Transformations”** to achieve the sustainable development of the Mitsubishi Materials Group



# Perception of External Environment (10 years from now)

Japan	Overseas
<ul style="list-style-type: none"><li>◆ Super-aged society</li><li>◆ Infrastructure development for disaster prevention and reduction</li><li>◆ Hollowing out of domestic market due to progress of globalization</li><li>◆ Increasing environmental consciousness (increase in EVs, recycling needs, etc.)</li><li>◆ Super-advanced information society based on AI and IoT (accelerated speed of change)</li></ul>	<ul style="list-style-type: none"><li>◆ Change in international order</li><li>◆ Increase in protectionism</li><li>◆ Slowdown in the growth of emerging BRICS economies</li><li>◆ Increase in the need for infrastructure development due to growing population</li><li>◆ Increasing environmental consciousness (increase in EVs, recycling needs, etc.)</li><li>◆ Super-advanced information society based on AI and IoT (accelerated speed of change)</li></ul>

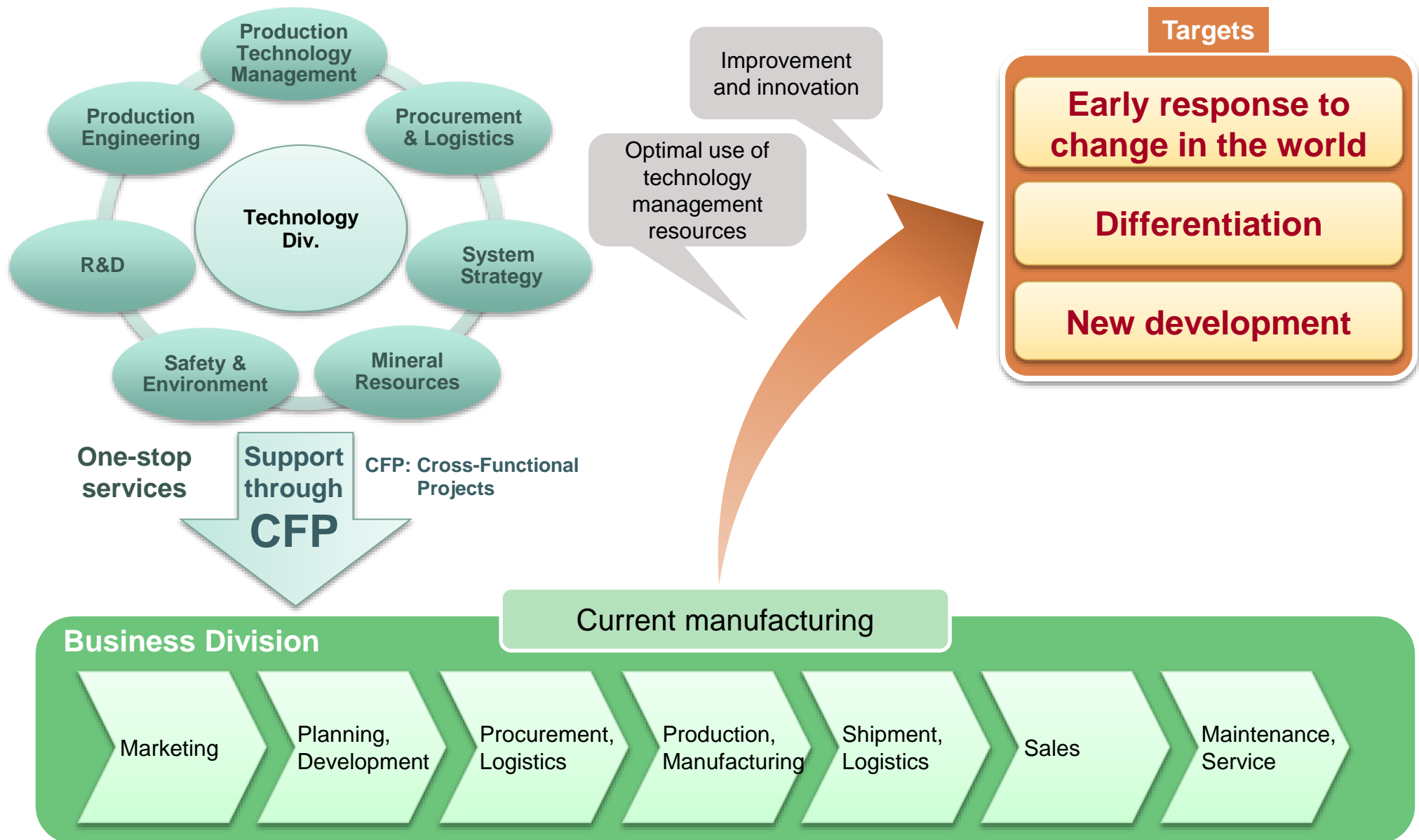
# Group-wide Policy: Optimization of Business Portfolio (1)



