Business Briefing on Machinery & Steel Infrastructure Systems

Yoichi Kujirai
Head of Machinery & Steel Infrastructure Systems

June 4, 2012

MITSUBISHI HEAVY INDUSTRIES, LTD.
### Relationship between the Machinery & Steel Infrastructure Systems and Business Domains

*Environmental and chemical plant business were transferred to Engineering Headquarters in January 2012.*

<table>
<thead>
<tr>
<th>Business domain</th>
<th>Customers/Markets</th>
<th>Segment</th>
<th>General Machinery &amp; Special Vehicles</th>
<th>Others (Air-Conditioning/Machine Tool)</th>
</tr>
</thead>
</table>
| **Energy & Environment** | • Power companies  
  • Gas companies  
  • Resource companies (oil, chemicals, steel) | Shipbuilding & Ocean Development  
  • GTCC  
  • Large-sized thermal power plants  
  • Nuclear energy | • Compressors  
  • Metals machinery  
  • Material handling systems  
  • Rubber tire machinery  
  • Printing and packaging machinery, etc. |  
| **Machinery, Equipment Systems** | • Core industries (steel, etc.)  
  • Automotive industry  
  • Logistics, etc. | Power Systems  
  • Stationary engines | • Turbo-chargers  
  • Forklift trucks  
  • Engines |  
| **Transportation**       | • Airlines (air)  
  • Shipping companies (sea)  
  • Railways (land), etc. | Compressors  
  • Metals machinery  
  • Material handling systems  
  • Rubber tire machinery  
  • Printing and packaging machinery, etc. | • Air-conditioning equipment  
  • Machine tools |  
| **Defense & Aerospace**  | • Ministry of Defense (land, sea, air)  
  • JAXA  
  • Destroyers & submarines for the Ministry of Defense | Shipbuilding & Ocean Development  
  • Destroyers & submarines for the Ministry of Defense | • Defense aircraft  
  • Missiles  
  • Space Systems |  
|                          |                                                                                    | Aerospace Systems  
  • Transportation system |  |  
|                          |                                                                                    | Commercial Aircraft  
  • Commercial aircraft |  |  
|                          |                                                                                    | Special vehicles |
1. Summary of the FY 2011 Initiatives
2. Business Policy for Achieving the FY 2012 Business Plan
3. Progress of the Business Structural Reform
   (1) Business Structural reforms in FY 2011
   (2) Structural approach to cutting fixed costs
4. Implementation of the Growth Process
   (1) Expanding the business domain
   (2) Rebuilding the product and business portfolio
   (3) Growth strategy for mainstay businesses
   (4) Growth strategy for mature businesses and others
   (5) Growth strategy for next-generation product businesses
   (6) Global expansion
5. Summary
1. Summary of the FY 2011 Initiatives

* Figures include those related to the environmental and chemical plant projects currently being managed by Engineering Headquarters.

<table>
<thead>
<tr>
<th>Orders Received</th>
<th>Net Sales</th>
<th>Operating Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>492.6</td>
<td>557.5</td>
<td>27.0</td>
</tr>
<tr>
<td>+15.5</td>
<td>-128.6</td>
<td>-4.9</td>
</tr>
<tr>
<td>508.2</td>
<td>428.8</td>
<td>26.3</td>
</tr>
</tbody>
</table>

2010 (Actual) | 2011 (Actual)

<table>
<thead>
<tr>
<th>Average rates for posting sales</th>
<th>Due to a drop in sales for chemical plants and transportation systems</th>
<th>Positive effects of the business structural reforms. Namely, attaining profitability in printing and packaging machinery operations etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 USD ¥88.5, EUR ¥113.5</td>
<td>2011 USD ¥81.0, EUR ¥109.3</td>
<td>(Unit: billion yen)</td>
</tr>
</tbody>
</table>

- Received orders for large projects
  - Chemical plant for Malaysia
  - Metals machinery for India
  - Compressor for an offshore LNG Plant
- Projects for medium- and large-scale transportation systems put off to FY 2012
- Constructions of specific large-scale projects, such as chemical plants and transportation systems, hit their peak, and sales fell.
- The massive drop in sales and the impact of the yen appreciation were offset by increasing profitability of the product business.
2. Business Policy for Achieving FY 2012 Business Plan

