

**APTSIS**



Sustainability

**The Mitsubishi Chemical Holdings Group  
Mid-term Management Plan  
(FY2011 - FY2015)**



Health

**APTSIS 15**

**Presentation to Investors**

December 8, 2010

**Yoshimitsu Kobayashi  
President & Chief Executive Officer**



Comfort

*Good **Chemistry** for Tomorrow*  
Creating better relationships among people, society, and our planet.

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, petrochemicals, and these business results are subjected to influences of world demands, exchange rates, price and procurement volume of crude oil and naphtha, trend of market price, 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.  
MCMC: Mitsubishi Chemical Medience Corporation

# Agenda

- Review of the former mid-term management plan, **APTSIS 10** (FY2008 - 2010)

- The new mid-term management plan, **APTSIS 15** (FY2011-2015)  
 ‘Grow, Innovate, and Leap Ahead  
 by orchestrating the Group strengths’

1. Aspiration 2025 and Goal 2015
2. Basic Strategies and Initiatives
3. Enhancing Shareholder Value and Corporate Value
4. Introduction of **KAITEKI** indexes

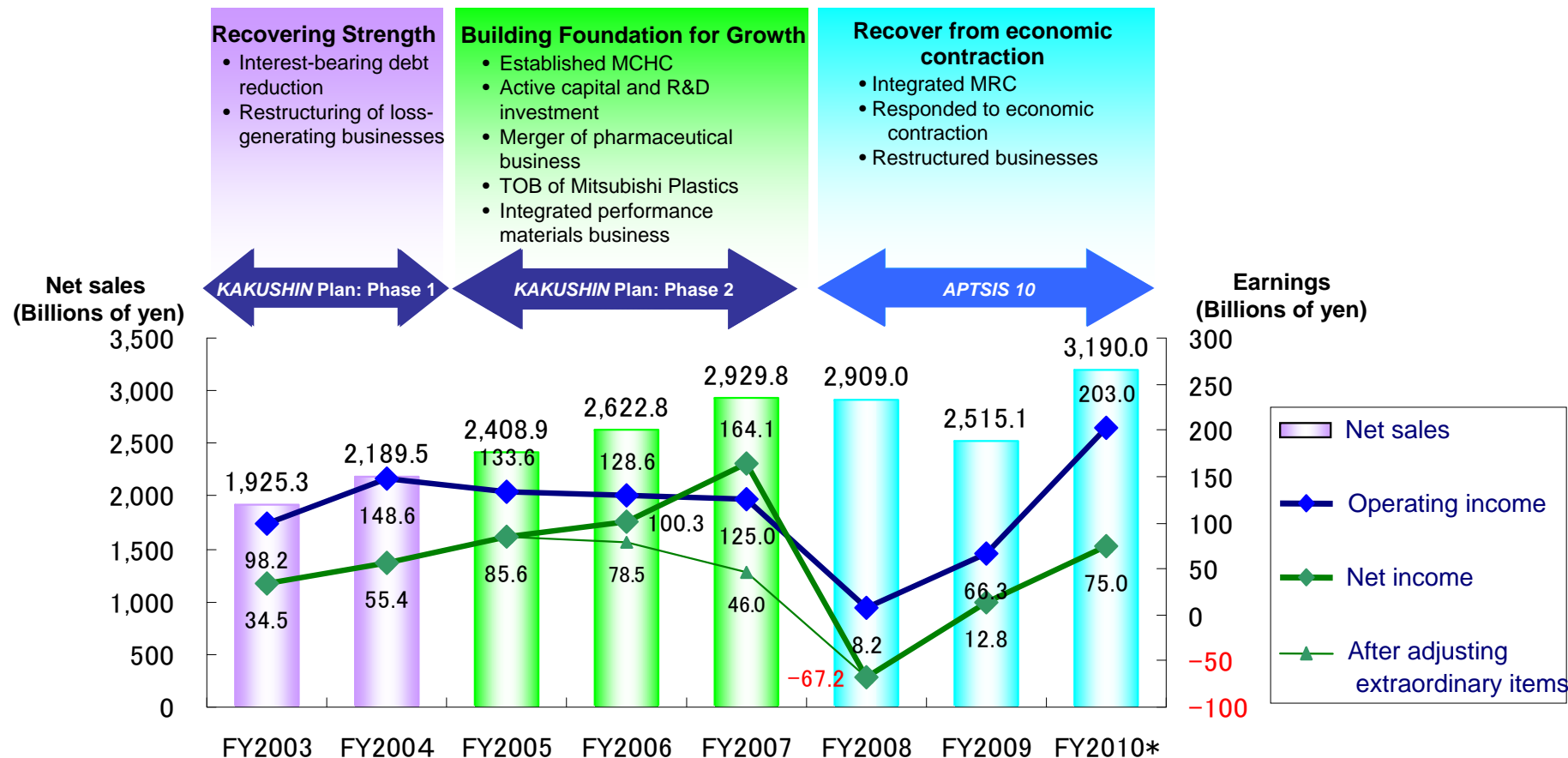
FY2008-2010: April 2008 - March 2011  
 FY2011-2015: April 2011 - March 2016

**Review of *APTSIS 10*** (FY2008 – 2010)

**‘Respond to economic contraction by business reform,  
accelerating innovation, and leaping ahead ’**

# Operating Results under APTSIS 10

Sharp recovery by structural reforms and leaping ahead



Operating income	98.2	149	134	129	125	8	66	203
ROA (%)	3.4	5.3	5.6	6.1	8.5	(1.5)	1.4	
D/E ratio	2.2	1.6	0.98	1.04	0.99	1.55	2.16	
Net D/E ratio				0.95	0.75	1.06	1.77	

\* forecasts

# Operating Income by Business Segment

## Comparison of the targets and FY2010 forecasts

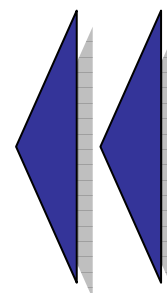
(Billions of yen)

	Targets for the final year of APTSIS 10	FY2010 forecasts*	Change
Electronics Applications	14**	4	(10)
Designed Materials	38**	38	0
Health Care	100	77	(23)
Chemicals	29	44	15
Polymers	21	45	24
Others	16	3	(13)
Corporate	(8)**	(8)	0
Contingency	(20)	-	-
<b>Total</b>	<b>190</b>	<b>203</b>	<b>13</b>

## Ref. Results of Growth & Innovation Strategies (not including Leaping Ahead (M&A))

(Billions of yen)

FY2010 estimates	Change vs. targets for the final year of APTSIS 10
4	(10)
22	(16)
77	(23)
40	11
16	(5)
3	(13)
(8)	0
-	-
<b>154</b>	<b>(36)</b>



\* FY2010 forecasts: Performance Products: 20%; Health Care 37%; Industrial Materials 42%; Others 1%

\*\* Targets for the final year of APTSIS 10 have been recalculated according to FY2010 segmentation

# Strategic Investments for Leaping Ahead

Strategic investment (M&A, etc.) accelerated portfolio reforms, increased net sales by ¥640 billion and operating income by ¥49 billion (FY2010 forecasts)

## Major Strategic Investments for Leaping Ahead (approx. ¥250 billion)

Action taken	Implementation	Objective
Consolidation of Quadrant through a tender offer of AQUAMIT*	September 2009	Strengthen performance product business
Consolidation of Nippon Synthetic Chemical Industry	September 2009	Strengthen specialty chemicals business
Affiliation by equity method of Taiyo Nippon Sanso	September 2009	Strengthen performance product business
Implementation of tender offer and share exchange to consolidate and wholly own MRC	March 2010 October 2010	Expand global business domain and product portfolio

\* Joint venture between MPI and Quadrant founders

## Investments for Growth Strategy (¥15 billion)

MCC: Acquired Freecom, formed capital and business alliance with Pioneer, and invested in OPV modules business

MTPC: Invested in Cytochroma and formed capital & business alliance with Choseido Pharmaceutical



# Restructuring of Businesses

## Accelerated Structural Reforms

Restructuring of Businesses (withdrawal & operational restructuring)		
MCC	Petrochemicals	<ul style="list-style-type: none"> <li>* SM/Derivatives</li> <li>* PVC/VCM</li> <li>* Caprolactam/Nylon</li> <li>* Surfactants</li> <li>* PTA</li> </ul>
	Performance Products	<ul style="list-style-type: none"> <li>* Phosphors</li> <li>* Epoxy resins</li> <li>* Fertilizers</li> <li>* Activated carbon</li> <li>* Inorganic chemicals</li> </ul>
MTPC		<ul style="list-style-type: none"> <li>* Consolidations of production and service companies</li> <li>* Consolidations of locations</li> </ul>
MPI	Industry & Life Infrastructure	<ul style="list-style-type: none"> <li>* Pipe materials</li> <li>* Agricultural materials</li> </ul>
MRC	Fibers	<ul style="list-style-type: none"> <li>* Production consolidation of acetate filament yarns</li> </ul>



**Withdrawal from unprofitable businesses\***

\* Net sales: ¥320 billion  
Operating income: (¥17 billion)

Accumulated extraordinary loss: ¥ 17 billion

JV shall be established in April 2011 to unify naphtha cracker operations of MCC and Asahi Kasei Chemicals in Mizushima

Text in blue: restructuring for strengthening operations

## Fixed cost reduction by ¥32 billion (FY2010 forecasts)

# Basic Strategies and Results

Respond to economic contraction by business reform, accelerating innovation, and leaping ahead

## Basic concept of APTSIS 10

### Growth Strategy

◆ Focus on Growth Business

- FPD components
- Pharmaceuticals

◆ Structural reforms

- Main focus on petrochemicals
- Significant reduction in CAPEX

### Innovation Strategy

◆ Focused acceleration

- White LEDs
- Lithium-ion battery materials for hybrid electric vehicles

### Leaping ahead (M&A)

◆ Prompt realization

- Quadrant
- Nippon Synthetic Chemical Industry
- Taiyo Nippon Sanso
- MRC

## Strategic initiatives under APTSIS 10



Integrated with MRC



Steady structural reforms



Agreed to establish JV to unify naphtha cracker operations of MCC and Asahi Kasei Chemicals in Mizushima



Management index	APTSIS 10 targets	FY2010 forecasts
Operating income	≥ ¥190 billion	¥203 billion
ROA	≥ 6%	4.6%
GHG emission reductions	≥ 20% reduction by 2015	as planned

Despite the severe economic contraction, restructuring of businesses and M&A led to achieving targeted operating income

# Passing Baton from **APTSIS 10** to **APTSIS 15**

**Overall**

- Strengthen financial position and reduce assets
- Generate integration synergies with MRC
- Address and prevent recurrences of compliance issues

**Electronics Applications**

- Accelerate business growth in white LED lighting and materials
- Accelerate commercialization of organic photovoltaic modules & materials and organic photo semiconductor businesses

**Designed Materials**

- Accelerate business growth in lithium-ion battery materials
- Expand functional composite materials business

**Health Care**

- Approval of late stage pharmaceutical products and favorable growth of new products
- Accelerate global business growth
- Enrich pharmaceutical pipeline beyond **APTSIS 15**

**Chemicals**

- Continue restructuring, including Mizushima's ethylene center
- Maintain stable earnings and operation

**Polymers**

- Shift to high-performance, high-value-added products
- Global operation

**Mid-term Management Plan** (FY2011 – 2015)

**APTSIS 15**

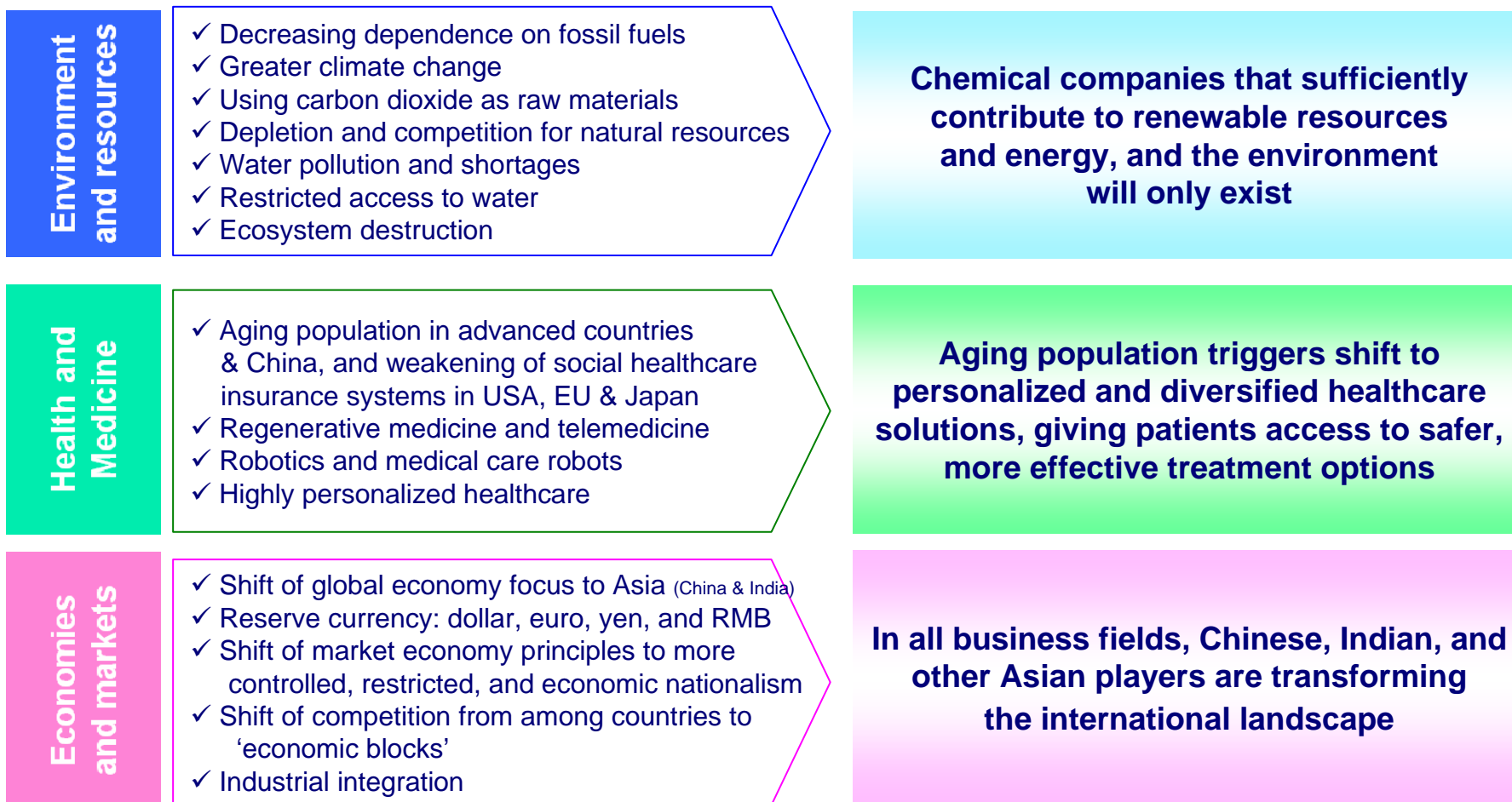
**‘Grow, Innovate, and Leap Ahead  
by orchestrating the Group strengths’**

# **APTSIS 15**

## **Aspirations 2025 and Goals 2015**

# Vision 2025 - Global Trends

## Paradigm shift – More challenging market landscape



# Aspirations 2025

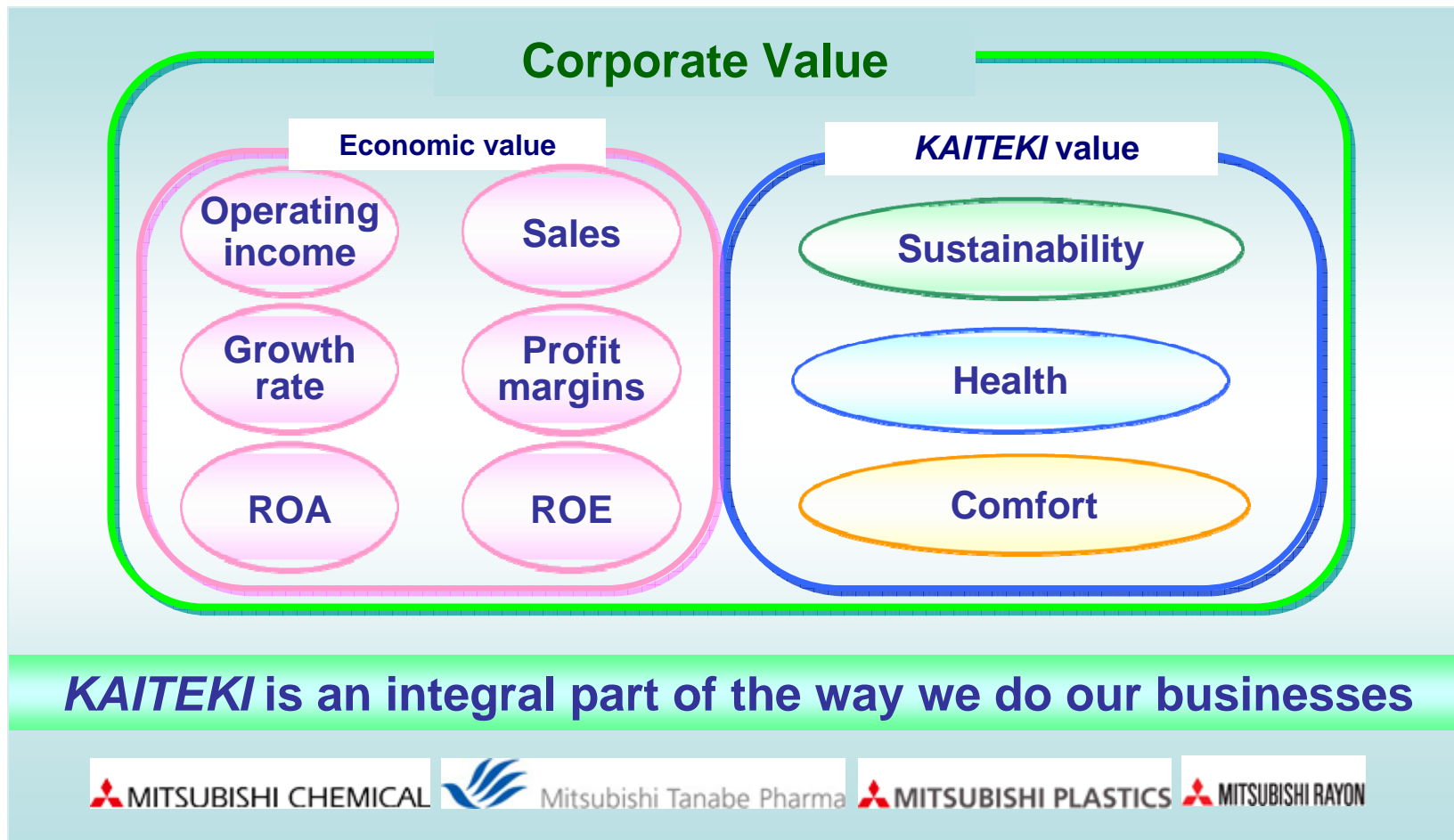
At Mitsubishi Chemical Holdings Group companies,  
 we are committed to run our business in a way that delivers  
**“KAITEKI”** solutions  
 by putting infinite potential of ‘Good Chemistry’ to work

Three decision criteria for corporate activities

Sustainability  
 Health  
 Comfort

# MCHC's Corporate Value

Our Corporate value is the sum of economic and *KAITEKI* values





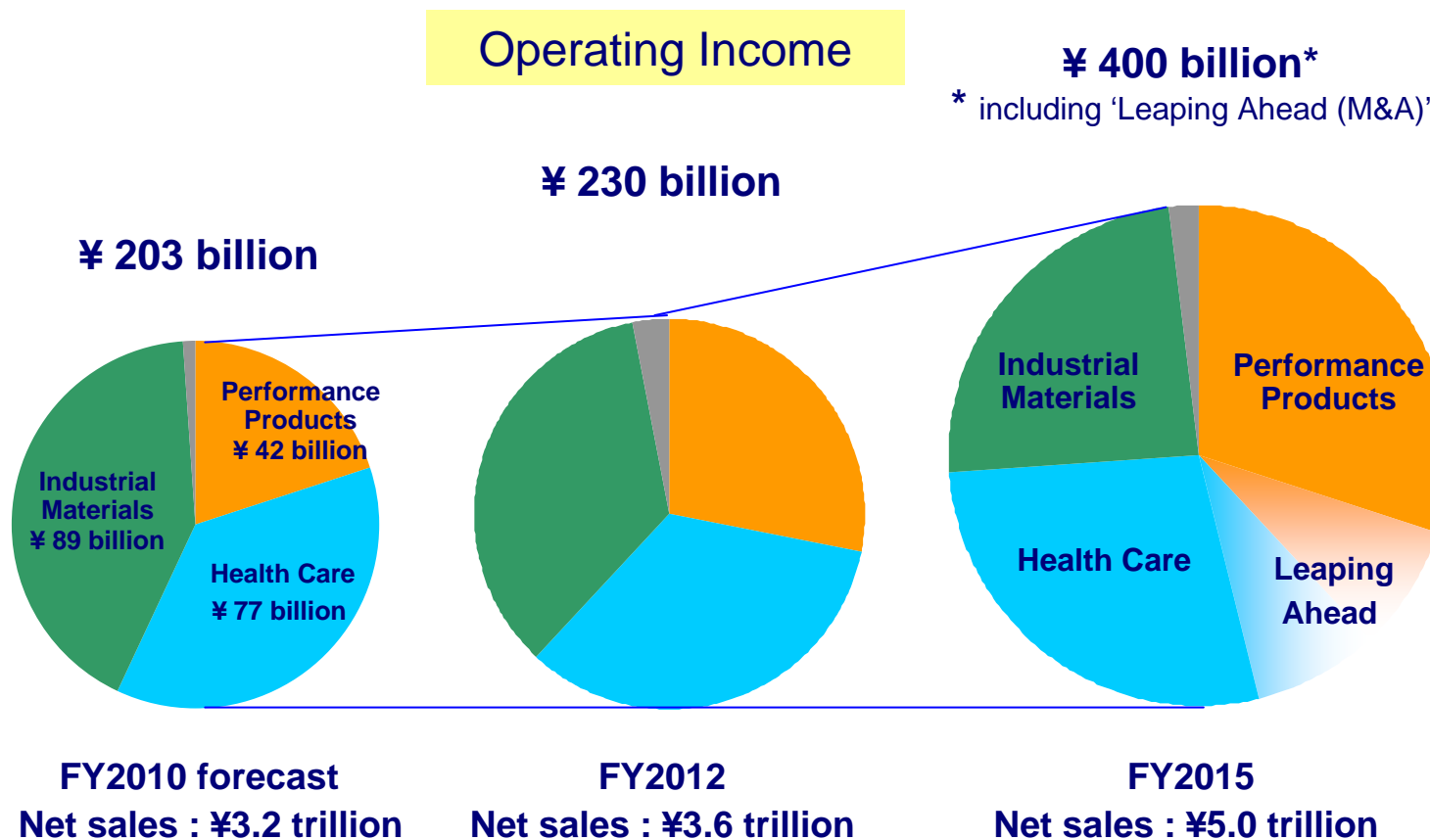
# Goals 2015

## Targets for enhancing corporate value

	FY2012	FY2015	
<b>Economic Indexes</b>	<b>Operating income</b>	<b>¥230 billion</b>	
	<ul style="list-style-type: none"> <li>➢ Growth &amp; Innovation Strategies</li> <li>➢ Leaping ahead (M&amp;A)</li> </ul>	<ul style="list-style-type: none"> <li>¥330 billion</li> <li>¥70 billion</li> </ul>	
	<b>ROA</b> (income before income taxes)		≥ 8%
	<b>Net debt-to-equity ratio</b>		1.0
	<b>Overseas sales ratio</b>		≥ 45%
	<b>KAITEKI Indexes</b>	<b>Sustainability Index</b>	
- Environmental impact			
<ul style="list-style-type: none"> <li>➢ reduce by 30% (Japan) vs. FY2005 (17% reduction of GHG)</li> </ul>			
<b>Health Index</b>			
- Index derived by the degree of difficulty to treat diseases & the number of administered patients			
<ul style="list-style-type: none"> <li>➢ increase by 30% vs. FY2009</li> </ul>			
<b>Comfort Index</b>			
- New products ratio in the Performance Product & the Health Care domains			
<ul style="list-style-type: none"> <li>➢ ≥35%</li> </ul>			

