BIO Pacific Rim

Biotechnology and Renewable Chemicals: the Future is Now

October 12, 2012

Sustainable Resources Business Development Dept.
Petrochemicals R&D Division
MITSUBISHI CHEMICAL CORPORATION

Who we are

Profile*

Mitsubishi Chemical Holdings Corporation

Established	October 3, 2005
Head office**	1-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo (Palace Building)
President	Yoshimitsu Kobayashi
Paid-in capital	¥50.0 billion
Listings	Tokyo Stock Exchange, Osaka Securities Exchange
Activities	Management of Group companies (development of Group strategies, allocation of financial resources, etc.)
Business domains	Performance products, health care, and industrial materials
Consolidated net sales	¥3,166.8 billion
Consolidated operating income	¥226.5 billion
Group employees	53,882
Website	http://www.mitsubishichem-hd.co.jp/english/

Dr. Yoshimitsu Kobayashi
President &
Chief Executive Officer

*All figures are for the year ended March 2011.

**We will be moving to the following new location.
New office: Palace Building, 1-1 Marunouchi 1-chome, Chiyoda-ku, Tokyo
Relocation timing (planned): May-August 2012

The Mitsubishi Chemical Holdings Group is made up of about 410 companies: holding company Mitsubishi Chemical Holdings and core operation companies Mitsubishi Chemical, Mitsubishi Tanabe Pharma, Mitsubishi Plastics, and Mitsubishi Rayon, as well as some 340 consolidated subsidiaries and about 70 equity-method affiliates.

MITSUBISHI CHEMICAL CORPORATION

Our organization

Mitsubishi Chemical Holdings Corporation (MCHC)*

Consolidated net sales: ¥3,166.8 billion
Group employees: 53,882

Performance Products　Health Care　Industrial Materials

* Listed

Figures for consolidated net sales and paid-in capital are for the year ended March 2011.

100% The KAITEKI Institute, Inc.

100% Mitsubishi Chemical Holdings America, Inc.

100% Mitsubishi Chemical Holdings (Beijing) Co., Ltd.

Mitsubishi Chemical Corporation (MCC)

100%

Paid-in capital: ¥50.0 billion
Consolidated net sales: ¥2,019.6 billion
Group employees: 27,828

[Line of businesses]
Performance products
Healthcare
Industrial materials etc.

Mitsubishi Tanabe Pharma Corporation* (MTPC)

56.3%

Paid-in capital: ¥50.0 billion
Consolidated net sales: ¥409.5 billion
Group employees: 9,198

[Line of businesses]
Pharmaceuticals etc.

Mitsubishi Plastics, Inc. (MPI)

100%

Paid-in capital: ¥21.5 billion
Consolidated net sales: ¥382.0 billion
Group employees: 8,549

[Line of businesses]
Plastics products
Inorganic fiber materials etc.

Mitsubishi Rayon Co., Ltd. (MRC)

100%

Paid-in capital: ¥53.2 billion
Consolidated net sales: ¥478.4 billion
Group employees: 8,203

[Line of businesses]
Chemicals & plastics
Carbon fiber & composite materials
Water treatment etc.

Our Products








Electronics related products
Recording media
Information materials
Inorganic chemicals
Food ingredients
Battery materials
Fine chemicals
Polymer processing materials
Composite materials

Performance Products

Electronics Applications Segment
Designed Materials Segment

Pharmaceuticals
Diagnostic reagents and instruments
Clinical testing
Active pharmaceutical ingredients and intermediates

Health Care

Health Care Segment

Industrial Materials

Chemicals Segment
Polymers Segment

Basic petrochemicals
Chemical derivatives
Synthetic fiber materials
Neat resins and composites
Carbon products




MITSUBISHI CHEMICAL CORPORATION

Group Philosophy

Good Chemistry for Tomorrow

Creating better relationships among people, society, and our planet.

"Chemistry" is a field of science but also refers to compatibility, relationships, and connections among different objects, different people, and between people and objects as well.

Good Chemistry for Tomorrow therefore expresses our commitment to creating better relationships among people, society, and our planet.

Based on **Good Chemistry for Tomorrow**,

we will seek to achieve ***KAITEKI*** with unlimited potential and expansion.

“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.

