# Overview: Environmental Innovations in Japan

Breakout session 2A
"Innovation and Transition",
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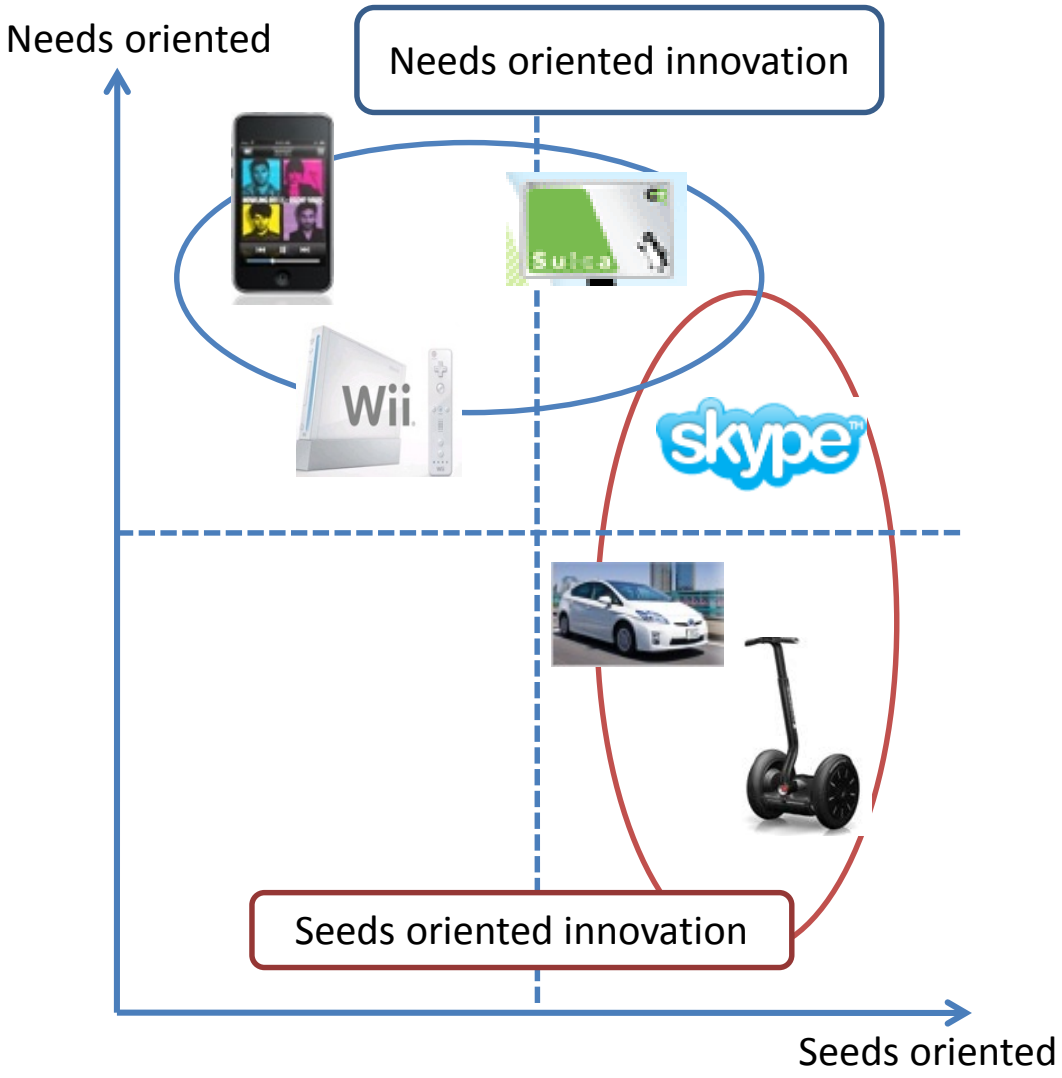
Hideyuki Mori
Executive Director
IGES

LCS·R Net

IGES
Institute for Global Environmental Strategies

