The forward-looking statements are based largely on information available as of the date hereof, and are subject to risks and uncertainties which may be beyond company control. Actual results could differ largely, due to numerous factors, including but not limited to the following: Group companies execute businesses in many different fields, such as information and electronics, performance products, polymers and processed products, pharmaceuticals, carbon and inorganic products, and petrochemicals, and these business results are subjected to influences of world demands, exchange rates, price and procurement volume of crude oil and naphtha, trends in market prices, speed in technology innovation, National Health Insurance price revision, product liabilities, lawsuits, laws, and regulations.
List of Abbreviations

- MCHC: Mitsubishi Chemical Holdings Corporation
- MCC: Mitsubishi Chemical Corporation
- MTPC: Mitsubishi Tanabe Pharma Corporation
- MPI: Mitsubishi Plastics, Inc.
- MRC: Mitsubishi Rayon Co., Ltd.
- API: API Corporation
- BIKEN: The Research Foundation for Microbial Diseases of Osaka University
- CRK: Chuo Rika Kogyo Corporation
- HLC: Healthy Life Compass Corporation
- JXE: JX Nippon Oil & Energy Corporation
- MCCI: PT. Mitsubishi Chemical Indonesia
- MCF: MCC PTA India Corp. Private Limited
- MCM: Mitsubishi Chemical Medience Corporation
- MEC: Mitsubishi Chemical Engineering Corporation
- MFE: Mitsubishi Polyester Film GmbH
- MKF: Mitsubishi Kagaku Foods Corporation
- MRCP: MRC Polysaccaride Co., Ltd.
- MRCPAC: Mitsubishi Rayon Carbon Fiber and Composites, Inc.
- MRC-SGL: MRC-SGL Precursor Co., Ltd.
- NKC: Nippon Kasei Chemical Company Limited
- NNE: Nishi Nippon Ethylene LLC
- NRC: Nippon Rensui Co., Ltd.
- NSCI: The Nippon Synthetic Chemical Industry Co., Ltd.
- PTT: PTT Public Company Limited
- Qualicaps: Qualicaps Co., Ltd.
- TNSC: Taiyo Nippon Sanso Corporation
- ACH: Acetone cyanohydrin
- AN: Acrylonitrile
- API: Active pharmaceutical ingredient
- BToB: Butene to crude butadiene
- BZ: Benzene
- C&R: Cracker and refinery
- CF: Carbon fiber
- CFRP: Carbon fiber reinforced plastic
- CFRTP: Carbon fiber reinforced thermoplastic
- CVF: Converting film
- DTP: Dominant technology for propylene
- EC: Ethylene carbonate
- EG: Ethylene glycol
- EO: Ethylene oxide
- EV: Electric vehicle
- EVOH: Ethylene vinyl alcohol
- FPD: Flat panel display
- GaN: Gallium nitride
- HDPE: High density polyethylene
- HMPC: Hydroxypropyl methylcellulose
- HS-FCC: High severity fluid catalytic cracking
- HVPE: Hydride vapor phase epitaxy
- KPI: Key performance indicator
- LCD: Liquid crystal display
- LCM: Life cycle management
- LiB: Lithium-ion battery
- LLDPE: Linear low-density polyethylene
- MBR: Membrane bioreactor
- MEG: Mono ethylene glycol
- MAA: Methacrylic acid
- MMA: Methyl methacrylate
- MOS: Management of Sustainability
- MOT: Management of Technology
- MS: Multiple sclerosis
- NCF: Non-crimp fabric
- NVF: N-vinyl formamide
- OLED: Organic light emitting diode
- OPV: Organic photovoltaic
- PBS: Polybutylene succinate
- PC: Polycarbonate
- PCM: Prepreg compression molding
- PE: Polyethylene
- PET: Polyethylene terephthalate
- PHEV: Plug-in hybrid electric vehicle
- PHL: Phenol
- PMMA: Polymethylmethacrylate
- PO: Polylefin
- PP: Polypropylene
- PTA: Purified terephthalic acid
- PVC: Polyvinyl chloride
- PVOH: Polyvinyl alcohol
- PX: Paraxylene
- SBU: Strategic business unit
- SCATT: Super critical acidic ammonia technology
- SMC: Sheet molding compound
- ZLD: Zero liquid discharge
- FY2012: April 1, 2012 – March 31, 2013
- FY2013: April 1, 2013 – March 31, 2014
- FY2014: April 1, 2014 – March 31, 2015
- FY2015: April 1, 2015 – March 31, 2016

Note: Product names, brand names, service names and technology names used in this presentation material are denoted in italics and are trademarks or registered trademarks of the MCHC Group in Japan and/or overseas. Other product names, brand names, and service names may also be protected.
Today’s Agenda

MCHC: Yoshimitsu Kobayashi

1. Performance Review
   1-1. Business Environment
   1-2. Outlook for FY2013
   1-3. Portfolio Transformation

2. Progress in Step 2
   2-1. Verification of Progress by Each Growth Model
   2-2. New Healthcare Company
   2-3. Taiyo Nippon Sanso Corporation

3. KAITEKI Management
   3-1. Progress in KAITEKI Management
   3-2. Quantification of KAITEKI Management

4. MCC: Hiroaki Ishizuka
   4-1. Progress in Business Restructuring
   4-2. Progress in Growth Driver Businesses
   4-3. Progress in Generating Synergies

5. MTPC: Michihiro Tsuchiya
   5-1. Progress in Pharmaceutical Business
   5-2. Progress in Generating Synergies

6. MPI: Takumi Ubagai
   6-1. Restructuring and Growth Strategy
   6-2. Progress in Generating Synergies

7. MRC: Hitoshi Ochi
   7-1. Business Development of MMA
   7-2. Progress in Growth Driver Businesses
   7-3. Progress in Generating Synergies
1-1. Operating Environment for Japanese Companies

- Competitive conditions, compared with global competitors, are gradually improving and becoming less disadvantageous.

Globalization

Sustainability

- Difficult issues to address...
  - Extremely high values of the yen
  - High corporate income taxes
  - Nuclear power plant issue
  - Heavy commitment for emissions reductions under COP19
  - Competition for natural resources vs. shale gas
  - 

- Global markets

- Japanese companies

Foreign exchange

Trade policy

Tax system

Various regulations

Reduction in GHG

Electric power costs

Raw material costs

Trend toward correction ("Three arrows" of Abenomics)

Response to TPP and FTAs/EPAs

Globalization

Sustainability

Mitsubishi Chemical Holdings
1-2. Financial Results and Outlook for FY2013

- In addition to increasing production and sales as well as cutting costs, the positive effects of the weakening yen contributed, leading to an increase in income over the previous fiscal year.

- Improvement in earnings projected in the 4Q; steady implementation of various measures

Influences by fiscal term change in overseas Group companies are included in FY2013. (Operating income: +8.8 billion)
1-2. Operating Income by Segment: Actual Results for FY2012 and Outlook for FY2013

- Designed Materials segment shows increase in income from PVOH/EVOH and others
- Polymers segment shows increase in income due to positive results from cost reductions and other measures
- Health Care segment shows decline in income due to decreased sales in ethical pharmaceuticals

<table>
<thead>
<tr>
<th>Domains</th>
<th>Segments</th>
<th>FY2012 Actual results</th>
<th>FY2013 Forecasts</th>
<th>Change</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>Electronics</td>
<td>(5.1)</td>
<td>(3.5)</td>
<td>1.6</td>
<td>• Printing supplies reported increase in income and the margin of loss</td>
</tr>
<tr>
<td>Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>in GaN diminished</td>
</tr>
<tr>
<td></td>
<td>Designed</td>
<td>22.5</td>
<td>49.5</td>
<td>27.0</td>
<td>• Performance of PVOH/EVOH, carbon fiber and composite materials,</td>
</tr>
<tr>
<td></td>
<td>Materials</td>
<td></td>
<td></td>
<td></td>
<td>performance chemicals, fibers, and certain other products was strong.</td>
</tr>
<tr>
<td></td>
<td>Health Care</td>
<td>74.9</td>
<td>72.5</td>
<td>(2.4)</td>
<td>• Pharmaceuticals experience a decline along with movement toward</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>replacement of ethical pharmaceuticals with generics.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Results of pharmaceutical formulation materials (Qualicaps business)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>were newly included in the scope of consolidation.</td>
</tr>
<tr>
<td>Industrial</td>
<td>Chemicals</td>
<td>(0.2)</td>
<td>5.5</td>
<td>5.7</td>
<td>• Margin of losses in PTA diminished, and income from EOG and ethanol</td>
</tr>
<tr>
<td>Materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>increased.</td>
</tr>
<tr>
<td></td>
<td>Polymers</td>
<td>0.1</td>
<td>12.0</td>
<td>11.9</td>
<td>• Income from MMA/PMMA rose, but was relatively weak and below</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FY2013 planned levels.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Sales and operating income from polyolefins, PHL/PC chains increased</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>because of adjustments in market prices and the positive effects of the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>weakening of the yen.</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>6.5</td>
<td>5.0</td>
<td>(1.5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corporate</td>
<td>(8.5)</td>
<td>(8.0)</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>90.2</td>
<td>133.0</td>
<td>42.8</td>
<td></td>
</tr>
</tbody>
</table>
In the Performance Products domain, steady expansion anticipated for the Designed Materials segment
Achieve sustained growth for the Health Care domain on expansion of new and priority products
Considering the external business environment, sharp decline anticipated for the Industrial Materials domain compared to FY2010