Our values

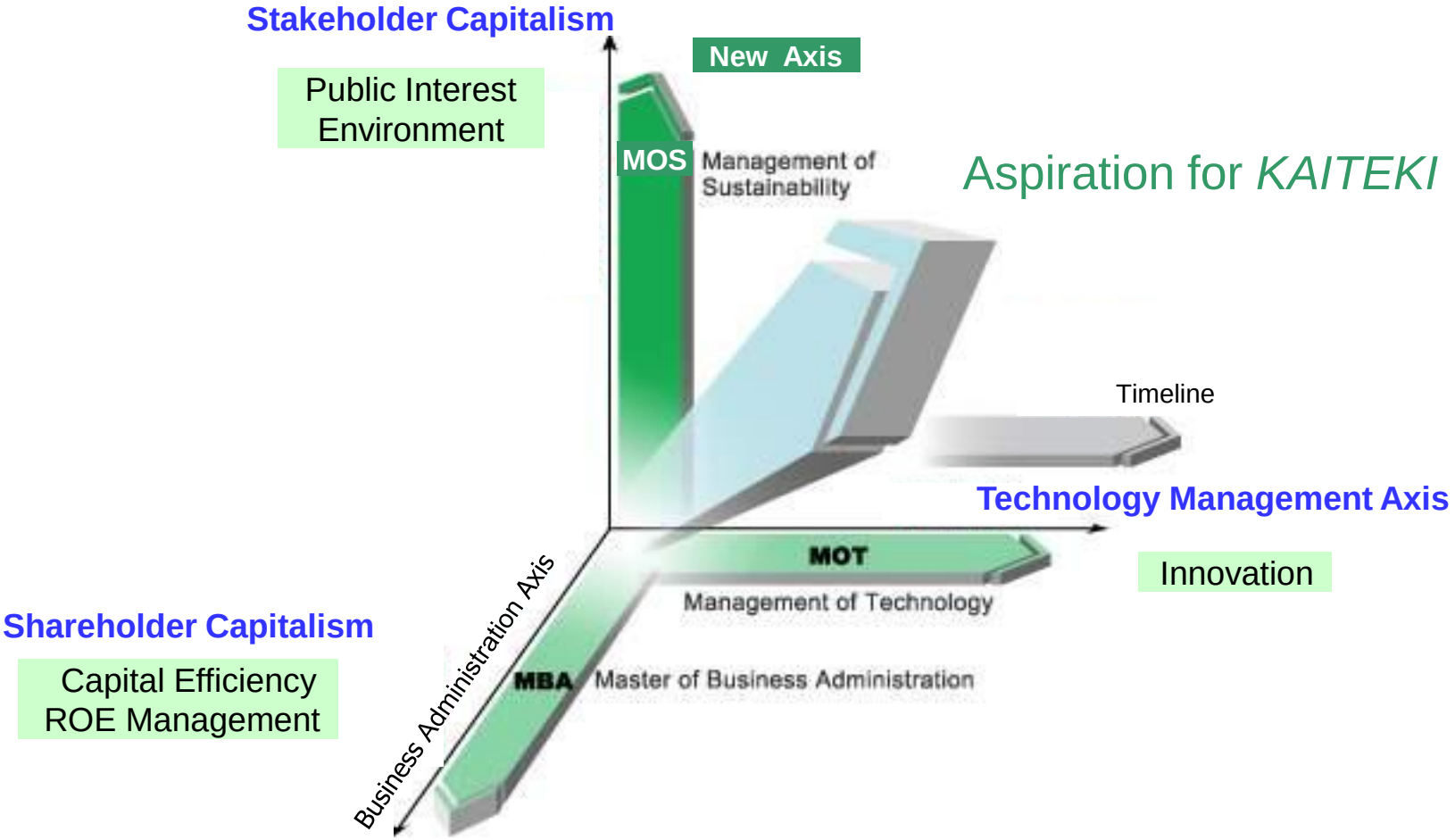
At Mitsubishi Chemical Holdings Group,
we are committed to run our business in a way that delivers
"KAITEKI" solutions
by putting infinite potential of 'Good Chemistry' to work

Three decision criteria for corporate activities

Sustainability
Health
Comfort

Promotion of *KAITEKI* Management

We promote *KAITEKI* management
through a new axis of Management of Sustainability（MOS）
with existing axes of MBA & MOT