# Innovation: Seeds and Needs

## (Source) Nikkei Shinbun 18 August 2009



# Innovation in Short

**A slogan found in the Ministry of Industry, Myanmar**

"Resources are limited."

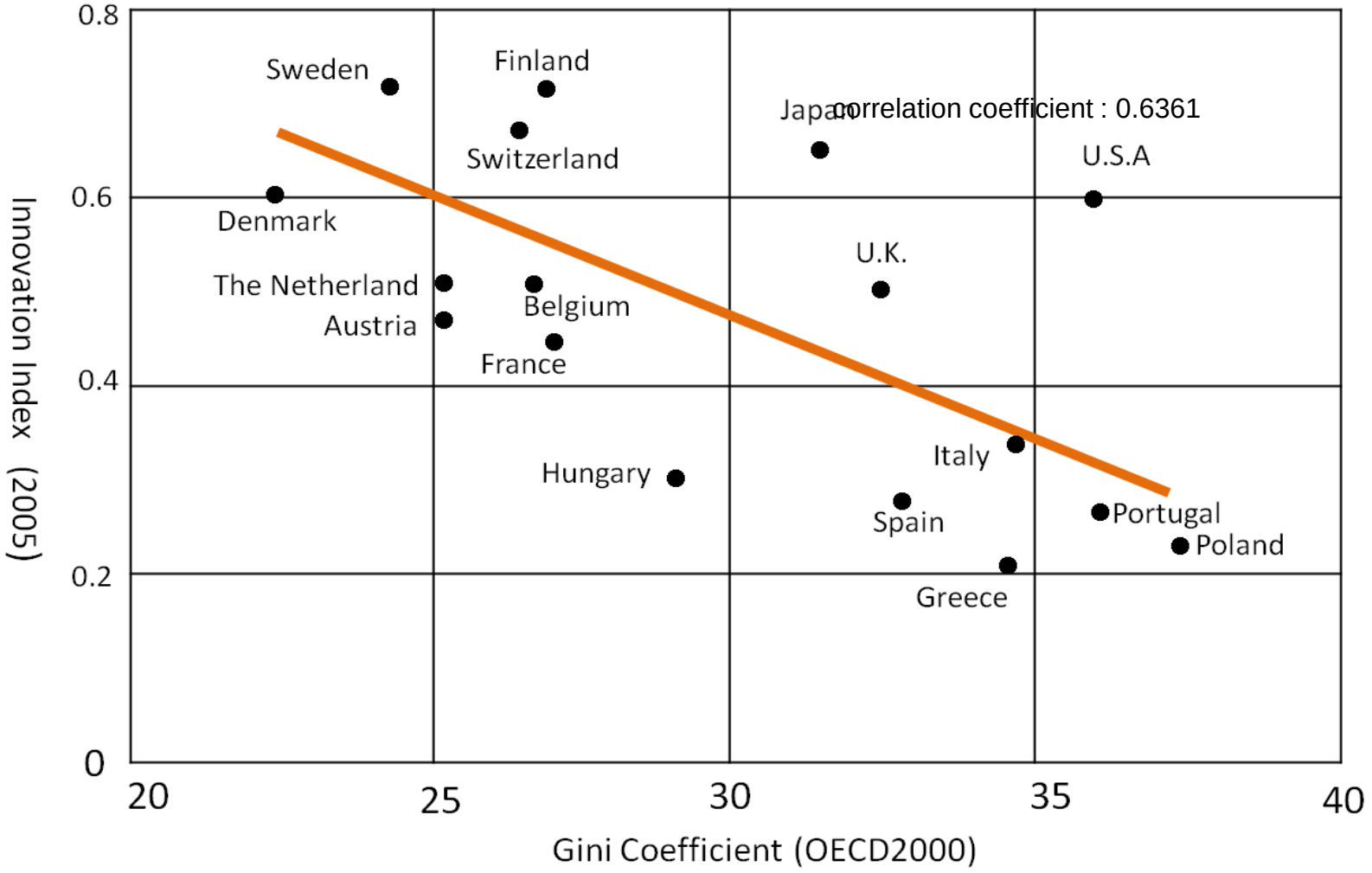
"Innovations are unlimited."