<table>
<thead>
<tr>
<th>Domains</th>
<th>Segments</th>
<th>FY2010 Actual results</th>
<th>FY2015 Forecasts</th>
<th>Change</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Products</td>
<td>Electronics</td>
<td>1.0</td>
<td>5.0</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Applications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Designed Materials</td>
<td>36.5</td>
<td>80.0</td>
<td>43.5</td>
<td>• Gains in performance chemicals, PVOH/EVOH, and others</td>
</tr>
<tr>
<td>Health Care</td>
<td>Health Care</td>
<td>85.1</td>
<td>110.0</td>
<td>24.9</td>
<td>• Gain in ethical pharmaceuticals</td>
</tr>
<tr>
<td>Industrial Materials</td>
<td>Chemicals</td>
<td>53.0</td>
<td>25.0</td>
<td>(28.0)</td>
<td>• Sharp decline expected for PTA</td>
</tr>
<tr>
<td></td>
<td>Polymers</td>
<td>55.0</td>
<td>35.0</td>
<td>(20.0)</td>
<td>• Sharp decline expected for MMA/PMMA</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>4.5</td>
<td>10.0</td>
<td>5.5</td>
<td>• Declines in polyolefin, phenol, and polycarbonate chains</td>
</tr>
<tr>
<td></td>
<td>Corporate</td>
<td>(8.6)</td>
<td>(5.0)</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>226.5</td>
<td>260.0</td>
<td>33.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leaping ahead (M&amp;A)</td>
<td>–</td>
<td>20.0</td>
<td>20.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>226.5</td>
<td>280.0</td>
<td>53.5</td>
<td></td>
</tr>
</tbody>
</table>
1-2. Actual Results in FY2012, Forecasts for FY2013, and APTSIS 15 Step 2 Plans

- Attain targets of the Step 2 plan via thoroughgoing implementation of business management through the business portfolio management and growth models

<table>
<thead>
<tr>
<th>Assumptions:</th>
<th>Exchange rate</th>
<th>Naphtha price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual results for FY2010</td>
<td>¥87.0/$1</td>
<td>¥47,500/kl</td>
</tr>
<tr>
<td>Actual results for FY2012</td>
<td>¥83.3/$1</td>
<td>¥57,500/kl</td>
</tr>
<tr>
<td>Forecasts for FY2013</td>
<td>¥98.3/$1</td>
<td>¥65,925/kl</td>
</tr>
<tr>
<td>APTSIS 15 Stet 2 targets for FY2015</td>
<td>¥90.0/$1</td>
<td>¥65,000/kl</td>
</tr>
</tbody>
</table>

- Net sales
  - ¥3.2 trillion (Actual results for FY2010)
  - ¥3.1 trillion (Actual results for FY2012)
  - ¥3.5 trillion (Forecasts for FY2013)
  - ¥4.3 trillion (APTSIS 15 Stet 2 targets for FY2015)

- Operating income
  - ¥226.5 billion (Actual results for FY2010)
  - ¥90.2 billion (Actual results for FY2012)
  - ¥133.0 billion (Forecasts for FY2013)
  - ¥280.0 billion (APTSIS 15 Stet 2 targets for FY2015)
    *Excluding “leaping ahead” (M&A)

**Composition of operating income (¥ billion)**

- Performance Products: 17.4
- Health Care: 72.5
- Industrial Materials: 108.0
- Others, Corporate: (4.1)

- Performance Products: 46.0
- Health Care: 110.0
- Industrial Materials: 60.0
- Others, Corporate: 5.0

- Performance Products: 85.0
- Health Care: 17.5
- Industrial Materials: 108.0
- Others, Corporate: 2.0

- Performance Products: 85.0
- Health Care: 110.0
- Industrial Materials: 60.0
- Others, Corporate: 20.0

- Performance Products: 280.0
- Health Care: 17.4
- Industrial Materials: 108.0
- Others, Corporate: (4.1)
1-3. Portfolio Transformation

- Using four-quadrant model in business portfolio management
- Nurture and expand next-generation growth businesses and growth businesses, manage business restructuring and withdrawal

**Next-generation growth businesses**
- Organic photovoltaic modules and materials
- Organic photo-semiconductors
- Advanced performance products (AQSOA and others)
- Agribusiness solutions
- Healthcare solutions
- Sustainable resources

**Growth businesses**
- Polyester film
- PVOH/EVOH
- Engineering plastic products
- Pharmaceuticals
- MMA/PMMA
- High-performance graphite
- Performance polymers and others

**To be restructured businesses**
- Performance molding products
- Terephthalic acid
- PHL/PC chain
- Polyolefins
- Basic petrochemicals and others

**Cash-generating businesses**
- Specialty chemicals
- High-performance films
- Food ingredients
- Electronic and industrial films
- Fibers
- Diagnostics & support for new pharmaceutical development
- Coke
- Carbon black and rubber and others

*Notes:
- AQSOA: Aqueous Solvent Oxidation
- MMA/PMMA: Methylmethacrylate/Polymethylmethacrylate
- PVOH/EVOH: Polyvinyl Alcohol/Ethylene Vinyl Alcohol
1-3. Portfolio Transformation

- Transforming the business structure based on a four-quadrant model

**Figure**

- **Next-generation growth businesses**
- **Growth businesses**
  - +¥650 billion (already implemented)
  - MRC: Management integration
  - Quadrant: Acquisition
  - Qualicaps: Acquisition
  - NSCI: Made into a consolidated subsidiary
- **Cash-generating businesses**

**Withdrawal**

- ¥(300) billion (already implemented)
- PVC
- Styrene monomer
- Caprolactam
- Domestic terephthalic acid
- Fertilizer
- Piping materials
- Super absorbent polymer

**Businesses to be restructured**

- -¥β billion (currently being examined)
  - Naphtha cracker integration (already announced)
  - Restructuring of polyolefins

**Leaping ahead (M&A)**

- +¥α billion (currently being examined)
2-1. Verification of Progress by Each Growth Model: Growth Model Categories

Stable businesses:

- Polyester film *1
- PVOH/EVOH
- Engineering plastic product
- Pharmaceuticals
- MMA/PMMA

*1 Name newly given to OPL film and others

Growth driver businesses:

- Carbon fiber and composite materials
- White LED lighting and materials
- Lithium-ion battery materials
- Water treatment systems and services

- Organic photovoltaic modules and materials
- Organic photo-semiconductors
- Advanced performance products (AQSOA and others)
- Agribusiness solutions
- Healthcare solutions
- Sustainable resources and others

Volatile businesses:

- Performance molding products
- Terephthalic acid
- PHL/PC chain
- Polyolefins
- Basic petrochemicals

- Carbon black and rubber
- Electronic and industrial films
- Fibers and others

Stable businesses: Businesses with an average operating income margin for FY2000-FY2011 greater than the average of the variations in that margin, in addition, businesses that remain profitable and generate stable earnings.

Growth driver businesses: Businesses among the volatile businesses expected to generate revenue increases in FY2012-FY2015, such as next-generation growth businesses.

Volatile businesses: Businesses with an average operating income margin for FY2000-FY2011 less than the variations in that margin.
2-1. Trends in Performance by Growth Models

- Performance in FY2013 is forecast to exceed FY2012 under all growth models

Note: Total of stable, growth driver and volatile businesses excluding shared costs and corporate expenses
2-1. Overall Summary

- Aiming to reach the numerical targets of APTSIS 15 Step 2 for FY2015
  - Stable businesses: Despite a tough business environment, aim to achieve FY2015 targets
  - Growth driver businesses: Full-scale entry into these businesses was slow, and a downturn is assumed in FY2015
  - Volatile businesses: Projected upward turn through cost-cutting and autonomous efforts

### Operating Income

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual (¥ billion)</th>
<th>Forecast for increase in income (¥ billion)</th>
<th>Plan for increase in income by attaining Step 2 (¥ billion)</th>
<th>Margin of fluctuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2012</td>
<td>90.0</td>
<td></td>
<td></td>
<td>55.0</td>
</tr>
<tr>
<td>FY2012→FY2015</td>
<td>¥170.0 billion</td>
<td></td>
<td></td>
<td>57.0</td>
</tr>
<tr>
<td>FY2013</td>
<td>133.0</td>
<td></td>
<td>127.0</td>
<td></td>
</tr>
<tr>
<td>FY2015</td>
<td>260.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### APTSIS15 Step 2: FY2013-FY2015

- Increase in first fiscal year under Step 2
- Plan for increasing income by attaining Step 2
2-1. Progress in Stable Businesses

- Operating income target for FY2015: Aim for ¥225.0 billion

Basic strategies:
- Increase sales by strengthening current competitive superiority
- Improve profit margins through upgrades in the product mix, increases in production capacity, and further development of overseas markets

Capital investments and investments and loans by growth model under APTSIS 15 Step 2

- Stable
- Growth driver
- Volatile
- Corporate, Others

Operating income (loss) (¥ billion)

- FY2012: 143.0
- FY2015: 11.0
- FY2013: 154.0

Plan for increasing income by attaining Step 2

- FY2015: 225.0
- FY2015 Targets: 20.0
- Margin of fluctuation: 35.0
# 2-1. Outlook for Stable Businesses

**Main SBUs**
- Pharmaceuticals, MMA/PMMA struggling
- Aiming to beat targets for polyester film, PVOH/EVOH, performance polymers, etc.