<table>
<thead>
<tr>
<th>Orders Received</th>
<th>Net Sales</th>
<th>Operating Income</th>
<th>Net Sales</th>
<th>Net Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>492.6</td>
<td>557.5</td>
<td>27.0</td>
<td>428.8</td>
<td>26.3</td>
</tr>
<tr>
<td>508.2</td>
<td>530.0</td>
<td>33.0</td>
<td>760.0</td>
<td>54.0</td>
</tr>
<tr>
<td>700.0</td>
<td>1,020.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Figures include those related to the environmental and chemical plant projects currently being managed by Engineering Headquarters.

Business structural reforms improved profitability.

- Completing the structural reform of the business
  - Structural reforms of transportation, machinery, and environmental and chemical plant operations
  - Profitability attained in printing & packaging machinery operations

Implementation and acceleration of growth process for business expansion

- Business domain expansion: Expand into upstream and downstream businesses
- Global expansion: Focusing on China, India, SE Asia and the Americas
- Increase in product competitiveness: Increasing earning capacity of existing products and development of next-generation products

Reform Process → finished 2011

Implementation & Acceleration of Growth Process

© 2012 MITSUBISHI HEAVY INDUSTRIES, LTD. All Rights Reserved.
### 3. Progress of the Business Structural Reforms

#### (1) Business structural reforms in FY 2011

<table>
<thead>
<tr>
<th>Product/Business</th>
<th>Reform Description (Date of Completion)</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery &amp; manufacturing</td>
<td>Restructuring of machinery operations in Hiroshima district (Apr. 2012)</td>
<td>Flat management of bases Comprehensive streamlining</td>
</tr>
<tr>
<td>Transportation infrastructure</td>
<td>Restructuring of the Transportation Systems Division (Apr. 2012)</td>
<td>Synergy in transportation systems and ITS</td>
</tr>
<tr>
<td>Advanced mechanical systems</td>
<td>Establishment of the Advanced Mechanical Systems Dept. (Apr. 2012)</td>
<td>Synergy in integration of advanced technology</td>
</tr>
<tr>
<td>Environmental &amp; chemical plants</td>
<td>Transfer of environmental and chemical plants to Engineering Headquarters (Jan. 2012)</td>
<td>Synergy in engineering projects</td>
</tr>
<tr>
<td>General</td>
<td>Integrated organizational management of processing functions (Apr. 2012)</td>
<td>Effective processing of personnel and acceleration of overseas expansion</td>
</tr>
</tbody>
</table>

Completion of the Reform Process
3. Progress of the Business Structural Reforms
(2) Structural approach to cutting fixed costs

- Business structure
  (until 2011)

- Business structure
  (since 2012)
### 4. Implementation of the Growth Process

#### (1) Expanding the business domain

<table>
<thead>
<tr>
<th>Priority domains</th>
<th>Product and business concerned</th>
<th>Circumstances behind business domain expansion</th>
</tr>
</thead>
</table>
| **Machinery and manufacturing** | **Metals machinery** | - Growing crude steel production in Asia and Latin America  
- Progress in the shift to electric furnaces in the upstream process of steelmaking |
|                          | **Rubber tire machinery** | - Expansion of automobile industry in emerging economies  
- Increasing production of large construction machinery after growth of resources industry |
|                          | **Compressors** | - Expansion of the natural gas market (offshore LNG and FPSO)  
- Increasing production of shale gas in North America |
| **Transportation infrastructure** | **Transportation systems** | - Growing demand for transportation and social infrastructures in emerging countries  
- Trend of the privatization of operations and maintenance (outsourcing) |
| **Social infrastructure** | **Waste Treatment** | |
4. Implementation of the Growth Process

(2) Rebuilding the product and business portfolio

Rebuild the product and business portfolio to speed up the growth process.