**Knowledge generation in a sustainable world**

"Limitations create innovations." (Porter hypothesis, and Planetary Boundary by J. Rockstrom)

"Dialogues generate inspirations/ideas."

# Knowledge Generation in Society
# Higher Social Capitals Generates More Innovations




Source: Noboru Konno “Shiawase na Shokoku Oranda no Yume” PHP Interface, 30 Jan. 2012

# Innovation in Practice

Innovation tends to occur:

(i) in a complex set of **processes** that links not only developers and users, but a wide variety of intermediary organizations such as **standards bodies (or even regulatory bodies).**

(ii) at the **boundaries of organizations** and industries where the needs of users, and the potential of technologies can be linked together in a creative process.

# Collapse of Social Bonds through Extreme Individualization
## - Eating Alone -

Source: Sincho Weekly 26 Jan. 2012

# Collapse of Social Bonds through Extreme Individualization
## - Karaoke: Singing Alone -


Source: Sincho Weekly 26 Jan. 2012

# Overview

Three cases are to be reviewed: i.e. Low emission vehicles, Energy efficiency, and SDGs and Innovation.

Overall Trend would be:

(i) From Mandatory (all companies) through Best Practices to Voluntary (individual companies), and

(ii) From Production to Consumption including lifestyle changes.

# Cace 1
# Development of Low Emission Vehicles

# US Muskie Act

- The Muskie Act of US was introduced in 1970, making mandatory to reduce emissions (CO, HC, and NOx) from automobiles by 90 %.
- In response, the same emission control was intended to be introduced in Japan, in 1971.
- Due mainly to strong oppositions from the Big Three, US discarded the Muskie act in 1974.
- Japan, nevertheless, introduced the emission control in 1973, which made the Japanese auto industry very competitive (i.e. Porter Hypothesis).

# Seven Major Cities Joint Investigation Team on Automobile Emissions

- Aug. 1974:_the Investigation Team established in 1974 by mayors of seven major cities (Tokyo, Yokohama, Nagoya, Osaka etc.)
- The Team consists of 7 experts handed by Prof. Shibata, President of the Tokyo Metropolitan Pollution Institute.
- Sep-Oct. 1974: An interim and the final reports prepared after intensive interviews with each of major automobile companies, and others.
- The reports clearly indicated it would be feasible for companies to comply with strengthened emission standards.
- Two major companies were opposing to the new regulations, while Honda and a couple of other companies were more positive.

# Serious air pollution case in Tokyo

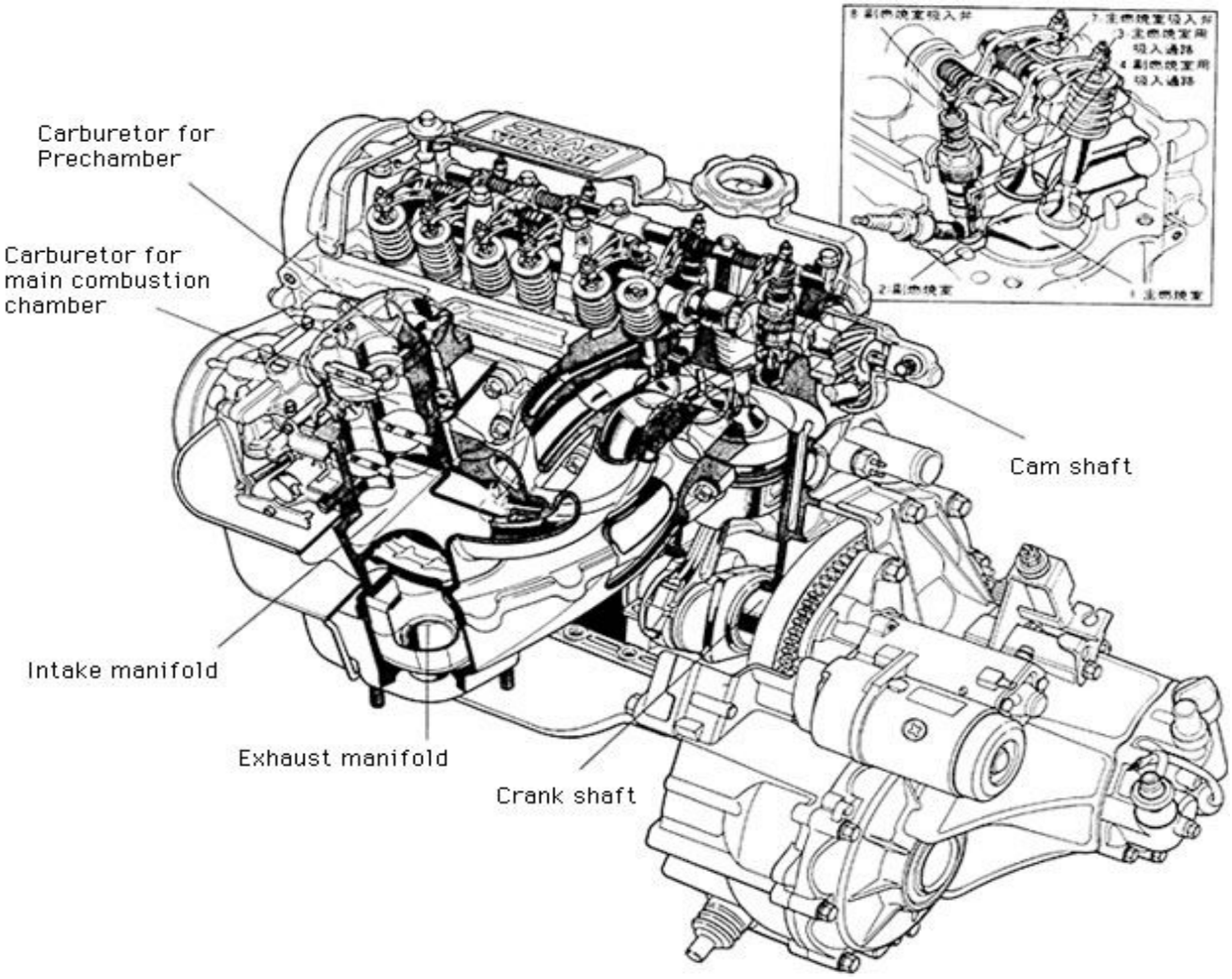
1.Photpchemical smog in Rissho High School in Tokyo in 1970, making 150 students sick.
2. Air pollution alarms in Tokyo: 9 in 1970, 51 in 1971, 67 in 1972, 100 in 1973, and 74 in 1974