<table>
<thead>
<tr>
<th>Main SBUs</th>
<th>Major policies</th>
<th>Prospect of achieving Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceuticals</td>
<td>• Nurture development of new pharmaceuticals and priority products</td>
<td>❌</td>
</tr>
<tr>
<td></td>
<td>• Expand licensed-out products (royalty revenues)</td>
<td></td>
</tr>
<tr>
<td>MMA/PMMA</td>
<td>[MMA monomers]</td>
<td>❌</td>
</tr>
<tr>
<td></td>
<td>• Steadily meet growth in demand by expanding production capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[Acrylic sheets, molding materials]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Expand sales for general applications, rolling stock, and construction material applications</td>
<td></td>
</tr>
<tr>
<td>Polyester film</td>
<td>• Establish local production bases to tap into growing demand in China</td>
<td>🧐</td>
</tr>
<tr>
<td>PVOH/EVOH</td>
<td>• Bolster earnings capability by flexibly adapting to market trends</td>
<td>🎉</td>
</tr>
<tr>
<td>Performance polymers</td>
<td>• Expand business foundation through M&amp;A</td>
<td>🎉</td>
</tr>
<tr>
<td></td>
<td>• Augment globally leading products in growing automobile field</td>
<td></td>
</tr>
</tbody>
</table>

△△

- Pharmaceuticals, MMA/PMMA struggling
- Aiming to beat targets for polyester film, PVOH/EVOH, performance polymers, etc.
2-1. Progress in Growth Driver Businesses

- Operating income expected to fall short of FY2015 target of ¥10 billion
  
  Basic strategies:
  - Selection of areas for investment of resources
  - Advance R&D results to accelerate development and marketing of new products
  - Develop new fields and expand sales

<table>
<thead>
<tr>
<th>Stable</th>
<th>Growth driver</th>
<th>Volatile</th>
<th>Corporate, Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>300</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Operating income (loss) (¥ billion)

- FY2012→FY2015: ¥36.0 billion
- Increase in first fiscal year under Step 2: (26.0)
- Below targets: 4.0, 9.0

Capital investments and investments and loans by growth model under APTSIS 15 Step 2

- Investments in Step 2
- R&D in Step 2

<table>
<thead>
<tr>
<th>Operating income (¥ billion)</th>
<th>FY2012 Actual</th>
<th>FY2012 to FY2013 Forecast for increase in income</th>
<th>FY2013 Forecast</th>
<th>FY2013 to FY2015 Plan for increase in income</th>
<th>FY2015 Targets</th>
<th>Margin of fluctuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>100</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>500</td>
<td>600</td>
</tr>
</tbody>
</table>

FY2015 Targets

- Below targets: 4.0, 9.0

Plan for increasing income by attaining Step 2
### 2-1. Outlook for Growth Driver Businesses

- Growth driver businesses underperforming against targets overall
- Aim to launch electronics applications as quickly as possible
- Committed to achieving targets for carbon fiber and composite materials

<table>
<thead>
<tr>
<th>Main SBUs</th>
<th>Major policies</th>
<th>Prospect of achieving Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electronics applications</strong></td>
<td>• GaN substrates</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• Win new customers</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• Launch large substrates</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• OLED lighting/OPV</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• Accelerate market development with partners</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• Establish coating process for OLED/OPV production technologies</td>
<td>![Bad]</td>
</tr>
<tr>
<td><strong>Carbon fiber and composite materials</strong></td>
<td>• Concentrate business development on growth fields (industrial applications, automobiles)</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• Achieve sweeping cost reductions through restructuring</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• Strengthen intermediate materials business through M&amp;A and business alliances</td>
<td>![Bad]</td>
</tr>
<tr>
<td><strong>Water treatment systems and services</strong></td>
<td>[Cleansui]</td>
<td>![Bad]</td>
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<tr>
<td></td>
<td>• Strengthen overseas business and review domestic marketing to improve awareness</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• Water environment</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• Increase share of domestic market</td>
<td>![Bad]</td>
</tr>
<tr>
<td></td>
<td>• Promote alliances with ASEAN partner engineering companies</td>
<td>![Bad]</td>
</tr>
<tr>
<td><strong>Lithium-ion battery materials</strong></td>
<td>• Strengthen development for non-automotive applications</td>
<td>![Bad]</td>
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<tr>
<td></td>
<td>• Thoroughly reduce costs by right-sizing production structure, etc.</td>
<td>![Bad]</td>
</tr>
</tbody>
</table>
2-1. Progress in Volatile Businesses

- Projected upturn in profitability against the operating income target of ¥20.0 billion in FY2015
- Basic strategies:
  - Strengthen income bases through rationalization (Decommission No. 1 naphtha cracker and expand and fully operate No. 2 naphtha cracker at the Kashima Plant of MCC, etc.)
  - Lessen impact of factors resulting in volatility in income through sales activities
  - Structural reforms, including portfolio reforms

### Operating income (loss) (¥ billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
<th>Forecast for increase in income</th>
<th>Forecast</th>
<th>Plan for increasing income by attaining Step 2</th>
<th>Targets</th>
<th>Margin of fluctuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2012</td>
<td>(20.0)</td>
<td>19.0</td>
<td>21.0</td>
<td>20.0</td>
<td>31.0</td>
<td>(1.0)</td>
</tr>
</tbody>
</table>

- Investments in Step 2
- R&D in Step 2

Capital investments and investments and loans by growth model under APTSIS 15 Step 2

- Stable
- Growth driver
- Volatile
- Corporate, Others

(¥ billion)
### 2-1. Outlook for Volatile Businesses

- Create earnings structure resilient to external conditions by further reducing costs
- Expecting outperformance against targets in FY2015

<table>
<thead>
<tr>
<th>Main SBUs</th>
<th>Major Policies</th>
<th>Prospect of achieving Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic petrochemicals</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
  - Restructuring of naphtha crackers  
    (Close No. 1 and fully utilize capacity at No. 2 at the Kashima Plant, MCC  
    Secure facility integration at the Mizushima Plant, MCC)  
  - Cost reductions  
  - Alliance with oil refinery | ![Score](Score.png)  |
| **Polyolefins** |  
  - Increase sales ratio of strategic products and high-performance products  
  - Optimize production structure by streamlining production lines | ![Score](Score.png)  |
| **PHL/PC chain** |  
  - Thoroughly reduce costs (rationalize logistics, improve output levels, etc.)  
  - Establish non-phosgene PC technology  
  - Strengthen earnings capabilities via higher-performance PC | ![Score](Score.png)  |
| **Terephthalic acid** |  
  - Thoroughly reduce costs  
    (MCCI: Shift to electricity purchases, MCPI: Shift to coal thermal power generation, etc.)  
  - Reduce reliance on Chinese market  
  - Consider introduction of safeguards/anti-dumping provisions | ![Score](Score.png)  |

**Listed company**

**Ratio of total MCHC Group holdings**

Capital and net sales (as of March 31, 2013)

- **MCHC***: Consolidated net sales: ¥3,088.6 billion
  Employees (consolidated): 55,131
  Oct. 2005 -

  *Listed company

  **Ratio of total MCHC Group holdings

  Capital and net sales (as of March 31, 2013)

- **The KAITEKI Institute, Inc.**: Apr. 2009 -
- **Mitsubishi Chemical Holdings America, Inc.**: Nov. 2010 -
- **Mitsubishi Chemical Holdings (Beijing) Co., Ltd.**: Jan. 2011 -
- **Mitsubishi Chemical Holdings Europe GmbH**: Sep. 2012 -
- **Mitsubishi Chemical Holdings Corporate Staff, Inc.**: Apr. 2013 -

  **Taiyo Nippon Sanso Corporation** (TNSC): Oct. 2013 -

- **MCC**: Capital: ¥50.0 billion
  Net sales: ¥1,961.8 billion
  Oct. 2005 -

- **MTPC***: Capital: ¥50.0 billion
  Net sales: ¥419.2 billion
  Oct. 200 -

- **MPI**: Capital: ¥21.5 billion
  Net sales: ¥398.1 billion
  Apr. 2008 -

- **MRC**: Capital: ¥53.2 billion
  Net sales: ¥456.9 billion
  Apr. 2010 -

**Major businesses**

- **Mitsubishi Chemical Medience Corporation (MCM)**: Clinical testing, support for new pharmaceutical developments, production and sales of diagnostic reagents and devices
- **API Corporation (APIC)**: Contracted production of API, contracted R&D
- **Healthy Life Compass Corporation (HLC)**: Total healthcare solutions based on simple blood testing
- **Qualicaps Co., Ltd.**: Production and sales of hard gelatin and HPMC capsules

**New Healthcare Company**

- **MCM**
- **APIC**
- **HLC**
- **Qualicaps**

21
2-2. Vision for New Healthcare Company

- Provide healthcare solutions in aim to create a KAITEKI society
- Aim for early growth and strengthening of business base in order to build into the fifth core operating company

**Business domain of new healthcare company**

- Medical and health information services
  - MCM: Clinical testing and support for new pharmaceutical developments
  - HLC: Self-health check systems
- Medical equipment
  - MCM: Diagnostic reagents and devices
- Healthcare materials
  - APIC: API
  - Qualicaps: Capsule business
- Information

**Healthcare field**

- MTPC: Pharmaceuticals
- MKF: Food ingredients
- MRCPS: Food additives
- MRC: Artificial spa generators, DNA chips
- TNSC: Home medical care, oxygen inhalators