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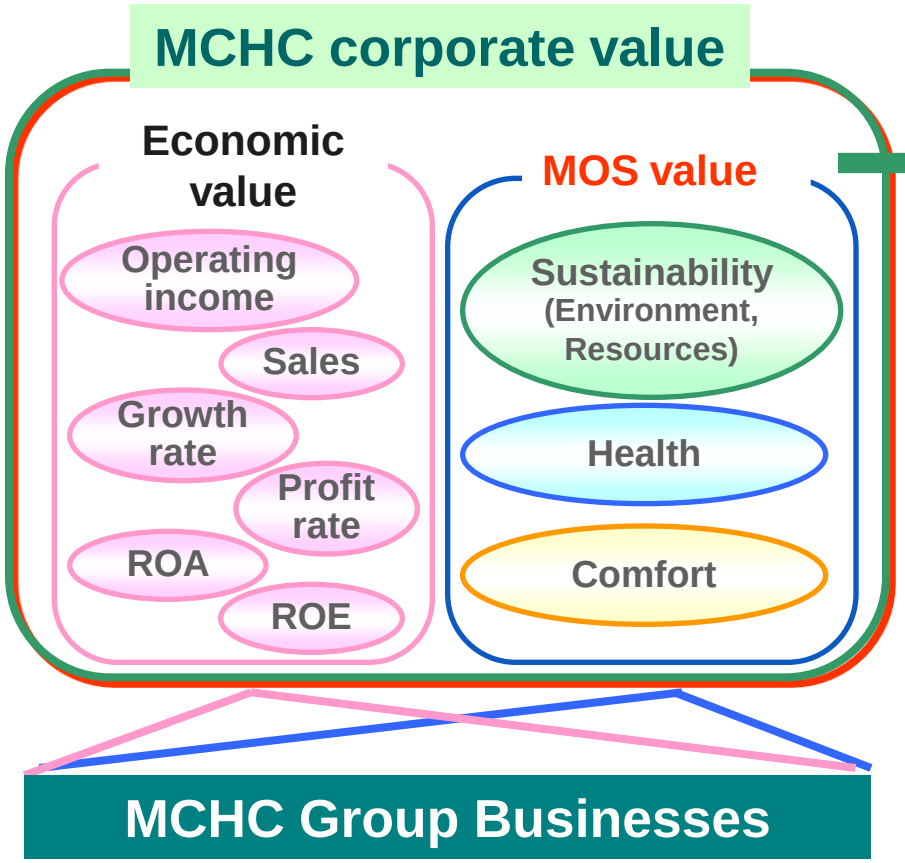
Monitoring MOS Value

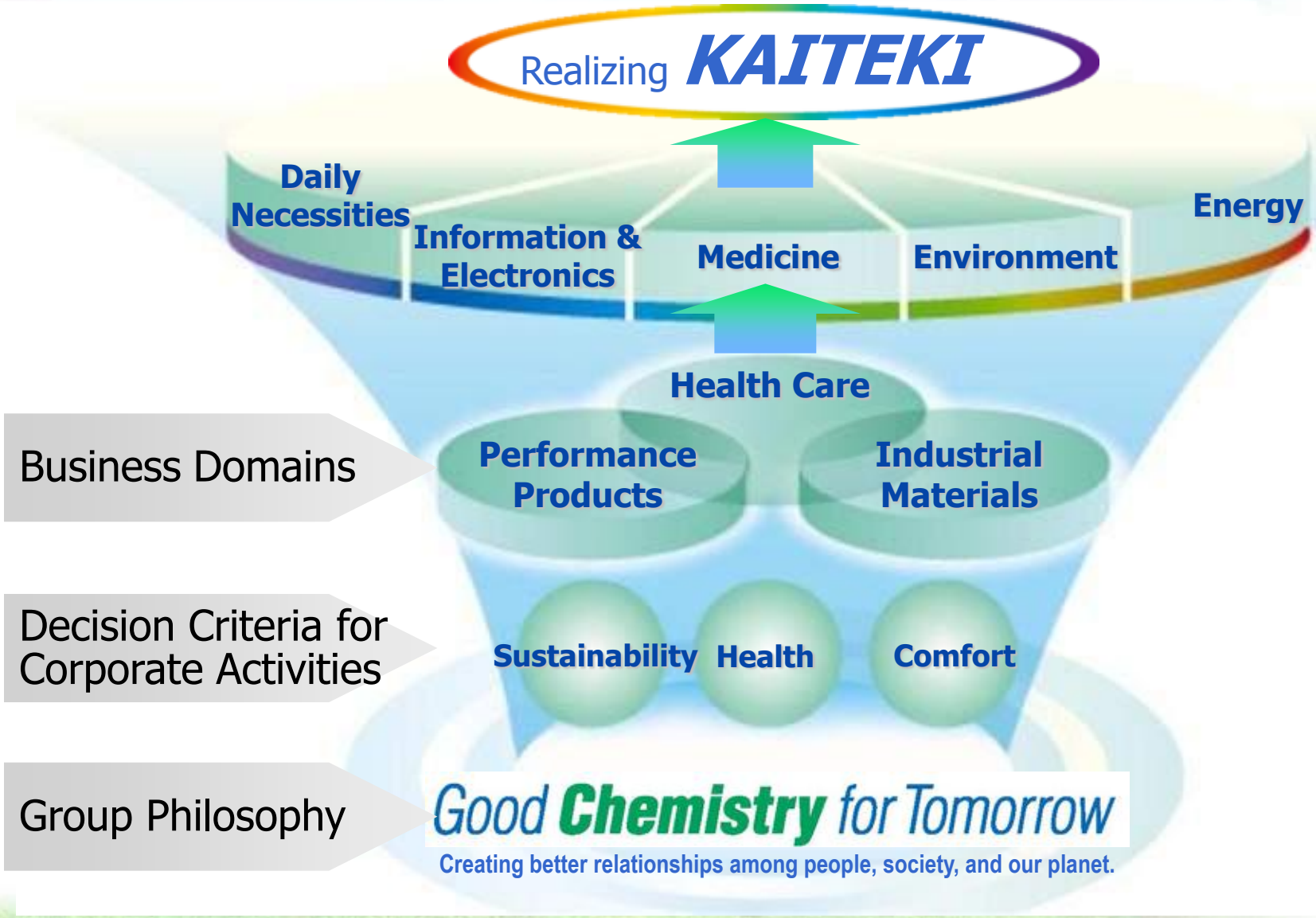
MCHC corporate value is the summation of economic value and MOS value



