Transportation Systems Business Presentation Meeting
(Held at Plant and Transportation Systems Engineering & Construction Center)

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1. Position of Machinery and Steel Structures

Financial results by segment (consolidated net sales)

2006

Machinery & Steel Structures

¥511.6 billion / ¥3,068.5 billion

17%
2. State of Machinery & Steel Structures Headquarters

(1) Amount of orders received, operating income and R&D expenses (consolidated)  

(Unit: ¥100 million)

The Company will step up R&D activities to respond to environmental requirements and advance technologies.
2. State of Machinery & Steel Structures Headquarters

(2) Business domains

- Metals
- Machinery
- Environmental Preservation Plants
- Plants
- Transportation Systems
- Automotive and Related Systems
- Waste Treatment Systems
- Bridges
- Chemical Plants
- Metals Machinery
- Compressors
- Others
3. Environmental Preservation Plants
Facilities respond to exhaust gas

3. Environmental Preservation Plants – Response to Exhaust Gas

Boiler

Selectively catalytic reduction equipment

SCR

NOx removal catalyst

Electrostatic precipitator

ESP

Dust

Flue gas desulfurization equipment

FGD

SO2

Desulfurization and absorption tower

Clean Flue Gas

Stack
3. Environmental Preservation Plants – (1) Exhaust Gas Desulfurizers

(1) Achievements

- **Europe**: 67 units
- **Asia**: 33 units
- **Japan**: 78 units
- **United States**: 13 units

**Market share (worldwide)**

- **MHI**: 15.3%
- **Babcock&Wilcox**: 13.0%
- **Fisia**: 11.7%
- **Alstom**: 8.5%
- **Others**: 51.5%

Desulfurization equipment using limestone plaster method as of 2007.
3. Environmental Preservation Plants – (1) Exhaust Gas Desulfurizers

(2) Exhaust gas control in individual markets

**Europe**
- EU regulation planned for 2008
- Application expansion to East Europe for: SOx, NOx

**China**
- Pollutant discharge levy and control regulation enforced in 2003
- Stricter regulation application for: SOx, NOx

**India**
- Environmental standards established in 1994
- Stricter regulation application for: SOx, NOx

**United States**
- 1995 Clean Air Act II, 2004 Clear Skies Initiative
- Stricter regulation (up to 2015) for: SOx, NOx, **minute particles**
- Regulation launch (up to 2010) for: **mercury** (secondary regulation up to 2018)
3. Environmental Preservation Plants – (1) Exhaust Gas Desulfurizers

(3) Actions for responding to the market (technological development)

[*Responses to stricter environmental regulations*]

Original technologies for responding to mercury, SO3 and minute particle regulations

[*Acceleration of operational speed*]

Introduction of large test equipment equaling production versions in functions
3. Environmental Preservation Plants – Response to Exhaust Gas

Facilities respond to exhaust gas

- **Boiler**
- **Selective Catalytic Reduction Equipment (SCR)**
  - NOx removal catalyst
- **Electrostatic Precipitator (ESP)**
  - Electrostatic
- **Flue gas desulfurization equipment (FGD)**
  - Desulfurization and absorption tower
- **CO2 recovery equipment**
  - CO2 recovery plant

Flow: Exhaust gas from boiler enters the SCR for NOx removal, then goes to ESP for dust collection. The flue gas then goes to FGD for desulfurization, including SO2 and mercury removal, and then to the CO2 capture system. The clean flue gas exits the stack.
3. Environmental Preservation Plants – (2) C2 Recovery Equipment

(1) Market

Facilities that remove and recover CO₂ from combustion exhaust gas discharged by power plants, etc.

- Measures against global warming: recovery and underground storage of CO₂
- Crude oil production: injection in the crude oil layer for increasing crude oil recovery
3. Environmental Preservation Plants – (2) CO2 Recovery Plant

(2) Actions for responding to the market

◆ R&D accumulation
  - Joint development with Kansai Electric Power Co., Inc. since 1990
  - Reliability confirmed in long-term continuous operation of the test plant for a coal thermal power plant

◆ Technical advantages
  (amine absorbing solution)
  - Only three companies in the world have the technology for practical application
  - Energy savings of 20% or more (compared with other two companies)

◆ Achievement for CO2 Recovery plant
  Four commercial plants now in operation
  (urea plants, etc.)