FY2013 sales forecast for the new healthcare company related businesses: ¥120 billion

- Aim for annual growth of more than 5% in target business domains across global markets
- Aim to develop a unique business model centered on medical information

Target business domains

Sources: Worldwide Medical Market Forecasts to 2018, Active Pharmaceutical Ingredients (API) Global Market to 2017, etc.
2-3. Taiyo Nippon Sanso Corporation: Strengthening Alliance with TNSC

- Increased ownership of Taiyo Nippon Sanso Corporation (TNSC) and concluded a capital and operating alliance contract

**Company background and relationships with the MCHC Group**

<table>
<thead>
<tr>
<th>Nippon Sanso Corporation (Established in 1910)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toyo Sanso Co., Ltd. (Established in 1918)</td>
</tr>
<tr>
<td>Taiyo Sanso Corporation (Established in 1946)</td>
</tr>
<tr>
<td>Taiyo Toyo Sanso Co., Ltd. (Merged in Apr. 1995)</td>
</tr>
<tr>
<td>TNSC (Merged in Oct. 2004)</td>
</tr>
</tbody>
</table>

**Ratio of capital holdings of the MCHC Group**

<table>
<thead>
<tr>
<th>Year</th>
<th>1995/4</th>
<th>2000/9</th>
<th>2004/9</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.4%</td>
<td>26.7%</td>
<td>36.2%</td>
<td></td>
</tr>
<tr>
<td>2004/10</td>
<td>10.1%</td>
<td>2009/9</td>
<td>15.1%</td>
</tr>
<tr>
<td>2013/10</td>
<td>27.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Trends in financial results**

<table>
<thead>
<tr>
<th>Year</th>
<th>Net sales (¥ billion)</th>
<th>Operating income (¥ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2003</td>
<td>Nippon Sanso 230.2</td>
<td>Taiyo Toyo Sanso 127.4</td>
</tr>
<tr>
<td>FY2009</td>
<td>433.3</td>
<td>27.5</td>
</tr>
<tr>
<td>FY2010</td>
<td>483.6</td>
<td>35.4</td>
</tr>
<tr>
<td>FY2011</td>
<td>477.4</td>
<td>31.0</td>
</tr>
<tr>
<td>FY2012</td>
<td>468.3</td>
<td>24.8</td>
</tr>
<tr>
<td>FY2013 Forecast</td>
<td>514.0</td>
<td>30.0</td>
</tr>
</tbody>
</table>
## 2-3. Synergies Expected with TNSC

### Expected synergies

<table>
<thead>
<tr>
<th>Area</th>
<th>By product/operation</th>
<th>Summary of expected results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial gas</td>
<td>Separate gas</td>
<td>• Will consider installation of atmospheric gas separation equipment at new overseas business base of the MCHC Group. TNSC will supply gas on site and provide liquefied gases to user companies in the area</td>
</tr>
<tr>
<td></td>
<td>Carbon gas, hydrogen, Engineering</td>
<td>• Expand supply sources and collaborate with MCHC Group business bases in Japan and overseas</td>
</tr>
</tbody>
</table>
| Electronics  | Gaseous materials for semiconductor manufacturing and manufacturing equipment | • Will consider possibilities of alliances in next-generation growth businesses of the MCHC Group  
• Joint development of mass production technology for GaN substrates used in white LEDs |
| Medical care | Artificial spa generators                 | • Considering collaboration between MCHC Group’s spa generator manufacturing equipment business and the medical business of TNSC |
|              | Medical-use gases                         | • Considering possibilities for use of MCHC Group’s carbon fiber in carbon gas container vessels  
• Considering cooperation in pharmaceutical development and collaboration using the medical institution networks of our two companies |

### TNSC’s medical-related businesses

- Medical-use gases
- Home medical care
- Cryopreservation containers and systems
- Stable isotopes
- Oxygen and nitrogen supply equipment
- Oxygen supply systems
- Cell banking systems
- $^{18}$O separation plants
2-3. TNSC Global Operation

- Aggressive development of overseas business activities
  - Have gas production plants in about 60 locations worldwide

- Principal overseas businesses of TNSC

- North America: TNSC is expanding its supply network for liquefied gas in order to capture the expected shale gas-related increase in demand for industrial gas. We aim to realize early synergies as part of the MCHC Group.

Mitsubishi Chemical Holdings
3-1. Progress in **KAITEKI** Management

- Branding of THE KAITEKI COMPANY (Nov. 2013)

**[KAITEKI Report]**

**Main section:**
- Message from the President
- Business review
- MOT
- MOS
- Financial data
- Financial results*

*English version only

**MOS in-depth section:**
- Detailed report on ESG (environment, society, and governance)

**[Corporate Brand]**

**THE KAITEKI COMPANY**

Expresses our commitment as a company to take the initiative in realizing **KAITEKI**

As a company engaged in diverse value creation, “THE KAITEKI COMPANY” symbolizes the approach the MCHC Group takes to corporate activities in harmony with the sustainable development of people, society, and the earth.

Our initiative in realizing **KAITEKI** was introduced in the following:

- “The 17th corporate white paper - Toward realizing sustainable management” compiled by Keizai Doyukai (Japan Association of Corporate Executives) [Apr. 2013]

(Available only in Japanese)
3-2. Quantification of KAITEKI Management

- MOS Indexes: started using to evaluate performance
- MOT Indexes: started using from FY2013

[MOS Indexes] Steady progress toward targets

[Step 2]

[IP Indexes]

- I-1 Application rate for strategic patents compared with what was planned (including overseas)
- I-2 Acquisition rate of IP rights compared with what was planned (including overseas, acquisition rate)
- I-3 Contribution to business results of cross-licensing

[Market Indexes]

- M-1 Technological progress compared with customer demand
- M-2 Analysis of technological capabilities of competitors
- M-3 Contribution to business results of technologies

*Kaiteki* Value

MOS Management of Sustainability

MOT Management of Technology

MOE Management of Economics

**THE KAITEKI COMPANY**

Mitsubishi Chemical Holdings
3-2. Quantification of **KAITEKI** Management (Third-Party Analysis)

- Received high score of 205 points out of 250 points for environmental rating from Development Bank of Japan Inc.

**[Evaluation points]**

1. Company has created a system for promoting development and sales based on the quantitative assessment of contributions to sustainability throughout life cycles, which is expressed as the MOS Indexes and managed in conjunction with financial targets.

2. Company uses its own benchmarks in efforts to minimize the environmental impact of business activities, and voluntarily participates in the formulation of industry guidelines.

3. Company discloses combination of financial and non-financial information via the publication of the **KAITEKI** Report while incorporating the MOS Indexes as a KPI.

From left:
Masanori Yanagi, Deputy President, Development Bank of Japan
Miho Hanafusa, Group Manager, **KAITEKI** Group, Corporate Strategy Office, MCHC
Shotaro Yoshimura, Representative Director, Member of the Board, Deputy Chief Executive Officer, MCHC
Today’s Agenda

MCHC: Yoshimitsu Kobayashi

1. Performance Review
   1-1. Business Environment
   1-2. Outlook for FY2013
   1-3. Portfolio Transformation

2. Progress in Step 2
   2-1. Verification of Progress by Each Growth Model
   2-2. New Healthcare Company
   2-3. Taiyo Nippon Sanso Corporation

3. KAITEKI Management
   3-1. Progress in KAITEKI Management
   3-2. Quantification of KAITEKI Management

4. MCC: Hiroaki Ishizuka
   4-1. Progress in Business Restructuring
   4-2. Progress in Growth Driver Businesses
   4-3. Progress in Generating Synergies

5. MTPC: Michihiro Tsuchiya
   5-1. Progress in Pharmaceutical Business
   5-2. Progress in Generating Synergies

6. MPI: Takumi Ubagai
   6-1. Restructuring and Growth Strategy
   6-2. Progress in Generating Synergies

7. MRC: Hitoshi Ochi
   7-1. Business Development of MMA
   7-2. Progress in Growth Driver Businesses
   7-3. Progress in Generating Synergies
4-1. Progress in Business Restructuring
Basic Petrochemicals Business Structural Reforms and Future Prospects

Promoting reforms to establish a stable profit structure

1. Reinforce the basic petrochemicals business
   Cracker (Kashima Plant): Close No.1 and fully utilize capacity at No. 2 (Jul. 2014)
   (Mizushima Plant): Secure facility integration and full operations at NNE (scheduled for spring 2016)
   Refinery partnership: Generate integrated application of both HS-FCC (JX Nippon Oil & Energy Corporation (JXE)) and BTcB (MCC)

2. Shift to high-performance products and optimize derivatives
   EO (Kashima Plant): Develop an EO center and expand EC capacity
   PE: Enhance Metallocene-based PE and the high-performance PE business
   PE/PP: Shift to high-performance products and streamline manufacturing facilities

3. Promote cooperative relationships
   Utilities (Kashima Plant): Optimize power plant operations by the end of FY2015
   (related to the JXE power generation project)

4. Develop new technologies
   (Mizushima Plant): 1-Hexene, DTP, BTcB
## 4-1. Road Map for Structural Reforms of the Basic Petrochemicals Business