MOS Indexes

Sustain-ability Index	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
Health Index	H-1	Contribution to medical treatment
	H-2	contribution to improvements of QOL
	H-3	contribution to early detection and prevention of diseases
Comfort Index	C-1	Deliver products (development and manufacturing) for comforting lifestyle
	C-2	Improve stakeholder satisfaction
	C-3	Recognition of corporate trust

Our Aspiration; realizing *KAITEKI*

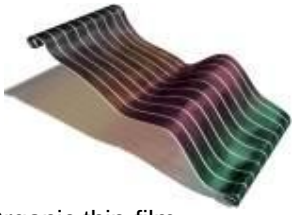


Next-Generation Growth Businesses for *KAITEKI*

Organic EL Lighting

Lighting design:
Uchihara Creative Lighting Design Inc.

Healthcare solutions（Image）



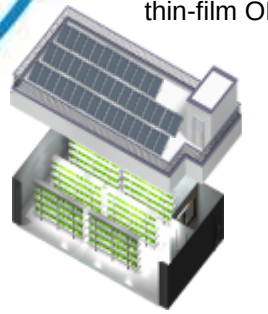
Organic thin-film photovoltaic modules

Truck equipped with thin-film OPV

DURABIO
Bio-based engineering plastic

GS Pla
Bio-degradable Plastic application

Nutrient cultivation system for tomatoes



Vegetable factory container

These businesses contribute to sustainability, health, and comfort by drawing on the Group's core technologies, and we are committed to their rapid commercialization as the drivers of our Innovation Strategy.

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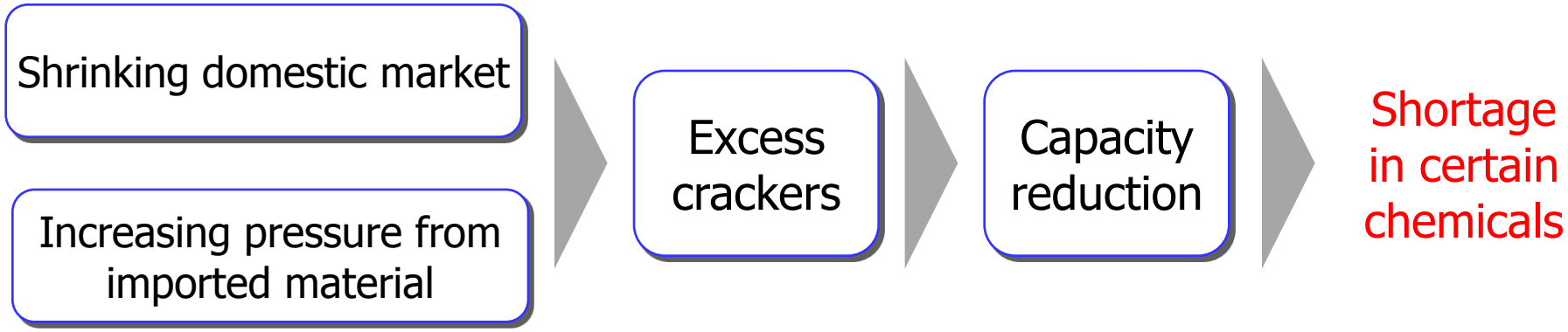
Why Sustainable Resources?

- Current business = volatile cost structure
- Requirement from customers
- Change in business environment