# Group-wide Policy: Optimization of Business Portfolio (2)

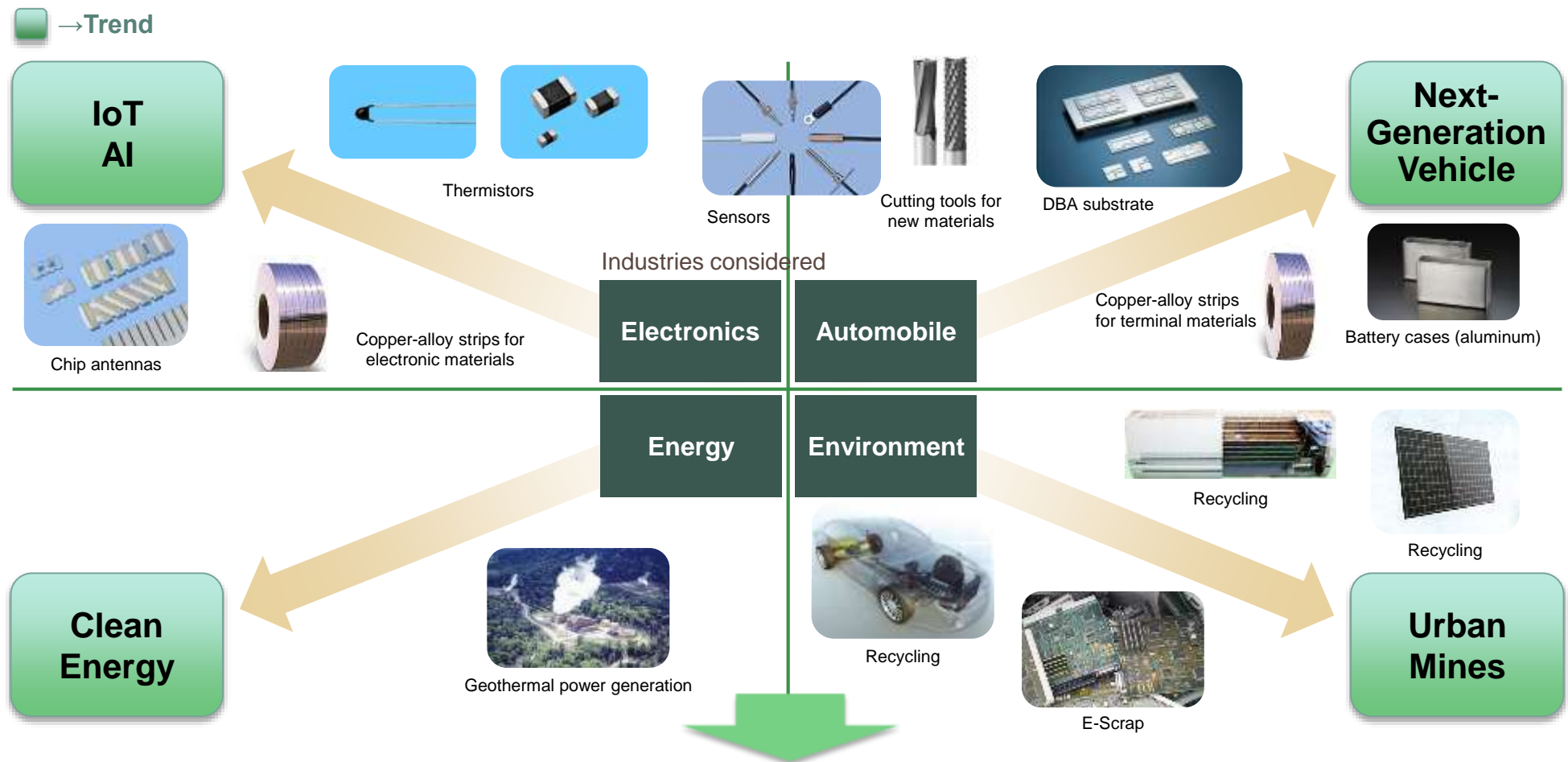
		Direction	(Indicator to watch)
<b>Stable growth business</b>	Cement Metals (smelting) Recycling Renewable energy	<ul style="list-style-type: none"> <li>◆ Aim to strengthen the business foundation by increasing and maintaining cost competitiveness using recycling revenues, etc. and seek carefully selected opportunities for large investments</li> </ul>	ROA
<b>Growth promotion business</b>	Metals (Copper & Copper Alloy Products) Advanced Materials & Tools	<ul style="list-style-type: none"> <li>◆ Promote growth by matching customer and market needs and the Company's strength</li> <li>◆ Business development in adjacent fields and global markets</li> </ul>	EBITDA growth rate
<b>Profitability restructuring business</b>	Electronic Materials & Components Aluminum	<ul style="list-style-type: none"> <li>◆ Work promptly to solve issues and define the future direction of growth.                             <ul style="list-style-type: none"> <li>• Make investments in competitive advantages and support technological development</li> <li>• Ensure thorough selection and concentration</li> </ul> </li> </ul>	ROS comparison with competitors