### Structural reforms of derivatives and utilities following cracker reform

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<thead>
<tr>
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<tbody>
<tr>
<td><strong>Crackers</strong></td>
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<tr>
<td>Mizushima Plant</td>
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<tr>
<td>Kashima Plant</td>
<td>Establishment of NNE</td>
<td>Aromatics alliances</td>
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<td></td>
<td>Cracker downsizing</td>
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<td></td>
<td>Shutdown of a part of the benzene production facility</td>
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<td><strong>Derivatives</strong></td>
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<td>PP</td>
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<td>EO/EC</td>
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<td></td>
<td>EO center</td>
<td>Expand EC capacity (1st)</td>
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<tr>
<td><strong>Utilities</strong></td>
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<tr>
<td>Mizushima Plant</td>
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<tr>
<td>Kashima Plant</td>
<td></td>
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<td>Shutdown of the No. 1 plant</td>
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<td></td>
<td>Streamline manufacturing facilities and shift to high-performance products</td>
<td>Streamline manufacturing facilities and shift to high-performance products</td>
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<td></td>
<td>Shutdown of Kawasaki HDPE2</td>
<td>Shutdown of Kawasaki PP3</td>
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<td>Expand EC capacity (1st)</td>
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</tbody>
</table>

- : New measures
- : Plant shutdown
- : Facility integration

*Volatile businesses*
4-1. Structural Reforms in Ethylene Capacity

- Start of an optimized ethylene production structure from FY2014

**Current**
- Mizushima
- Load down
- Sales
- PE
- Strategic / high-performance
- EO
- EC
- EG
- PVOH
- PP copolymer

**Demand**
- Kashima No. 1
- Kashima No. 2

**Capacity**
- Full operation
- Purchase

**FY2014**
- Kashima restructuring
- Transformation in line with derivative demand

**FY2016 or later**
- After Mizushima integration
- Full operation
- Purchase

**Mizushima (1/2)**

- Full operation
4-1. Terephthalic Acid and PHL/PC Chain

**Terephthalic acid**
- Accomplish regional pricing
- Promote thorough cost reduction programs
- Reduce PX premium price

**Business environment**
- Market has been set below the break-even point for a long time due to PTA overcapacity in China
- Deterioration of profit continues

**Strategic policy**
- India
  - Accomplish regional pricing with antidumping on top of custom duties
  - Confirmed 100% operations at the No. 2 plant
  - Thorough cost reduction by securing 100% operations at the No. 2 plant, reduction in acetic acid unit consumption, purchase of electricity from the grid and conversion of heating fuel (fuel oil → coal)
- Indonesia
  - Keeping regional pricing by introducing a floor price
  - Cost reduction by purchasing electricity from the grid and through extended intervals between shutdown maintenance
- Korea
  - Restructuring due to the sharp decline in exports to China (downsizing)
- China
  - Thorough cost reduction

**PHL/PC chain**
- Promoting thorough cost reduction programs

**Supply-demand balance of Asian PX and PTA**

**Restructuring and shakeout?**

**Volatile businesses**

**Supplyability**

\( \text{34 (kt/y)} \)

**Mitsubishi Chemical Holdings**
4-1. Performance Polymers

- Expand global top products
- Strengthen and expand the portfolio by adding new markets, new applications, and new technologies through R&D and M&A

[New markets] 

Strengthen business platforms through M&A

[New applications]
For solar panel films and cables

[New technologies]
For automobile applications

FORZEAS
Bio-based and biodegradable polymers

Stable businesses
4-2. Progress in Growth Driver Businesses: Electronics Applications

- Step up from the development stage to the customer evaluation stage

**Organic photovoltaics (OPVs)**
- Started trial production of OPV cells and modules for smart building (Aug. 2013)
- Started distribution of OPV samples (Oct. 2013)
- Started field testing of OPV with Takenaka Corporation (Nov. 2013)

**Organic photo-semiconductors (OLEDs)**
- Established a sales JV (MC Pioneer OLED Lighting Corporation: MPOL) with PIONEER (Jun. 2013)
- Started distribution of samples for a new type of OLED lighting through MPOL (Sep. 2013)

**Gallium nitride (GaN) substrates**
- Expanded sales for 2-inch C-plane wafers
- Started distribution of samples for 4-inch C-plane (HVPE), and 2-inch M-plane (SCAAT) wafers (Jul. 2013)

HVPE: Hydride vapor phase epitaxy
SCAAT: Super critical acidic ammonia technology

Mitsubishi Chemical Holdings
4-2. Agribusiness Solutions (Closed-type Plant Factory System)

- Started hydroponic closed-type plant factory system sales
- Expanded closed-type plant factory system sales

**Accumulating hydroponic cultivation technologies**
- Controlling temperature, humidity, light, CO₂
- Isolating from the outside
- Preventing contamination
- Controlling water purification
- Controlling nutrients/Sterilization
- Multiple rack system
- Space-saving/Efficient location

**MCC**
- Hydroponic system
- LED lighting

**MRC**
- Water treatment system

**Advantages**
- Shorter growing period
- High productivity
- Stable production

**Sales results**
- FY2012: Mir Upakovki CJSC (Russia), Vegetable Marketing Organization (Hong Kong), Tsudakoma General Service (Japan)
- FY2013: Orders received from 2 customers (Japan)
4-3. Progress in Generating Synergies: Specialty Chemicals

- Promoting measures to strengthen three major fields of the business portfolio
  + Expand the scale of each business
  + Build a broad lineup of product groups
  + Move from “dispersal” to “orchestrating the Group strengths”

**Progress**

- **Orchestrating the Group strengths**
  + Collaborating in new acrylic emulsion products
    [CRK and MRC, Apr. 2013]
  + Starting collaboration for overseas marketing in the field of coatings & additives [Sep. 2013]
    [Net sales: FY2012 (¥2 billion) → FY2015 target (¥4 billion)]

- **Strengthening of each business**
  + Establishing a manufacturing JV with Korea Samyang Corporation
    [Separating Materials Dept., MCC, signing: Jul. 2013]
  + Strengthening the competitiveness of the nitric acid business
    [Integration with Kurosaki Plant, NKC by Oct. 2014]

- **Reforming the structure**
  + Transferring analysis business of Mitsubishi Chemical Analytech Co., Ltd. to MC Evolve Technologies Corporation [Oct. 2013]
Today’s Agenda

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   1-2. Outlook for FY2013
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7. MRC: Hitoshi Ochi
   7-1. Business Development of MMA
   7-2. Progress in Growth Driver Businesses
   7-3. Progress in Generating Synergies
5-1. Progress in Pharmaceutical Business:
Changes in the Pharmaceutical Business Operating Environment

- More pressure to cut medical expenses due to an increase in social welfare costs
  - Progress of political strategies for cutting ethical pharmaceutical costs
    - Encouraging use of generics
    - NHI drug price reduction

- Changes in the competitive environment
  - More challenging R&D (costlier, lack of new seeds, lowering success rate, and other factors)
  - From a primary care to a specialty market
  - Shift to Health Technology Assessment (HTA)
  - Expectations toward such new technologies as research and the practical use of regenerative medicine
  - Progress in such individualized medicine as companion diagnostics agents and others
5-1. Countermeasures against Changes in the Operating Environment

1. Acceleration of the post-marketing development of new and priority products
   • Post-marketing development by focusing on priority products, including Remicade, and such new products as Simponi and Lexapro

2. Strengthening of R&D pipelines that address unmet medical needs
   • Accelerating the acquisition of new pipelines
   • Taking up the challenges in vaccine and other businesses

3. More massive operations through structural and operational reforms
   • Transfer of plasma fractionation and fine chemical operations
   • Optimization of domestic production sites
   • Promoting the “Reform Project”
     Organizational restructuring and optimizing head counts and operations

4. Reinforcement of the generic business
   • Adding high-potential products and strategic alliances
5-1. Measures/Ethical Pharmaceutical Business

1. Increasing profits through the post-marketing development of new and priority products and royalty income from licensing-out products under a more challenging operating environment

   **Domestic**
   - Accelerating the post-marketing development of new and priority products
     - Priority products such as *Remicade* (for auto-immune diseases)
     - New products such as *Simponi* (for auto-immune diseases) and *Lexapro* (for depression)
     - Co-marketing *Tenelia* and TA-7284 with Daiichi Sankyo Co., Ltd.