A shift is critical

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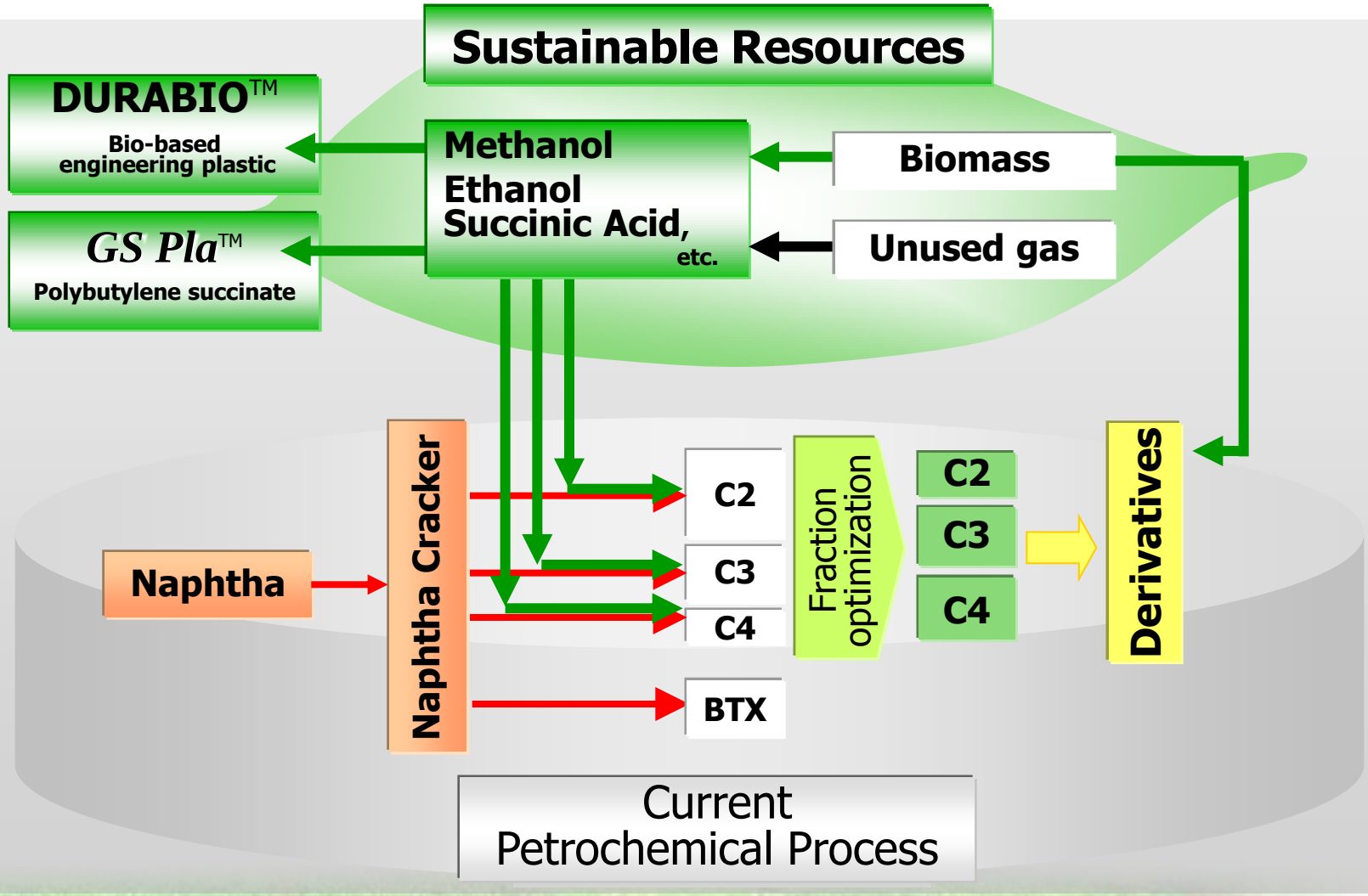
Our approach to Sustainable Resources

"Drop in" material from sustainable resources to convert existing business into "bio"



Major products in petrochemicals (MCC)

Basic Petrochemicals	Basic Petrochemicals Dept.	Olefins & Aromas (C2, C3, C4, BZ, TL, XL)
Chemical Derivatives	Ethylene Oxide/ Glycols and Ethanol Dept.	EO, EG, Ethanol, GE, EC
	Oxo Alcohols and Acrylates Dept.	2-EH, NBA, AA, AE
	C4 Derivatives Dept.	BDO, THF, PTMG, NMP, GBL, MAH
	Terephthalic Acid Dept.	PTA
Polymer	Polyester and Nylon Dept.	PET, A-PET sheets, PBT
	Phenol and Polycarbonate Dept.	CU, PHL, BPA, PC, MIBK
	Performance Polymers Dept.	Elastomers, Cross-linked polymers, Adhesive polymers, PVC compounds
Petrochemicals R&D	Sustainable Resources Business Development Dept.	Bio-PC, Bio SA, PBS