# Pres. S. Honda announces development of new engine (CVCC)


Source: Honda homepage

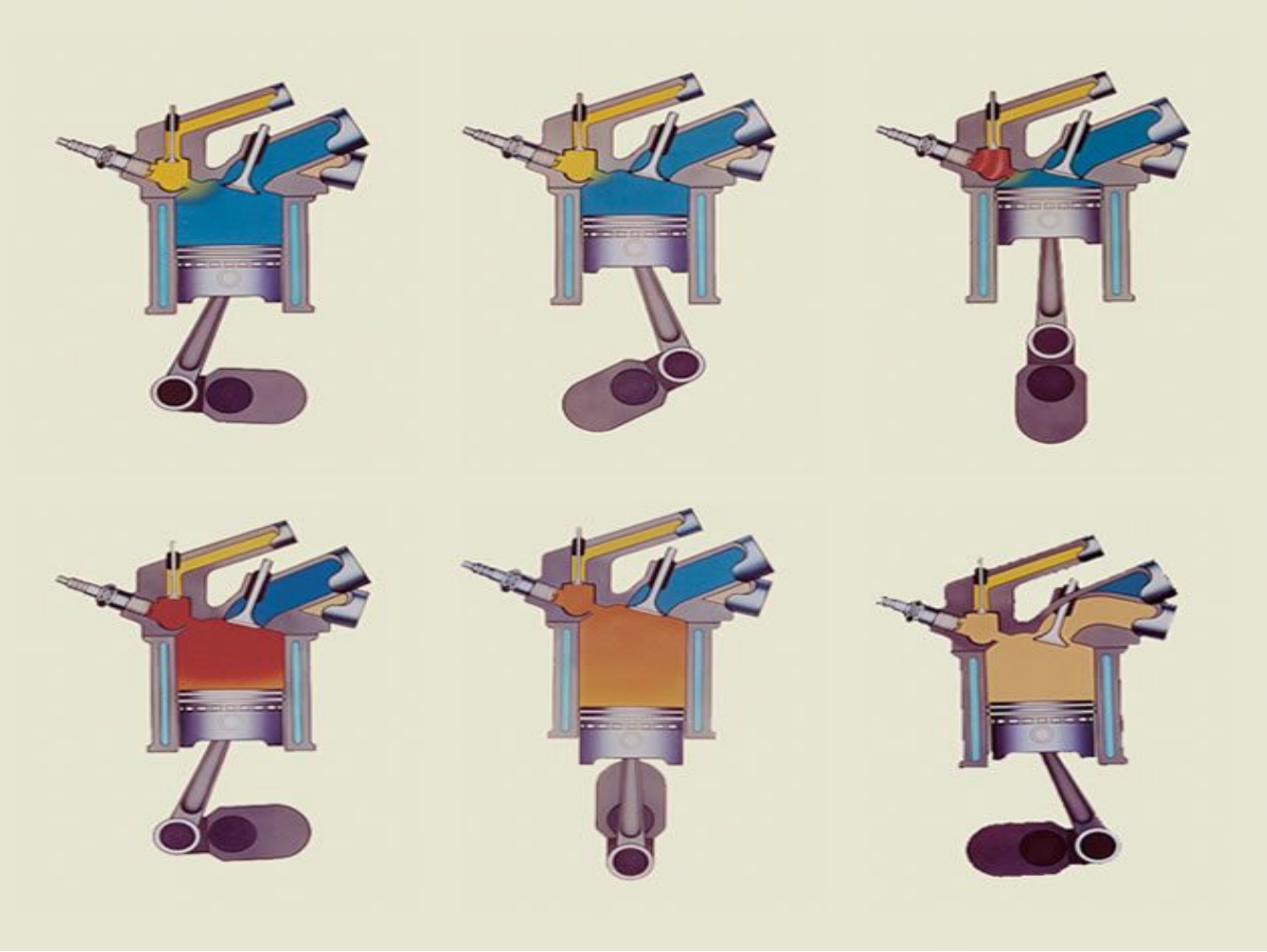
# Basic Design of CVCC

## (Source: Honda Homepage)



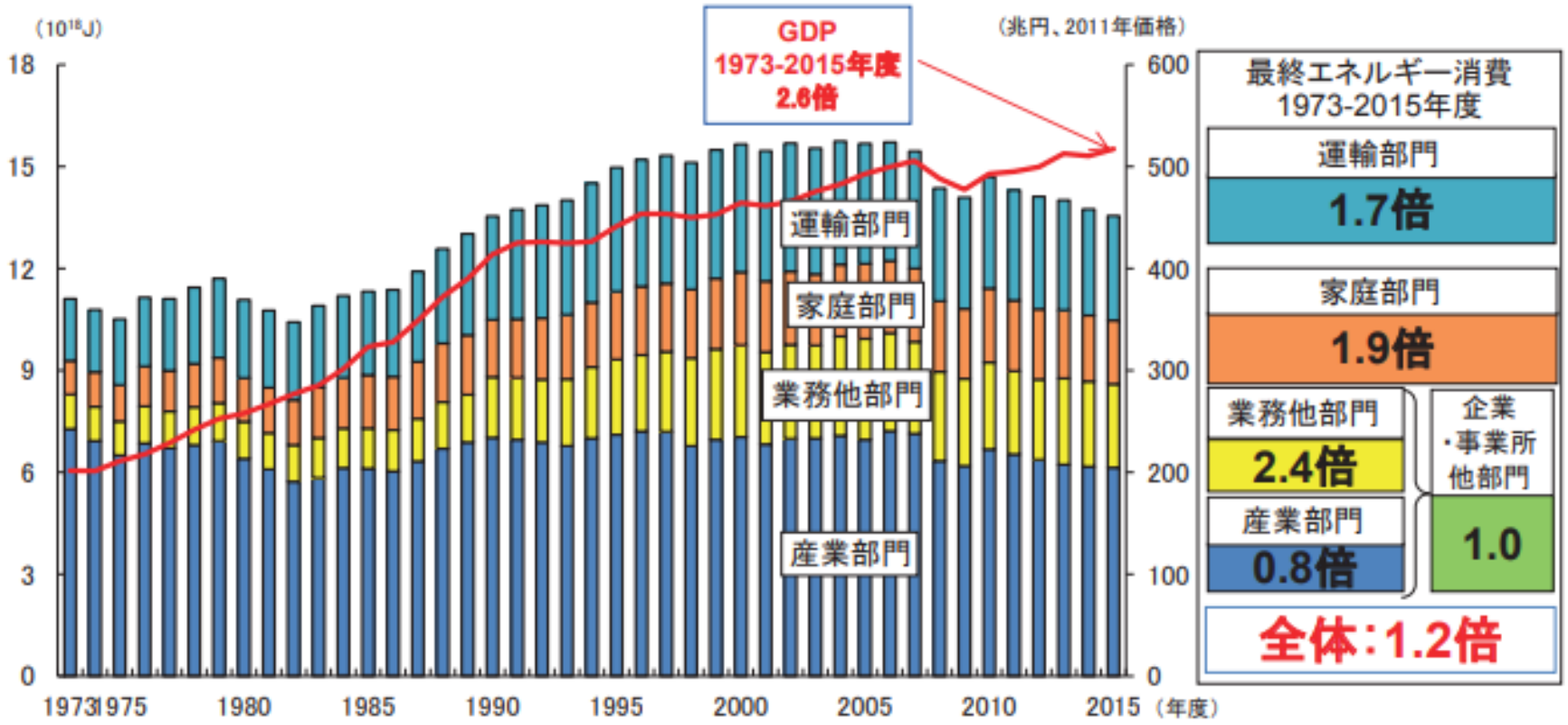
# Concept of CVCC

(Source: Honda Homepage)