   **Overseas**
   - *Gilenya* for multiple sclerosis (MS): Became a blockbuster in two years after its launch; royalty income has been growing as a breadwinner of operations
   - Expectations toward TA-7284/canagliflozin (for type 2 diabetes mellitus)

2. Strengthening pipelines to realize future growth while accelerating the development of existing pipelines

3. Reinforcement of the vaccine business globally
5-1. Outline of Domestic Ethical Pharmaceutical Business Strategies

- Accelerating the post-marketing development of new products and maintaining sales of long-listed products

Priority and New Products

Remicade, Simponi, Tenelia, (TA-7284), Lexapro, Talion

Long-Listed Products

Generics

- Promoting LCM
  - Acquiring evidences
  - Adding indications and preparations
- Reinforcement of sales activities through collaboration with third parties
- Restructuring of sales operations
  - Maximum allocation of operational resources
- Strategic alliances
- Non-MR promotion
- Differentiation strategies
5-1. Growth of Gilenya

- **Gilenya** for MS became a blockbuster in two years after its launch
  - Royalty income has been growing as a breadwinner of operations

- Discovered by MTPC and licensed to Novartis for the overseas market
- Approved in more than 75 countries, and used to treat more than 78,500 patients in clinical trials and a post-marketing setting
- Novartis 2012 worldwide sales: about $1.2 billion
- Novartis Q1-3 2013 (Jan. – Sep. 2013) worldwide sales: $1.4 billion

---

**Novartis Worldwide Sales**

(million US$)

Source: Novartis financial results announcement

*Rest of world*
5-1. Expectations toward TA-7284/Canagliflozin

- The licensee (Janssen Pharmaceuticals, Inc.) obtained approval in the U.S. in Mar. 2013; launched in Apr. 2013; takeaways were sufficiently strong
- The licensee obtained approval in Europe in Nov. 2013
- Approval and launch expected in Japan in the short term

<table>
<thead>
<tr>
<th>Region</th>
<th>Approval Status</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>Approved in Mar. 2013</td>
<td>First-in-class, Trade name: INVOKANA, No. 1 branded therapy prescribed by U.S. endocrinologists when adding or switching non-insulin type 2 diabetes medications</td>
</tr>
<tr>
<td>EU</td>
<td>Approved in Nov. 2013</td>
<td>-</td>
</tr>
<tr>
<td>Japan</td>
<td>Filed in May 2013</td>
<td>-</td>
</tr>
</tbody>
</table>
### 5-1. Pipeline Status
(New Pharmaceuticals, Additional Indications)

**As of Oct. 30, 2013**

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Filed</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ MP-513 (U.S.) Type 2 diabetes mellitus</td>
<td>■ MT-1303 (Europe) Multiple sclerosis</td>
<td>■ MP-214 (Japan) Schizophrenia</td>
<td>■ TA-7284 (Japan) Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ MT-1303 (Japan) Multiple sclerosis</td>
<td>■ MT-1303 (Europe) Psoriasis</td>
<td>■ Remicade (Japan) Refractory Kawasaki disease</td>
<td>■ MP-424 (Taiwan) Chronic hepatitis C</td>
</tr>
<tr>
<td>■ MT-9938 (U.S., Canada) Refractory pruritus</td>
<td>■ MP-513 (Europe) Type 2 diabetes mellitus</td>
<td>■ Behcet’s disease with special lesions</td>
<td>■ Tenelia (Japan) Type 2 diabetes mellitus, additional combination</td>
</tr>
<tr>
<td>■ MT-3995 (Europe, Japan) Diabetic nephropathy</td>
<td>■ MT-4666 (Japan) Dementia of Alzheimer's type</td>
<td>■ Pediatric Crohn's disease</td>
<td>■ TA-1790 (Europe) Erectile dysfunction</td>
</tr>
<tr>
<td>■ GB-1057 (U.S.) Stabilizing agent</td>
<td>■ Cholebine (Japan) Hyperphosphatemia</td>
<td>■ Pediatric ulcerative colitis Psoriasis: increased dose</td>
<td>■ TA-7284 (Europe)*2 Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ MP-124 (U.S., Canada) Acute ischemic stroke</td>
<td>■ MT-1303 (EU) IBD</td>
<td>■ Imusera (Multinational study) CIDP*1</td>
<td>■ TA-7284 Met IR FDC (Europe) Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ MP-157 (Europe) Hypertension</td>
<td>■ MP-124 (U.S., Canada) Acute ischemic stroke</td>
<td>■ BindRen (Europe) Pediatric hyperphosphatemia</td>
<td>■ MP-513 (Korea) Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ GB-1057 (U.S.) Stabilizing agent</td>
<td>■ MP-513 (Europe) Type 2 diabetes mellitus</td>
<td>■ Radicut (Japan) ALS</td>
<td>■ MP-513 (Korea) Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ MP-424 (Korea) Chronic hepatitis C</td>
<td>■ MT-9938 (U.S., Canada) Refractory pruritus</td>
<td>■ Talion (Japan) Pediatric allergic rhinitis</td>
<td>■ Cholebine (Japan) Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ Cholebine (Japan) Hyperphosphatemia</td>
<td>■ MT-4666 (Japan) Dementia of Alzheimer's type</td>
<td>■ Pediatric atopic dermatitis</td>
<td>■ Cholebine (Japan) Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ Cholebine (Japan) Hyperphosphatemia</td>
<td>■ Cholebine (Japan) Type 2 diabetes mellitus</td>
<td>■ Telavic (Japan) Chronic hepatitis C [genotype 2]</td>
<td>■ MP-513 (Korea) Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ Cholebine (Japan) Hyperphosphatemia</td>
<td>■ Cholebine (Japan) Type 2 diabetes mellitus</td>
<td>Chronic hepatitis C [combination with Pegasys]</td>
<td>■ Cholebine (Japan) Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ Cholebine (Japan) Hyperphosphatemia</td>
<td>■ Cholebine (Japan) Type 2 diabetes mellitus</td>
<td>Chronic hepatitis C [combination with Feron]</td>
<td>■ Cholebine (Japan) Type 2 diabetes mellitus</td>
</tr>
<tr>
<td>■ MP-146 (U.S., Europe) Chronic kidney disease</td>
<td>■ TA-1790 (Europe) Erectile dysfunction</td>
<td>■ MP-146 (U.S., Europe) Chronic kidney disease</td>
<td></td>
</tr>
</tbody>
</table>

**Disease area**
- : Auto-immune disease
- : Diabetes and kidney disease
- : CNS disease
- : Other

*1: Multinational study, co-developed with Novartis Pharma in Japan, licensed to Novartis overseas
*2: Approved in Nov. 2013

**Stable businesses**

**THE KAITEKI COMPANY**

**Mitsubishi Chemical Holdings**
5-1. Three Priority Disease Areas

- Identifying the three priority disease areas of auto-immune disease, diabetes, and kidney disease, and CNS disease for new products creation

**MT-1303**
- MS/Europe: P2, Japan: P1
- Psoriasis/Europe: P2
- IBD/Europe: P1

**CNS disease**
- Lexapro

**Auto-immune disease**
- Remicade
- Simponi
- Imunera

**Diabetes and kidney disease**
- Tenelia
- Tanatril
- Kremezin
- BindRen

**TA-7284**
- Type 2 diabetes mellitus/
  - U.S.: approved and launched
  - Europe: approved
  - Japan: filed

**MT-3995**
- Diabetic nephropathy/
  - Europe: P2, Japan: P2

**MT-9938**
- Refractory pruritus/U.S.: P2

**MP-214**
- Schizophrenia/Japan: P2b/3

**MT-4666**
- Alzheimer-type dementia/Japan: P2
5-1. Strengthening of Vaccine Business

- Reinforcement of domestic vaccine business franchise based on relationship with BIKEN as well as strengthening vaccine business in Japan and overseas with newly obtained vaccines and technologies through acquisition of Medicago, Inc.

**Acquisition of Medicago**

- Acquisition of platform technology of plant-derived VLP vaccine production
- Examine utilizing a closed-type plant factory system with technologies from four core operating companies of the MCHC Group
- Expansion of pipeline
  - Quadrivalent seasonal influenza vaccine
  - Pandemic influenza vaccine
  - New vaccine candidates such as rotavirus, etc.

**Strengthening of the collaboration with BIKEN**

- Promotion and co-development of BIKEN products (Japan and overseas)
5-2. Progress in Generating Synergies: Healthcare Solutions Strategy

- Taking up the challenge to create new businesses and strengthen basic profitable businesses to deliver a variety of solutions from sick care and healthcare to address unmet needs

MCHC Group

Strengthening the earnings base ⇔ Strengthening pharmaceutical related businesses

- Strengthening the earnings base by acquiring Qualicaps
- Acquiring new technologies and enhancing the vaccine business by joining Medicago to MCHC

Today's topics

Growth driver businesses

- Jibun Karada Club
- Artificial spa generators for medical use
- MIMAMORI -Gait
- Companion diagnostics
- Regenerative medicine

Stable businesses

- Pharmaceuticals, including vaccines
- Diagnostics
- Medicago
- Qualicaps
- API

Sick care

- Healthcare

Creation of new businesses

- Starting the business of Jibun Karada Club
5-2. Affiliation of Qualicaps

- Contributions to the enhancement of the earning base for the healthcare business with Qualicaps’s steady profit-making business
- Aiming for further growth through the orchestration of MCHC Group companies

- Maintaining steady profit with a high market share of pharmaceutical hard capsules composed of plant-derived cellulose while expanding the pharmaceutical process equipment business

- Developing more-competitive products by utilizing the technologies of MCHC Group companies
5-2. Outline of Jibun Karada Club

Self-check at neighboring or familiar drugstores to support good health

- Result of examination
- Vital data (Weight, blood pressure, etc.)
- Health information (Food, exercise, etc.)

