Machinery & Steel Structures
Business Operation

June 9, 2010

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General Manager,
Machinery & Steel Structures Headquarters

MITSUBISHI HEAVY INDUSTRIES, LTD.
1. Summing Up of 2008 Business Plan
2. Target Figures in 2010 Business Plan
3. Strategies to Achieve the Business Plan
4. Reform Process
   (1) Decentralization
   (2) Reconstruction of printing and packaging machinery business
5. Growth Process
   (1) Business model reform
   (2) Robust regional strategies
6. Summary
1. Summing Up of 2008 Business Plan

FY2009 figures were significantly lower than targets due to the delayed impact of the global economic downturn, which manifested itself in the deferment of fertilizer plants and Iron and Steel machinery (FY2010 is recovering).

Both net sales and operating income in general exceeded the figures in the plan as the construction of large-size chemical and transportation plants and iron and steel machinery progressed steadily.

- **Achievements of numeric targets**

  - **Orders received**
    - 2008 Actual performance: 527.8
    - 2009 Actual performance: (523.2)
    - 2010 Forecast: 490.0 (528.6)
  - **Net sales**
    - 2008 Actual performance: 542.2
    - 2009 Actual performance: 542.0
    - 2010 Forecast: (500.0)
  - **Operating income**
    - 2008 Actual performance: 31.6
    - 2009 Actual performance: 30.1
    - 2010 Forecast: 30.0

- **Orders**
  - 2008 Actual performance: (517.0)
  - 2009 Actual performance: (505.0)
  - 2010 Forecast: (505.0)

- **Net sales**
  - 2008 Actual performance: (500.0)
  - 2009 Actual performance: (505.0)
  - 2010 Forecast: (505.0)

- **Operating income**
  - 2008 Actual performance: (25.2)
  - 2009 Actual performance: (25.5)
  - 2010 Forecast: (25.5)

- **Achievements**
  1. Enhanced profitability by business structure reform
  2. Development of foundations for long-term growth

- **Challenges**
  1. Quick recovery in orders received
  2. Further upgrading of capability to respond globally
  3. Reconstruction of printing and packaging machinery businesses

= 2008 Business Plan figures
2. Target Figures in 2010 Business Plan

Orders received

Net sales

Operating income

2008 Actual performance

2009 Actual performance

2010 Forecast

2012 Intermediate target

2014 Target

(JPY 100 million)

[The figures include printing and packaging machinery as well as the food packaging machinery and injection molding machinery businesses]

Business structural reforms (Promotion of Decentralization)

Early completion of reform process

Achievement of growth process ahead of schedule
3. Strategies to Achieve the Business Plan

(1) Early completion of the reform process, which aims to achieve high profitability
(2) Acceleration of global growth by completing the growth process ahead of schedule

<table>
<thead>
<tr>
<th>Reform process</th>
<th>Growth process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reconstruction of printing and packaging machinery business</td>
<td>Strengthening of regional strategies</td>
</tr>
<tr>
<td>Wrapping up the Decentralization</td>
<td>Upgrading environmental infrastructure-related businesses</td>
</tr>
<tr>
<td>Full use of comprehensive strengths</td>
<td>Strengthening of solution businesses</td>
</tr>
<tr>
<td>Strengthening of mainstay and core businesses</td>
<td>Development of upstream/downstream businesses</td>
</tr>
</tbody>
</table>

Highly-profitable, globally growing business corporation

|--------|-------------|-------------|

Innovation in business model
### 4. Reform Process

#### (1) Decentralization

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Thorough implementation of order management and construction execution management</td>
</tr>
<tr>
<td>2007</td>
<td>First establishment of business companies</td>
</tr>
<tr>
<td>2008</td>
<td>Enhancing individual business through business structure reform</td>
</tr>
<tr>
<td>2009</td>
<td>Accelerating the growth of the product business by boosting inter-department collaboration</td>
</tr>
<tr>
<td>2010</td>
<td>Wrapping up Decentralization</td>
</tr>
<tr>
<td>2011</td>
<td>Clarifying responsibilities and authority, and prompt management</td>
</tr>
<tr>
<td>2012</td>
<td>Reorganization and merger of small businesses (benefits of integration &gt; benefits of single business)</td>
</tr>
</tbody>
</table>

- Merger of steel structure businesses (bridge and chimney, gas holder, etc.)
- Merger of small Kobe area businesses (electrostatic precipitator, shield machine, etc.)