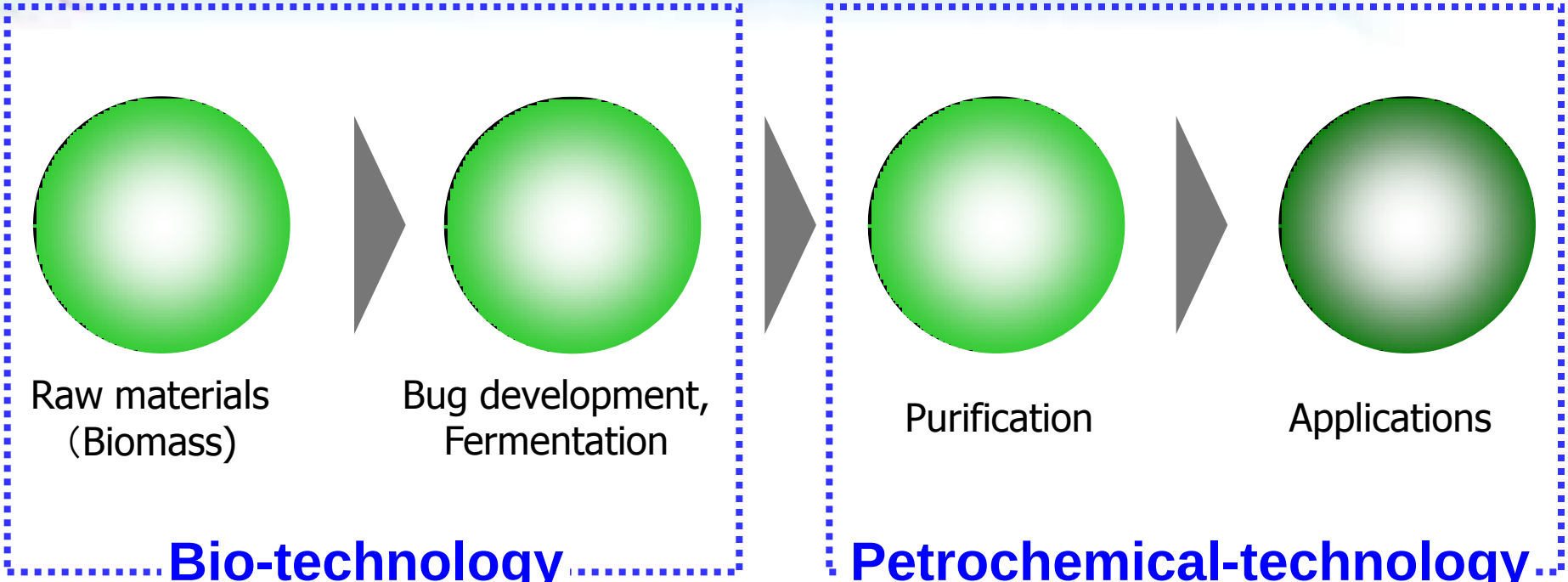
What is need to accomplish

Customers want the "same product" under the "same conditions" as they do today

- Cost competitiveness
  - "Bio premium" is difficult to realize
- Same quality
  - "Optimization" of bio-related impurities is key
- Stable supply
  - Security of raw materials

Simple but difficult

Producing chemicals from sustainable resources



Production of bio-chemicals are a combination of both bio and petrochemical technologies