Self-check management in member’s site

Jibun Karada Club

Diagnostic data

Consumers

Self-check at drugstores (blood sampling by oneself)

Drugstores

Improvement and maintenance of good health

Handing in examination report

Detail re-examination/Regular health examination

Medical institutions

Contribution to the realization of a KAITEKI society

Mitsubishi Chemical Holdings
Today’s Agenda

MCHC: Yoshimitsu Kobayashi

1. Performance Review
   1-1. Business Environment
   1-2. Outlook for FY2013
   1-3. Portfolio Transformation

2. Progress in Step 2
   2-1. Verification of Progress by Each Growth Model
   2-2. New Healthcare Company
   2-3. Taiyo Nippon Sanso Corporation

3. KAITEKI Management
   3-1. Progress in KAITEKI Management
   3-2. Quantification of KAITEKI Management

4. MCC: Hiroaki Ishizuka
   4-1. Progress in Business Restructuring
   4-2. Progress in Growth Driver Businesses
   4-3. Progress in Generating Synergies

5. MTPC: Michihiro Tsuchiya
   5-1. Progress in Pharmaceutical Business
   5-2. Progress in Generating Synergies

6. MPI: Takumi Ubagai
   6-1. Restructuring and Growth Strategy
   6-2. Progress in Generating Synergies

7. MRC: Hitoshi Ochi
   7-1. Business Development of MMA
   7-2. Progress in Growth Driver Businesses
   7-3. Progress in Generating Synergies
6-1. Restructuring and Growth Strategy: Restructuring

Results of restructuring and reduction of deficit business → Groundwork

MPI APTSIS 15•Plus Portfolio

- Growth potential
- Creation
- Growth
- Restructuring
- Basic
- Exit

SBU deficit trends

- FY2014 Deficit SBU “0”
- (Excluding new business)

Restructuring
- Transfer pipe business
- Withdraw from light metal extrusion
- Reinforce springboard for business:
  - Withdraw from businesses that should not be continued
  - Improve the break-even point on a large scale
6-1. Growth Strategy

- Design balanced business expansion

**FY2015 Sales Revenue by Product Field**

- Industrial
- Information/Electronics
- Packaging
- Civil/Construction
- Medical Packaging
- Agricultural Materials

**FY2015 Sales Target** ¥500 billion

- FPD polyester films 19%
- Electronics materials 17%
- Alumina fiber, etc. 18%
- Composite materials, etc. 3%
- Engineering plastics, etc. 3%
- Construction materials, etc. 3%
- Medical packaging materials 3%
- Agricultural materials 3%
- Foods packaging films, PET bottles, etc. 17%

**Growth Strategy**

- Balance business expansion across different fields

*Mitsubishi Chemical Holdings*
### 6-1. New Capital Investments (since Apr. 2013)

FY2015 contribution to total sales about ¥ 50 billion (includes past investments)

<table>
<thead>
<tr>
<th>Operations commenced</th>
<th>Project</th>
<th>FY2015 sales contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 2013</td>
<td>Quadrant to become a wholly-owned subsidiary (Shareholding 50% →100%)</td>
<td>—</td>
</tr>
<tr>
<td>Jun. 2013</td>
<td>Expansion of functional films at J-Film Narita Plant (Chiba)</td>
<td>¥0.8 billion</td>
</tr>
<tr>
<td>Jul. 2013</td>
<td>New optical polyester film plant at Suzhou (Jiangsu, China)</td>
<td>¥6.4 billion</td>
</tr>
<tr>
<td>Aug. 2013</td>
<td>New agricultural PO film plant at Wuxi (Jiangsu, China)</td>
<td>¥1.7 billion</td>
</tr>
<tr>
<td>Nov. 2013</td>
<td>New high gas barrier PET bottles plant at Hiratsuka Plant (Kanagawa)</td>
<td>¥1.0 billion</td>
</tr>
<tr>
<td>Jun. 2014</td>
<td>New aluminum and metal composite material (ALPOLIC) plant at MFE (Wiesbaden, Germany)</td>
<td>¥3.0 billion</td>
</tr>
<tr>
<td>Oct. 2014</td>
<td>Expansion of high-performance multi-layer film (DIAMIRON) at Azai Plant (Shiga)</td>
<td>¥0.8 billion</td>
</tr>
<tr>
<td>Apr. 2015</td>
<td>New PET film converting facility at Wuxi (Jiansu, China)</td>
<td>¥2.1 billion</td>
</tr>
</tbody>
</table>
6-1. DIAMIRON

Expansion of new applications where the material design of food barrier film is used

Core technology
- Co-extruded multi-layer
- Oxygen barrier design
- Interlayer adhesion material design

Application performance
- Deep drawing packaging for food & medical applications
- Infusion bag
- Pillow packing

E.g. deployment to healthcare
- Solution to the medical malpractice problem
- High-performance awareness of the infusion bag

- Gas barrier
- Non-adsorption

E.g. deployment to food applications
- Prevention from contamination in the food production process
  (Easy opening of pillow packing)
- Simplification of work
- Safety
- Sanitation
6-1. Polyester Film

- Build PET film converting facility in Wuxi, China
- Work with PET film facility in Suzhou for production of base film & conversion

**Investment overview**

Name: Mitsubishi Plastics Converting Film Wuxi Co., Ltd.
Location: Wuxi, Jiangsu, China
Start of production: Apr. 2015 (target)
Capital: ¥1.2 billion
Capacity: 4,800 t/y

*Production started in Aug. 2013 (Suzhou)*

- Steady growth in silicone coating PET film for polarizers
- Building a production and supply system in China, where demand is growing more and more
- Keeping a high share (about 50%)

**FPD panel market shift to China**

<table>
<thead>
<tr>
<th>Location</th>
<th>2012</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>24</td>
<td>48</td>
</tr>
<tr>
<td>Taiwan</td>
<td>66</td>
<td>70</td>
</tr>
<tr>
<td>Korea</td>
<td>101</td>
<td>100</td>
</tr>
<tr>
<td>Japan</td>
<td>20</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: MPI estimation

**Polarizer structure**

- Polarizer film
- Protection film
- Phase difference film
- Adhesive
- Release film for polarizers
6-1. New Demand Area

- Start marketing in Southeast Asia based on a top-class track record in Japan

**Improvement of purchasing power**
- Increase in workers’ wages caused by GDP growth

**Change of lifestyle**
- Westernized & Japanese-style clothing, food and housing
  - (Reduction of preservatives)
  - Safety & security of foods
  - Face-to-face selling ⇒ Retort & boiled ⇒ Chilled
- Hygiene
  - Disposable diapers, sanitary items become popular

**Expand business opportunities**
- Expansion of food packaging
  - DIAMIRON (Multilayer film)
  - DIAWRAP (Stretch film)
  - CVF (High barrier film)
- Expansion of hygiene films
  - Permeable film, Non-breathable film

---

Nominal GDP per capita of each country on the basis of historical trends in Japan (FY2012)

**Countries of New Demand**

- Great Britain
- Hong Kong
- Italy
- Germany
- France
- Japan
- Spain
- Saudi Arabia
- Korea
- Taiwan
- Czech Republic
- Chile
- Russia
- Poland
- Romania
- Argentina
- Turkey
- Malaysia
- Indonesia
- Philippines
- Vietnam
- India
- China
- Thailand
- Peru
- Brazil
- South Africa
- Iran
- Indonesia
- Thailand
- Vietnam
- India
- Japan

**Lifestyle-changing points**

- 10,000
- 20,000
- 30,000
- 40,000
- 50,000

**Notes**

- Nominal GDP per capita on the basis of historical trends in Japan (FY2012)
- Lifestyle-changing points

The diagram illustrates the growth in GDP per capita across various countries, highlighting areas where new demand is projected. The countries mentioned are indicative of regions where marketing strategies are being targeted.

**Key Insights**

- **Expansion** of food and hygiene products due to changes in lifestyle and purchasing power.
- **Diversity** in market opportunities across different countries.

**Figure**

- Graph showing GDP trends over time for selected countries.
- Ellipse indicating new demand countries.
6-1. Agribusiness Solutions
(Solar Plant Factory)

- Mitsubishi Plastics Agri Dream Co., Ltd. to expand the plant factory business in China

**Functional films/Hydroponic system**
- Keep the environment and natural resources safe
- Prevent foods from contamination

**Nov. 2011—**
MPAD & China Corp.
Started verification testing of the hydroponic system
- Production technology
- Adaptability to the market

**Jan. 2013—**
Production and sales of high-quality vegetables
- Business availability

**Full-scale entry into China**
Apr. 2014—
Hydroponic system business start
—FY2015
Sell 15 plant factories (target)

**Our Chinese Partner**
Suzhou China Corp. = Sales amount: ¥5 trillion

Marketing & Sales Channels
6-2. Progress in Generating Synergies: Polymer Processing and Information and Electronics

- Offer solutions based on the development of high-performance products

Synergies through MCC’s and MRC’s materials and MPI’s molding processing

- MCC, MRC (Material development technologies)
- MPI (Molding processing technologies)

LED lighting materials, optical films, Printed electronics, OPVs, OLED materials, and other products

- High gas barrier films
- Phosphor composites

- Sustainable resources Films and sheets
- High heat resistance Transparent films

Growth driver businesses
6-2. Polymer Processing and Information and Electronics

- Generation of synergies in sustainable resource products business

**MCC**
- High-performance polymer design technology/melt polymerization processing technology
- Bio-engineering plastic DURABIO
- Plant-derived
- Biodegradable

**MPI**
- Molding and forming technologies: broad customer base in a variety of industrial fields
- Injection molding technology
- Extrusion molding technology
- Film forming technology

Provide solutions to customers by development of high-performance films, sheets, and molded products
Development of applications for DURABIO bio-engineering plastic, which has high transparency and excellent optical properties, weather durability, and scratch resistance.