# Vision 2015 Revenues and Operating Income

Shift to high-performance products and high-value-added business portfolio



# **APTSIS 15**

## **Strategies and Initiatives**

# Assumptions

Variables		Assumptions
Global economy	➔	Emerging countries driving growth; advanced nations only expanding slowly
Naphtha price	➔	Naphtha Price: FY2011 - 2012 ¥50,000/kl FY2013 - 2015 ¥55,000/kl
FOREX	➔	¥80/US\$
Intensifying competition in environment & energy businesses	➔	Prioritize in the areas in which we can display our leadership
Medical environment	➔	Biennial drug price revisions and expansion of generics to reduce medical expenditure
Petrochemicals supply-demand balance	➔	Excess supply, as facilities expanded abroad particularly in Middle East and China, entering in Japanese market

# Business Portfolio

Categorized by profitability, market presence & attractiveness

◆ Performance Products ◆ Health Care ◆ Industrial Materials

<p><b><u>Next-generation Growth Business (6)</u></b></p> <ul style="list-style-type: none"> <li>◆ Organic photovoltaic modules and materials</li> <li>◆ Organic photo semiconductors</li> <li>◆ Advanced performance products</li> <li>◆ Agribusiness solutions</li> <li>◆ Healthcare solutions</li> <li>◆ Sustainable resources</li> </ul>	<p><b><u>Growth Business (11)</u></b></p> <ul style="list-style-type: none"> <li>◆ White LED lighting and materials</li> <li>◆ Lithium-ion battery materials</li> <li>◆ FPD components</li> <li>◆ Performance composite materials</li> <li>◆ High performance molding products</li> <li>◆ Specialty chemicals</li> <li>◆ Water treatment system and services</li> <li>◆ Pharmaceuticals</li> <li>◆ High performance graphite</li> <li>◆ Performance polymers</li> <li>◆ MMA/PMMA</li> </ul> <div data-bbox="1608 624 1951 1038"> <p>Contribution to operating income from growth Business</p> <p>FY2010 64%</p> </div>
<p><b><u>Business to be restructured (15)</u></b></p> <ul style="list-style-type: none"> <li>◆ Naphtha crackers, etc.</li> </ul>	<p><b><u>Cash-generating Business (18)</u></b></p> <ul style="list-style-type: none"> <li>◆ Recording media</li> <li>◆ Performance films</li> <li>◆ Food ingredients</li> <li>◆ Diagnostics &amp; support for new pharmaceutical development</li> <li>◆ Terephthalic acid</li> <li>◆ Coke</li> <li>◆ PHL/BPA/PC</li> <li>◆ PP</li> </ul>

# Strategies

**Grow, Innovate, and Leap Ahead  
by orchestrating the Group strengths**

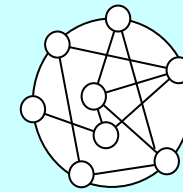
<p><b>Strengthening fundamentals</b></p>	<p><b>Generate synergies, improve financial position, and reform business structure</b></p>
<p><b>Growth Strategy</b></p>	<ul style="list-style-type: none"> <li>• Accelerate transformation to deliver high-performance products and high-value-added businesses</li> <li>• Expand green businesses</li> <li>• Develop new medicines to fulfill unmet medical needs</li> <li>• Operate globally</li> </ul> <p><i>Deliver KAITEKI solutions by pursuing Sustainability, Health, and Comfort</i></p>
<p><b>Innovation Strategy</b></p>	<p><b>Build new businesses for the future</b></p>
<p><b>Leaping Ahead (M&amp;A)</b></p>	<p><b>Invest strategically in alliances and acquisitions</b></p>

# Growth Strategy

**Accelerate transformation to high-performance and high-value-added business portfolio by orchestrating the Group strengths**

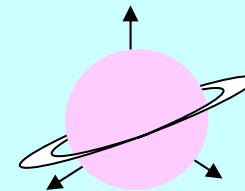
## ◆ Performance Products

- Expand high-performance and high-value-added businesses by integrating key technologies and know-how
- Expand green businesses
- Accelerate global expansion



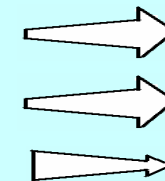
## ◆ Health Care

- Strengthen sales of current major products by LCM \*  
\* life cycle management
- Maximize profit by new ethical drugs and increase approved products in USA, EU and China
- Strengthen pipeline to fulfill unmet medical needs



## ◆ Industrial Materials

- Globalize operations and accelerate increasing value-added product ratio (strengthen ties with regional partners)
- Balanced growth with product chain optimization
- Complete restructuring in Japan



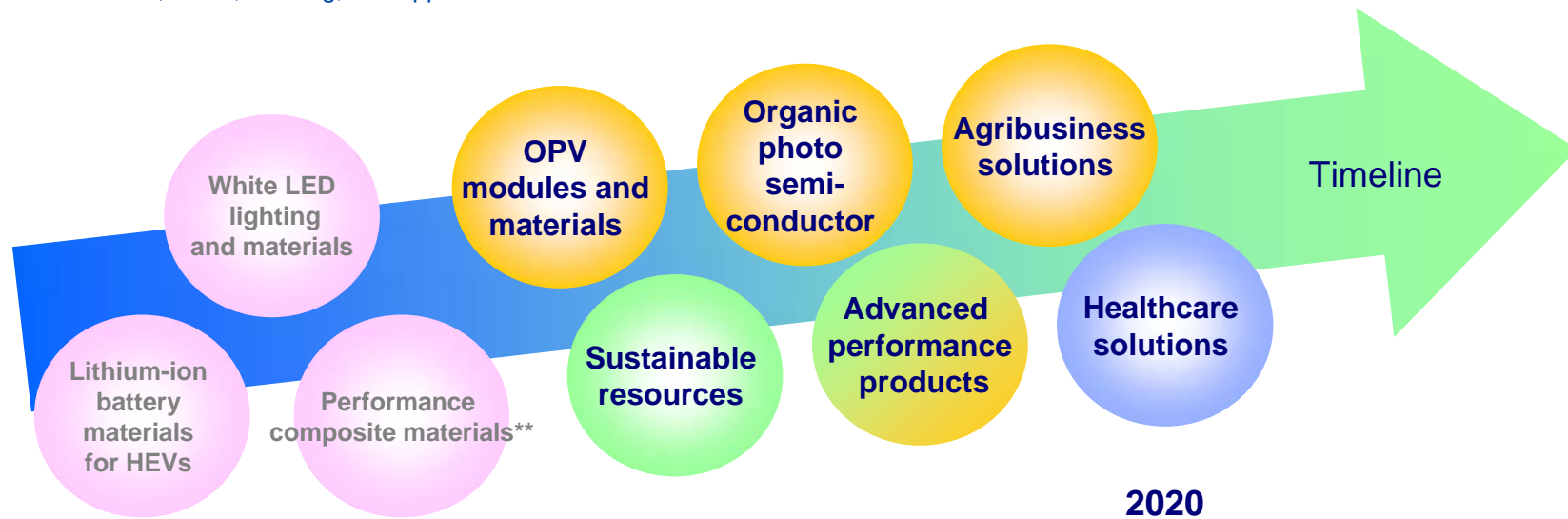
# Strategy for Innovation

Accelerate launch of next growth drivers

Challenge the changing market landscape



\*food, water, housing, and apparel



\*\*chemical components for vehicles

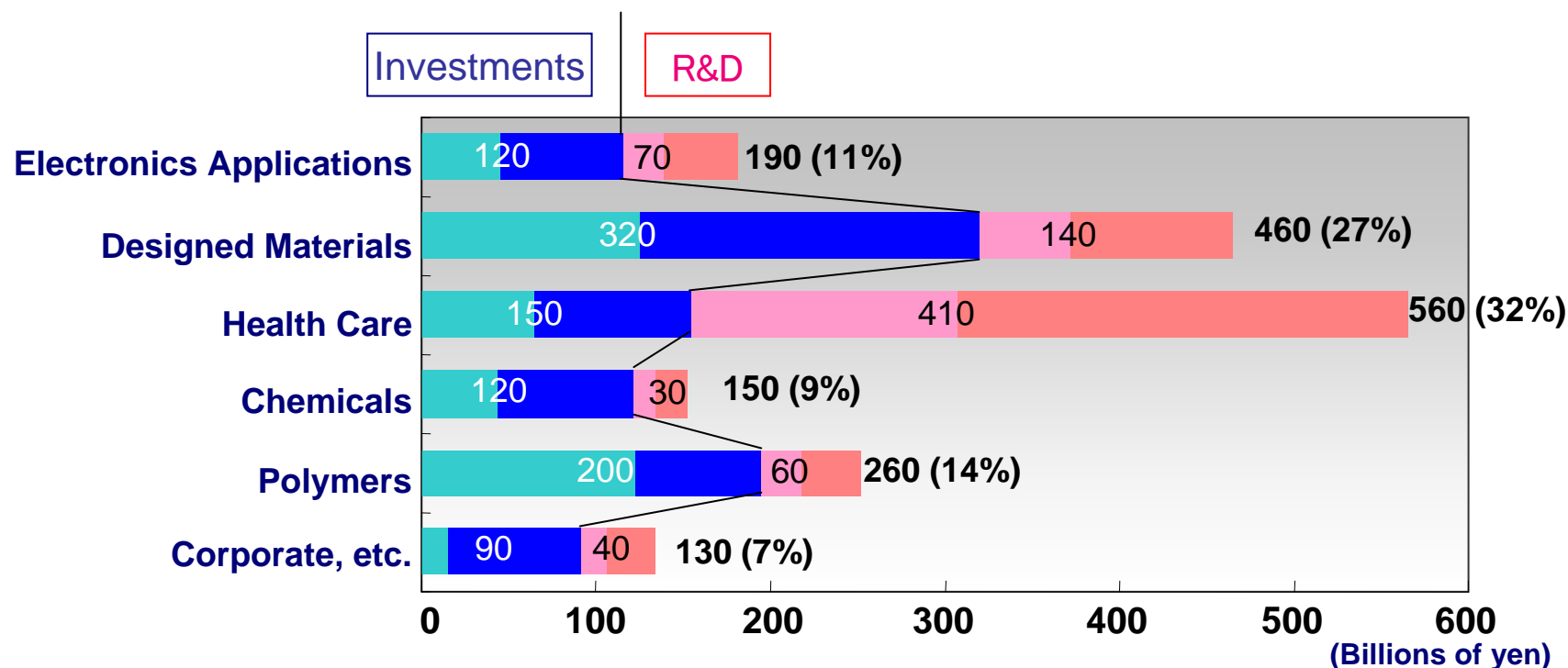


# Investments and R&D

Invest decisively to grow and innovate

(Billions of yen)

	Five years	FY2011–2012	FY2013–2015
Investments	1,000	420	580
(Cash Flow-base)	(940)	(340)	(600)
R&D	750	280	470



## Leaping Ahead (M&A)

---

**Strategically allocate resources in alliances and acquisitions to expand businesses**

**Priorities:**

- **Strengthen Growth and Next-generation Growth Businesses**
- **Accelerate global expansion**
- **Performance Products and Health Care domains**

# **APTSIS 15**

## **Performance Products**

# Performance Products - Strategies

**Accelerate launch of green businesses, pursue further value-addition, and reach out to global markets**

## Growth Strategy

- **Expand high-performance and high-value-added businesses**
  - Performance composite materials, high performance molding products, specialty chemicals
- **Expand green businesses**
  - White LED lighting and materials; lithium-ion battery materials
- **Accelerate global expansion**
  - FPD components, water treatment system and services

## Innovation Strategy

- **Building & expanding new businesses for the future**
  - OPV modules and materials, organic photo semiconductors, advanced performance products, agribusiness solutions

## Cash-generating Business

- **Increase profit steadily**
  - Recording media, performance films, food ingredients

# Growth Strategy (1)

## Expand high performance & value-added businesses

### Designed Materials

#### Performance composite materials

■ Net Sales: ¥42 billion (FY2010) ➡ ¥110 billion (FY2015)

■ The industry top group

- ✓ Expand high-performance composites and component businesses by integrating technologies in pitch-based/PAN-based carbon fibers and thermoplastics

- ✓ Expand capacity

		Unit: ton/y	
		FY2010	FY2015
Global market size	Total CF	30,000	70,000*
MCHC Gr.'s production capacity	CF-PAN	7,400	13,800
	CF-Pitch	1,000	1,450

\*estimated

- ✓ Strengthen alumina fiber business with continued top mkt share (MAFTEC for automobile emission controls and heat insulating application in steel furnaces etc.)

#### High performance molding products

■ Net Sales: ¥55 billion (FY2010) ➡ ¥80 billion (FY2015)

- ✓ Expand business in automotive, semiconductor, food processing, and energy sectors by delivering products w/ integrated technologies in engineering plastics, resins, carbon & glass fibers
- ✓ Extend operation from Europe to China and Asia

#### Specialty chemicals

■ Net Sales: ¥73 billion (FY2010) ➡ ¥110 billion (FY2015)

- ✓ Expand coating materials for automotive and motorcycle in China, Indonesia, and Thailand
  - ramp up capacity to 10,000 t/y by FY2015
- ✓ Strengthen environment-friendly water-borne emulsion business
- ✓ Expand UV curable coating materials business
- ✓ Expand epoxy resin businesses for semiconductors

# Growth Strategy (2)

## Expand green businesses

### Electronics Applications

White LED lighting & materials

■ Net Sales: ¥14 billion (FY2010) → ¥100 billion (FY2015)

■ Global leader in FY2015

- ✓ Market leader in GaN substrates, phosphors, and encapsulant
- ✓ Market creation of *KAITEKI* lighting globally
- ✓ New liquid phase production facilities: boost capacity 200-fold by FY2015
- ✓ Global target market shares in FY2015:

	FY2015 targets
GaN substrate	40%
Phosphors	50%
Encapsulants & packaging materials	20%

### Designed Materials

Lithium-ion battery materials

■ Net Sales: ¥17 billion (FY2010) → ¥80 billion (FY2015)

■ Global leader in FY2015

- ✓ Start global operation in JPN, EU, USA, and China for HEVs and EVs
- ✓ Global target share in FY2015 and production capacity expansion by FY2015:

FY2015 targets	
Electrolytes	40%
Anodes	35%
Overall total	20%

	FY2010	FY2015 targets
Electrolytes	8,500 t/y	50,000 t/y
Anodes	3,000 t/y	35,000 t/y
Cathodes	600 t/y	15,000 t/y
Separators	12 million m <sup>2</sup> /y	72 million m <sup>2</sup> /y

# Growth Strategy (3)

## Accelerate global operation

### Designed Materials

#### FPD components

■ Net Sales: ¥103 billion (FY2010) → ¥190 billion (FY2015)

■ Global top

- ✓ Expand business in China (panel assembly for FPD shift to China from Japan, Korea, and Taiwan)
  - panel market volume: 95 million m<sup>2</sup>/y (FY2010) → 140 million m<sup>2</sup>/y (FY2015, estimated)
  - increase capacity in OPL film; set up PET film production facility in China (FY2013); and increase capacity in acrylic resin plate for light guiding plate application
- ✓ Sustain market share by ensuring competitive quality and cost
  - expected market share in FY2015

OPL film for LCD	PET film	Acrylic sheet*	RGB resists	Adhesive sheet for touch panel
25%	40%	20%	25%	40%

\* dominant share in large light guide plate; 60% share in MMA light guide plate applications

#### Water treatment system & services

■ Net Sales: ¥27 billion (FY2010) → ¥70 billion (FY2015)

- ✓ Expand industrial wastewater reclamation business using MBR (membrane bioreactor) process in China and Southeast Asia with competitive PVDF membranes
  - production increase in China for membranes and units
  - alliance with engineering companies in major areas in China
- ✓ Expand global sales of *CLEANSUI* in China and Asia

# Innovation Strategy

## Building and expanding new businesses for the future

<p><b>OPV modules and materials</b></p>	<p><b>Target net sales: ¥50 billion (FY2015 )</b></p> <ul style="list-style-type: none"> <li>● Accelerate new market creation of OPV modules for building- and automotive-integrated photovoltaics and enter the market (FY2012)</li> <li>● Improve performance of OPV cell efficiency from 12% (FY2012) to 15% (FY2015)</li> <li>● Target 30% market shares for materials such as barrier films and sealants</li> </ul>
<p><b>Organic photo semiconductor</b></p>	<p><b>Target net sales: ¥30 billion (FY2015 )</b></p> <ul style="list-style-type: none"> <li>● Launch 'evaporated OLED Lighting' (FY2011) and pre-market high-end lightings</li> <li>● Commercialize mass produced 'solution OLED device' (FY2014)</li> </ul>
<p><b>Advanced performance products</b></p>	<p><b>Target net sales: ¥20 billion (FY2015 )</b></p> <ul style="list-style-type: none"> <li>● Deliver products for automobile, energy, environment &amp; industrial markets                             <ul style="list-style-type: none"> <li>- Gas diffusion layer for fuel cell, CFRTP (Carbon Fiber Reinforced Thermo Plastics) prepreg, large size fiber composites, moth's eyes film (non-reflection), AQSOA</li> </ul> </li> </ul>
<p><b>Agribusiness solutions</b></p>	<p><b>Target net sales: ¥10 billion (FY2015 )</b></p> <ul style="list-style-type: none"> <li>● Deliver cost competitive plant production system &amp; materials (including plants for medicinal use)</li> <li>● Research in water-saving agricultural system</li> </ul>



# Cash-generating Business

## Electronics Applications

**Recording media**

■ **Net Sales**                      **¥74 billion (FY2010)**      ➡      **¥100 billion (FY2015)**

■ **Global top**

- ✓ Target 'total storage media' top brand (Verbatim)
  - target market share in FY2015: optical discs 20%; HDD etc. 10%
  - be a market leader in organic dye-based blu-ray disc

(Enter in LED lighting business and expand by taking advantage of Verbatim sales channel\*)

\* LED lighting earnings not included in net sales

## Designed Materials

**Performance films**

■ **Net Sales**                      **¥53 billion (FY2010)**      ➡      **¥70 billion (FY2015)**

- ✓ Stable earnings in food packaging business by rationalization
- ✓ Reach out to new markets in non-food applications
  - medical applications; batteries, and alcohol beverage

**Food ingredients**

■ **Net Sales**                      **¥15 billion (FY2010)**      ➡      **¥30 billion (FY2015)**

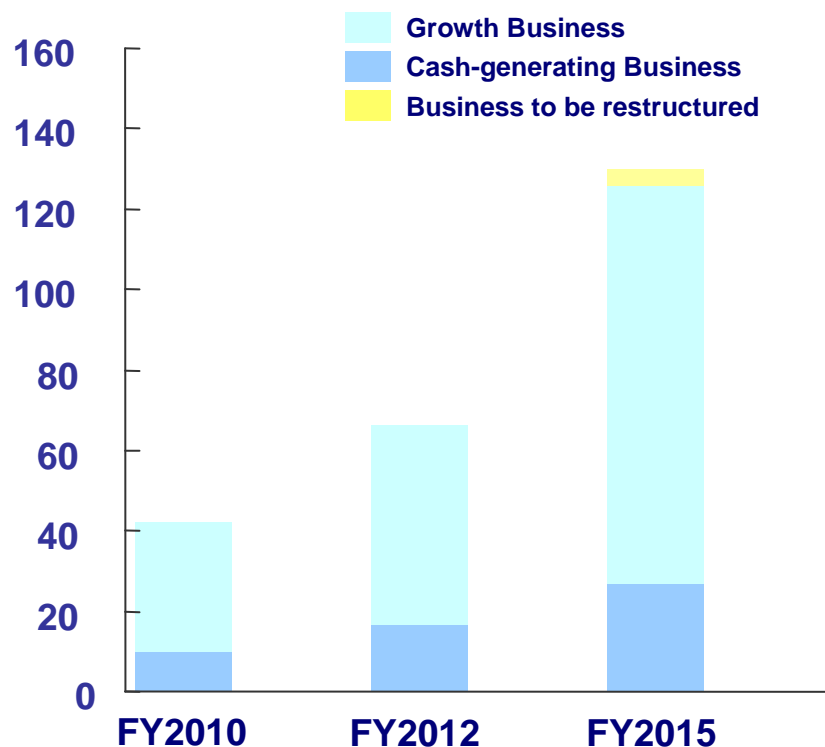
- ✓ Start compounding ingredients business in China w/ unique emulsifiers as key materials
- ✓ Expand business foundation by leveraging fermentation technologies (e.g. erythritol) and partnerships