Promising and mainstay products
- Maintain continuous growth by intensively investing in development and overseas expansion
  - Transportation systems
  - Compressors
  - Metals machinery
  - Material handling systems

Mature products
- Introduce low-end equipment matched to needs in Asia and emerging countries
  - Mechanical parking systems
  - Waste treatment

Next-generation products
- Speed up commercialization and market introduction of superior technologies
  - Advanced mechanical systems

Positioning in the strategic business evaluation program (provisional)

High (positive)
- Early Period
  - Transportation systems
  - Compressors
  - Metals machinery
  - Material Handling System

Prime Period
- Maintenance of independence & return
  - Mechanical parking systems
  - Waste treatment

Mature Period
- Reform
  - Papermaking machinery
  - Turbomolecular pumps

Low (negative)
- Intensive introduction
  - Advanced mechanical systems

- Strategic introduction
- Withdrawal

- Independent growth & return

Return (earning power)
- Intensive introduction
- Withdrawal

Reform Growth & Maintenance
- Transportation systems
- Compressors
- Metals machinery
- Material Handling System

Independent growth & return
- Mechanical parking systems
- Waste treatment

Maintenance of independence & return
- Papermaking machinery
- Turbomolecular pumps

Withdrawal
- Mechanical parking systems
- Waste treatment

Maintenance of independence
- Papermaking machinery
- Turbomolecular pumps

Withdrawal
4. Implementation of the Growth Process
(3) Growth strategy for mainstay businesses

(i) Transportation (Transportation systems)

**Business environment**

- **Transportation systems**
  - Current business environment:
    - EPC transportation business market scale: 800 billion yen.
    - The markets that can be captured by MHI: 450 billion yen, mainly in the Middle East and Asia.
    - (Full automatic unmanned operation systems: 150 billion yen, Manned operation systems: 300 billion yen)

- **Competition**
  - The big three (i.e., Bombardier, Siemens and Alstom) and MHI are major players in the EPC transportation market.
  - Chinese and Korean companies, Japanese EPC specialized firms and rolling stock manufacturers are emerging.

- **Trend in customers**
  - Large number of projects planned, mainly in Asia and the Middle East.
  - Urban transportation projects in SE Asia are anticipated in the near future.

- **Orders received in FY 2011**
  - Yen loan projects in SE Asia have been delayed and put off to this fiscal year or later.
  - Engineering / manufacturing of Yurikamome and the Macau LRT has commenced.
    (Orders for them were received in FY 2010.)

**Approaches for growth**

- **Increase in product competitiveness**
  - (a) Strengthen the core competence of signal and control systems.
    - Aim to be a general integrator of the transportation business (To cover Control systems, EPC, testing, and operation & maintenance.)

- **(b) Reduce weight and size using enhanced APM production methods.**

- **Business domain expansion**
  - Reinforce the foundation for the operation & maintenance business.
    - Achieve earning stability.
4. Implementation of the Growth Process  
(3) Growth strategy for mainstay businesses

(ii) Compressors

**Business environment**

[Current business environment]
- Market scale: approx. 650 billion yen (as of FY 2011.)
- Growth expected at 4% to 5% a year in the medium and long term

Small and medium gas well development is gathering momentum off the coasts of Brazil and Australia.
→ Demand in the Natural gas sector (LNG, FPSO)

Shale gas development plans are expanding in North America.
→ Increase of petrochemical products (ethylene and propylene).

[Competition]
- MHI is in the second group after the leading group (ie. GE, Siemens, Dresser-Rand and MAN T&D).
- MHI holds the largest market share in the petrochemical field (for ethylene and others).

**Approaches for growth**

◆ **Business domain expansion**
- Move toward Natural gas sector
- An enterprise framework agreement (EFA) on compressors for LNG plants was signed with Shell in May 2011.

Definitely entering into the growing natural gas domain

- Move toward shale gas sector
- Emerging of Ethane-cracking plants in North America.

→ Business expansion chiefly in applications for ethylene, in which MHI has an advantage

◆ **Global expansion**

Brazil:
- Set up and reinforce local production bases
  → FPSO for Petrobras and downstream projects

Middle East:
- Use MCOSA (after-service base in Saudi Arabia), as a base for expanding the service business.
  → Build closer ties with National oil companies.