# Group-wide Policy: Comprehensive Efforts to Increase Business Competitiveness





# Group-wide Policy: Creation of New Products and Business



Needs that the Company should meet	Potential new products and businesses
Next-generation vehicle, IoT and AI	Solutions for the shift of automobiles to EVs and the needs of automatic driving Heat management materials Sensors, antenna modules, and etc.
Building a rich, sustainable society	Recycling, renewable energy, businesses related to hydrogen-energy society, and etc.

# Group-wide: Investment Strategy

- ◆ Strengthen the businesses by utilizing operating cash flow and revenue from sale of assets
- ◆ If there is any other favorable large investment for growth, however, the Company will positively implement such an investment as far as keeping Net D/E ratio of 1.0 time or lower

## FY2018 – 2020 Cumulative Cash Flow

Cash in		
Operating CF		240.0
Investing CF	Sale of assets	60.0
Total		300.0

Sales of share in SUMCO Corporation (moved forward in the previous period)	26.0
	326.0

¥ billions

Cash out		
Investing CF	Investment for growth	150.0
	Investment for maintenance and upgrading	170.0
	Subtotal	320.0
Financing CF	Dividend, etc <sup>*1</sup>	46.0
Total		366.0

Acquisition of Luvata (carry-over from FY2017)	-40.0
	326.0

280.0

## FY2018 – 2020 Cumulative Investment Plan

Total amount of investment 280.0 <sup>*2</sup>							
Maintenance/upgrading 170.0				Growth strategy 110.0 <sup>*2</sup>			
Cement 22%		Metals <sup>*2</sup> 33%		Advanced Materials & Tools 21%		4 %	8 %
						7 %	5 %

<sup>\*1</sup> Total amounts of dividend payment from MMC and dividend payment to non-controlling interests from consolidated subsidiary

<sup>\*2</sup> Excludes the cost of acquiring Luvata (Approx. 40 billion yen) carried forward from the previous period.

Electronic Materials & Components  
Aluminum  
Environment & Energy  
Common investment

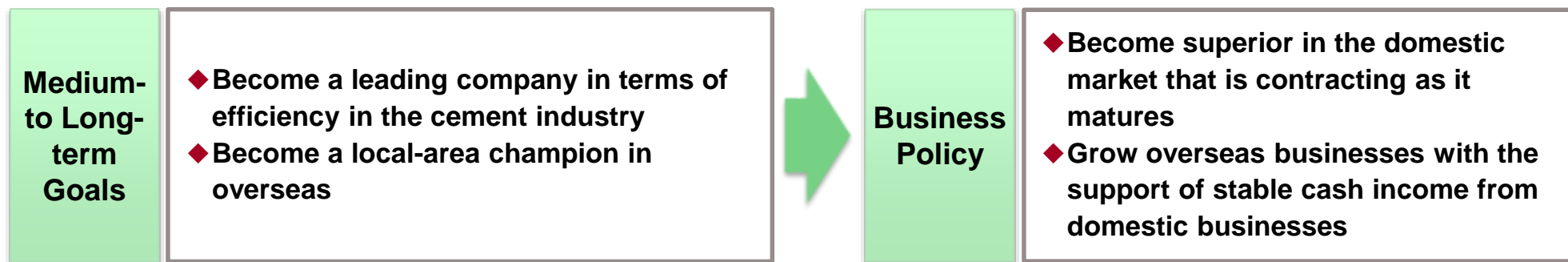
# Group-wide: Provisional Financial Calculations