# Operating Income and Resource Allocation Plan

Accelerate launch of green businesses, pursue further value-addition, and reach out to global markets

## Operating Income

Billions of yen

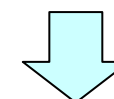


## Resource allocation plans

Billions of yen

APTSIS 10	FY2008-2010*	FY2010**
Investments	140	86
R&D	75	33

\*FY2010 forecast  
\*\*Including MRC



Billions of yen

APTSIS 15	FY2011-2015	5 year average
Investments	440	88
R&D	210	42



**APTSIS 15**

**Health Care**

# Health Care - Strategies

**Accelerate to be a global research-driven pharmaceutical company and deliver healthcare solutions**

## ■ Growth strategy (ethical drugs)

- Strengthen sales of current major products by LCM (life cycle management)
- Maximize profit by new ethical drugs and increase approved products in USA, EU and China
- Strengthen pipeline to fulfill unmet medical needs

## ■ Innovation strategy (healthcare solutions)

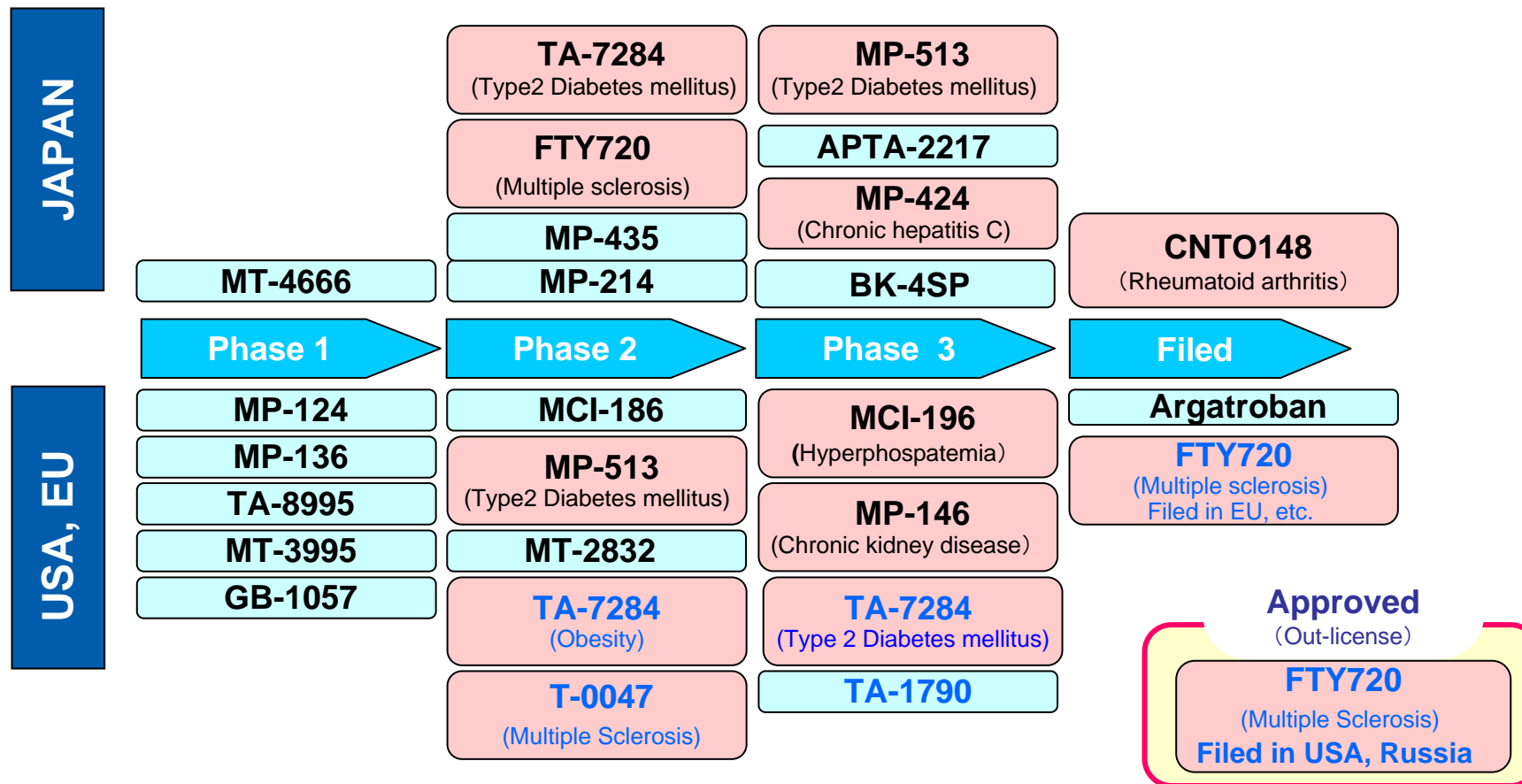
- Deliver healthcare solutions through pharmaceuticals and diagnostics
- Collaboration among the Group healthcare-related operations

## ■ Cash-generating Business

- Stabilize earnings from Cash-generating Businesses
  - Diagnostics & support for new pharmaceutical development
  - Generics

# Growth Strategy (1)

## Pipeline for growth (ethical drugs)



Expecting high profitability; targeted to be launched by 2015

Blue text: Out-license

# Growth Strategy (2)

## Profit maximization by new products (ethical drugs) in Japan

### Current main products

- ✓ Strengthen life cycle management
  - *Remicade*: expand sales by approval of dose escalation for Clone disease, etc.
  - Current main products (e.g. *Radicut*): maintain profit by approval of additional new formulation, large size clinical trials, and approval of additional indications

### New products

MP-513,TA-7284 (Type 2 Diabetes mellitus)

MP-513: P3, scheduled to be filed in FY2012; TA-7284: P2

CNT0148 ( Rheumatoid arthritis )

Filed by Janssen in FY2010 (to be co-marketing with Janssen)

FTY720 (Multiple sclerosis)

P2, scheduled to be filed in FY2010 by MTPC (to be co-marketing with Novartis)

MP-424 (Chronic hepatitis C)

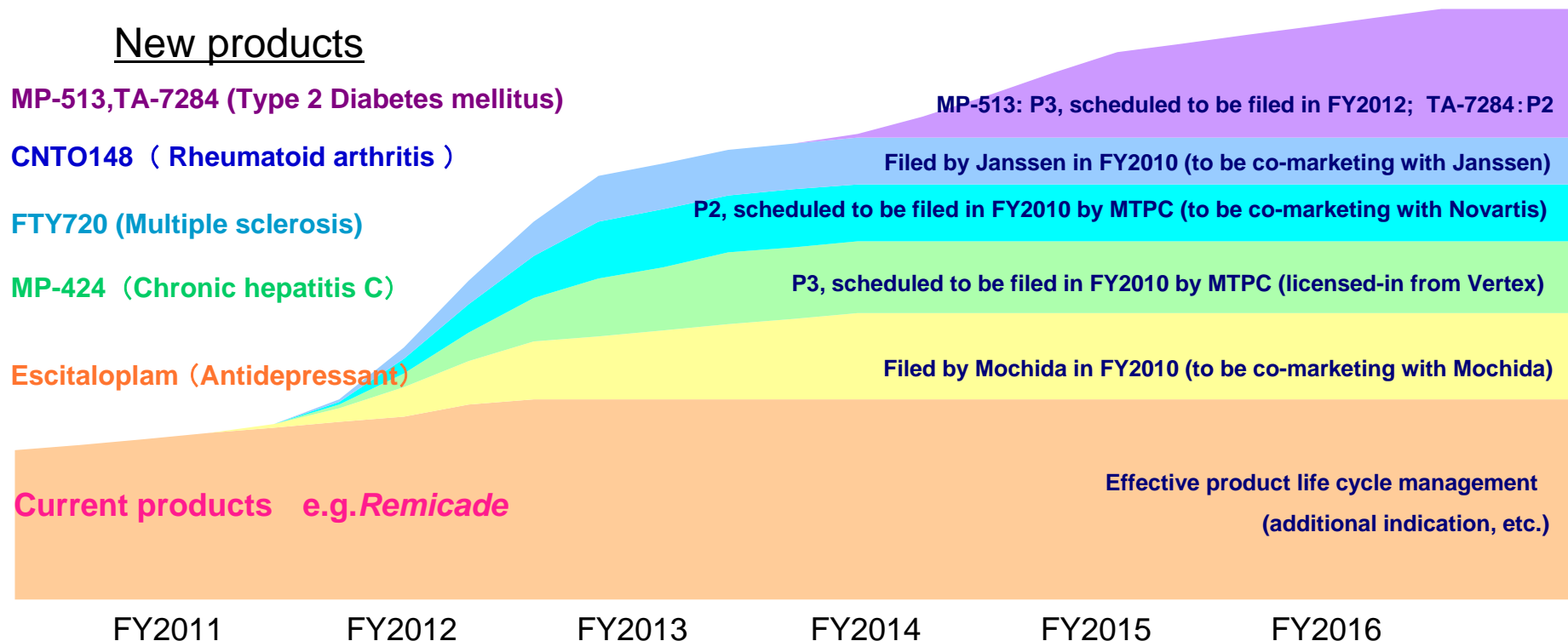
P3, scheduled to be filed in FY2010 by MTPC (licensed-in from Vertex)

Escitaloplam (Antidepressant)

Filed by Mochida in FY2010 (to be co-marketing with Mochida)

Current products e.g. *Remicade*

Effective product life cycle management  
(additional indication, etc.)



# Growth Strategy (3)

## Global launch of approved products in USA, EU and China

### USA



- USA as prioritized area to invest resources
- Early approval and launch with developing products for kidney therapeutics in USA & EU

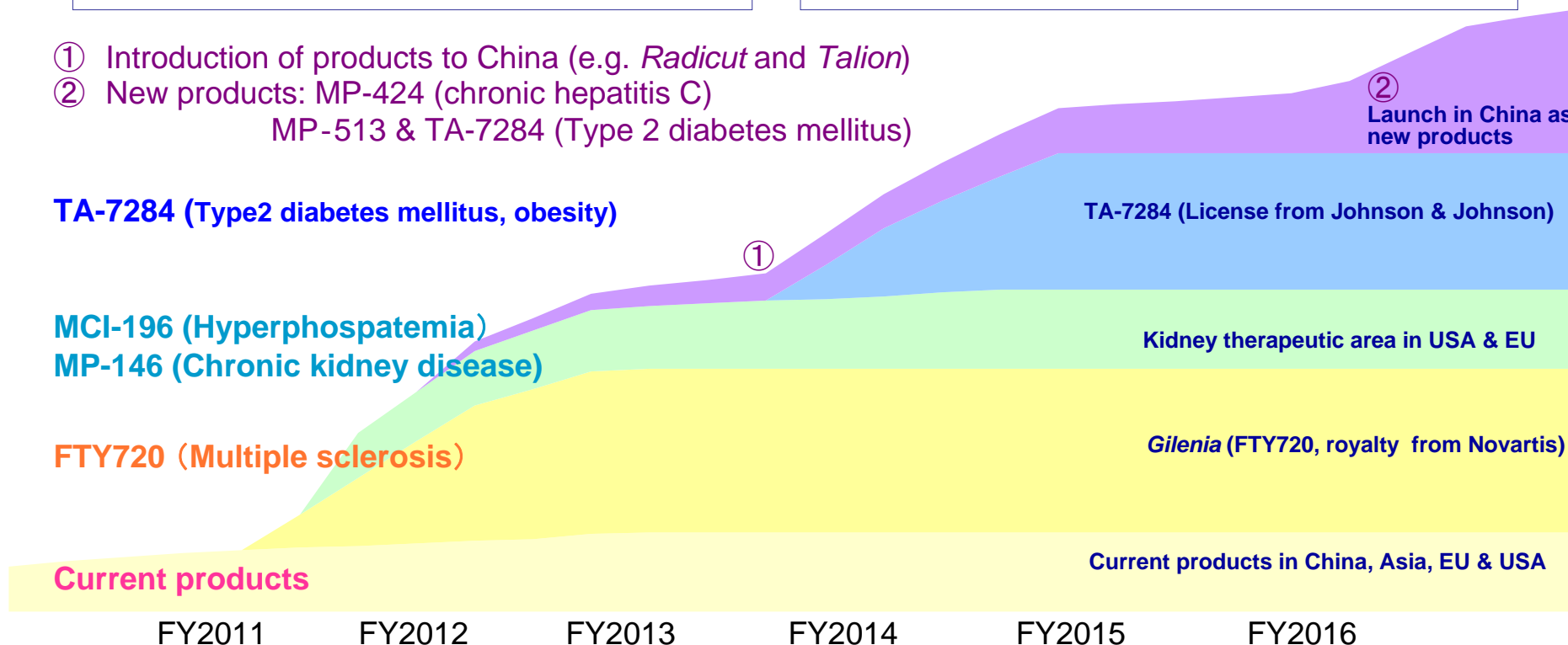
### China



- Strategy and initiatives for obtaining approval of development candidates
- Increase the market presence by sales expansion of current products and in-licensed products

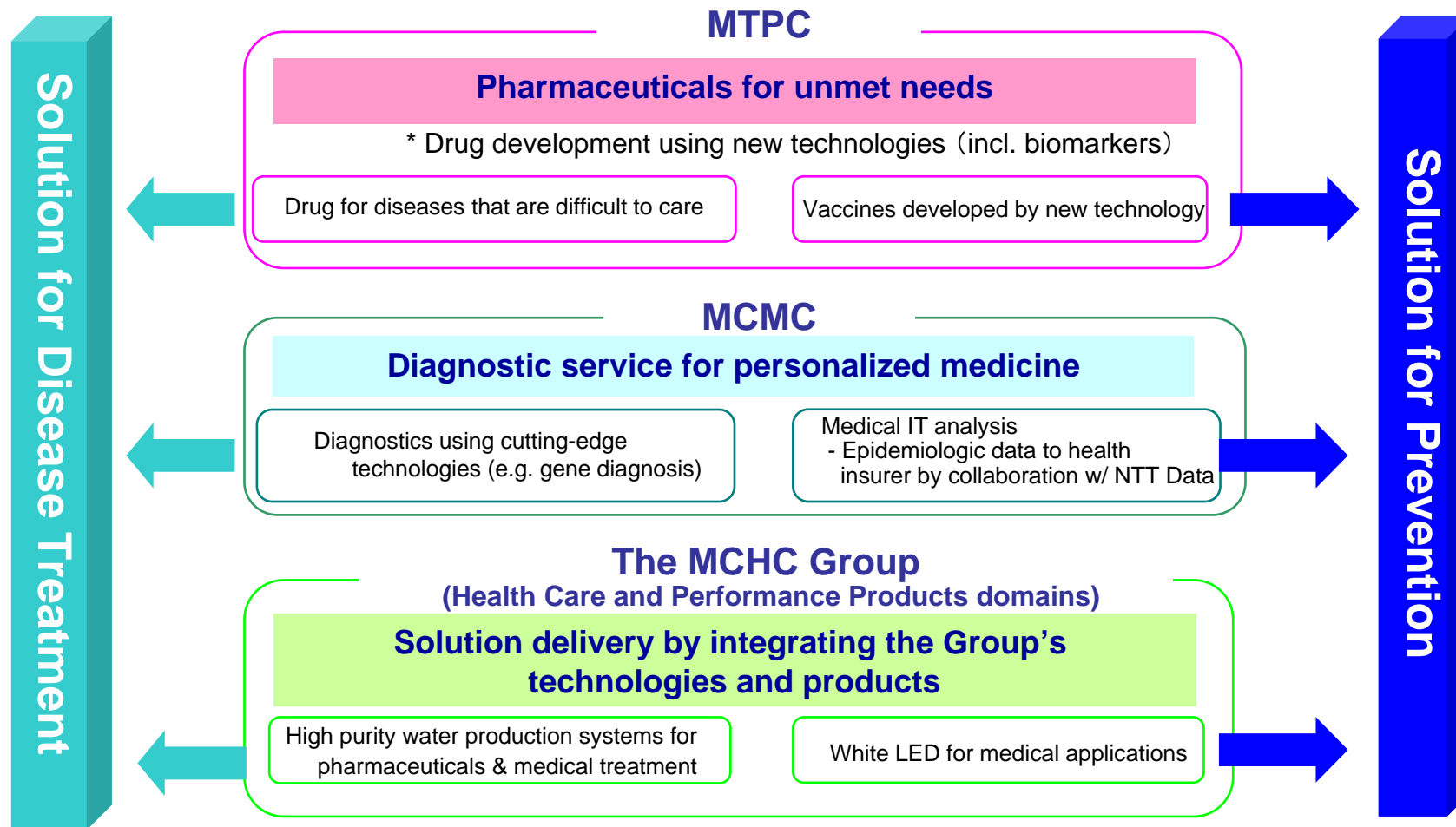
- ① Introduction of products to China (e.g. *Radicut* and *Talion*)
- ② New products: MP-424 (chronic hepatitis C)  
MP-513 & TA-7284 (Type 2 diabetes mellitus)

② Launch in China as new products



# Innovation Strategy

## Healthcare Solutions



✦ Innovation Strategy in **APTSIS 10** (Personalized Medicine) has been evolved to 'Healthcare Solutions'



# Cash-generating Business

## Diagnostics & support for new pharmaceutical developments

■ Net Sales ¥81 billion (FY2010) ➡ ¥115 billion (FY2015)

- ✓ Clinical testing
  - Expand business by regional tie-ups, delivering solutions, and capitalizing cutting-edge technologies
- ✓ Support for new pharmaceutical development
  - Sharpen new technologies and outreach global market
- ✓ Clinical diagnostic reagents & instruments
  - Accelerate global sales of *PATHFAST*, a key strategic product
- ✓ Medical IT analysis service
  - New business launch to analyze medical information

## Generics

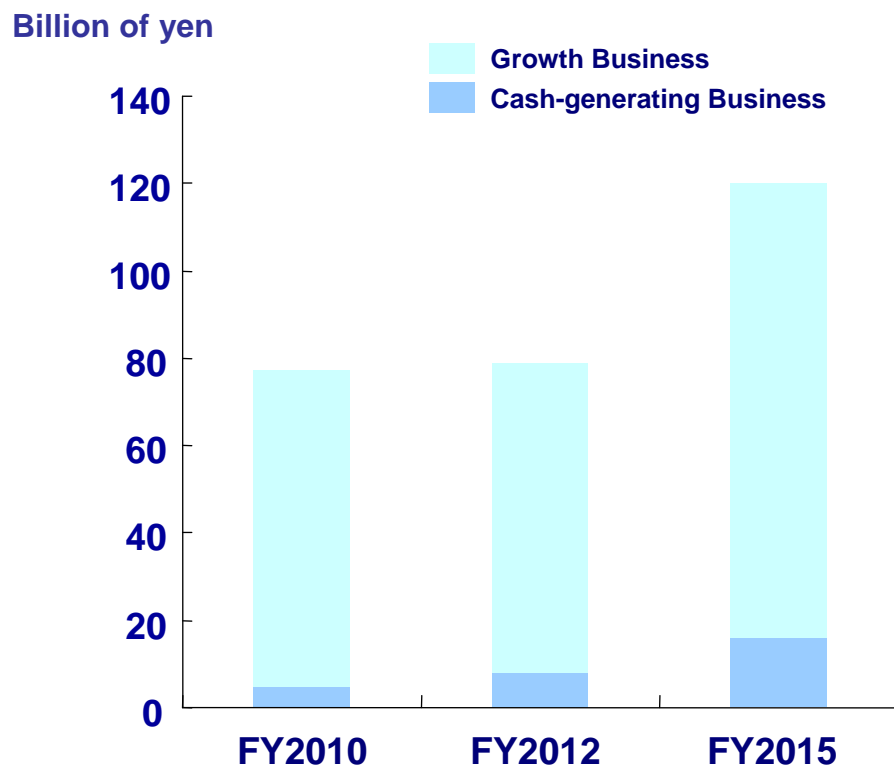
■ Net Sales ¥10 billion (FY2010 ) ➡ ¥50 billion (FY2015 )

- ✓ Establish reliable brand of high quality and stable supply
- ✓ Strengthen business by launching major products
- ✓ Fine-tune production and sales structure

# Operating Income and Resource Allocation Plan

Accelerate to be a global research-driven pharmaceutical company and deliver healthcare solutions

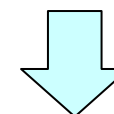
## Operating Income



## Resource allocation plan

	Billions of yen	
APTSIS 10	FY2008-2010*	FY2010*
Investments	63	22
R&D	239	73

\* FY2010 forecast



	Billions of yen	
APTSIS 15	FY2011-2015	5 year average
Investments	150 **	30
R&D	410	82

\*\*including facilities for biologics

# **APTSIS 15**

## **Industrial Materials**

# Industrial Materials - Strategies

**Increase profitability by accelerating globalization, shifting to high-performance products, and optimizing product chain**

## Growth Strategy

- Expand global operation and shift to high-performance products with regional partners
  - MMA and PMMA, performance polymers, high-performance graphite

## Innovation Strategy

- Deliver new materials that contribute to the environment and to the 'Sustainable Carbon Society'
  - Sustainable resources