**Transfer of business:** Turbo-molecular pumps (TMP) (to Shimadzu Corporation)
4. Reform Process

(1) Decentralization
(products that were transformed into business companies and the relationship between related business divisions and business headquarters)

**Business company**

- Self-regulated business activities based on independent management strategy
- Businesses that would clearly benefit from a single business structure will be transformed into business companies

**Business division**

- Optimal operation by business field
- Support of business companies

**Business headquarters**

- Overall management and horizontal coordination
  - Adjustment and coordination of strategy
  - Allocation of management resources (planning and adjustment)
  - Management plans and various indexes

- Common operations
  - Compliance
  - Risk management
  - IT (management, development, and support)
  - Civil engineering

- Cross-sectional projects
  - UAE Office/Abu Dhabi Office
  - Global Production Promotion Department
  - High-speed railway project

- Self-regulated business activities based on independent management strategy
- Businesses that would clearly benefit from a single business structure will be transformed into business companies

**Environment and chemical plant**

- Yokohama

**Bridge and steel structures**

- Hiroshima

**Waste processing, etc.**

- Tokyo

**Transportation equipment and service**

- Mihara, Kobe

**Various mechatronics equipment, etc.**

- Kobe

**Injection molding**

- Nagoya

**Iron and steel machinery**

- Hiroshima

**Compressor**

- Mihara

**Printing and packaging**

- Mihara

**Food packaging**

- Nagoya

**Transportation and advanced Technology**

- Mihara, Kobe

**Environment and chemical plant**

- Yokohama

**Machinery**

- Hiroshima

**Injection molding**

- (Nagoya)

**Iron and steel machinery**

- (Hiroshima)

**Compressor**

- (Mihara)

**Printing and packaging**

- (Mihara)

**Food packaging**

- (Nagoya)

**Transportation equipment and service**

- (Mihara)

**Various mechatronics equipment, etc.**

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**Transportation equipment and service**

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**Various mechatronics equipment, etc.**

- (Kobe)

**Bridge and steel structures**

- (Yokohama)

**Waste processing, etc.**

- (Yokohama)
4. Reform Process

(2) Reconstruction of printing and packaging machinery business

- Rapid shrinking of the market due to the global economic crisis
- Medium- and long-term decline in the advanced markets (the declining trend in publishing)
- Emerging economy markets (including China): Gradual expansion and lower-price orientation

Early reconstruction by reviewing business system

- Incorporation into the Machinery and Steel Structures Headquarters
  - Smooth promotion of operations and personnel measures
  - Horizontal implementation of Decentralization
- Focused efforts in emerging economy markets
- Strengthening of packaging field business (paper converting and package printing)
- Upgrading actions toward electronic publishing

Printing and packaging machinery business company

- Printing and packaging machinery business company
  - Merger of sales company and the main body of business
- Early return to profitability and further expansion of profitability

Early-stage independence as a business company

- Merger of transportation and printing and package group companies
  - Merger of two printing and package companies and one transportation company into a single company
  - Review of organizational system, etc.
- Early reconstruction by reviewing business system
- Smooth promotion of operations and personnel measures
- Horizontal implementation of Decentralization
- Focused efforts in emerging economy markets
- Strengthening of packaging field business (paper converting and package printing)
- Upgrading actions toward electronic publishing

(July 2010)
- About 1000 staff

(April 2010)
- About 500 staff
- Early reconstruction by reviewing business system
- Merger of transportation and printing and package group companies

- Medium- and long-term decline in the advanced markets (the declining trend in publishing)
- Emerging economy markets (including China): Gradual expansion and lower-price orientation

Rapid shrinking of the market due to the global economic crisis

(April 2010)
- About 800 staff

- Early reconstruction by reviewing business system
- Merger of transportation and printing and package group companies

- Medium- and long-term decline in the advanced markets (the declining trend in publishing)
- Emerging economy markets (including China): Gradual expansion and lower-price orientation

Rapid shrinking of the market due to the global economic crisis
4. Reform Process

(2) Reconstruction of printing and packaging machinery business (focused products)

Printing machinery (sheet-fed offset press)

New type of sheet-fed offset press
DIAMOND 300

G design awarded

LED-UV drying system
New technology
Power consumption is cut by 70-80%
Able to be installed in double-sided printing machines

Printing machinery (newspaper offset press)

Newspaper offset press
DIAMONDSTAR

Paper converting machinery

State-of-the-art box making machine
EVOL (box making)
5. Growth Process

(1) Business model reform (Part I)

Customer and market needs (customer's perspectives)

- Alteration of equipment and infrastructure, including countermeasures against global warming
  - Efficient alteration technology for facilities
  - New energy-saving technology/system improvement
- Reduction of life cycle cost
  - Long-term maintenance and service, etc.