N. America:
- Increase sales and after-sales service locations.

Endeavor to increase business scale to 100 billion yen and to become one of the top three market players in the medium term.

© 2012 MITSUBISHI HEAVY INDUSTRIES, LTD. All Rights Reserved.
4. Implementation of the Growth Process

(iii) Metals machinery

Business environment

[Current business environment]
- Market scale: 320 billion yen* (as of FY 2011)
  ⇒ In the medium and long terms: 400 billion~500 billion yen*.
- The total market scale of steelmaking machinery is about 1.6 to 1.9 trillion yen.
  → Market scale continues to expand with the increase in crude steel production.

[Competition]
- MHI held the top market share in the steel plate market in FY 2011.
- The market is highly oligopolistic, with the top five companies holding a market share of around 70%.
  Competitors are based in Europe (Germany, Austria, etc.).

* MHI's market share position by product in FY 2011

[Trend in customers]
- Capital investment is brisk in emerging markets, such as India and Brazil.
- Electric furnaces customers have accelerated their entry into the sheet market.

Approaches for growth

◆ Global expansion
  - India: Collaboration with leading local firms in upstream processes.
  - Brazil: Discover and work with local manufacturing partners to establish local production systems.
  - China: Continue to boost cost competitiveness with Changzhou Baoling Heavy & Industrial Machinery Co., Ltd.

◆ Business domain expansion
  - Develop new technologies to enter the upstream domain of steelmaking.
  → Propose a package with MHI's strong rolling system to emerging market.

* For the steel plate domain only
4. Implementation of the Growth Process
(4) Growth strategy for mature businesses and others

Initiatives on Asian and emerging markets

- Growing demand in Asia and emerging economies
  → Introduce products matched to the needs in different countries.

Material Handling System
Market: 350 billion yen

Demand growth in India, Southeast Asia, etc.
Comprehensive cost cuts through overseas production

Rubber Tire Machinery
Market: 150 billion yen

Response to growing car demand
Introduction of low-end Curing press
Local production in India

Waste Treatment
Market: 200 billion yen

Demand growth in China, SE Asia and Eastern Europe
Value chains Shift to overseas Global Explantion in O&M Business
4. Implementation of the Growth Process
(5) Growth strategy for next-generation product businesses

Development of next-generation products


- Assembled advanced technologies (accelerator technologies) scattered across different organizations.
  ⇒ to speed up the development of advanced products

Major products

Accelerators

Radiotherapy Equipment (MHI Vero)

Accelerator markets and MHI’s products

RIKEN SACLA: X-ray Free Electron Laser facility
International Linear Collider (ILC)

SACLA

Spring 8

Leading-edge accelerators
(Market: 30 billion yen)

Low-end advanced accelerators
(Market: 25 billion yen)

Small-sized accelerators for medical and industrial use
(Market: 350 billion yen)

Products incorporating accelerator technologies
(TV, radio, Internet, etc.)

Electronic sterilization system

Actively utilize the new organization to increase competitiveness in existing business domains.

+ Evolve from a system vendor into an integrator to take part in medium and large-scale projects.
(i) Basic measures for global expansion

**Strengthen regional strategies**
(in priority regions)

**China**
- Increase collaboration in the local production of machinery and manufacturing systems products

- Steelmaking machinery: Changzhou Baoling Heavy & Industrial Machinery Co., Ltd.
- Compressors: Hangzhou Steam Turbine & Power Group Co., Ltd. (technology licensing)
- Rubber tire machinery: Mitsubishi Heavy Industries (Changshu) Machinery Co., Ltd.

**SE Asia and India**
- Expand engineering and sales activities using the base in Singapore.
- Smoothly launch and develop the low-cost production base in India.

- Engineering: MIES (Singapore)
- Conveyance systems: Anupam-MHI Industries, a JV company (India)

**N. America & Latin America (Brazil)**
- Strengthen the managing systems and promotion in the Americas.
- Expand local production. Locally produce compressors in Brazil.