Urea plant in Malaysia
[CO2 recovery and recycling for raw material use]
3. Environmental Preservation Plants – (3) Medium-Term Vision

- **Full lineup**
  - SOx, CO2, dust, mercury

- **Globalization**
  - Worldwide operation

- **Business coverage expansion**
  - Licensing, processing, absorbing solution supply, full turnkey contracts

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**Business expansion**
From ¥10 billion to ¥50 billion
4. Transportation Systems
(1) Market Segmentation – worldwide rail market

Global railroad market
<¥5,000 billion to ¥10,000 billion>

Main players in “System” segment
- Bombardier
- ALSTOM
- Siemens
- MHI

Average for 2003 to 2005
4. Transportation Systems – (1) Business Environment

(2) Market Segmentation

- “System” segment: turnkey construction including all facilities like vehicles, signals, rail tracks, etc.
4. Transportation Systems – (1) Business Environment

(3) Significant Market – Geography (“System” segment)

Asia:
Market size: ¥200 billion to ¥300 billion/year
(Expanding at a rate of 30% per annum)

Middle East:
Market size: ¥200 billion to ¥300 billion/year
(Expanding at a rate of 40% per annum)

North America:
Market size: up to ¥50 billion/year
(Expanding at a rate of 10% per annum)
Main markets for the Company

**Airport APM**
Automated People Mover installed within large airports and on airport feeder lines

**Urban Transportation Systems**
Intra-city loop lines and commuter trains installed for easing traffic congestion in large cities and addressing environmental problems, etc.

**High Speed Railway**
Backbone lines that link cities at high speeds

*APM: Automated People Mover*
4. Transportation Systems – (2) Business Domains

(1) Airport APM – achievements

- APM at Hong Kong International Airport
- APM at Incheon International Airport
- APM at Washington Dulles International Airport
- APM at Miami International Airport
- APM at Singapore Changi International Airport
- APM at Dubai International Airport
- APM at Hong Kong International Airport
- APM at Incheon International Airport
- APM at Washington Dulles International Airport
- APM at Miami International Airport
- APM at Singapore Changi International Airport
- APM at Dubai International Airport
Our targets for future business development are hub airports around the world, centering on those in North America.
(2) Urban transportation systems – achievements

- Manila MRT 1
- Manila MRT 2
- Manila MRT 3
- Sengkang/Punggol LRT in Singapore
- Dubai Metro
- Jakarta-Bogor Line
(2) Urban transportation systems – future development

Our main targets are emerging large cities centering on those in the Middle East and Asia.
4. Transportation Systems – (2) Business Domains

(3) Rapid railroad systems – achievements and future development

- Shinkansen System in Taiwan
- Examples of high speed railway plans around the world (system projects)

Countries mentioned:
- Taiwan
- Malaysia
- Vietnam
- China
- India
- Malaysia
- Russia
- UAE
- Saudi Arabia
- Texas
- California
- Brazil
4. Transportation Systems – (3) Model Addition

**Airport APM**
- Battery-type APM with Automatic Steering System
- Simple and compact facilities

**Urban transportation systems**
- HSST: Electromagnetically Levitated System
- Very low noise
- Low-floor LRT
- Barrier-free

**Battery-type APM with Automatic Steering System**
- Simple and compact facilities
- Very low noise
- Barrier-free

**Urban transportation systems**
- HSST: Electromagnetically Levitated System
- Low-floor LRT
- Barrier-free
4. Transportation Systems – (4) Medium-Term Vision

Full lineup of urban transportation systems

Low-floor LRT

HSST: Electromagnetically Levitated System

High Speed Train

Urban transportation systems

Automated People Mover
4. Transportation Systems – (4) Medium-Term Vision

**Full lineup**
From APM to high-speed railway systems and HSST
Expand market share with a larger product lineup

**Globalization**
United States, Asia, Middle East
Response to market expansion

**Lifecycle support**
From planning to maintenance
Expansion of business domains

**Double sales**
To ¥200 billion