**Optical films and sheets**
- Responding to trend toward thinner and more-flexible products
  - Improve surface hardness
- Expecting more products to be made of plastic
  - Lighter weight desired
  - Prevents cracking as well

**Transparent acoustic walls**
- Growing environmental needs (for sound barriers, ensuring sunshine)
- Better views for passengers on expressways and high-speed railways
- Trials under way since Aug. 2013
- Plan to develop products integrated with OPV

**Low birefringence compared to PC**

**Has not yellowed much in weather durability testing**
Development of applications for biodegradable PBS plastic (BioPBS)

Biodegradable mulching films for agricultural use

- Mitsubishi Plastics Agri Dream Co., Ltd.
  Trade name: CAELUCCI
  Introduction of the plant-derived materials: Start from 2015

- Switch from polyethylene mulching films
  - Reduces labor (not necessary to strip off and collect)
  - Addresses environmental issues
    (film left behind after harvesting)

Development of other applications

- Agricultural materials
  - Environmentally friendly products

- Consumer electronics and office equipment
  - Molded parts and materials
    (incombustible)

- Automobiles
  - Glass fiber infused materials

Business development for PBS plastic

- Transition from petroleum-based materials to plant-derived materials

- Establish a stable production and supply structure

PTTMCC Biochem Company Limited
(Joint venture established with PTT of Thailand in Mar. 2011)
Today’s Agenda

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7-1. Business Development of MMA: Key Measures toward FY2015

Establish global operations and strengthen competitiveness

Overview of FY2013
- Slowdown of the Chinese economy
  - Downturns in sales volume and price
  - Price stagnation due to increased competition in other Asian markets
- Delay of the Beaumont plant
  - Purchase/resale of other manufacturers’ products
  - External purchase of main raw materials
  - Delay in start of production of MAA

Key measures toward FY2015
- Establish global operations
  - Optimization and market leadership
- Increase the rate of return and rationalization
  - U.S. (Beaumont): Commence production
  - Thailand: Commence production at new MAA facility (Mar. 2014, 8,000t)
  - Shanghai, China: Expand and rationalize facilities (80,000t)
  - Singapore: Improve energy efficiency 15%

Supply-demand balance of MMA monomers
7-1. Strategic Moves toward 2020

- Strengthen our position as the global leader by optimizing the MMA production process

<table>
<thead>
<tr>
<th>Process</th>
<th>Main raw material</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACH process</td>
<td>HCN (by-product of AN production)</td>
<td>Reduced competitiveness</td>
</tr>
<tr>
<td>C4 process</td>
<td>Derived from naphtha</td>
<td>Difficulty in procurement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increasing naphtha costs</td>
</tr>
<tr>
<td>New ethylene process</td>
<td>Based on low-cost gas</td>
<td>Increased cost competitiveness</td>
</tr>
<tr>
<td>(Alpha technology)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U.S.
- Partly replace the ACH process with Alpha-3
- Expand into South America

EAME*
- FY2016: Commence operations at Mid-East Alpha-2
- Development across the entire regions including India and Africa

China
- Growth strategies focused on the supply and demand balance in the Chinese market
- Expansion of the ACH and C4 processes within the context of the AN market

Japan
- Respond to changes in the demand structure
- FY2015: A portion of C4 process MMA production → MAA production

EAME*: Europe/Africa/Middle East
7-2. Carbon Fiber and Composite Materials: Key Measures toward FY2015

- Business expansion and increased revenues through active development of industrial applications

**Overview of FY2013**

- Sign of improvement in the balance between demand and supply for industrial applications
  - Expansion of demand for aircraft applications
  - Demand for pressure vessels
  - Recovery of demand for wind turbines
- Robust demand and recovery of prices in Asia for sports gear

**Key measures toward FY2015**

- Cost reduction and correction of prices
- Active development of industrial applications with high growth potential
  - Marketing of original intermediate materials - PCM, SMC, NCF, towpreg, etc.
  - Establishment of a value chain for automotive, pressure vessel and wind turbine applications

**Supply-demand balance for carbon fiber**

- Exceeds demand by 20,000t

**Demand forecasts for carbon fiber (industrial-use)**

- Other applications
- Compounds
- Equipment material/machine components
- High voltage cable
- Oil-drilling
- Civil engineering/construction reinforcement
- Pressure vessels
- Automotive
- Wind turbines

- Graph showing demand forecasts from 2011 to 2020
7-2. Development of Value Chains

- Develop global value chains to expand industrial application businesses

**Wind turbines** (mainly in Europe)
- Demand FY2013: 5,000t
- FY2015: 8,000t

**Automotive** (mainly in Europe)
- Demand FY2013: 2,200t
- FY2015: 6,600t

**Pressure vessels** (mainly in North America)
- Demand FY2013: 3,500t
- FY2015: 5,400t

- **TK Industries GmbH (GER)**
- **Structill S.A.** (FRA)
- **Acquisition of a composite company under review**
- **Investment in a composite company under review**
- **Otake Plant**
- **MRC-SGL**
- **Otake Plant, Toyohashi Plant**
- **Challenge Co., Ltd.**
- **MRCFAC (U.S.)**
- **SK Chemicals Co., Ltd.** (KOR)
- **Aldila, Inc. (U.S.)**

- **Acrylonitrile**
- **Precursor**
- **Carbon fiber tow**
- **Intermediate base materials**
- **Composites**

### Region

- **Europe**
  - New plant under review
  - TK Industries
  - Structill
- **Asia**
  - SK Chemicals
- **Japan**
  - Otake Plant
  - Mizushima Plant
  - MRC - SGL
  - Toyohashi Plant
- **North America**
  - MRCFAC
  - New plant under review

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*1 MRC-SGL: Manufacture of CF precursors for BMW Established in Apr. 2011 (MRC 66%)
*2 Business alliance
*3 Investment
7-2. Increase in Production Capacity of Carbon Fiber Precursors for BMW

- Launch of the full-scale supply of carbon fiber raw materials for the mass production of the EV (i3) and PHEV luxury sports cars (i8) that realize sustainability

- Realized lighter weight by using CFRP in passenger cells
- Approx. 100kg of carbon fiber used per vehicle. Scraps of carbon fiber are recycled.
- Carbon fiber produced in the BMW/SGL joint-venture plant (Washington State, U.S.)
7-2. Water Treatment Systems and Services: MBR Market Forecast and Our Targets

- Expand business in growing overseas MBR markets and retain a 36% share; carry out activities across the entire water business

<table>
<thead>
<tr>
<th>Market Size</th>
<th>MRC Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2009</td>
<td>FY2010</td>
</tr>
<tr>
<td>FY2015</td>
<td>FY2011</td>
</tr>
</tbody>
</table>

Source: Based on “Overview and forecast on technologies related to high-function separation membrane/filters, 2010”, Fuji Keizai (May 2010)
7-2. Expansion of Value Chains

- Acquisition of Wellthy, the nation’s No. 1 company in the potable water treatment of groundwater, to capture the growing demand for on-site water treatment systems (private water supply) as a disaster countermeasure.

**WELLTHY CORPORATION**
- Over 50% of estimated share in potable water treatment of groundwater
- An installation track record of over 1,000 Groundwater Membrane Filtration systems in Japan
- Owns a water quality assessment center certified by the Minister of Health, Labour and Welfare, enabling swift official assessment

**Groundwater Membrane Filtration System Installations**
- Hospitals and nursing homes 43%
- Supermarkets and department stores 22%
- Factories 9%
- Health club 5%
- Complex facilities 4%
- Educational facilities 3%
- Station and related facilities 3%
- Others 4%
- As of Jul. 2013

**Groundwater Membrane Filtration System**
- A potable water system that converts groundwater to safe and reliable drinking water through advanced membrane filtration, which is being adopted as a next-generation water system.

**System flow (example)**
- Water source
- Conventional treatment
- Microfiltration membrane treatment (advanced process)
- Operation & Maintenance 24/7 monitoring

- NRC: Primary treatment process
- MRC: Membrane filtration
- Processed water tank
- Water quality monitoring system
- Municipal water supply
- Deep well
- Raw water tank
- Chemical storage tank
- In case of system failure, the system will switch automatically to 100% municipal water supply.
7-3. Progress in Generating Synergies: Carbon Fiber and Composite Materials and Water Treatment Systems and Services

[Carbon fiber and composite materials]

- Build competitive value chains in wind turbine, pressure vessel and automotive areas

[Water treatment systems and services]

- Combine water treatment technologies from across the MCHC Group and accelerate creation of a new water treatment business in collaboration with Miura Co., Ltd.

**Proprietary technologies and advantages of the MCHC Group and Miura**

- MRC: Membrane, MBR technology, flocculants
- NRC: Water treatment equipment, construction
- MEC: Equipment engineering, construction
- MCC: Ion-exchange resins
- Kansai Coke and Chemicals Co., Ltd., MCM, etc.
- Miura: Small boilers, maintenance, remote control systems

- Proposal and promotion of ZLD
- Promoting development of low-cost and small equipment packages

**Fusion of proprietary materials and technologies**

- MCC: Investment in a manufacturer with production facilities in Asia to be concluded soon

- MRC: Reviewing with PTT the development of ASEAN business

- MPI: Under review

**Development of competitive value chains**

- Raw materials
- Intermediates
- Molded products
- End products

**Product development based on PCM technology**

- Automotive
- Pressure vessels
- Wind turbines

**Proprietaries**

- Clean/industrial water supply
- Improved efficiency by reduction of water use and recycling
- Wastewater treatment

**Customers (including chemical, food, pharmaceutical companies)**

- Proposal and promotion of ZLD
- Promoting development of low-cost and small equipment packages

**Sewage**

- Proposal and promotion of ZLD
- Promoting development of low-cost and small equipment packages