Emerging economy markets

- Rapid development of industries and social infrastructures
- Localization and/or technology transfer
  - India, China, and Brazil
- Packaged contracting (EPC, EPC+O&M)
  - Middle East, Central Asia, and Africa, etc.

Business model reform (Our viewpoint)

- Meeting the needs listed on the left

Solution business

Business development that builds on core business with upstream and downstream businesses

To promote the above:

- Full use of comprehensive capability
  - Offering intricate, high-level solutions
  - Global development of long-term service
- Collaboration with other companies (shift away from the in-house policy)
  - Supplementing MHI’s technology and manpower
  - Utilizing prominent partners by region
5. Growth Process

(1) Business model reform (Part II)
   (i) Environmental and infrastructure-related businesses (actions)

The market for combating global warming and the infrastructure market will both grow in the long-term, especially in emerging markets.

[Actions taken by the Machinery and Steel Structures Headquarters]

Model 1: In cooperation with customers, turning MHI’s differentiated technologies into marketable ones
- CO₂ capture
  → Joint promotion with other companies by region and use (see p. 12)

Model 2: Joint promotion with major partners in specific regions
- Responding to the MASDAR plan (see p. 13)
  → Exploring business opportunities by participating in long-term, comprehensive business development (including the solution business)

[Uncertainty in timing, etc.]
- Speed of market growth by region
- Technology and business area which are expected to grow

[Spread of projects by region]
- Business negotiations and F/S are progressing around the world.
5. Growth Process

(i) Environmental and infrastructure-related businesses (Example Initiative 1)

(i) Capture of CO₂ emitted by coal burning
- Constructing a verification plant that collects 100,000-150,000 tons of CO₂ jointly with Southern Company of the United States (construction began in April 2010)
- Basic design order received from E.ON-UK of the United Kingdom to build a plant capable of collecting 2 million tons a year (June 2009)

(ii) Capture of CO₂ emitted by gas burning
- Collaboration with Abu Dhabi/MASDAR (Negotiating basic design package and promotion methods for the near future)

(iii) Others
- CO₂ capture plant for increased urea output
  Promoting order taking (nine orders received)
- Promoting a review of CO₂ capture from Integrated coal Gasification Combined Cycle (IGCC) with MHI’s Power Systems Headquarters

Delivered plants

CO₂ capture plant designed for Malaysia
Capacity: 200 tons/day
5. Growth Process

(i) Environmental and infrastructure-related businesses (Example Initiative 2)

Participation in the MASDAR plan

Zero-emissions eco-friendly city in Abu Dhabi

Fusion of transportation infrastructure and energy infrastructure (Rendition of MHI’s proposal)

<table>
<thead>
<tr>
<th>Needs</th>
<th>MHI products and corresponding technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment/Industry</td>
<td></td>
</tr>
<tr>
<td>- Catching and storing CO₂ emitted by power stations</td>
<td>CO₂ capture plant</td>
</tr>
<tr>
<td>- Substitution of natural gas for boosting crude oil output</td>
<td>EOR, CO₂ compressor</td>
</tr>
<tr>
<td>- Modernization of port facilities</td>
<td>Container cranes, yard, unloader facility, etc.</td>
</tr>
<tr>
<td>Social Infrastructure</td>
<td></td>
</tr>
<tr>
<td>- Transportation systems</td>
<td>Integrates Transport System, Electronic Road Pricing, LRT/APM</td>
</tr>
<tr>
<td>- Energy savings in other areas</td>
<td>Regional energy management, eco-house designed for the Middle East, etc.</td>
</tr>
<tr>
<td>- Short-range aviation network</td>
<td>Regional air conditioning/heating system</td>
</tr>
</tbody>
</table>

Quoted from the MASDAR web page
5. Growth Process

(1) Business model reform
   (ii) Strengthening of solution business

Diverse product mix of the Machinery and Steel Structure business

Grasping global market needs (collaboration with the corporate division)

Categorization and analysis of needs

Standardization of offered technology and service, and development of system

Focused fields and prioritization

Solutions

(i) Diverse technology integration type
(ii) Upstream/downstream business development type
   - Maintenance (preventative maintenance and remote surveillance)
   - O&M integration service
   - Optimization of alteration construction, etc.