## Cash-generating Business

- Stabilize earnings and reinforce business structure
  - Stabilize operations and minimize environmental impact
  - Reinforce business structure by leveraging high-value-added products, expanding knowledge business & improving process technologies: PTA, coke, PP, PHL/ BPA /PC chain

## Business to be restructured

- Complete restructuring in Japan

# Growth Strategy

## Expand global operation & high-performance product ratio

### MMA/PMMA

■ Net Sales: ¥270 billion (FY2010) → ¥430 billion (FY2015)

■ Global leader

MMA

- ✓ Expand production capacity capturing rising demand and optimize global sites
- ✓ Increase global market share from 37% to 45% (China, Korea, Thailand, the Middle East, USA)

PMMA

- ✓ Develop and expand as high-performance growth driver (e.g. FPD applications)
- ✓ Secure more than 60% share in light guide plate applications as MMA product chain
- ✓ Develop supply capabilities of large-size light guide plate for expanding LED-TV mkts. and expand sales of high-performance sheets for FPD application

### Performance Polymers

■ Net Sales: ¥40 billion (FY2010) → ¥60 billion (FY2015)

- ✓ Outreach to emerging markets (China, India, Thailand, Brazil) to capture growing demands in automobiles and health care (target sales: > 100,000 t/y (FY2010) ; 150,000 t/y (FY2015))
- ✓ Collaborate among the Group and apply new technologies to create new markets such as compatibilizing agents and adhesives

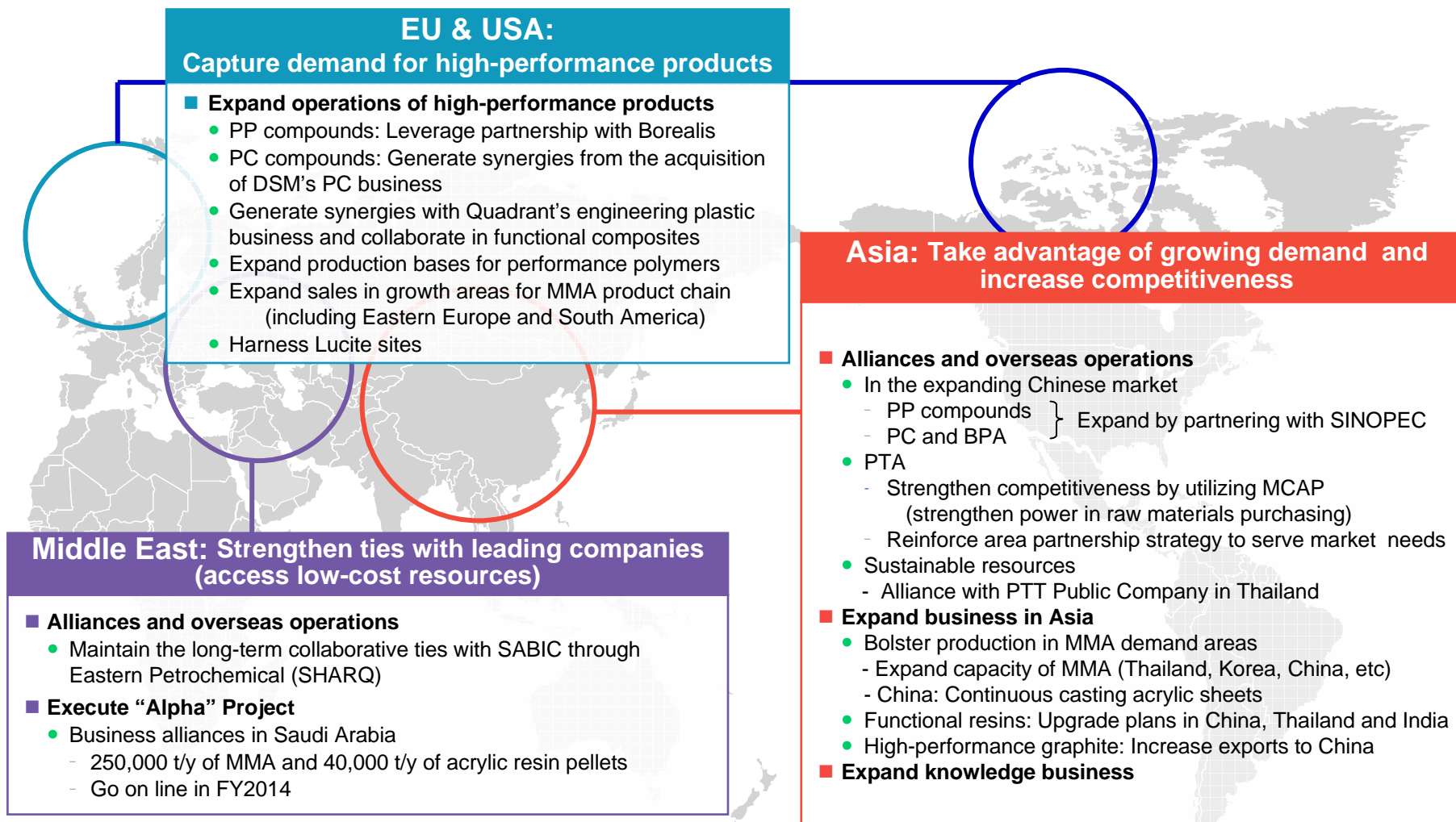
### High performance graphite

■ Net Sales: ¥15 billion (FY2010) → ¥25 billion (FY2015)

- ✓ Develop world-leading low thermal expansion needle coke (as petroleum-based alternatives) and increase sales in China (additional 20,000 t/y by FY2012) by capturing rise in demand
- ✓ Increase pitch coke sales (additional 10,000 t/y by FY2012) for silicon carbide crucibles, meeting demand rise in photovoltaic modules
- ✓ Explore overseas partnerships to secure coal tar sources and expand production sites

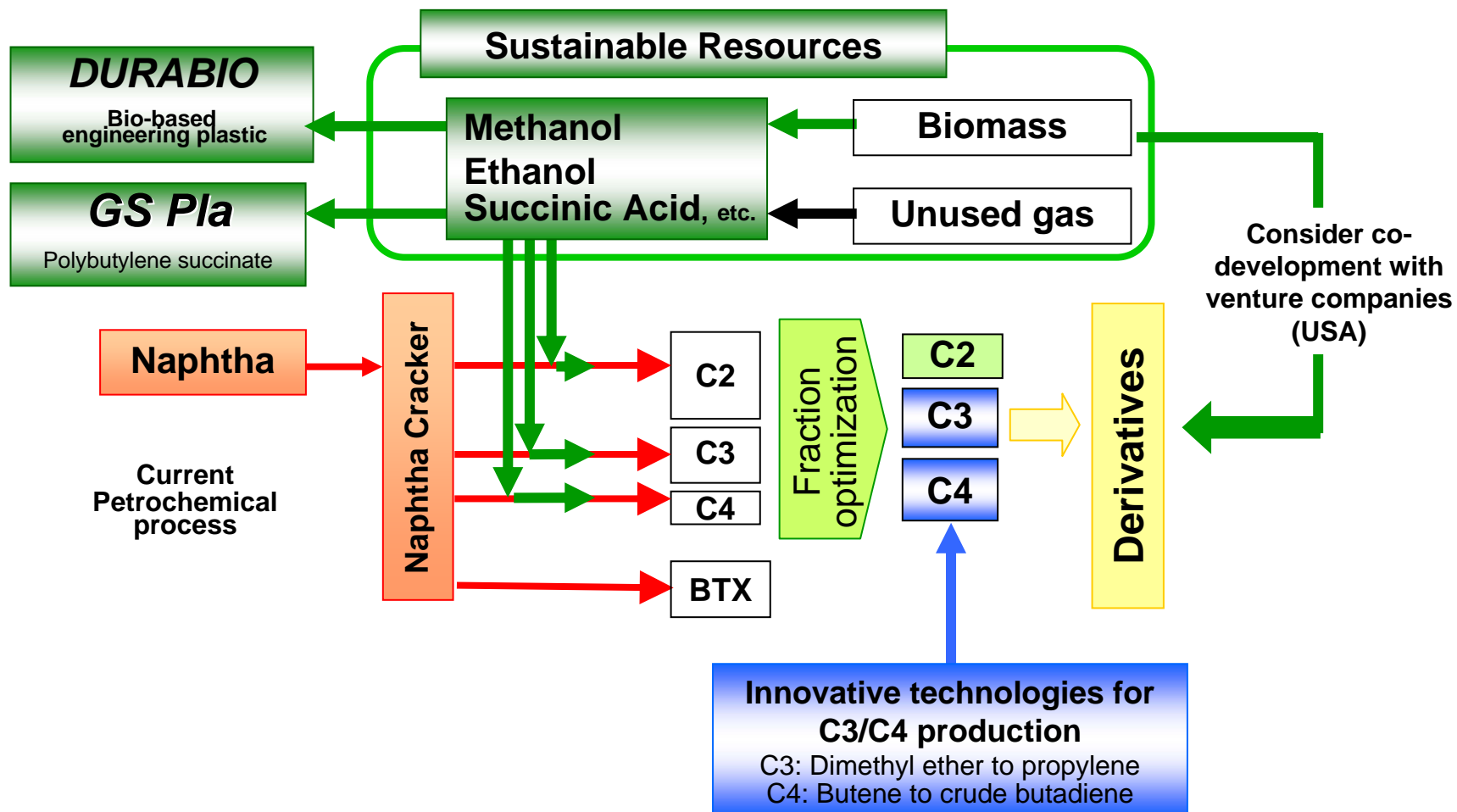
# Growth Strategy – Global Operation

## Accelerate globalization with partnerships



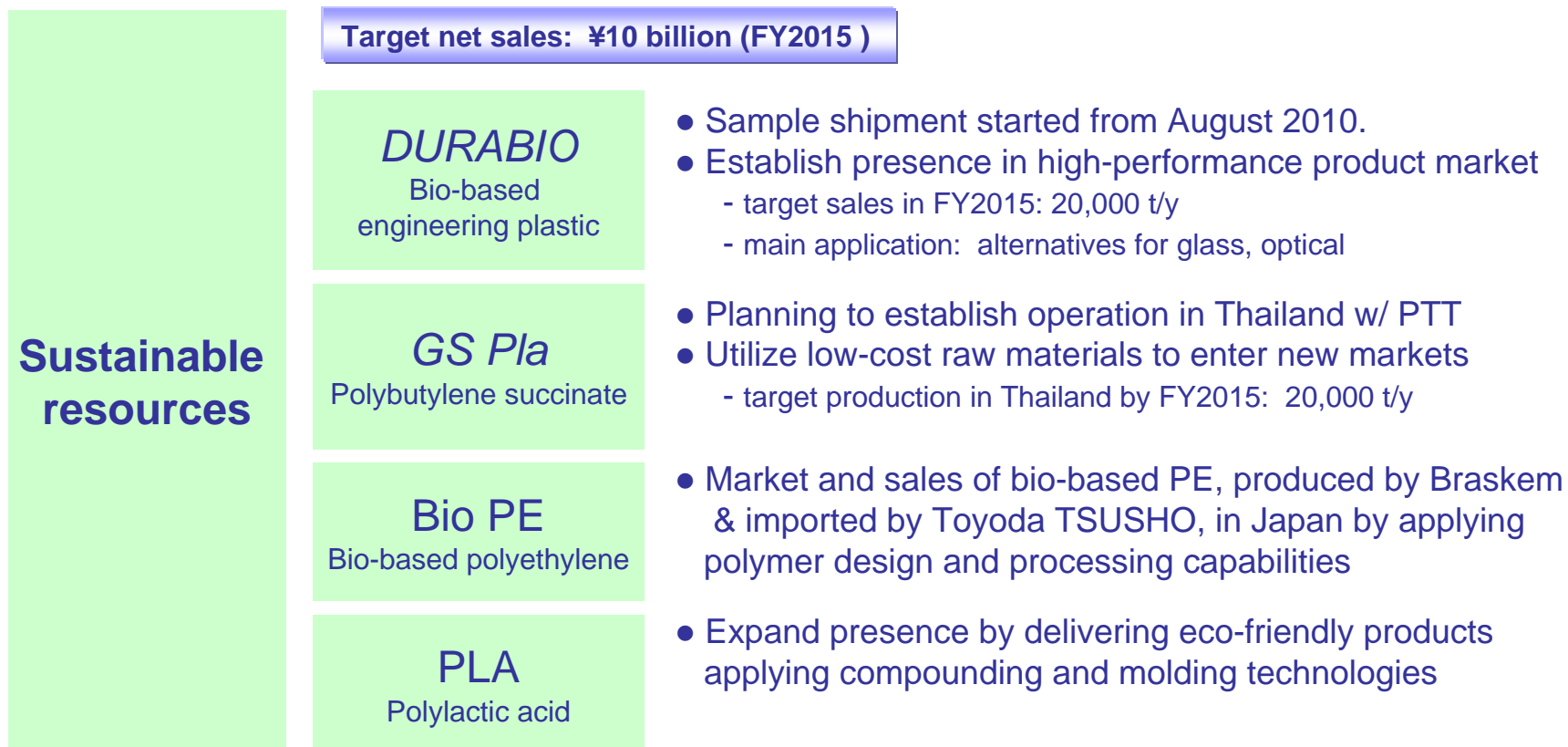
# New Process for C3/C4 and Sustainable Resources

Business structure transformation by leveraging new technologies using sustainable resources



# Innovation Strategy





**Deliver new materials that contribute to the environment and the “Sustainable Carbon Society”**



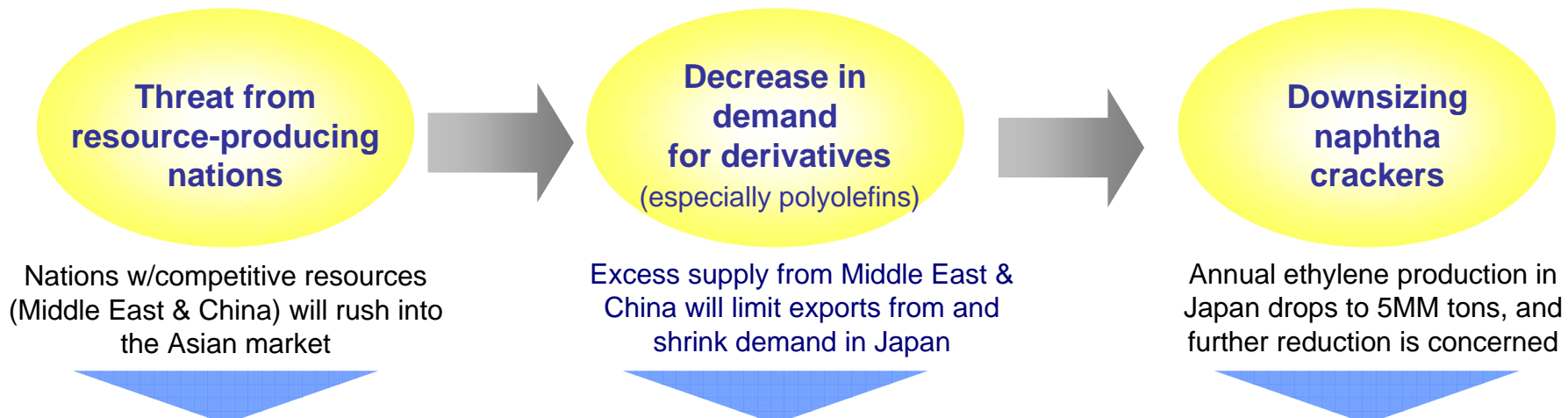


# Cash-generating Business

## Stabilize earnings & reinforce business structure

<b>PTA</b>	<ul style="list-style-type: none"> <li>■ <b>Net Sales:</b>                    <b>¥250 billion (FY2010)</b>        <b>¥260 billion (FY2015)</b></li> <li>■ <b>Market leader in Asia</b></li> <li>✓ Reduce cost, form partnerships to meet market needs, and develop knowledge business (China and India)</li> </ul>
<b>Coke</b>	<ul style="list-style-type: none"> <li>■ <b>Net Sales:</b>                    <b>¥200 billion (FY2010)</b>        <b>¥250 billion (FY2015)</b></li> <li>✓ Solidify earning structure and maintain operations for comprehensive coal chemistry</li> <li>✓ Strengthen knowledge businesses in overseas and expand highly profitable export businesses (India, Thailand, and Brazil)</li> </ul>
<b>PP and compounds</b>	<ul style="list-style-type: none"> <li>■ <b>Net Sales:</b>                    <b>¥180 billion (FY2010)</b>        <b>¥200 billion (FY2015)</b></li> <li>✓ Optimize production structure and shift to high-performance product portfolio</li> <li>✓ Increase global sales of compounds, particularly for the automotive market (China, Thailand, India, North America, and EU)</li> </ul>
<b>PHL, BPA, PC</b>	<ul style="list-style-type: none"> <li>■ <b>Net Sales:</b>                    <b>¥80 billion (FY2010)</b>        <b>¥95 billion* (FY2015)</b></li> <li>✓ Increase profitability by cost reduction and expanding sales of high-performance products</li> <li>✓ Successful start at Sinopec-Mitsubishi Chemical Polycarbonate (Beijing) (SMP, JV with Sinopec)</li> <li>✓ Expand overseas partnership by utilizing non-phosgene DPC process</li> </ul> <p style="text-align: right; font-size: small;">*additional ¥40 billion expected from SMP</p>

# Restructuring of Ethylene Center & Optimization of Derivatives



**Implemented strategies**

**Derivatives:**

Restructured and optimized production capacities (PP,PE,SM,PS,CL,PVC)

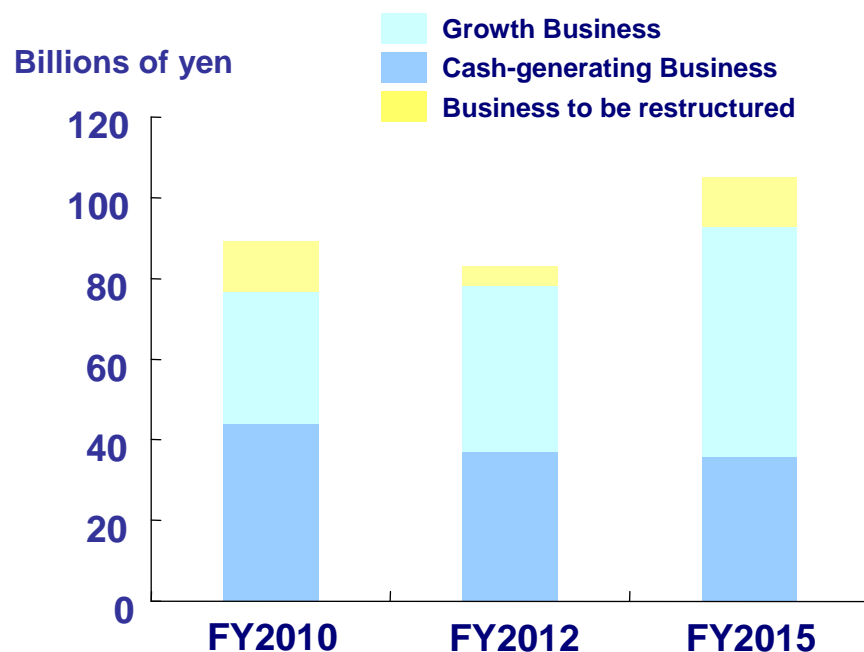
**Implementing strategies**

Derivatives	Expand high-value products and take countermeasures	Further optimization with partners
Crackers	Mizushima Plant: Unify operation with Asahi Kasei and downsize capacity	Consider a single cracker (w/Asahi Kasei) and collaborate with refineries
	Kashima Plant: Increase competitiveness through regional partnership	Further restructuring including collaboration with refineries

# Operating Income and Resource Allocation Plan

Globalize, accelerate value-added product ratio, and balanced growth with product chain optimization to earn higher profitability

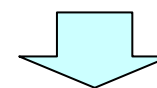
## Operating Income



## Resource allocation plans

Billions of yen

	APTSIS 10 FY2008-2010	FY2010*
Investments	81.0	34.0
R&D	43.0	18.5



\*FY2010 forecast  
\*\*Including MRC

Billions of yen

	APTSIS 15 FY2011-2015	5 year average
Investments	320	64
R&D	90	18

# Operating Income by Segment

Billions of yen

Domains	Segment	FY2010 forecasts	FY2012 plan	FY2015 plan
Performance Products	Electronics Applications	4	12	30
	Designed Materials	38	54	100
Health Care	Health Care	77	79	120
Industrial Materials	Chemicals	44	35	35
	Polymers	45	48	70
Others		3	7	10
Corporate		(8)	(5)	(5)
<b>Sub total</b>		<b>203</b>	<b>230</b>	<b>360</b>
Contingency				(30)
<b>Total including contingency</b>		<b>203</b>	<b>230</b>	<b>330</b>
<b>Operating income by Leaping Ahead (M&amp;A)</b>				<b>70</b>
<b>Total including Leaping Ahead (M&amp;A)</b>				<b>400</b>
<b>Net sales</b>		<b>3,190</b>	<b>3,600</b>	<b>4,200</b>
<b>Net sales by Leaping Ahead (M&amp;A)</b>				<b>800</b>
<b>Total net sales</b>				<b>5,000</b>