# Cace 2
# Japan's Experiences to Promote Energy Efficiency

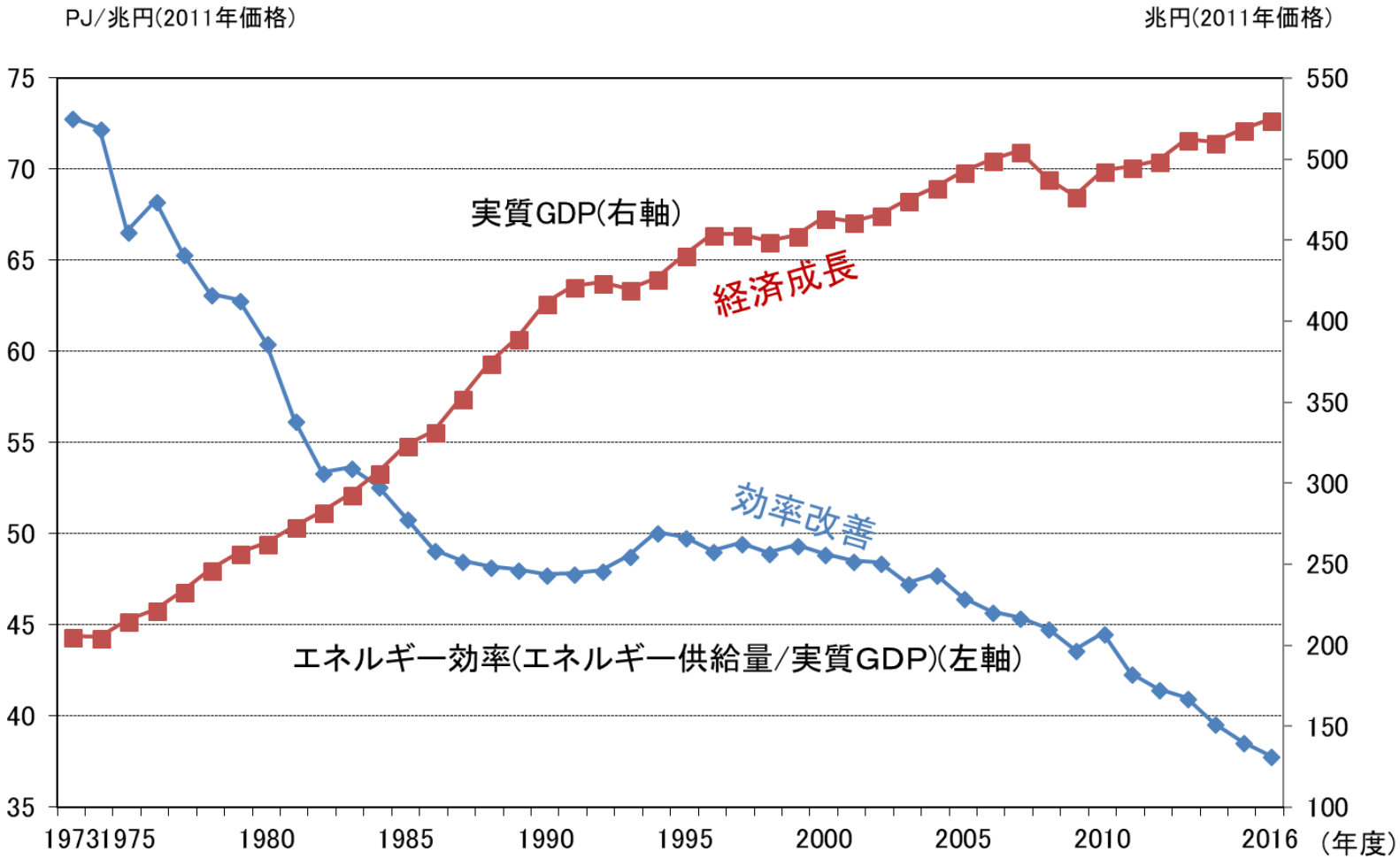
# Total Energy Consumption in Japan




出典：経済産業省資源エネルギー庁　エネルギー白書2017

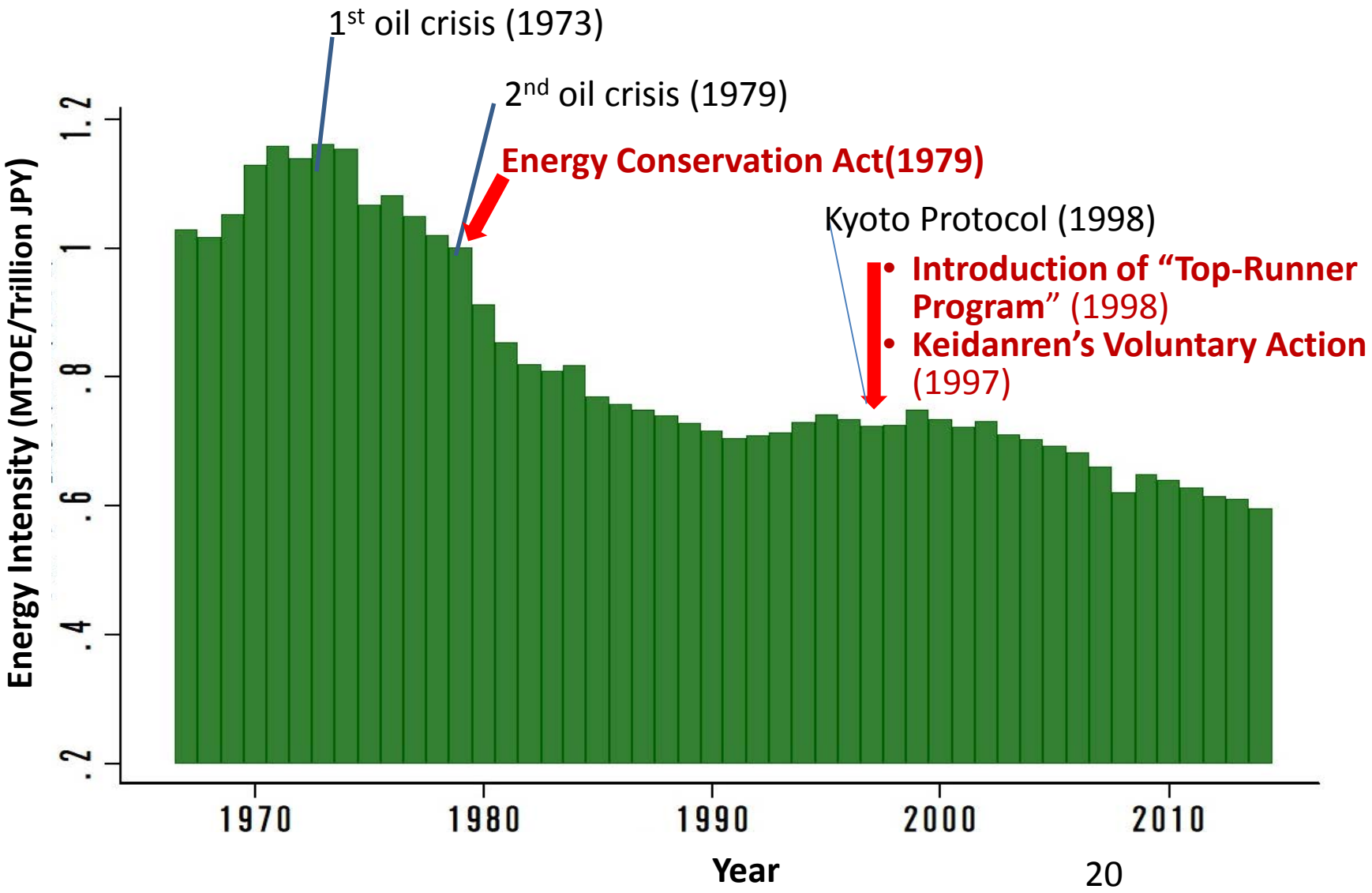
# The East Japan Disaster in Mar. 2011

# Decoupling between GDP and Energy Effieiency




出典：経済産業省　エネルギー白書2017

# Major Events and Energy Intensity Trend of Japan



# Mandatory Measures to Achieve Energy Efficiency

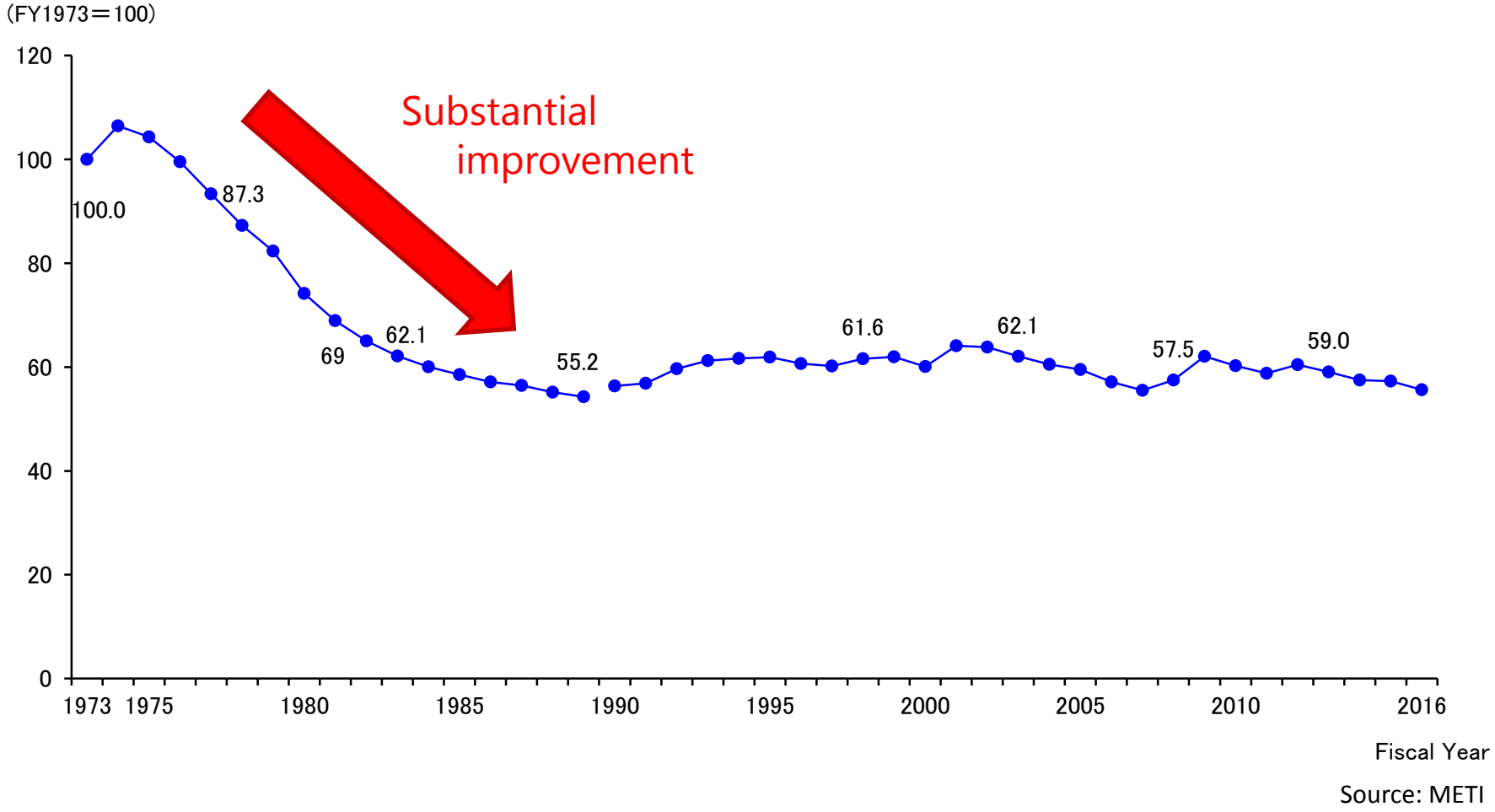
**Energy Conservation Act** (introduced in 1979 and amended 7 times)

- ✓Covering **90%** of finial energy consumption in the **industrial sector**, **70%** in the **residential sector** and the **50%** in the **commercial sector**.

- ✓Containing mandatory measures:
  - ☐ **Requirement of energy management** in industrial and commercial sectors.