**Expanding the activities of Manufacturing Management & Coordination Department**

- Role of Manufacturing Management & Coordination Department
  - Manage production status visualization and the optimization of resources inside and outside the Machinery & Steel Infrastructure Systems
  - Promote expansion of overseas production

- Strive to achieve integrated management of manufacturing systems in Japan and overseas
(ii) Results of global expansion

- Creating synergy by connecting multiple overseas bases:
  ~Case of Material handling system~

**MIES (Singapore)**
- An engineering and sales base in Southeast Asia (Est. Oct 2010)
- Conducts sales activities in Southeast Asia and Australia from Singapore.
- Actively deploys local engineers.
- Streamlines design and sales operations for overseas projects

**Anupam-MHI Industries (India)**
- A production base jointly established with India’s largest crane manufacturer, Anupam Industries Limited (Est. Nov. 2011)
- Handles manufacturing for orders received by MIES
- Capitalizes on low labor costs and material procurement in India to cut costs

**Receive orders from neighboring third countries**

**Taking advantage of MIES’ engineers and Anupam’s production base to increase competitiveness**

**Apply this know-how to other products in the future.**
(iii) Regional bases

- MHIE Head Office (compressors)
- Mitsubishi-Hitachi Metals Machinery South Asia Private Ltd.
- A joint venture in India for Material Handling Machines (production base for cranes)
- Transportation Systems Div. MHIA
- Mitsubishi-Hitachi Metals Machinery USA, Inc.
- Printing and Packaging Machinery Division & Injection Molding Machinery Division, MHIA
- Mitsubishi Heavy Industries (Changshu) Machinery Co., Ltd.
- MHIA Houston Office (compressors)
- MHIEC China (Beijing) Co., Ltd. (Waste Treatment)
- Crystal Mover Services Inc. (O&M for transportation systems)

Key Points:
- Metals machinery
- Tire machinery and others
- Transportation systems (maintenance)
- Compressors and others

Machinery and manufacturing: Transportation infrastructure
Social infrastructure
5. Summary

Enhance product competitiveness in each of the three domains and strive towards business expansion

Trend in orders received by the Machinery & Steel Infrastructure Systems (2011 to 2014)

(Unit: billion yen)

2011 (actual)  2014 (target)

Energy & Environment

508.2

Industrial Machinery

1,020.0

Transportation

- Move toward natural gas and shale gas.
- Expand fertilizer and methanol plants.
- Turn CCS projects into tangible forms.

- Enter the natural gas and shale gas domain. (Compressors)
- Expand business to upstream areas of steelmaking. (Metals machinery)
- Expand into North America and Brazil. (Compressors)
- Collaborate with India's leading companies. (Metals machinery)

- Step up efforts in signal and control systems and improve the rolling stock manufacturing method.
- Increase O&M business.
- Win orders for overseas high-speed railway projects.

Energy & Environment

- Move toward natural gas and shale gas.
- Expand fertilizer and methanol plants.
- Turn CCS projects into tangible forms.

- Enter the natural gas and shale gas domain. (Compressors)
- Expand business to upstream areas of steelmaking. (Metals machinery)
- Expand into North America and Brazil. (Compressors)
- Collaborate with India's leading companies. (Metals machinery)

Industrial Machinery

- Step up efforts in signal and control systems and improve the rolling stock manufacturing method.
- Increase O&M business.
- Win orders for overseas high-speed railway projects.

Transportation

- Step up efforts in signal and control systems and improve the rolling stock manufacturing method.
- Increase O&M business.
- Win orders for overseas high-speed railway projects.

* Data include those relating to the environmental and chemical plant projects currently handled by Engineering Headquarters.
Forecasts regarding future performance in these materials are based on judgment made in accordance with information available at the time this presentation was prepared. As such, those projections involve risks and insecurity. For this reason, investors are recommended not to depend solely on these projections for making investment decision. It is possible that actual results may change significantly from these projections for a number of factors. Such factors include, but are not limited to, economic trends affecting the Company’s operating environment, currency movement of the yen value to the U.S. dollar and other foreign currencies, and trends of stock markets in Japan. Also, the results projected here should not be construed in any way as being guaranteed by the company.