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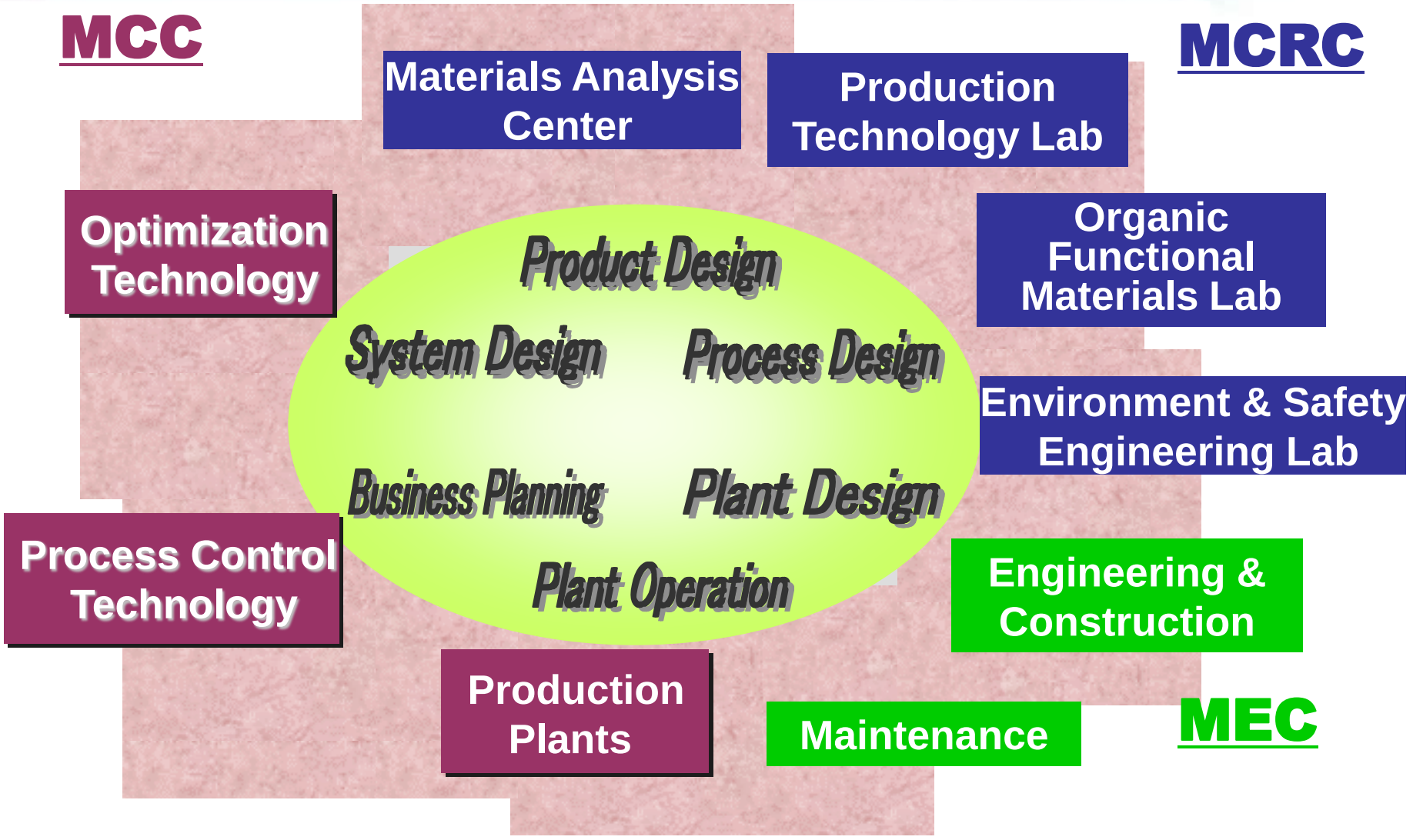
Our technological capabilities in petrochemicals



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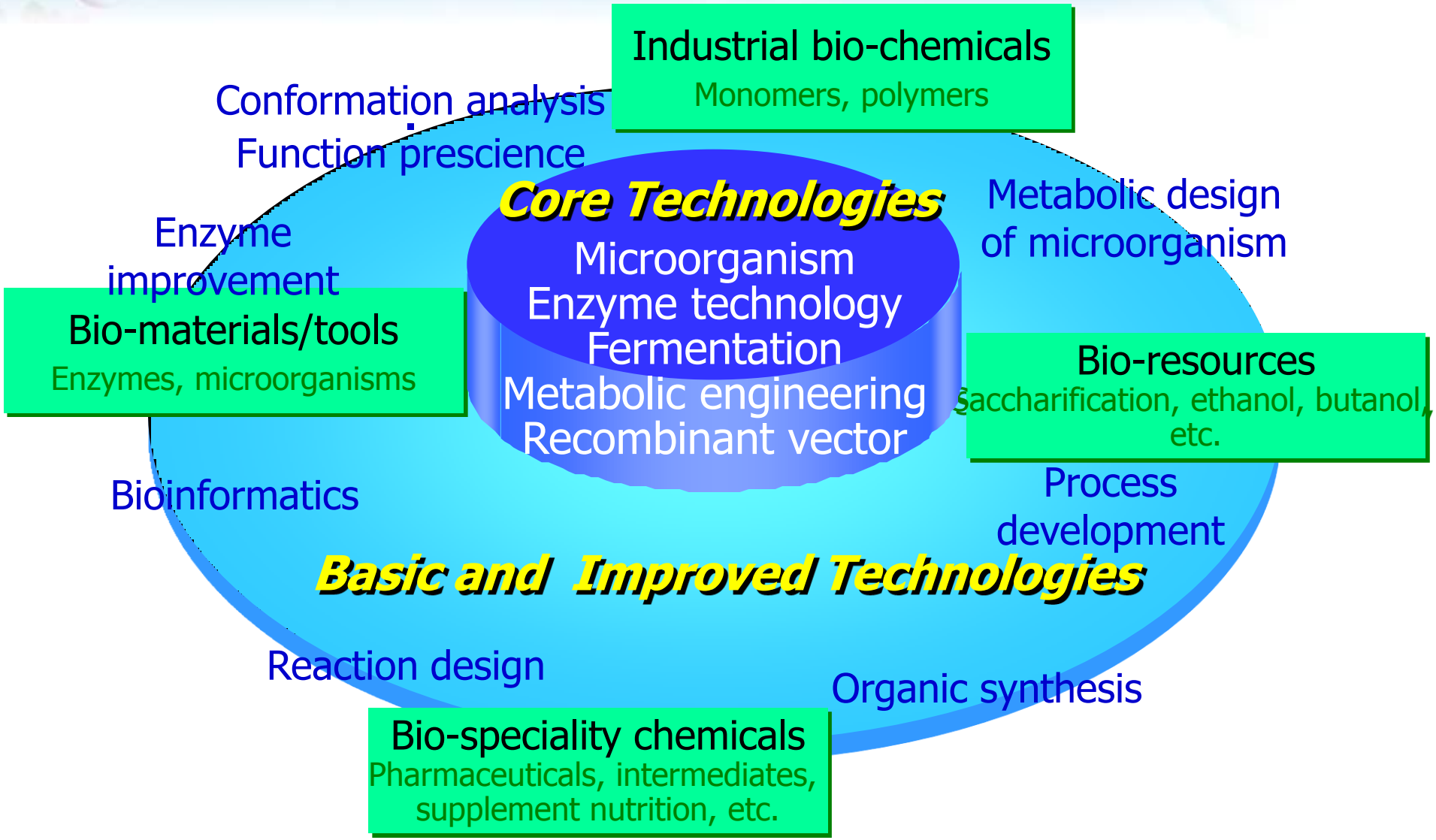
Collective strength of MCC's bio-technologies