  - ☐ **Energy efficiency standards** for machinery and equipment.
  - ☐"**Top Runner Standards**" in 1998 for electric appliances and vehicles, as well as for residential and commercial buildings.

# Effects of Mandatory Energy Efficiency Standards

## Trend in Energy Intensity of the Manufacturing Sector (energy amount needed to produce a unit of production)




Source: METI

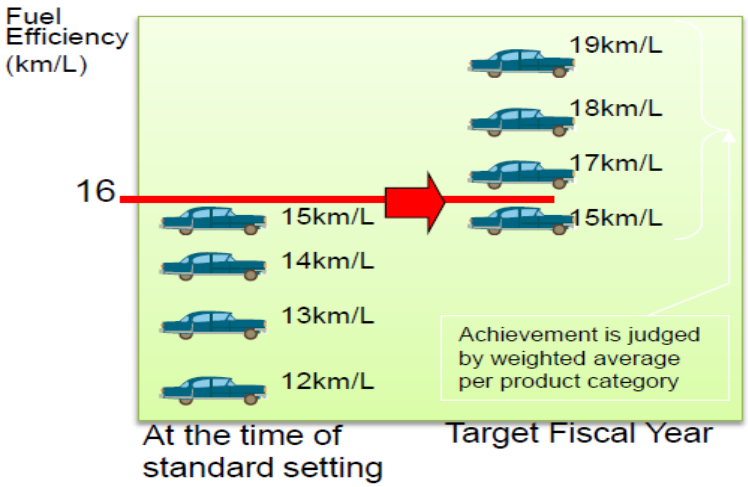
# Effects of Top Runner Program

Introduced in 1998, revision of the Energy Conservation Act

✓ Dynamic in two ways:

- Standard setting : **First attempt in the world** to establish the **highest energy efficiency in a given industry** as the standard for entire industry
- Expanding coverage: **11 product in 1998**, and now **31 energy-consuming products** and building materials