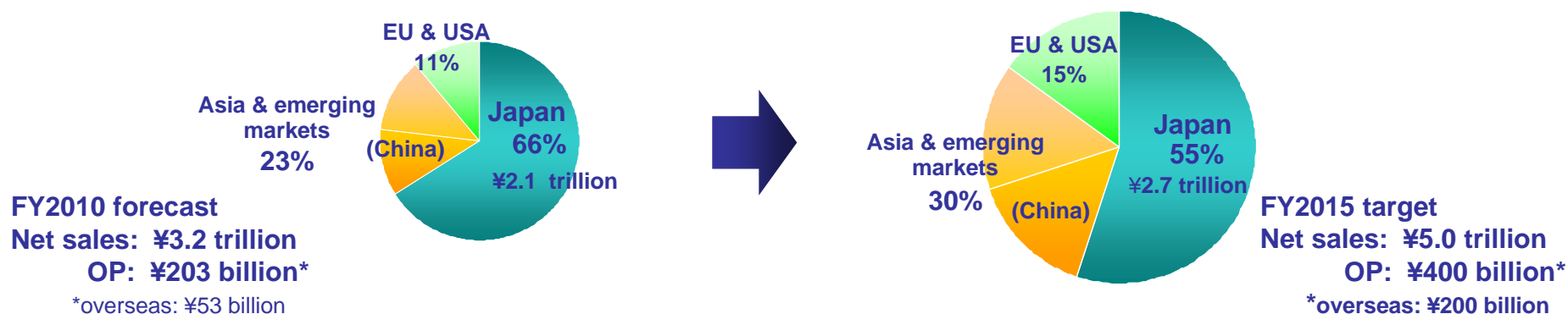
# **APTSIS 15**

## **Global Operation (Regional Strategy)**

# Global Operation (Regional Strategy)

## Expand overseas sales ratio and OP margin (FY2010 vs. FY2015)

Overseas sales ratio: 34% to 45%  
 Overseas OP margin: 26% to 50%



- |                     |   |
|---------------------|---|
| <b>China</b>        | <ul style="list-style-type: none"> <li>■ Performance Products: Expand business in automobile, FPD, environment &amp; energy etc.</li> <li>■ Health Care: Expand prescription medicine business</li> <li>■ Industrial Materials: Expand competitive business</li> <li>■ Strategic alliance with local partners and strengthen regional management</li> </ul> |
| <b>Asia</b>         | <ul style="list-style-type: none"> <li>■ Performance Products: Strengthen global supply capabilities in Singapore, Taiwan, and Korea</li> <li>■ Industrial Materials: Strengthen manufacturing bases</li> <li>■ Strengthen supply chain management</li> </ul>   |
| <b>EU &amp; USA</b> | <ul style="list-style-type: none"> <li>■ Performance Products: Expand business in automobile, FPD, environment &amp; energy etc.</li> <li>■ Health Care: Expand ethical drugs business</li> </ul>   |



**APTSIS 15**  
**Synergies**

# Synergies

(Billions of yen)

		Major synergies considered		FY2012	FY2015
Businesses	CF & composites	<ul style="list-style-type: none"> <li>➤ Develop thermoplastic CF composites and process technologies to accelerate product launch in automotive panels and components and industrial, environmental, and energy applications</li> </ul>		5	15
	Water treatment	<ul style="list-style-type: none"> <li>➤ Combine membrane bioreactor and purified water manufacturing technologies to expand business in</li> <li>➤ Combine micro-filtration technology and ion-exchange resins to broaden water treatment business</li> </ul>			
	Specialty chemicals	<ul style="list-style-type: none"> <li>➤ Mutually apply acrylic coating technologies, acrylic polyurethane, modified PP, and mechanical emulsification to launch emulsified polymers for new water-borne coating markets</li> </ul>			
	Others	<ul style="list-style-type: none"> <li>➤ Integrate engineering businesses</li> <li>➤ Effective use of sales channel and business units within the Group e.g. electrolyte production (MCC) at Lucite (MPI) facilities in EU &amp; USA</li> </ul>			
Cost and R&D	Purchasing	<ul style="list-style-type: none"> <li>➤ Centralize purchasing function</li> </ul>		6	28
	Logistics	<ul style="list-style-type: none"> <li>➤ Integrate logistic networks and consolidate locations within the Group</li> </ul>			
	IT	<ul style="list-style-type: none"> <li>➤ Integrate infrastructural systems to enhance efficiency and rationalize by standardizing applications</li> </ul>			
	R&D	<ul style="list-style-type: none"> <li>➤ Exercise more synergies among technologies and more effective use of technology platforms</li> <li>➤ Optimize human resources allocation and infrastructure</li> </ul>			
		<b>Total</b>		<b>11</b>	<b>43</b>



# **APTSIS 15**

**Enhancing shareholder value and  
corporate value**

# Enhancing Shareholder Value

---

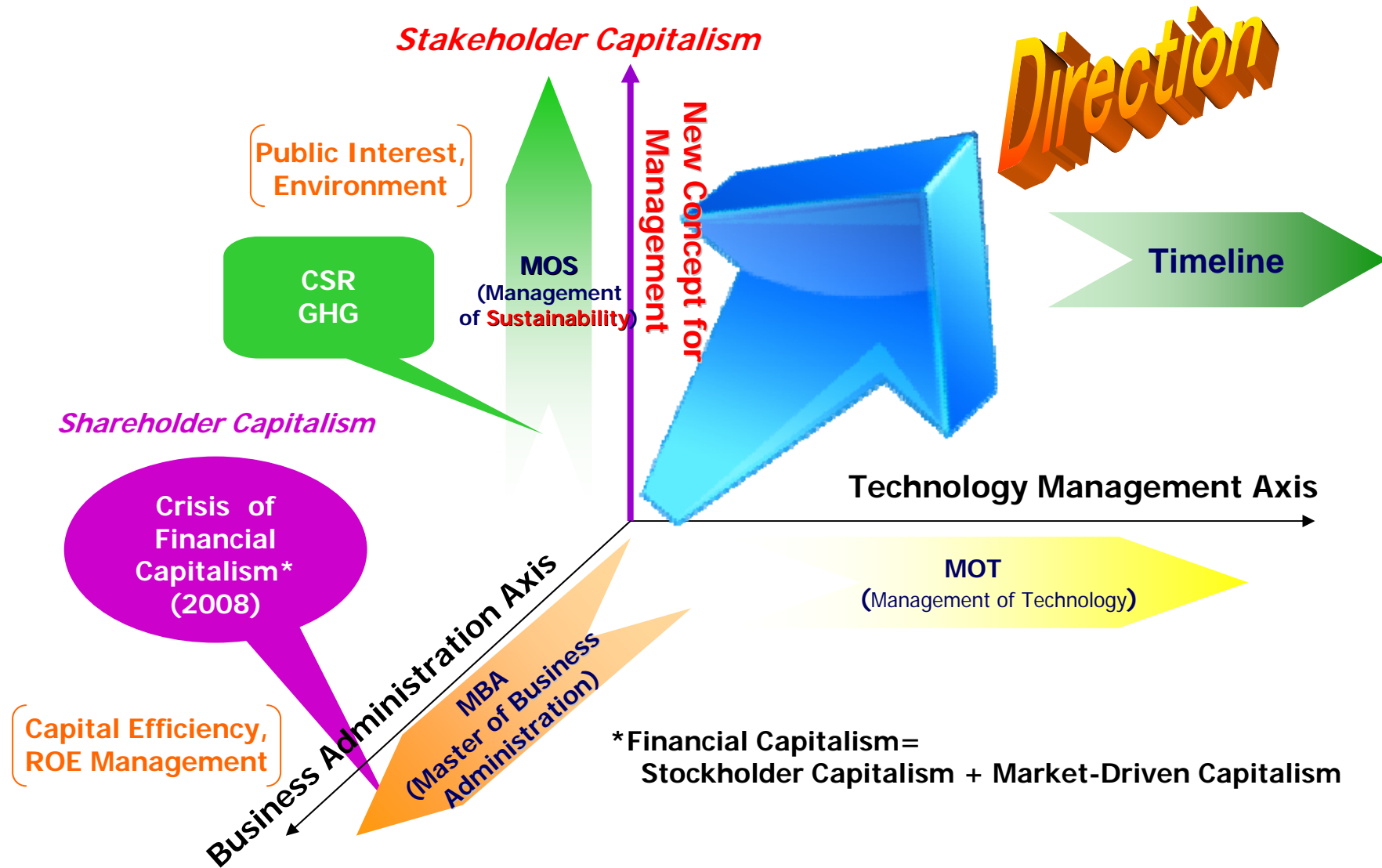
## Basic Policy

Enhance shareholder value by improving corporate value

## Shareholder Returns

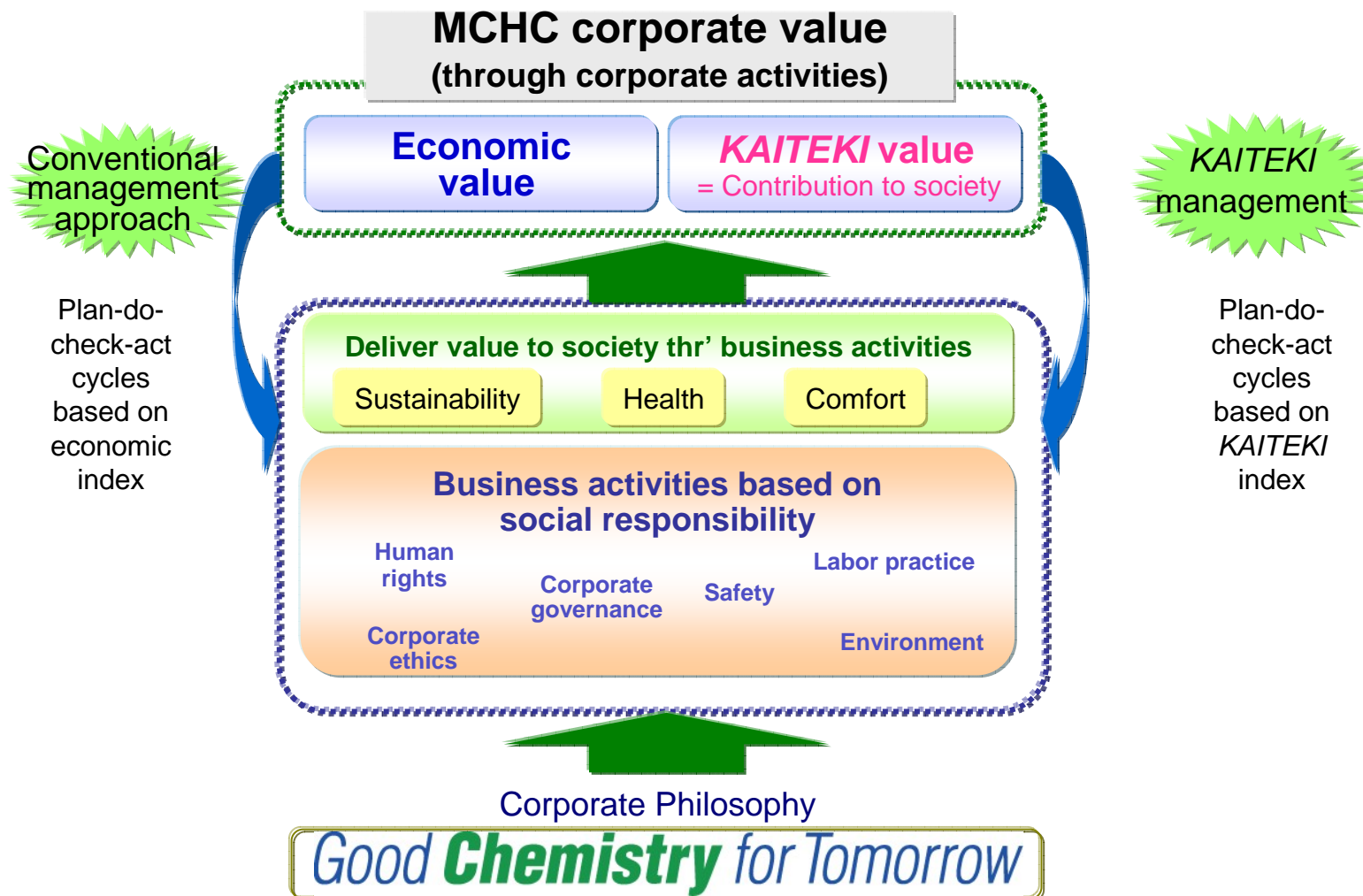
- Maintain sufficient internal reserves to fund business development while paying consolidated results-based dividends
- While targeting a medium-term payout ratio of at least 30%, we will also prioritize stable dividends (maintaining and increasing cash dividends per share)

# Management of Sustainability



# KAITEKI Activities

We are committed to run our business in a way that delivers *KAITEKI* solutions

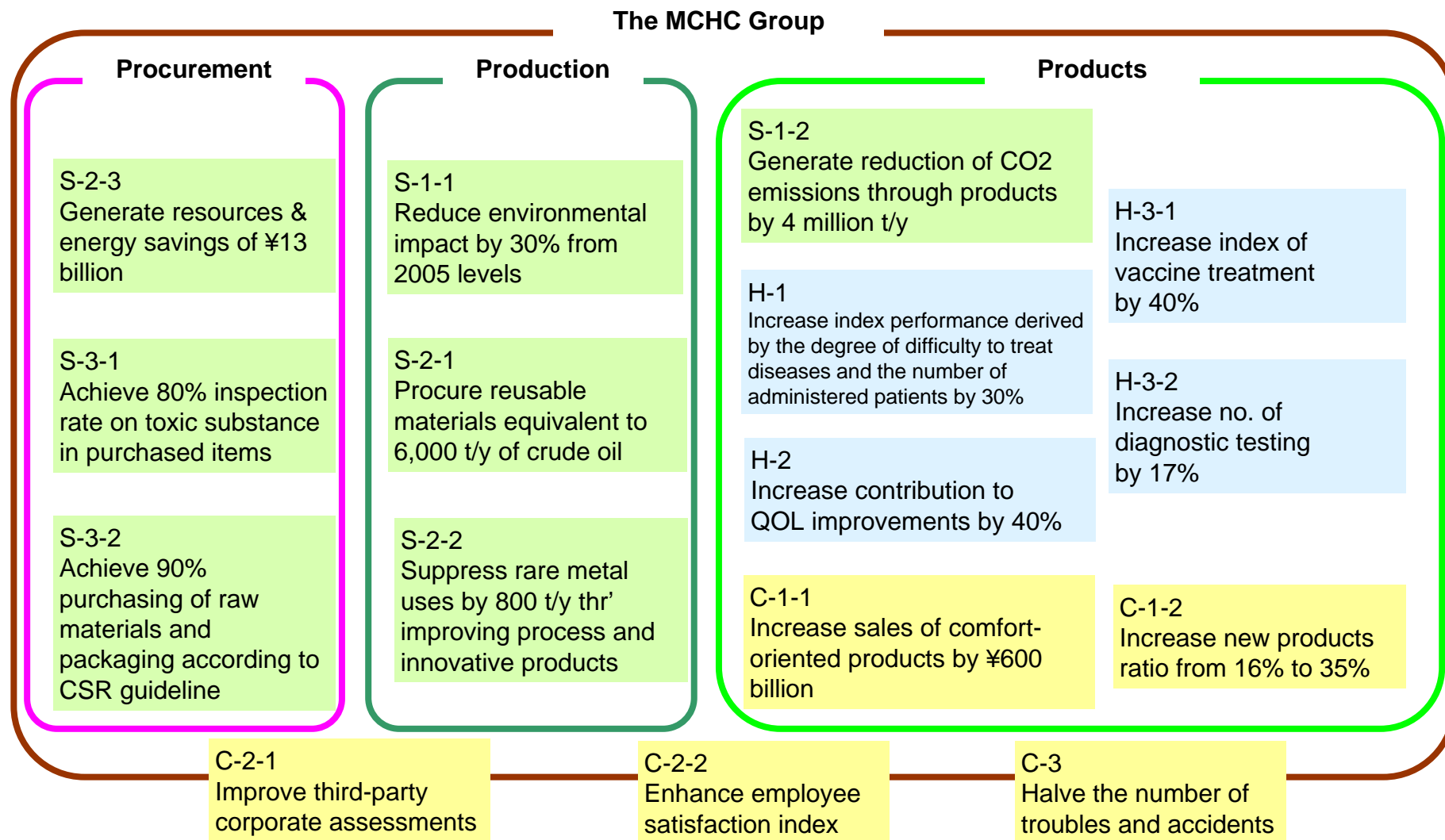


# KAITEKI Indexes

<b>Sustainability Index</b>	S-1 Contribution to reduce environmental impact through products & services
	S-2 Practice energy saving & reduction of depletion resources
	S-3 Contribution to reduce environmental impact through supply chain management
<b>Health Index</b>	H-1 Contribution to medical treatment
	H-2 Contribution to improvements of QOL
	H-3 Contribution to early detection and prevention of diseases
<b>Comfort Index</b>	C-1 Deliver products (development and manufacturing) for comforting lifestyle
	C-2 Improve stakeholder satisfaction
	C-3 Recognition of corporate trust