Full use of comprehensive capabilities by collaborating with the corporate division (technology and overseas strategy) and other business divisions
5. Growth Process

(1) Business model reform

(iii) Developing into upstream/downstream business (1/3)

<table>
<thead>
<tr>
<th>Upstream (materials, components, etc.)</th>
<th>Core business</th>
<th>Downstream</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differentiated equipment (manufactured in-house)</td>
<td>Fertilizer plant</td>
<td>Alteration/service</td>
</tr>
<tr>
<td>CO₂ absorbing solvent</td>
<td>CO₂ capture</td>
<td>Maintenance</td>
</tr>
<tr>
<td>Core equipment (manufactured in-house)</td>
<td>Waste incineration</td>
<td>Operation</td>
</tr>
<tr>
<td></td>
<td>Alteration to extend life</td>
<td>- Preventative maintenance - Remote surveillance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environment/Chemical</th>
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<td>CO₂ absorbing solvent</td>
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<tr>
<td>Core equipment (manufactured in-house)</td>
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<tr>
<td>Waste incineration</td>
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<tr>
<td>Alteration to extend life</td>
</tr>
<tr>
<td>- Preventative maintenance - Remote surveillance</td>
</tr>
</tbody>
</table>

**Makeup of coal-burning thermal power plant**

**CO₂ capture plant**

**Supply of CO₂ absorbing solvent**
5. Growth Process

(1) Business model reform

(iii) Developing into upstream/downstream business (2/3)

<table>
<thead>
<tr>
<th>Product Line</th>
<th>Upstream (materials, components, etc.)</th>
<th>Core business</th>
<th>Downstream</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Manufacturing</td>
<td>EPC</td>
</tr>
<tr>
<td>Air Brake</td>
<td></td>
<td></td>
<td>Large-scale transportation system</td>
</tr>
<tr>
<td>Rubber tire vehicles</td>
<td></td>
<td></td>
<td>APM/LRT</td>
</tr>
<tr>
<td>Large-scale transportation system</td>
<td></td>
<td></td>
<td>APM (USA: Washington, Atlanta, Florida)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LRT (the Philippines, Singapore)</td>
</tr>
</tbody>
</table>

- **Dubai Metro**
- **APM/LRT**
- **Metro Manila Strategic Mass Rail Transit (Line 3)**
5. Growth Process

(1) Business model reform

(iii) Developing into upstream/downstream business (3/3)

<table>
<thead>
<tr>
<th>Upstream (materials, components, etc.)</th>
<th>Core business</th>
<th>Downstream</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Manufacturing</td>
<td>EPC</td>
</tr>
<tr>
<td>Electric furnace continuous cast</td>
<td>Rolling facility</td>
<td>Rolling plant</td>
</tr>
<tr>
<td>Automatic roll polish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORP (Online roll profiler)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compressor</td>
<td>Turning into a module</td>
<td>Increased capacity</td>
</tr>
<tr>
<td>Hot Rolling plant (overall line)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant (EPC)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Machinery
5. Growth Process

(2) Robust regional strategies (Part I)

**Existing market strategy**

- Achieving lower-cost corporate culture by increasing the efficiency of business system
- Boosting profits by strengthening service and solution businesses

- Japan, South Korea, Taiwan, the United States, and Southeast Asia

**Emerging market strategy**

- Responding to the local production orientation
  - Developing localized business that covers production to sales/AS
- Use as a low-cost production base

- Intensive and comprehensive market development that focuses on targets
- Collaboration with major local partners
- Upgrading actions toward EPC (+ O&M) business negotiations

- Localization of service business (including repair and alteration)
- Actions toward EPC business negotiations (Collaboration with local construction companies, etc.)
5. Growth Process

(2) Robust regional strategies (Part II)

**Development of domestic bases**

- Phased focusing onto core functions and main body of technology
  - R&D, design, production of differentiated components, etc. Production Technology Enhancement Center, high-level testing and test run facilities, and small-sized high-value-added components
  - Development of inter-base functions in Japan (elimination of duplication, etc.)