**Example of Top Runner Program**




**Improvement of energy efficiency**

**Gasoline passenger vehicles**
**48.8%** (FY1995→FY2010)

**Air-conditioners**
(For ones of 4.0kW or less in cooling capacity)
**32.3%** (FY2005→FY2010)

**Electric refrigerators**
**43.0%** (FY2005→FY2010)

**TV sets** (LCD and PDP TV)
**29.6%** (FY2004→FY2008)

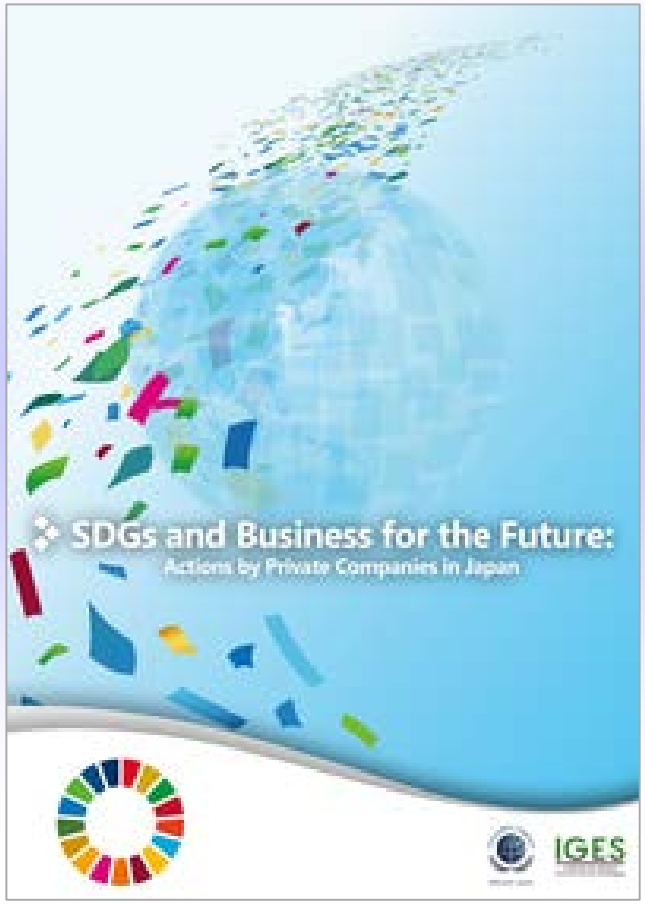
**etc.**

# Conclusion

- Japan has improved its energy efficiency by **approximately 40%** after the oil crises since 1970s;
- Proactive actions **by both public and private** sectors taking **mixed set of measures: mandatory, incentives, voluntary, campaigns,** etc.;
- **The PDCA-cyclic process** has been considered when taking actions (by stakeholders incl. Gov't) with precise manuals/guidance/guidelines;
- Japan will continue to enhance its energy efficiency through drastic reduction targets **especially at "Commercial & other" and "Residential" sector;**

# Case 3
# SDGs and Innovation in Japan

# "SDGs and Business for the Future: Actions by Private Companies in Japan"




**by**
**Global Compact Network Japan (GCNJ)**
**and**
**Institute for Global Environmental Strategies (IGES)**

**Mar. 2018**

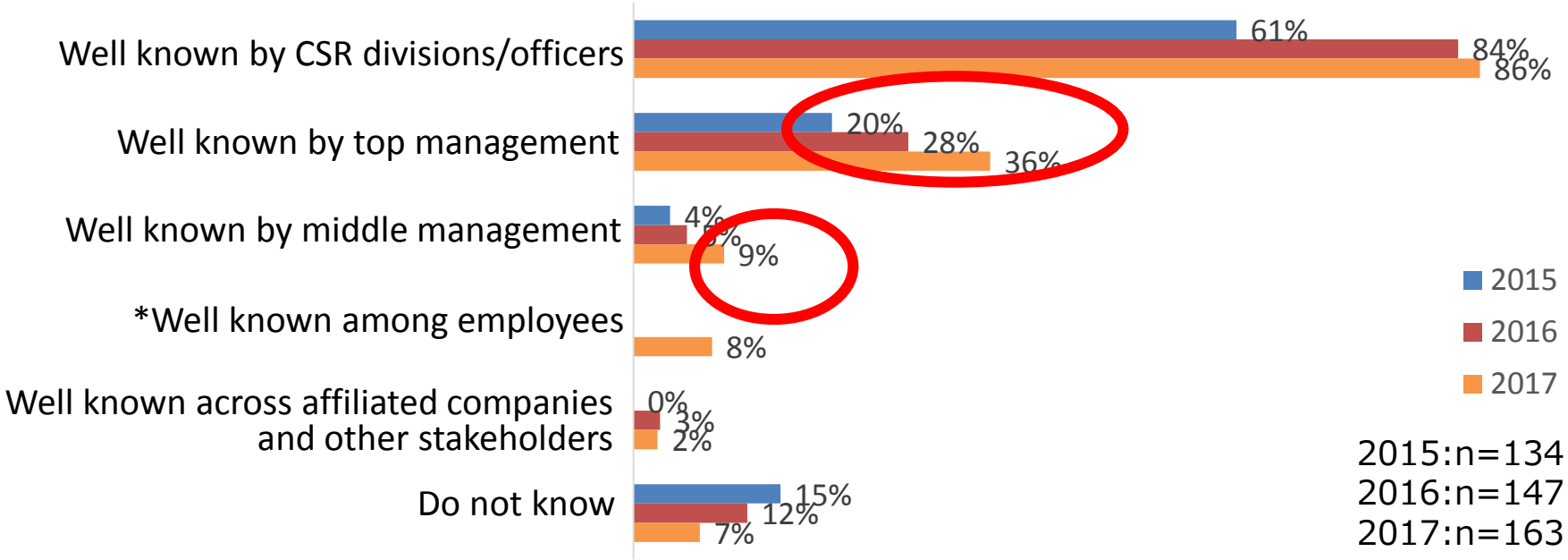
(***English version just released in July 2018!***)

https://pub.iges.or.jp/pub/sdgs-and-business-future-actions-private

# SDGs Awareness in Surveyed Companies/Organizations

- SDGs awareness is steadily increasing at top management reaching 36% in 2017.
- Low level of SDGs awareness at middle management remains a challenge.

Please select applicable status of SDGs awareness in your company/organization (multiple choice, *newly added in 2017)



# Integrating SDGs into Core Business I - Organization

- Philosophy ①Corporate philosophy/vision
- Leadership ②Understanding/commitment of top management
- Strategy ③Medium and long-term management plan and goal setting
- Structure ④CSR division, executive committee
- System ⑤Mechanism to facilitate solutions to social problems, ⑥Reward system
- People ⑦Understanding of middle management/business units