(¥ billions)

		Results for FY2017	Provisional Financial Calculations for FY2020	Remarks
Income statement	Consolidated net sales	1,304.0	1,620.0~1,840.0	
	Consolidated net sales (excl. metals costs)	757.1	870.0~910.0	
	Consolidated ordinary income	63.9	82.0~100.0	[Principal reasons of changes, ordinary income base] Market conditions 12.0 Investment effect 15.0 Metal prices 3.0~7.0 Foreign exchange -6.0~8.0 Other -6.0 Total 18.1~36.1
Balance sheet	Total assets	1,896.9	1,950.0	
	Net interest-bearing debt	386.9	450.0	
	Shareholders' equity	621.2	640.0	
ROA (ordinary income to total assets) (%)		3.5	4.5~5.0	
ROE (%)		4.8	7.0~8.0	
Net D/E ratio (times)		0.6	0.7	
Assumptions (*)	Exchange rate USD (yen/\$)	108	100~120	[Sensitivity] ◆ Exchange rate 1 yen/\$ (yen depreciation) 0.7 billion yen ◆ Copper price (LME) +10 ¢/lb 2.2 billion yen (Ordinary income)
	Exchange rate EUR (yen/€)	119	120	
	Copper price (LME) (¢/lb)	234	250~270	

\* Median used for BS

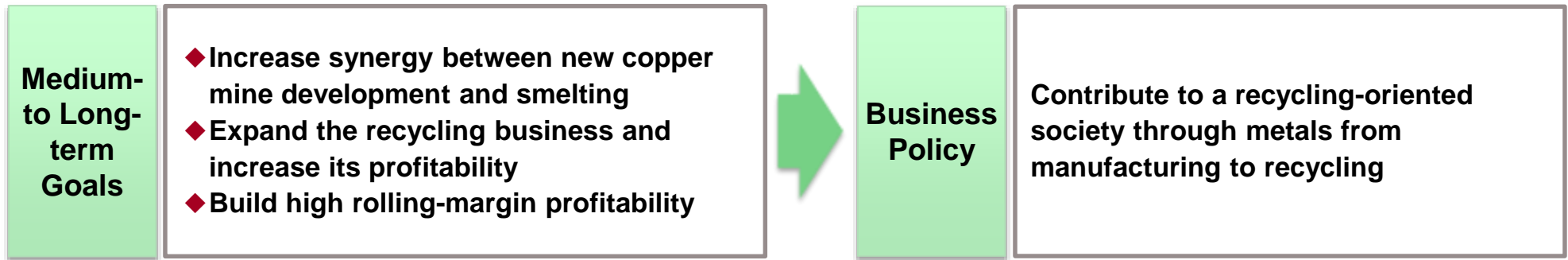
# Cement Business Strategy



## Key strategies

Achieve growth through innovation	Create value by building a recycling-oriented society	Increase the company's market presence through investment for growth	Increase efficiency through continuous improvement
<b>◆ R&amp;D and Innovation</b> <ul style="list-style-type: none"> <li>- Develop technology to reuse waste for cement manufacturing</li> <li>- Enhance concrete technology</li> <li>- Reduce CO<sub>2</sub></li> </ul>	<b>◆ Expand the environmental business</b> <ul style="list-style-type: none"> <li>- Develop new business in growth segment</li> <li>- Increase the alternative thermal energy rate</li> </ul>	<b>◆ Fortifying the domestic foundation for competitiveness</b> <ul style="list-style-type: none"> <li>- Kyushu Plant: increase global competitiveness</li> <li>- Downstream business: fortifying the sales foundation in Tokyo metropolitan area, etc.</li> </ul> <b>◆ Expand the US business</b> <ul style="list-style-type: none"> <li>- Expand the ready-mixed concrete business</li> <li>- Establish and reinforce MCC terminals</li> </ul> <b>◆ Develop new overseas business bases</b>	<b>◆ Improve domestic and the US cement manufacturing technology</b> <ul style="list-style-type: none"> <li>- Establish a stable operation system</li> <li>- Reduce costs</li> <li>- Thoroughly conserve energy</li> <li>- Increase workplace capability</li> </ul>