**Development of overseas bases**

- Efficient distribution of production bases → promotion of the shared factory plan
- Development and upgrading of LCE (low-cost engineering) bases
- Merger of existing bases (the United States and Europe)
- Strengthening of sales and service network (including utilization of external sources) → Especially China, India, and the Middle East
5. Growth Process

(2) Robust regional strategies (Part III)

Deployment in markets (Distribution of plant deliveries)

Taking advantage of extensive track record in the global market to network comprehensive services
5. Growth Process

(2) Robust regional strategies (Part IV, plans for the development of overseas facilities)

- Merger of European bases (compressor, exhaust gas desulfurizers, etc.)
- ADVATECH (Joint venture with URS)
  - Transportation (maintenance)
  - Tire Machinery Business Division
- Tire Machinery Business Division
  - Introduction of shared factory
- Mitsubishi-Hitachi Metals Machinery USA, Inc.
  - Low-cost engineering (chemical plant)
- GFG (painting machines) (Mitsubishi-Hitachi 70%)
- CMS (transportation O&M)
- Houston Office (compressor)
  - Shared factory (in review)
- Mitsubishi-Hitachi Metals Machinery (Shanghai), Inc.
  - Collaborating maintenance plants (compressor)
- BLHI (JV)
  - Collaboration in India sales expansion
  - Crane, tire, etc. (to be transformed into a production base in the future)
- Mitsubishi-Hitachi India
  - (Sales expansion and localization in India)
- Changshu shared factory (tire machinery, etc.)
- (China localization)
  - Transportation O&M (Houston Office)
  - China localization
- (Iron and Steel machinery)
- Responding to the Middle East and Africa
  - Abu Dhabi Office
  - Dubai Office
- (Development of the African market)
5. Growth Process

(2) Robust regional strategies (Part V, shared factories)

Promotion of overseas advancement for small- and medium-sized businesses

Pursuit of benefits from the joint production method

- Shared plant management staff, etc.
- Strengthening the ability to effectively respond to fluctuations in construction volume by product
- Efficient use of facilities and workers

(Other benefits)
- Integrated organization brings:
  → More efficient business execution
  → Higher levels of risk management

Changshu Ryoju Machinery Co., Ltd.
(Established: February 2010)
(Plan to be finalized within FY 2010)

Changshu, China

Leetonia, USA

Jundiai, Brazil

India
(conceptualized as a future base)

Iron and steel machinery, tire machinery, etc.

Iron and steel machinery, Material handling system, compressor, etc.
(in review)

Collaboration network
6. Summary (1/2)

Makeup concept for product business: high-ranking global share and/or stable profits + state-of-the-art technology

<table>
<thead>
<tr>
<th>Business Domain</th>
<th>Environment &amp; Chemical Plant</th>
<th>Transportation Systems &amp; Advanced Equipment</th>
<th>Machinery</th>
<th>Printing and Packaging/Injection Molding Machine/Food Packaging Machinery</th>
<th>Steel Structures, etc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EPC</td>
<td>EPC-Manufacture-OS&amp;M</td>
<td>Manufacture</td>
<td>Manufacture</td>
<td>Manufacture, etc</td>
</tr>
<tr>
<td>Industry/Social Infrastructure</td>
<td>Fertilizer Plant</td>
<td>(2~3)</td>
<td>Cold Strip Mills</td>
<td>Cold Rolling (1)</td>
<td>Compressors</td>
</tr>
<tr>
<td></td>
<td>Methane Plant (2~3)</td>
<td>100% Low Floor JRV</td>
<td>Plating (4~5)</td>
<td>Compressors</td>
<td>Ethylene (1~2)</td>
</tr>
<tr>
<td></td>
<td>CO2 Capture Plants (1)</td>
<td>Waste treatment System</td>
<td>Picking (2~3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Energy/Environment/Resources

- Carbon Capture & Storage
- Enhanced Oil Recovery
- Alternative fuels
- High Speed Railways
- Smart Communities
- Medical Equipment (N)
6. Summary (2/2)

Prompt shift from reform to growth process
Evolved mix management of midsize businesses
Achieving both global growth and high profitability

Achieving a highly profitable corporate culture

Finishing up Decentralization
Reconstruction of printing and paper converting machinery business

Reform process

Global growth

Development of
bases

Strengthening of regional strategies

Growth of service business in existing markets

Growth of environment and infrastructure businesses

Development of upstream and downstream businesses

Business model reform

Strengthening overseas staff

Expanded share in emerging markets

FY 2014 target
Orders
810 billion yen
Net sales
730 billion yen
Operating income
40 billion yen

Orders
810 billion yen
Net sales
730 billion yen
Operating income
40 billion yen

Growth process

810 billion yen

Net sales
730 billion yen

Operating income
40 billion yen

Orders
810 billion yen
Net sales
730 billion yen
Operating income
40 billion yen

Orders
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Net sales
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Growth process

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