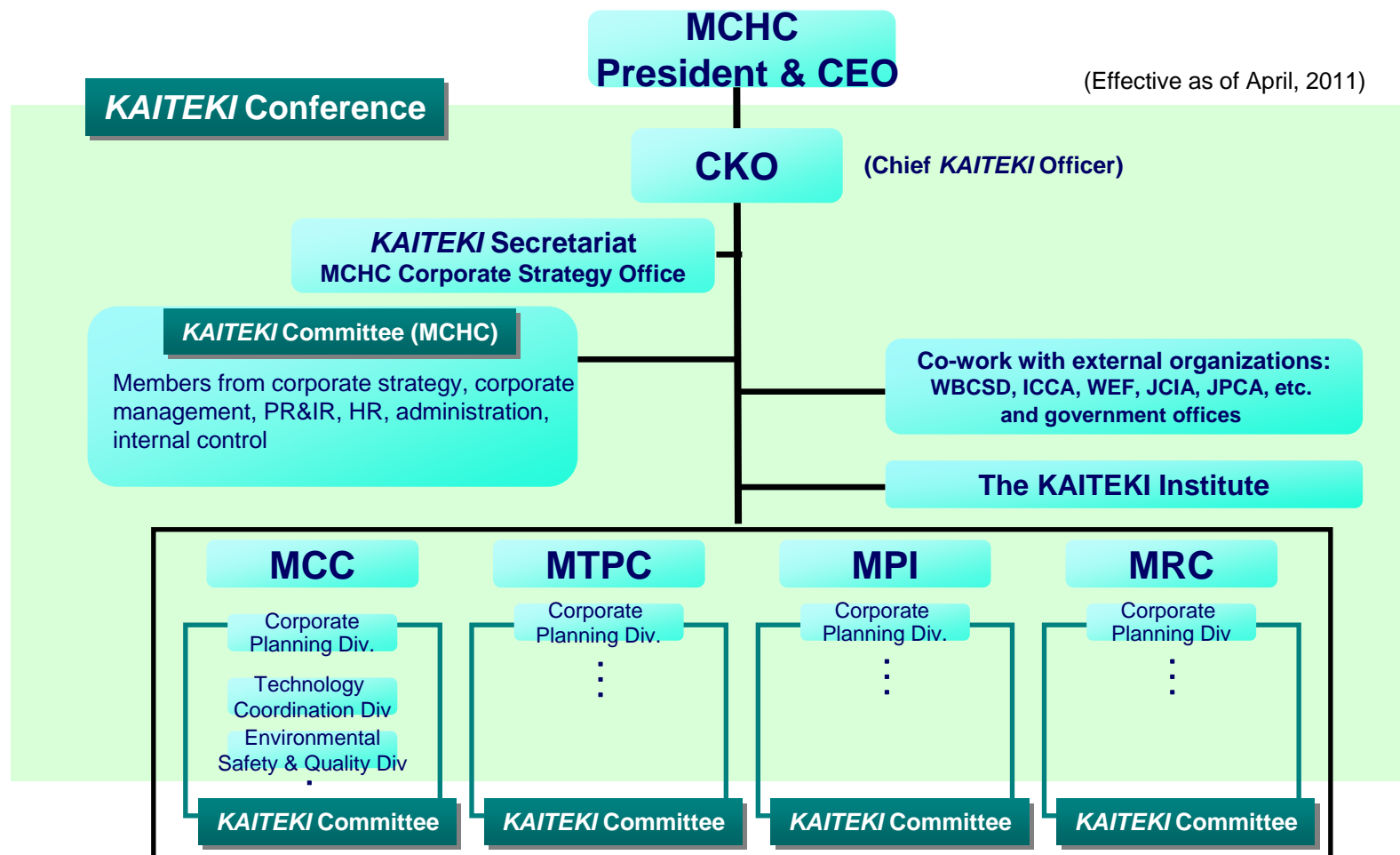
# Targets

## Monitor progress and manage PDCA cycles

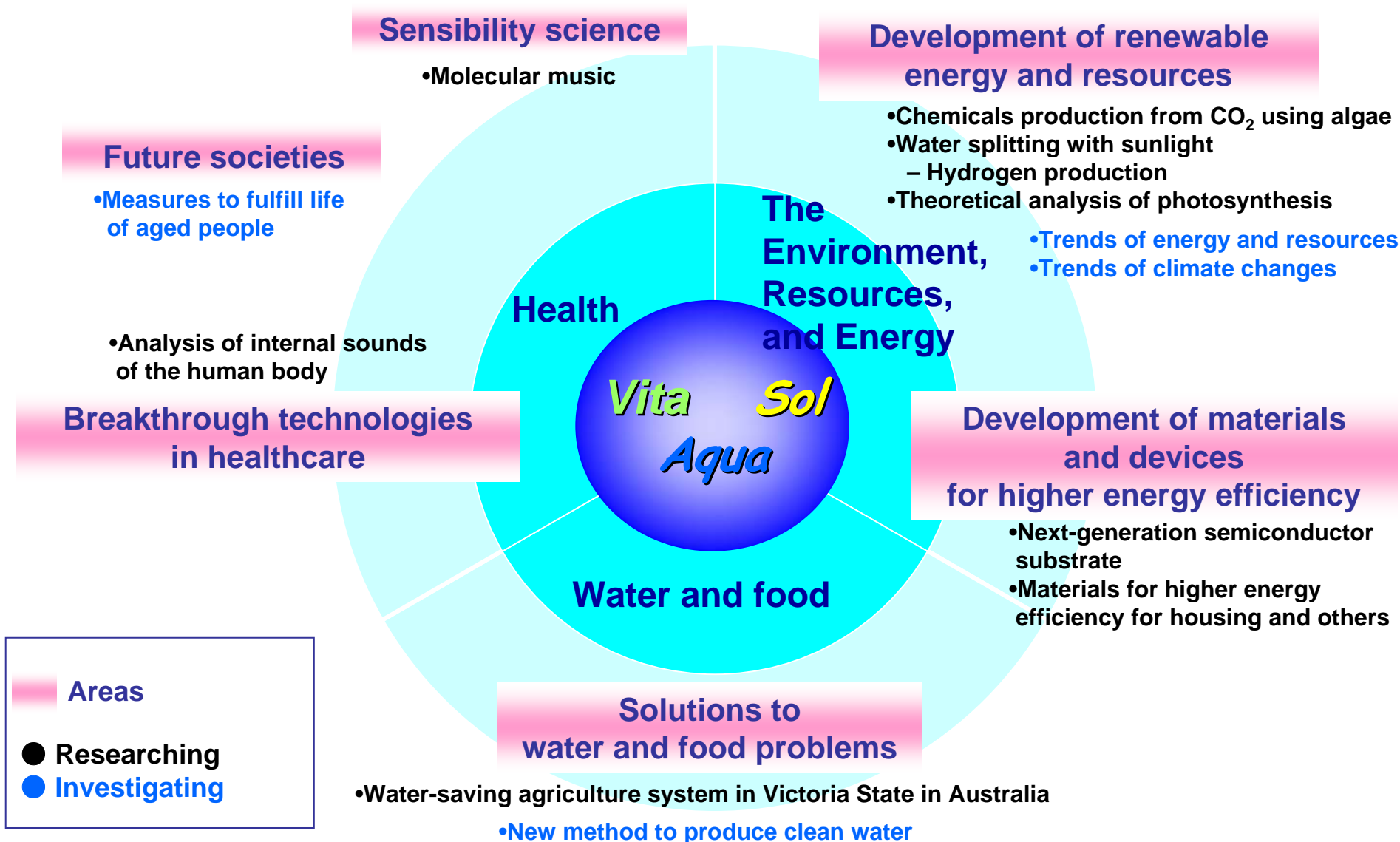


# Organization for *KAITEKI* Project

From environmental management to *KAITEKI* management

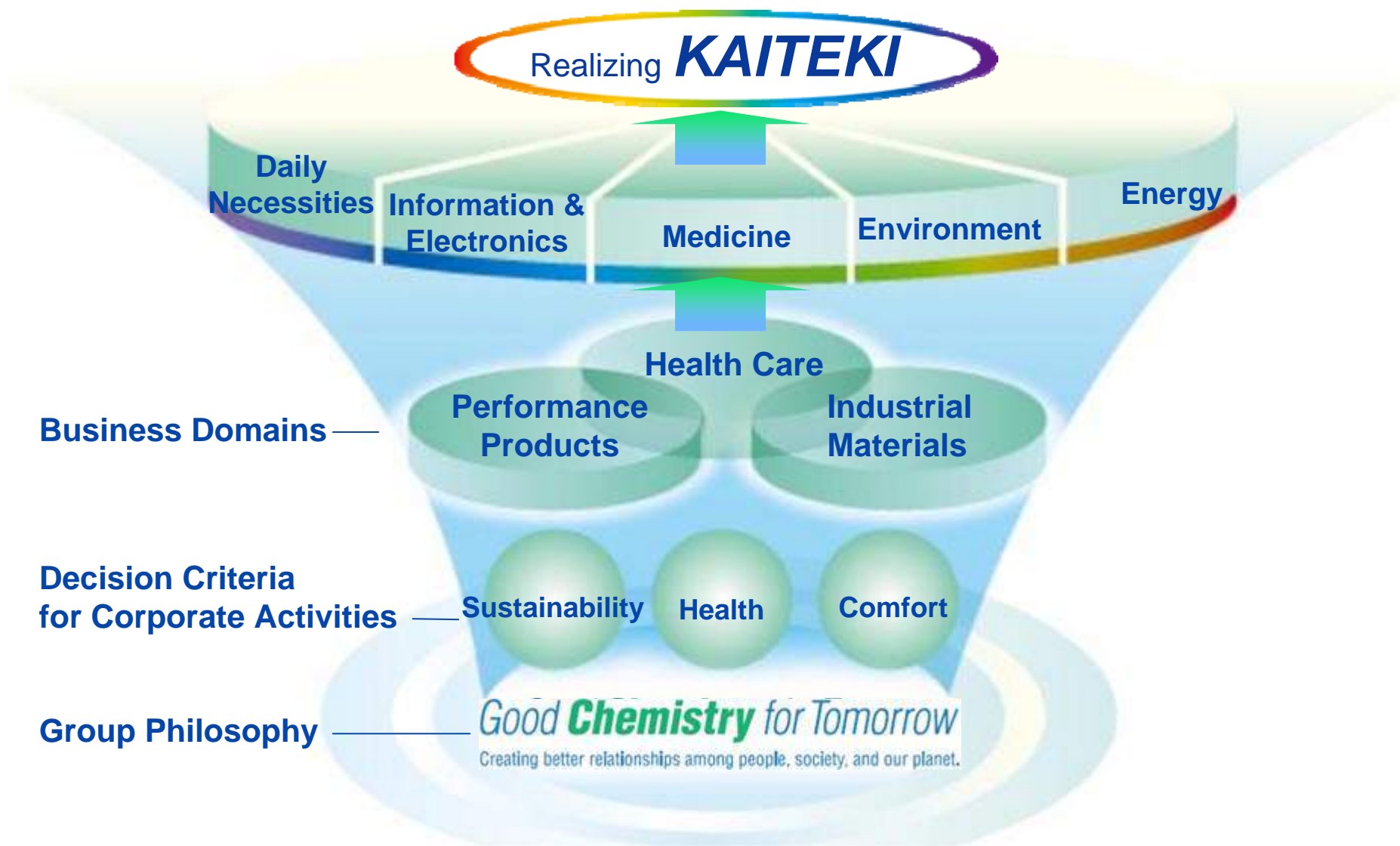


# The KAITEKI Institute: Focuses and Progress





# Aspiration – The MCHC Group



# Reference Materials

# Reference Materials

- MCHC Group Motto, *APTSIS*
- *KAITEKI* Value and *KAITEKI* Indexes
- Business Portfolio Reform under *APTSIS 10*
- Operating Income (FY2010 vs. FY2015)
- CAPEX Plan
- Growth Business and Next-generation Growth Business

# Mitsubishi Chemical Holdings Group Motto

---

# APTSIS

*Mitsubishi Chemical Holdings Group Member will,  
Under a mission to contribute to our Group,  
Strive to provide safety and comfort, be environmentally  
conscious, and improve human health  
To win further trust worldwide.*

Apt:

【Adjective】 Appropriate

-sis:

【Suffix】 From Greek, indicates that something is  
a behavior, process, status, condition, etc.

**A**gility

*Be alert, act quickly*

**P**rinciple

*Sharing theories, principles  
and ideals*

**T**ransparency

*Transparency, accountability and  
compliance*

**S**ense of Survival

*A sense of being on the verge, a sense of crisis*

**I**nternationalization

*Enhancing our performance within the global market*

**S**afety, Security & Sustainability

*Ensuring safety in manufacturing, trust in quality,  
information security and environmental consciousness*

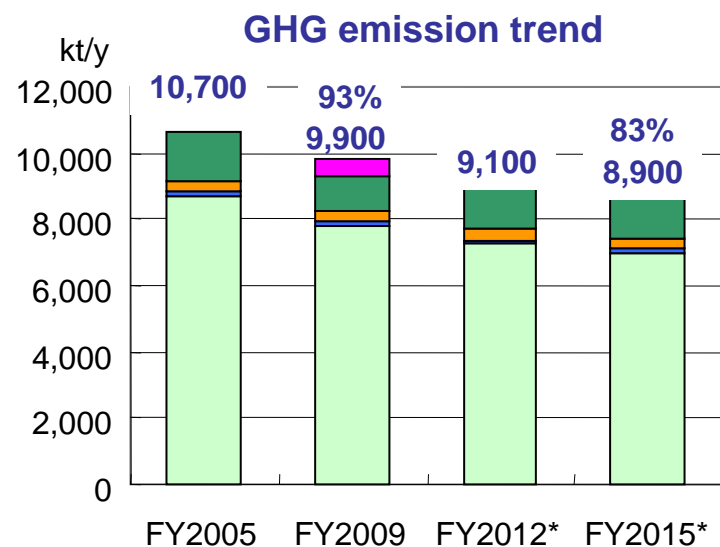
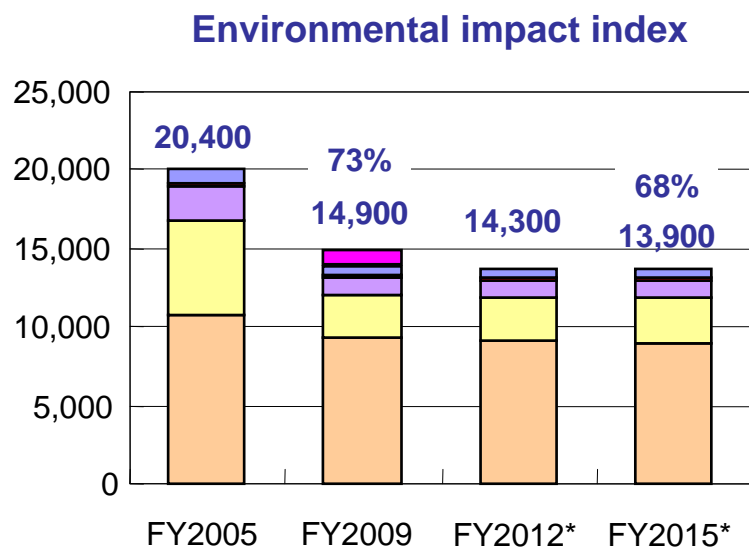
## “KAITEKI” is ...

---

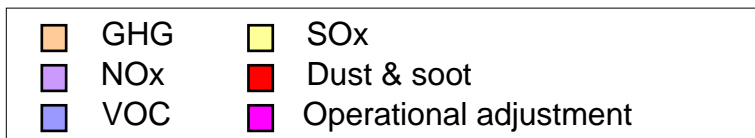
- *KAITEKI* is a Japanese word for comfort, and encompasses values that companies should practice worldwide in the 21st century.
- *KAITEKI* in the 21st century signifies challenging state of sustainability, materializing comfort for people, comfort for society and comfort for the Earth. We will act accordingly.
- At Mitsubishi Chemical Holdings Group companies, with Sustainability, Health, and Comfort as the three decision criteria for our corporate activities, we are committed to run our business in a way that delivers *KAITEKI* solutions.

# Sustainability Index

**Reduce environmental impact by 30% vs. 2005 levels**  
**Cut GHG (CO2 equivalent) emission by 17% vs. 2005 levels**



\* targets



# Health Index

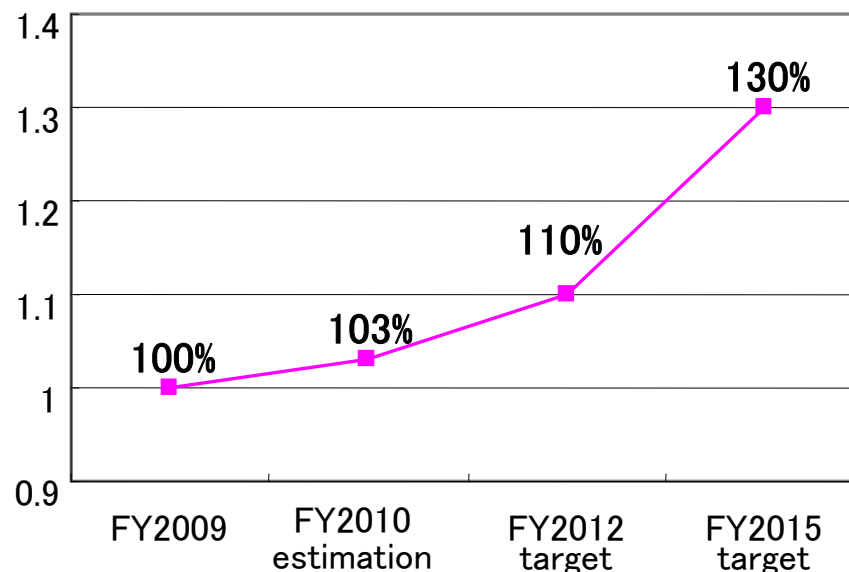
Increase index performance derived by the degree of difficulty to treat diseases and the number of administered patients by 30% vs. 2009

$$\text{Index for contribution to medical treatments}^* = \frac{\text{FY2015 } \sum(A \times B)}{\text{FY2009 } \sum(A \times B)}$$

A: degree of difficulties to treat diseases  
B: number of administered patients

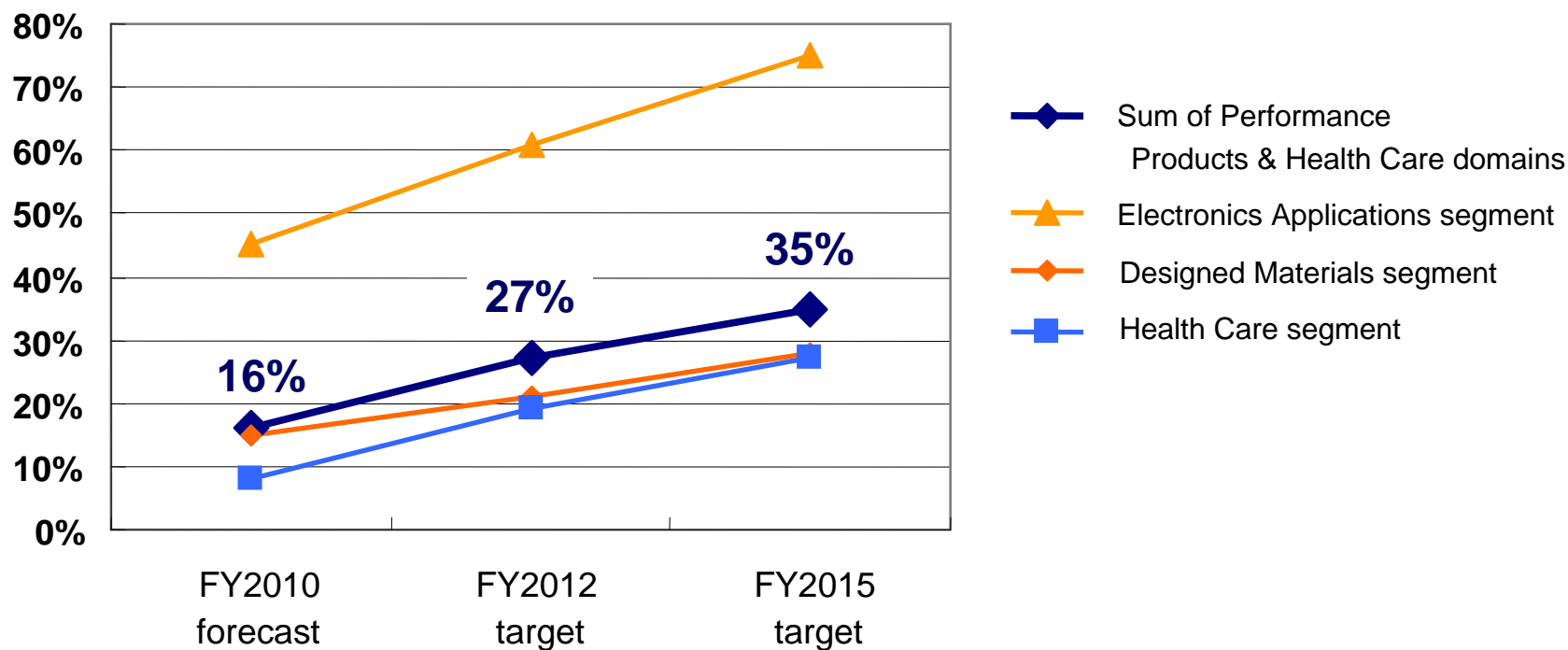
\* Defined by MCHC Group

Contribution Index



# Comfort Index

**Increase new products ratio from 16% to 35%  
(Performance Products and Health Care domains)**





# Business Portfolio Improvements under APTSIS 10

Implementation in FY2008–2010

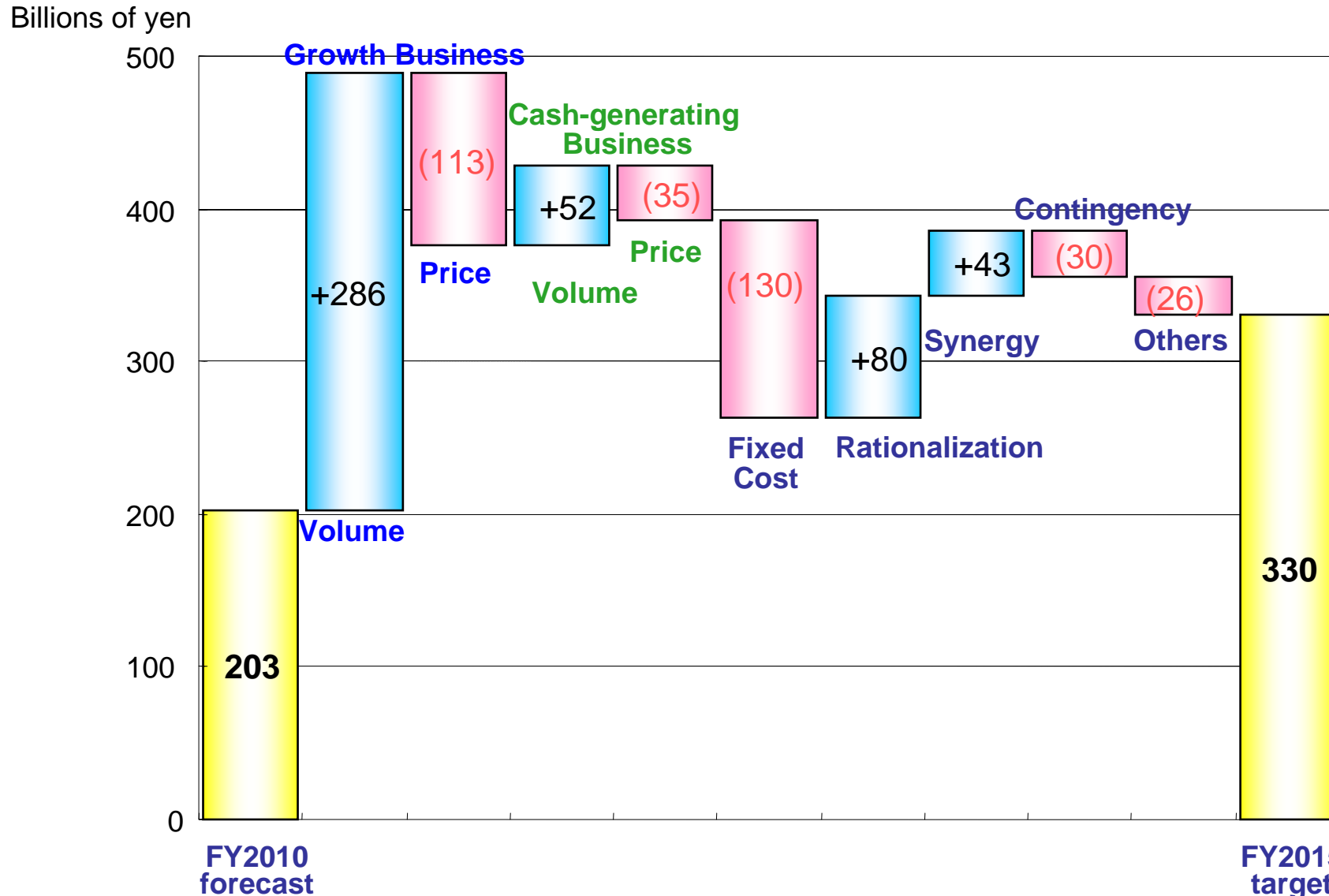
		Major Initiatives	
		Performance Products	Industrial Materials
Growth strategy (including M&A)		MRC became a wholly owned subsidiary; Taiyo Nippon Sanso became an equity-method affiliate	
		<ul style="list-style-type: none"> <li>-New Mitsubishi Plastics inaugurated</li> <li>-Consolidated Nippon Synthetic Chemical Industry as subsidiary</li> <li>-Formed organic LED lighting joint venture with Pioneer</li> <li>-MRC established MRC-SGL Precursor</li> <li>-Quadrant Ag of Holland became a consolidated subsidiary</li> <li>-Acquired Freecom of Holland</li> </ul>	<ul style="list-style-type: none"> <li>- Formed strategic alliance with China Petroleum &amp; Chemical Corporation</li> <li>- MCC exchanged its Asian nylon businesses for the European PC operations of Royal DMS of Holland</li> <li>-Japan Polypropylene formed business alliance with Borealis AG of Austria</li> </ul>
Capacity and efficiency improvements	Japan	<ul style="list-style-type: none"> <li>- Integrated water treatment &amp; engineering businesses</li> <li>- Increased cathode material capacity for lithium-ion batteries at Mizushima site</li> </ul>	-Agreed with Asahi Kasei to form a joint venture to integrate naptha cracker operations at Mizushima ethylene center
	Overseas	<ul style="list-style-type: none"> <li>- MPI opened office in Taiwan</li> <li>- Dia Moulding Slovakia established</li> <li>-Mitsubishi Plastics Asia Pacific established</li> <li>-JV Qingdao Lingda Kasei to specialize in spherical graphite</li> <li>- Blu-ray disc operations launched in Singapore</li> </ul>	<ul style="list-style-type: none"> <li>-Mytex Polymers India established</li> <li>-Global structure created for PTA</li> <li>-Performance resin compounds (China and USA)</li> </ul>
Acquisitions and mergers		<ul style="list-style-type: none"> <li>- KOX and JER absorbed and merged</li> <li>- Mitsubishi Chemical Analytech launched</li> <li>- MKV DREAM established</li> <li>- Packaging materials companies of MPI and MCC merged</li> </ul>	<ul style="list-style-type: none"> <li>- Apco and Japan Ethanol absorbed and merged</li> <li>- Sunprene Thailand made a wholly owned subsidiary</li> </ul>
Transfers		- Planned to sell stake in Calgon Mitsubishi Chemical	<ul style="list-style-type: none"> <li>-Fertilizers: toward minority share holder</li> <li>-Sold shares in Techno Polymer, PS Japan, Yokkaichi Gosei</li> </ul>
Withdrawals		<ul style="list-style-type: none"> <li>- MPI closed seven business sites</li> <li>- Stopped PVC pipe production in Koriyama and Nagahama</li> </ul>	<ul style="list-style-type: none"> <li>- Stopped production of cyclohexane plant (Mizushima)</li> <li>- Stopped caprolactam, anone, and ammonium sulfate production (Kurosaki)</li> <li>- Stopped production of PX plant (Mizushima)</li> <li>- Decided to stop SM production (Kashima)</li> <li>- Decided to stop production of PVC (Yokkaichi) and electrolytes and VC monomers (Mizushima)</li> </ul>
		<ul style="list-style-type: none"> <li>- Stopped PVC operation (Mizushima); dissolved Novapex Australia</li> <li>- Stopped operations at alpha olefin and fatty alcohols plants</li> <li>- Withdrew from dimethylformamide business</li> <li>- Decided to shutdown ammonium sulfate plant</li> <li>- Decided to withdraw from glycol ether business</li> <li>- Decided to shutdown PTA plant in Matsuyama</li> </ul>	