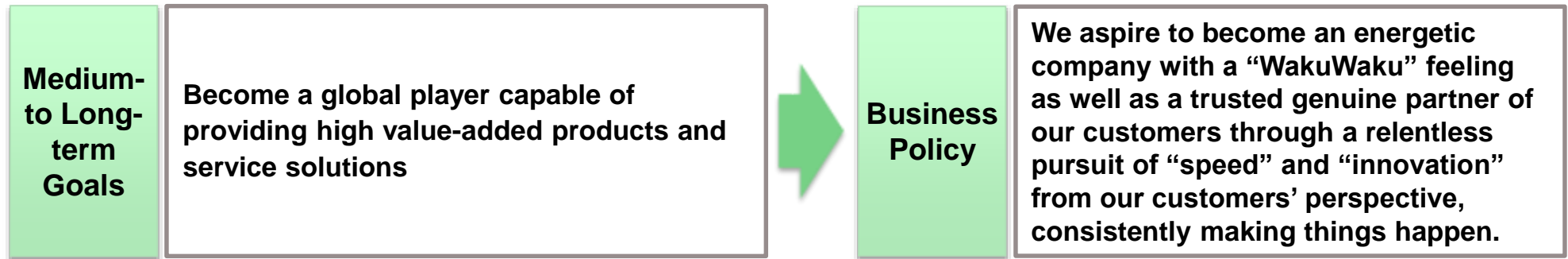
# Metals Business Strategy



## Key strategies

	Achieve growth through innovation	Create value by building a recycling-oriented society	Increase the company's market presence through investment for growth	Increase efficiency through continuous improvement
Mining			◆ Develop new projects	◆ Improve the system of improving and making decisions on existing projects
Smelting		◆ Increase E-Scrap recycling		◆ Increase process efficiency ◆ Optimize the smelting business
Copper & Copper Alloy Products	◆ <b>Sell products meeting customer needs</b> - Increase sales of terminal materials and new alloys - Develop high-performance plating	◆ <b>Promote alloy recycling</b>	◆ <b>Create synergy with Luvata</b> - Make use of synergy effects - Establish global sales system ◆ <b>Expand sealing materials business</b>	◆ <b>Fortify the manufacturing system of rolling business</b> ◆ <b>Strengthen cost competitiveness of extrusion business</b>