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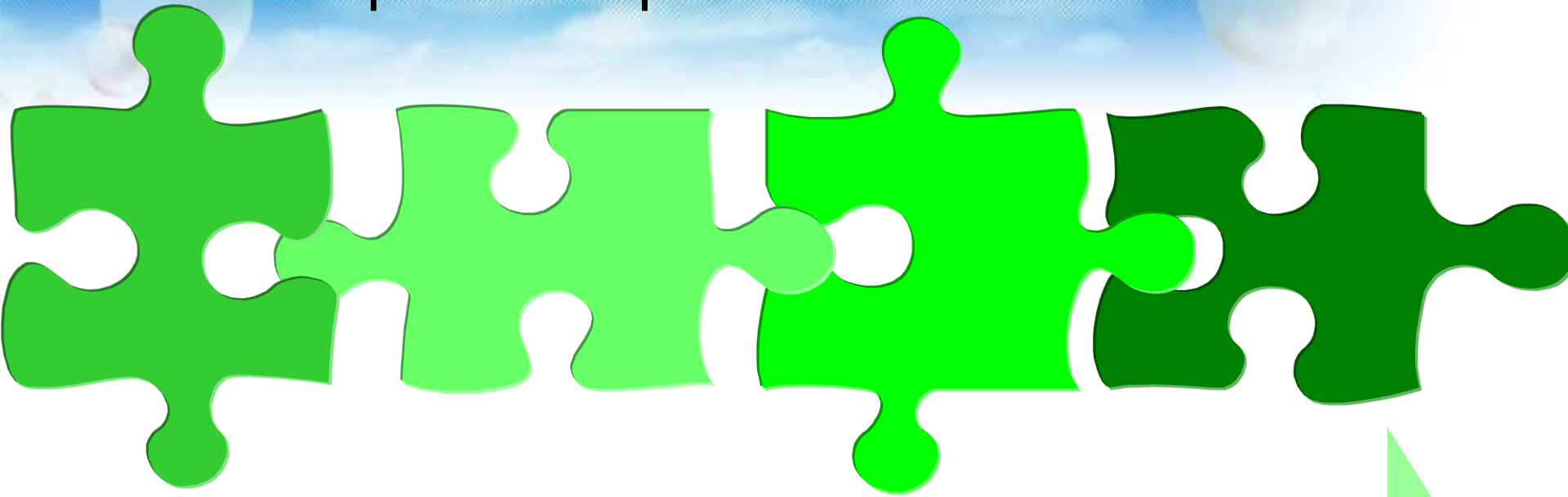
Our view on partnership



Raw materials (Biomass)	**Bug development, Fermentation**	**Purification**	**Applications**
Cost competitiveness	Efficiency	Quality	Size

Collaboration with partners is essential in constructing a competitive and stable business

Our partners

	Raw materials (Biomass)	Bug development, Fermentation	Purification	Applications
Succinic Acid (*GS Pla*™)	Under discussion	BioAmber GREEN TECHNOLOGIES MITSUBISHI CHEMICAL	BioAmber GREEN TECHNOLOGIES	ptt MCC Biochem BioAmber GREEN TECHNOLOGIES
BDO	Under discussion	genomatica sustainable chemicals	MITSUBISHI CHEMICAL genomatica sustainable chemicals	MITSUBISHI CHEMICAL

Partnerships gives us speed

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In conclusion

- Sustainable Resources are our solution to the current business surroundings
- Customers expect chemicals from sustainable resources to have the same quality and competitiveness as conventional petrochemicals
- Producing chemicals from sustainable resources requires technologies from both bio and petrochemicals
- Partnerships are essential to achieve "speed to market"

Thank you

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