# Business Portfolio Improvements under APTSIS 10

Implementation in FY2008–2010

		Major Initiatives
		Health Care
Growth strategy (including M&A)		<ul style="list-style-type: none"> <li>- Choseido Pharmaceutical became a consolidated subsidiary</li> <li>- Secured exclusive development and commercialization licenses in Taiwan and Indonesia for pitavastatin calcium, a hypercholesterolemia treatment agent.</li> </ul>
Capacity and efficiency improvements	Japan	<ul style="list-style-type: none"> <li>- Tanabe Seiyaku Hanbai established</li> <li>- Production companies consolidated to form Mitsubishi Tanabe Pharma Factory</li> <li>- Tanabe Seiyaku Hanbai and Chosei Yakuhin merged</li> <li>- Construction started on new building for Medicinal Chemical Laboratory on premises of Yokohama Office</li> <li>- Life cycle management of existing pharmaceuticals (<i>Radicut</i>, <i>Anplag</i>, and <i>Gastrom</i>)</li> <li>- Added indications for <i>Remicade</i> and <i>Venoglubulin-IH</i></li> </ul>
	Overseas	<ul style="list-style-type: none"> <li>- Mitsubishi Tanabe Pharma America established</li> <li>- Sales company Guangdong Tanabe Pharmaceutical established</li> <li>- Received approval for FTY720 multiple sclerosis treatment in USA and Russia (USA sales began through Novartis)</li> <li>- Expanded number of European countries to 9 in which <i>Argatroban</i> is available</li> <li>- Mitsubishi Pharma (Guangzhou) completed infusion bag production facilities</li> </ul>
Acquisitions and mergers		<ul style="list-style-type: none"> <li>- Welfide Service integrated into Tanabe Total Service</li> <li>- Tanabe Total Service integrated with Kouei Shouji</li> </ul>
Transfers		<ul style="list-style-type: none"> <li>- Transferred stakes in Sun Chemical, Tama Kagaku, and Ogura Art Printing</li> </ul>
Withdrawals		<ul style="list-style-type: none"> <li>- Dissolved Mitsubishi Kasei Institute of Life Sciences</li> <li>- Liquidated subsidiaries Fuji Kosan and Tokyo Tanabe Shoji</li> </ul>

# Analysis of Operating Income (FY2010 vs. FY2015)



# Major CAPEX Plan

Domain	Segment	Items
Performance Products	Electronics Applications	Increase GaN substrate production line for white LED lighting New production facility for OPV
	Designed Materials	Capacity increase in electrolytes, anodes, and cathodes for HEV Li-ion batteries
		New production facility for Li-ion battery separator
		Capacity increase of high-performance polyester films
		Capacity increase for carbon fiber calcination
		Capacity increase for OPL film
	New water treatment plant for operation and maintenance	
Health Care	Health Care	New GMP facilities for API and formulation
Industrial Materials	Chemicals	Down size capacity of naphtha crackers
	Polymers	Capacity increase of MMA New line for acrylic continuous casting sheets
Others		New R&D facility

# Growth Business White LED lighting and materials

## Goals FY2015

**No. 1 player worldwide**

**Market to the world**

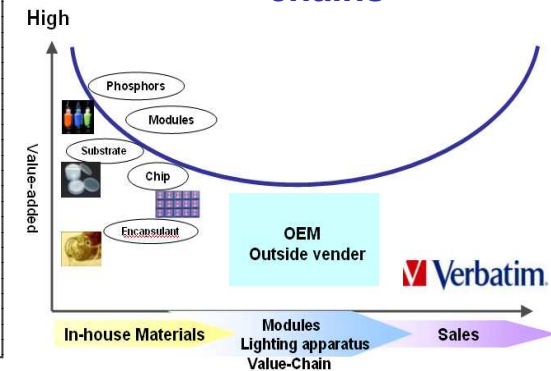
**Through FY2012: Solidify business infrastructure**

Gas phase method: mass produce GaN substrates, develop new phosphors, and deliver **sapphire-based** VxRGB modules, light bulbs, and lighting fixtures.

**From FY2013: Market KAITEKI lighting by capitalizing strength in materials**

Liquid phase method: mass produce GaN substrates, deliver new phosphors and **GaN based** VxRGB modules and lighting fixtures.

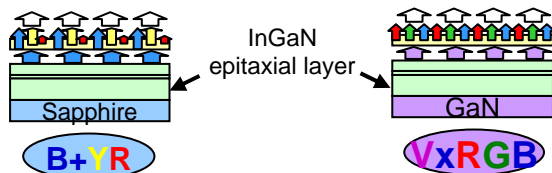
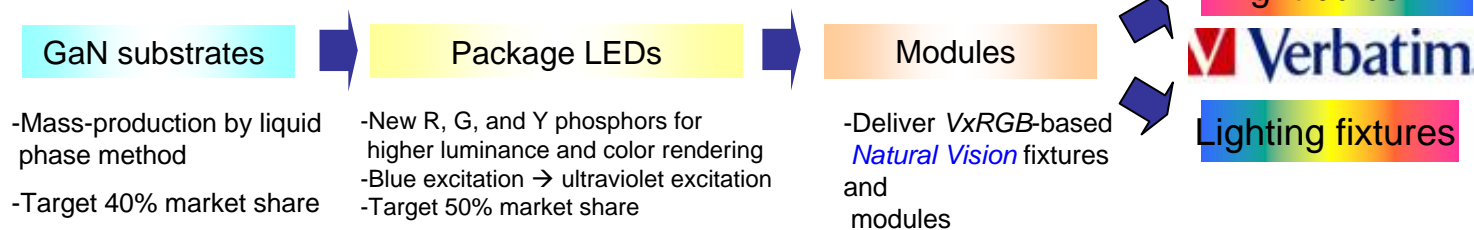
## Business model and value chains



## KAITEKI Lighting

Ultra-efficient, Beautiful, and Comforting\*

\*High efficiency, high color rendering, dimming & color tuning



Create market for **tunable lighting**

**Natural Vision LED=Close to natural sun light**  
**Tunable=Dimming & color tuning**

Register **VxRGB** trademark = Ultraviolet excited RGB phosphor compounds

# Growth Business Lithium-ion battery materials

## Goals FY2015

Top global market share with global operations

## Strategies and initiatives

- Build global supply structure
- Accelerate development for automotive certifications
- Reinforce quality controls and cost-cutting

	Current capacity t/yr	Target capacity t/yr	Target Share % ('09→'15)
Electrolytes	8,500	50,000	25 → 40
Anode materials	3,000	35,000	20 → 35
Cathode materials	600	15,000	<5 → 10
Separators	12 million m <sup>2</sup> /yr	72 million m <sup>2</sup> /yr	<5 → 10

## Four materials and advantages

### Electrolytes



Optimal formulations and synergies with other materials

### Anode materials



Spherical graphite & Surface treatment technologies

### Cathode materials



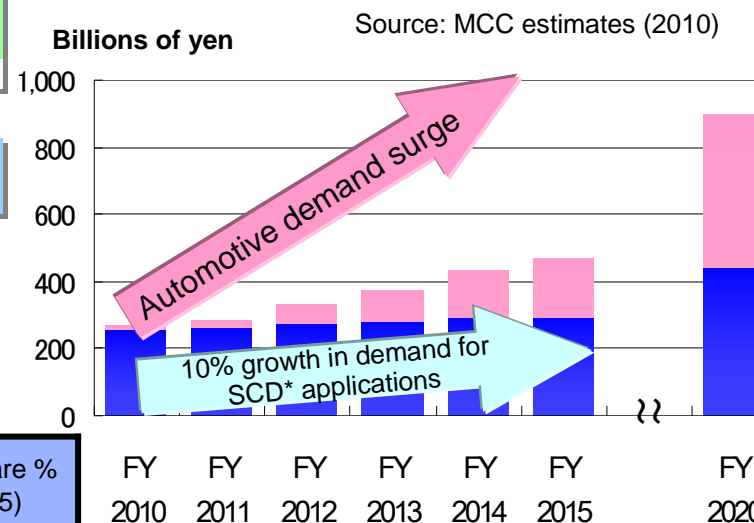
Powder design for cobalt reduction materials

### Separators



Dry 3D structure control

## Market trend forecast for LIB materials



\*SCD: small consumer device

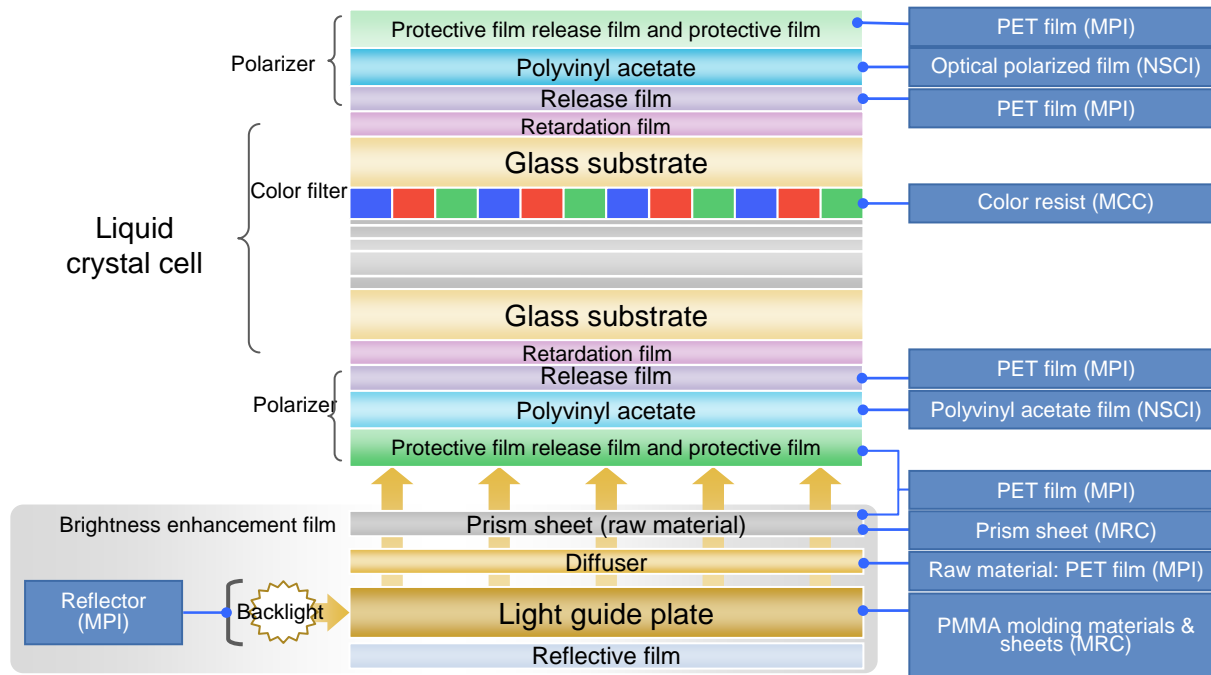
# Growth Business FPD Components

## Goals FY2015 and Strategies

### Market leader in expanding Asian market

- Expand facilities and increase CAPEX adopting to growing markets
- Global operation, particularly in Asia, doing more business in emerging nations
- Optimize earnings by shifting targets to advanced flat panel displays
- Maintain high market shares by cutting costs and enhancing quality & services

## MCHC Group products

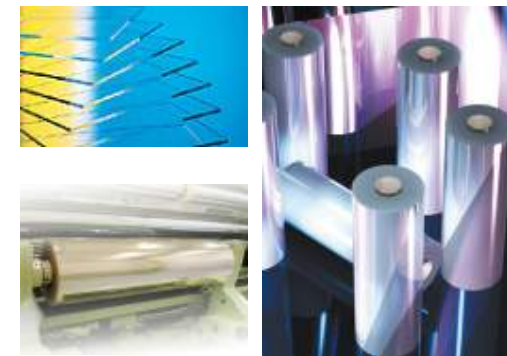
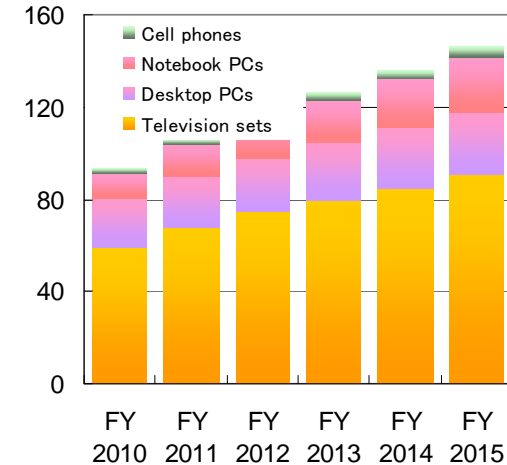


Mitsubishi Chemical Holdings Corporation

## Worldwide panel shipments

Millions of square meters annually

Source: MCHC estimate





## Polyester film

### <Strategy and key initiatives>

- Increase capacity and CAPEX in expanding markets
  - Build 2 lines in China & start prod'n (JV w/ Eternal Chemical)
- Optimize earnings by shifting to advanced FPDs
- Maintain high market shares by cutting costs and enhancing quality & services
  - Maintain market share in processed products for FPDs
- Expand global operation, particularly in Asia, increase more business in emerging nations
  - Leader in Chinese FPD market
  - Develop and launch new products

## Optical polarized film

### <Strategy >

Expand earnings by building comprehensive presence in LED-TV materials market

- Increase production capacity
- Optimize quality
- Improve supply stability

### <Advantages>

- PVOH materials
- Advanced film production technologies
- Polarizer production record

## Acrylic sheet

### <Strategy and key initiatives>

- Ensure efficient delivery by building common platform for Asia, EU, and the US
- Maximize earnings by optimal product portfolio and adopting to market changes
  - ✓ Develop supply chain for light guide plates in expanding LED-TV markets
  - ✓ Increase earnings by launching high-performance mar resistance sheets (anti-fingerprint, anti-reflection, and anti-glare)
  - ✓ Expand sales in growing Chinese and Southeast Asian markets

## Color resists

### <Strategy >

- Expand sales by rationalizing our supply chain for customers

### <Advantages>

- Integrated manufacturing system w/strength in disposition technology
- Agile customizations

### <Key areas>

- China, Korea and Taiwan





## Goals FY2015

### Expand to advanced composite and molding materials

Promote new and large scale business focusing on growth areas, notably environment & energy, mobile devices, and electronics

## Carbon fiber (CF) /composites - strategies and initiatives

### PAN-based:

Integrate precursors, CF, and intermediates into one business



- Strengthen precursor strategy via MRC-SGL Precursor
- Early integration of CF production line scheduled to begin operations in 2011 and explore next capacity expansion
- Develop composites for automotive structural components and supply automotive materials
- Establish competitive advantages in intermediate materials, processing technologies and generate synergies within the inter-companies
- Expand gas dispersion layers for fuel cells
- Make acquisitions and build alliance network to expand value-chain

### Pitch-based:

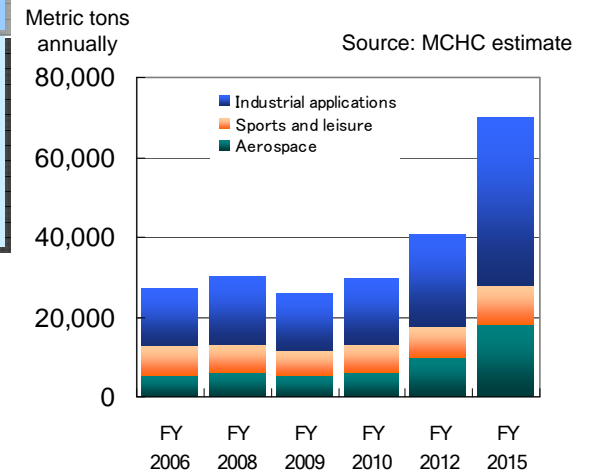
- Expand application by taking characteristic advantage of pitch-based CF
- Continue to develop and launch new products for CFs and processed products
- Advance CF production technologies

## Strategies and policies for alumina fibers

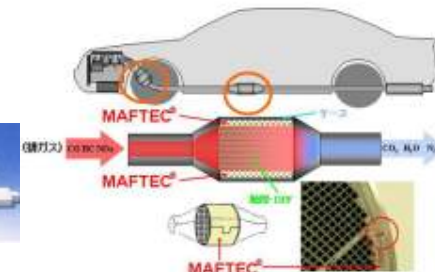
- Fulfill supply responsibilities to accommodate growing demand and outreach to new customers and new markets



## Global carbon fiber demand projections



BMW Megacity Vehicle official photo



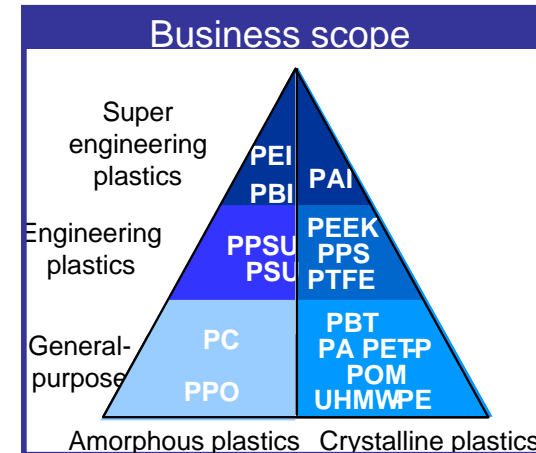
# Growth Business High performance molding products



## Goals FY2015

### Expand utilizing specialty engineering plastic molding technologies and thermoplastic resin composites platforms

- Reinforce semiconductor production technologies (advanced plasma and ultra-pure materials)
- Launch new application by technical collaboration with customers



## Strategy and policies

### Engineering plastics:

Broaden application & overcome business climate changes

#### ■ Super engineering plastics

- ✓ Continue developing and maintaining leading position in advanced thermoplastics
- ✓ Launch production in Japan to augment European and American capabilities

#### ■ General-purpose engineering plastics

- ✓ Globally manufacture and use sales units to market super engineering plastics

PEI : Polyether imide	PAI : Polyamid-imide
PBO : Polybenzimidazole	PEEK : Polyetheretherketone
PPSU : Polyphenylsulfone	PPS : Polyphenylene sulfide
PSU : Polysulfone	PTFE : Polytetrafluoroethylene
PC : Polycarbonate	PBT : Polybutylene terephthalate
PPO : Polyphenylene oxide	PA : Polyaniiline
	PET-P : PET plastics
	POM : Acetal polyoxymethylene
	UHMW-PE : Ultra-high-molecular-weight polyethylene



# Growth Business Specialty Chemicals



## Goals FY2015

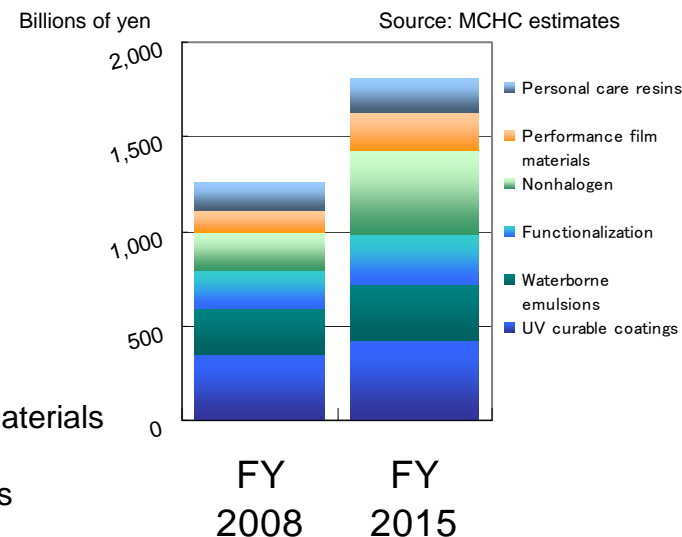
### Maximize group synergies and expand business scale

- Leverage highly profitable product portfolio to develop new offerings in growth markets and expand overseas
- Collaborate with new businesses within Group
- Generate cost synergies

## Strategies and policies

- Reinforce existing product lines to increase presence in solvent-based coating materials
- Strengthen and expand waterborne emulsions capabilities
- Expand sales of plastisols for undercoating, UV curable coatings for Blu-ray discs and next-generation photoresist materials
- Step up efforts to cultivate non-polyvinyl chloride applications for resin modifiers
- Expand sales of acrylic films for decorative and optical application as new offerings

## Specialty chemicals market projections



### 3 business areas

Coating resins

Photo-reactive resins

Functional additives

### MRC

Solvent/Waterborne acrylic resins

UV curable coating materials

Resin modifiers

### MCC

PO/acrylic emulsions

High performance hard coatings

Additives and epoxy resins

### Synergies

Waterborne emulsions for automotive & construction

UV curable coating materials for I&E technologies

Resin modifiers for polymer additives

# Growth Business Water treatment system and services

## Goals 2015

Build business structure to provide total water treatment business solutions, reinforce and expand operational infrastructure in Asian markets.