# Advanced Materials & Tools Business Strategy



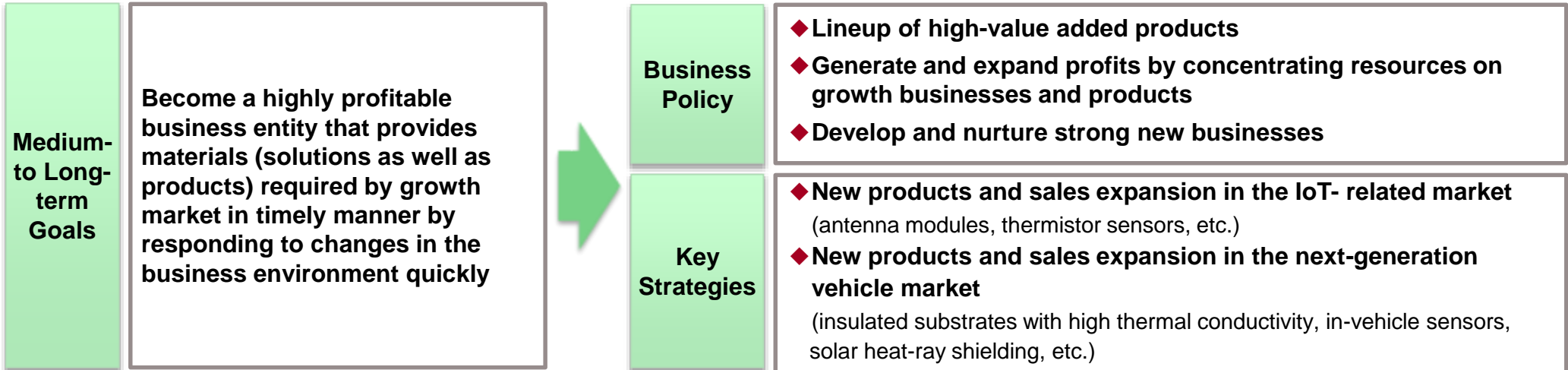
## Key strategies

Achieve growth through innovation	Create value by building a recycling-oriented society	Increase the company's market presence through investment for growth	Increase efficiency through continuous improvement
<ul style="list-style-type: none"> <li>◆ Enhance the power of solution by industry oriented teams</li> <li>◆ Create key technologies through the Company's original development and open innovation</li> <li>◆ Get closer to the customers by utilizing IoT and Big Data and enhance the level of manufacturing capability</li> </ul>	<ul style="list-style-type: none"> <li>◆ Promote tungsten recycling</li> </ul>	<ul style="list-style-type: none"> <li>◆ Promote local production for local consumption by reinforcing factories and using local vendors</li> <li>◆ Expand sales and technical center networks</li> <li>◆ Create synergies with Mitsubishi Hitachi Tool Engineering</li> </ul>	<ul style="list-style-type: none"> <li>◆ Reinforce the Key Account strategy</li> <li>◆ Decrease cost</li> <li>◆ Improve asset efficiency at factories</li> </ul>

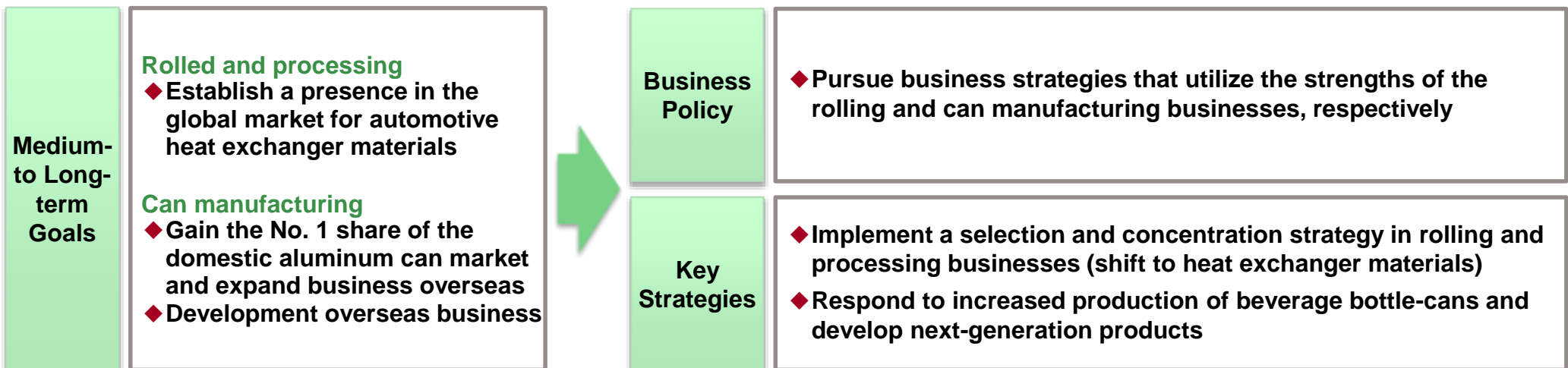


# Electronic Materials & Components Business & Aluminum Business

## Electronic Materials & Components Business



## Aluminum Business



**For further information, please contact at:**

Mitsubishi Materials Corporation

IR Dept., Finance & Accounting Dept.,  
Corporate Strategy Div.

3-2-3, Marunouchi, Chiyoda-ku, Tokyo 100-8117 Japan

E-mail: [ml-mmccir@mmc.co.jp](mailto:ml-mmccir@mmc.co.jp)

URL: <http://www.mmc.co.jp/corporate/ja/index.html>

These projected performance figures are based on information available to the Company's management as of the day for releasing this material.

There are many uncertain or risk factors inherent in projections, and there might be cases in which actual results materially differ from projections of this material.

Mitsubishi Materials Corporation prohibits unauthorized reproduction of the text, photos, maps, or other materials on this website.

The Company holds the exclusive copyright to the information appearing on this website.