## Strategies and policies

- Strengthen production capacity for polyvinylidene fluoride (PVDF) membranes and increase film product sales
- Use membrane bioreactor (MBR) techniques (to remove activated sludge) to strengthen wastewater & water reclamation businesses
- Initiate and broaden alliances (JVs) in China and elsewhere in Asia
- Improve cost competitiveness and offer high-performance membranes
- Cultivate *CLEANSUI* business in China and elsewhere in Asia
- Generate synergies with Nippon Rensui



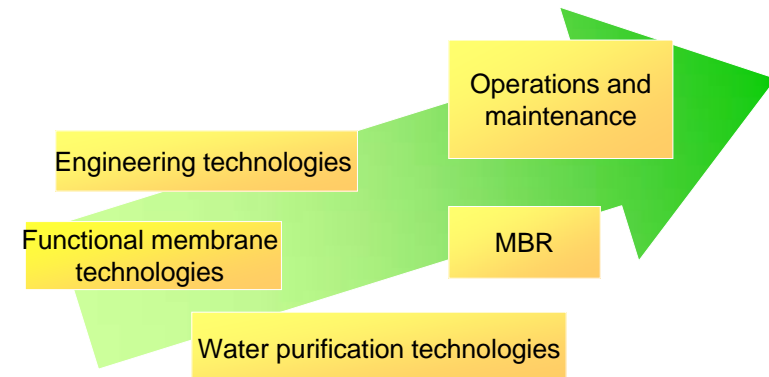
Large scale water treatment facilities in Korea



Membrane unit for sewage treatment

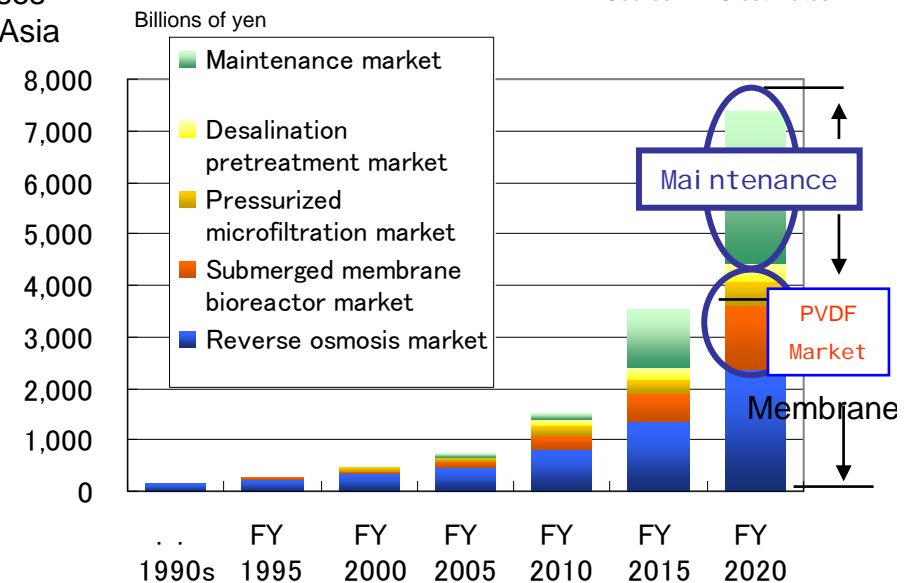
Mitsubishi Chemical Holdings Corporation

## From Materials to solutions business



## Water treatment market in Asia

Source: MRC estimates



Good Chemistry for Tomorrow  
Creating better relationships among people, society, and our planet.

# Growth Business Ethical drugs



## ■ Goals FY 2015

Develop and deliver globally new medicines to fulfill unmet medical needs

## ■ Current major products

(Billions of yen)

Major products	Net sales FY2010 forecasts	Major products	Net sales FY2010 forecasts
1. Remicade	60.7	6. Talion	12.6
2. Radicut	28.3	7. Maintate	11.8
3. Ceredist	17.8	8. Depas	11.1
4. Anplag	16.0	9. Herbesser	9.5
5. Urso	15.0	10. Tanatril	9.3

## ■ FTY720 Product Profile

Indication	Multiple sclerosis
Current development status	Japan : P2 <sup>※1</sup> USA/EU/Russia <sup>※2</sup> : Approved in USA (Sep.) and Russia (Aug.) in 2010 and filed in EU in 2009
Mechanism	Modulation of sphingosine 1-phosphate (S1P) receptor
Profile	-More effective than interferon -First oral MS medicine in USA

## ■ Other medicines

Name	Escitalopram	MP-424	MP-513	TA-7284
Indication	Depressants	Chronic hepatitis type C	Type 2 Diabetes	Type 2 Diabetes
Current development status	Japan : Filed by Mochida ※ Co-marketing with Mochida * *Co-promotion w/ Yoshitomiyakuin at psychiatric instruction.	Japan: P3 USA/EU*: P3 * Vertex (USA) , Tibotec (EU)	Japan : P3 Overseas : P2	Japan : P2 Overseas : P3 <sup>※3</sup>
Mechanism	Selective Serotonin Reuptake inhibitors	Inhibition of HCV NS3/4A serine protease	DPP4 inhibitor	SGLT2 inhibitor
Profile	-Highest selective SSRI -High efficacy and tolerability -Low drug interaction - ww mkt size, 3,845M\$ <sup>※4</sup>	-High efficacy compared with existing therapy -Oral drug	-Once a day administration -Low renal excretion rate	-Low risk of hyperglycemia -Effect for weight reduction -Independent effect for insulin secretion and resistance

※1 Co-development w/Novartis ※2 Out-license to Novartis; Novartis sells and develops in overseas ※3 Johnson & Johnson develops in overseas ※4 Uto Brain 2009/07

# Growth Business High Performance Graphite

## Goals 2015

Leverage superior quality to expand sales → Graphite electrodes for electric arc furnaces and semi-conductor application etc.

Needle coke



Pitch coke



Full-fledged sales of tar derivatives (increase tar distillation capacity from 300,000 t/y in 2010 to 360,000 t/y)

Needle coke: Increase sales in expanding Chinese market and offer product that offers better low thermal expansion performance than petroleum-based alternatives

Increase sales from FY2010 → FY2012 by 20,000 t/y

Pitch coke: Accommodate expanding customer demand by ensuring stable quality

Increase sales from FY2010 → FY2012 by 10,000 t/y

Graphite electrode for electric arc furnace steel making



Atomic power core material, pantograph slider & sealing material



Various electrode & electric brush



Semi-conductor application



# Growth Business Performance Polymers



## Goals FY2015

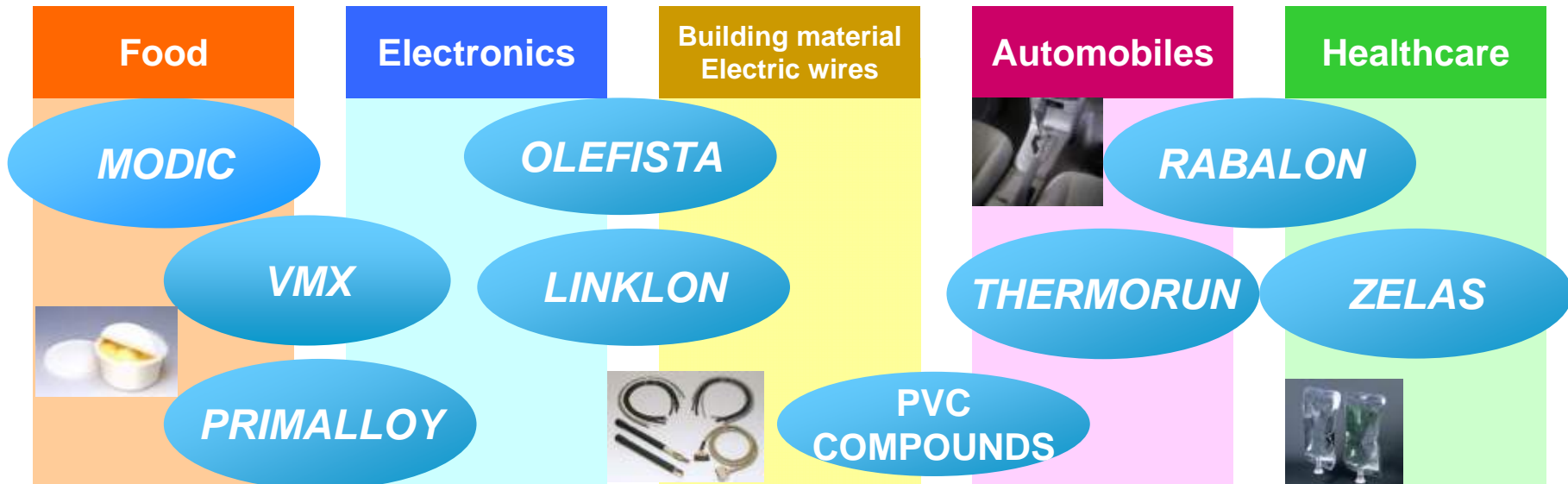
- Continuous new product development with our core modifying technologies
- Gain and/or secure shares in key markets through overseas expansion

## Strategy

Strengthen global presence  
(generating 40% of sales overseas)

Reinforce R&D

Collaborate with MCHC Group  
companies to develop new applications



# Growth Business MMA/PMMA



## Goals FY2015

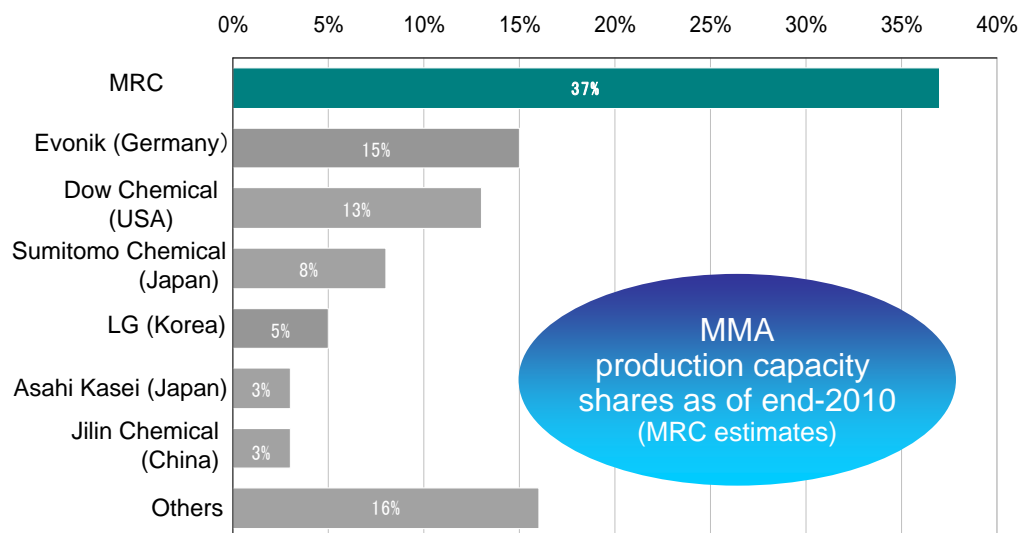
Establishing a global operational MMA chain network leveraging No.1 capacity and cost competitiveness

## Strategies and policies

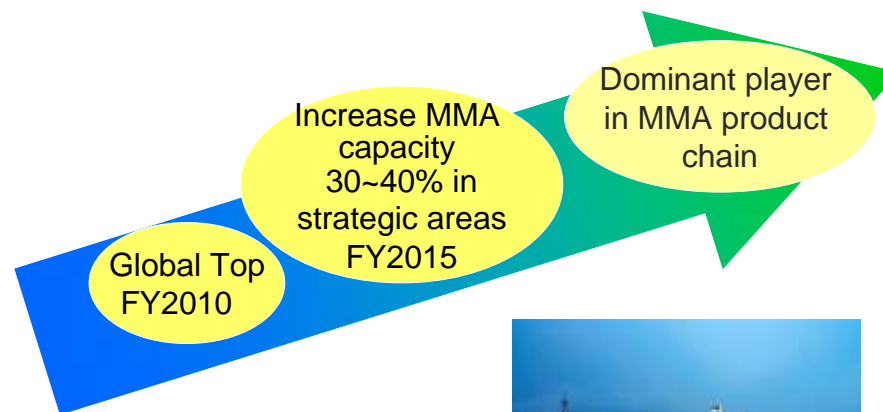
- Ramp up production capacity to accommodate rising demand for MMA and PMMA and optimize global site locations (including in Asia, Middle East, and North America)
- Capture business opportunities in growth regions
- Boost production capacity in methacrylic acid and esters to accommodate regional demand growth
  - Beaumont (USA), Daesan (Korea), Thai MMA (Thailand)

### Key MMA CAPEX plan

Planned operational startup	Production process	Location
2011	C4 method	Second stage at Thai MMA
2014	New ethylene method	Saudi Arabi
2011-2015	—	Capacity upgrades at existing plants



Mitsubishi Chemical Holdings Corporation





# Next-generation Growth Business OPV Modules and Materials

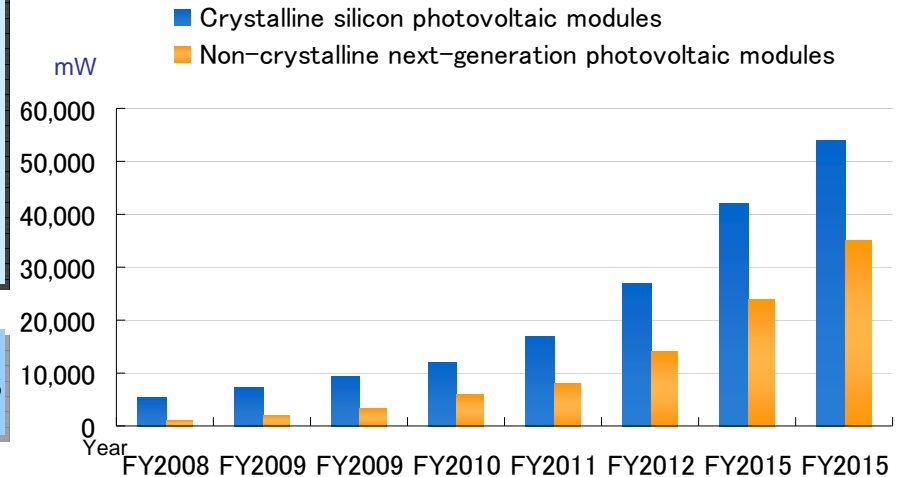
## Goals FY2015

Add values to customers in construction and automotive usage by developing photovoltaic products where only chemical company can make such innovations

## Develop PV module materials & applications

## World photovoltaic modules market forecast

Source: Fuji Keizai estimates (2010)



**gloa** (株) **FY2012-15**

10% efficiency

15% efficiency

Organic photovoltaic modules

Silicon photovoltaic module:

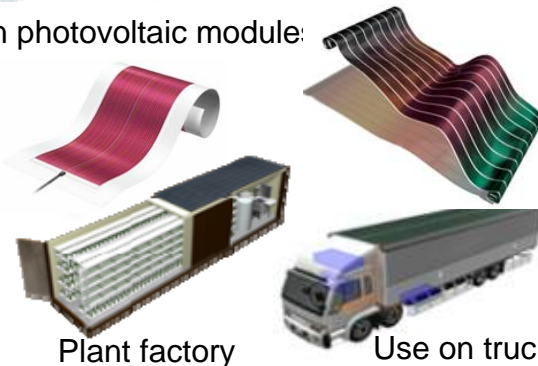


Building-integrated photovoltaic (BIPV)

**FY2010**

Thin-film silicon PV

**FY2009**



Plant factory

Use on trucks

## Barrier film PV materials strategies

- Expand and systematize barrier substrate, composites, and photovoltaic module materials businesses
- Deploy new deposition facilities for barrier substrates to attain world-leading quality and productivity
- Combine "pull and push marketing" to create markets for next-generation photovoltaic modules and other products
- Collaborate with partners in composite products



Back-Barrier photovoltaic module back sheet



PROCELLIER F photovoltaic module sealant

# Next-generation Growth Business Organic Semiconductors



## Organic Electroluminescent Lighting (OLED)

### Goals FY2015

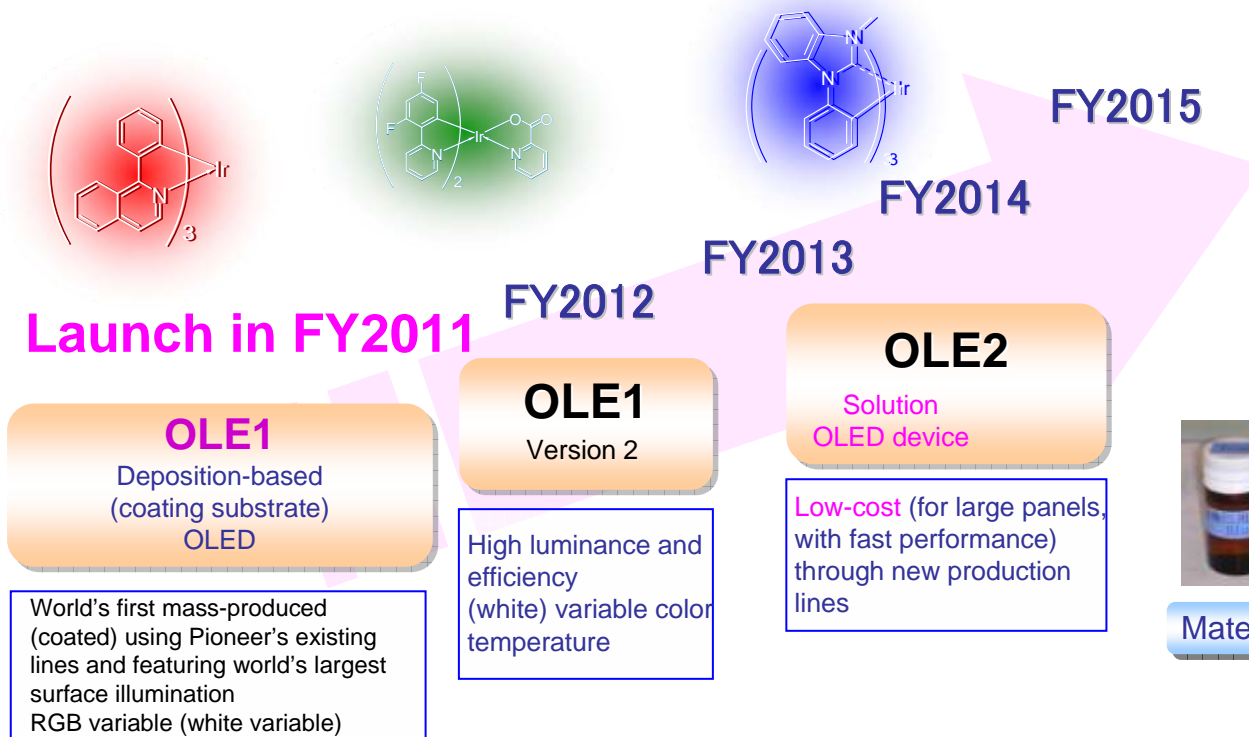
- Comprehensively produce raw materials to light sources & lighting
- Create top global brands
- Lead markets and generate highly profitable businesses

Organic electroluminescent lighting

*Homogenius* lighting: A new features uniform surface illumination is environmentally friendly



Lighting design: Uchihara Creative Lighting Design Inc.



Materials



Light sources



Lighting

# Next-generation Growth Business Sustainable Resources

## Goals FY2015

**DURABIO:** Leverage unique product features to build market presence as a highly functional product within our polymer portfolio

**GS Pla:** Build partnerships in countries with biomass resources and establish competitive business base serving to a wide application

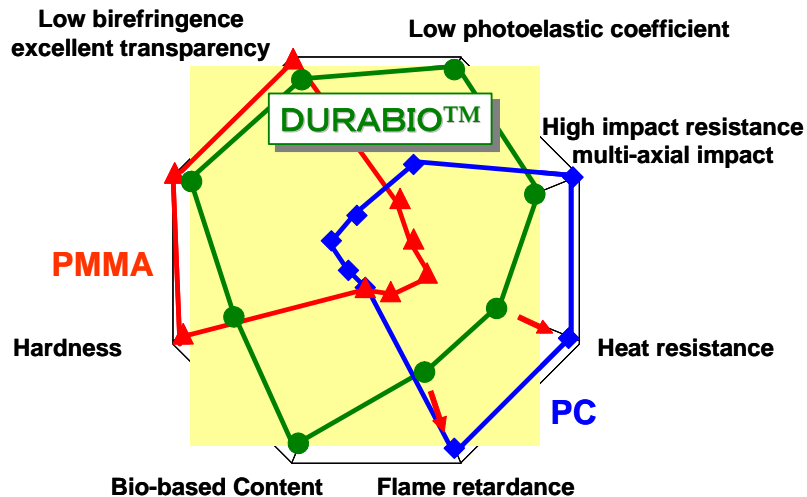
## Strategies

Secure competitive raw materials

Strengthen marketing to establish presence

Reinforce application development capabilities

DURABIO general properties



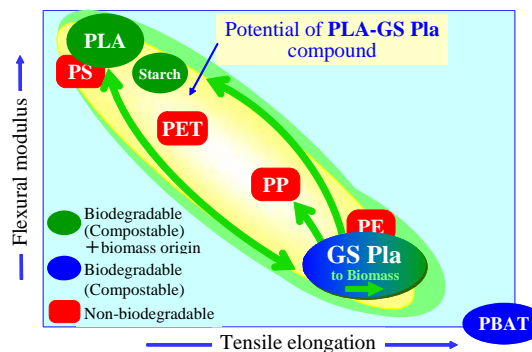
PLA modification with GS Pla

Adding GS Pla into PLA will:  
Provide flexibility  
Improve heat resistance  
Provide heat sealing properties

GS Pla will increase value of PLA by providing attributes close to those of polyethylene and similar polymers

[GS Pla properties]

[Improving heat resistance of PLA]



Over 25% of GS Pla in PLA can improve PLA heat resistance.