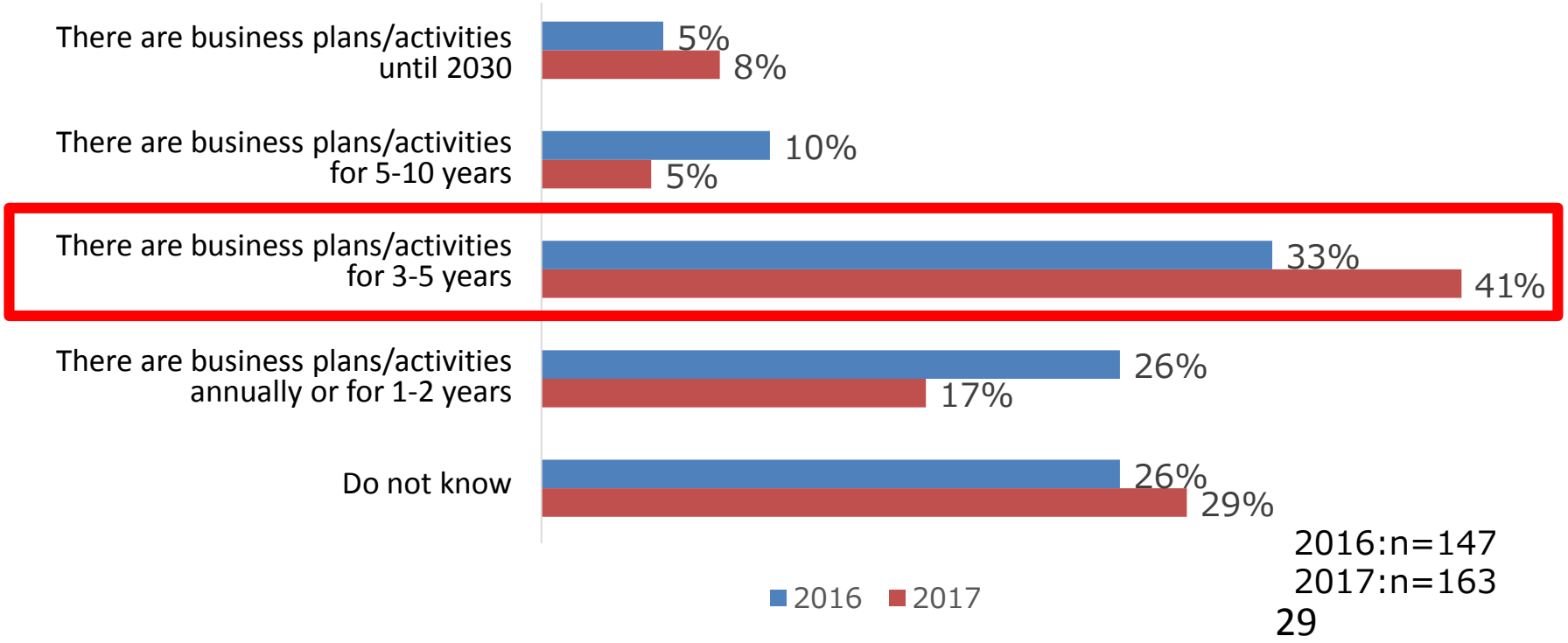

The dimension of "Organization" that enables sustainability and SDGs to be embedded within business operations and management.

# Integrating SDGs into Core Business I - Organization (cont.)

## Strategy ③Medium and Long Term Management Plan and Goal Setting

- It is essential to link mid-term management plans with sustainability plans, and to engage relevant divisions in planning processes.

Please indicate the status of your company/organization's business planning related to the SDGs



# Integrating SDGs into Core Business I
# - Organization (cont. II)

System ⑤Mechanism to facilitate solutions to social problems

DSM ― ECO+ solutions & People+ solutions

- Based on the lifecycle assessment

- Measure environmental impact (CO2 emission, resource collection, disposal, etc.) and certify highly evaluated product groups as "ECO+ solutions“
- Measure social impacts (working conditions, health condition, etc.) and certify highly evaluated product group as "People+ Solutions"

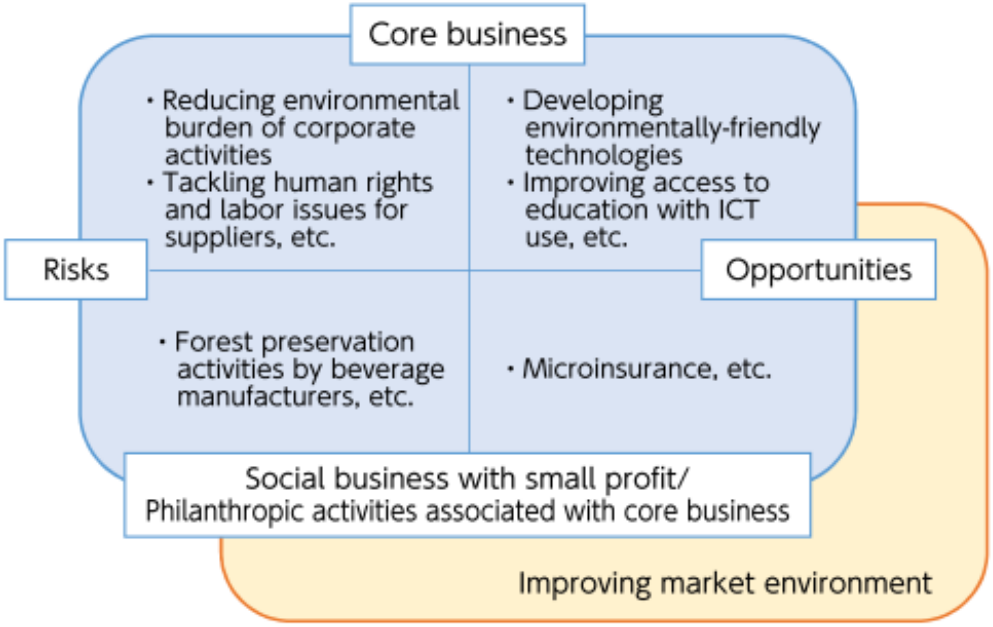
## Brighter Living Solutions

Innovations and products that are better for the planet (Eco+) and people (People+) based on a product life cycle approach

# Integrating SDGs into Core Business II - Corporate Activities

⑧Core Business（Capturing and expanding business opportunities）
⑨Core Business（Addressing management risks）
⑩Social business with small profit / Philanthropic activities associated with core business
⑪Improving market environment ← Development of regulations/standards and industry-specific norms, participation in initiatives etc.

- Companies should aim to contribute to SDGs through their "core business"
- But it is also important to engage in ⑩ and ⑪ to realize a sustainable society.




Dimensions of "corporate activities" contributing to solving social problems.

# Integrating SDGs into Core Business II - Corporate Activities (cont.)

⑧Core Business（Capturing and expanding business opportunities）

KONICA MINOLTA－ Development of ″Care Support Solutions®″

- Japan is facing a super-aging society with shrinking working age population.
- Identified the shortage of nursing care staff and increasing burden on them as an urgent challenge.
- Collected data on actual status of nursing care services on site, and identified challenges.
- Transformed workflow by using smartphone etc. Significantly reduced the amount of nursing staff activities and working hours.
- Improved work productivity, the quality of nursing and care services

# Integrating SDGs into Core Business II - Corporate Activities (cont. II)

⑪Improving market environment

DAIKIN — Strategically Creating a New Market

- Introduced an index and labeling system for proper evaluation of energy performance, supported disseminating a next-generation HFC-32 refrigerant, and allowed free access to Daikin patents in emerging countries.
- Promote this effort through collaboration with governments, international organizations and other companies in the same industry.
- Contributed to ozone layer protection as well as climate change mitigation and simultaneously disseminated air conditioners which is Daikin's core business.

# Key Messages

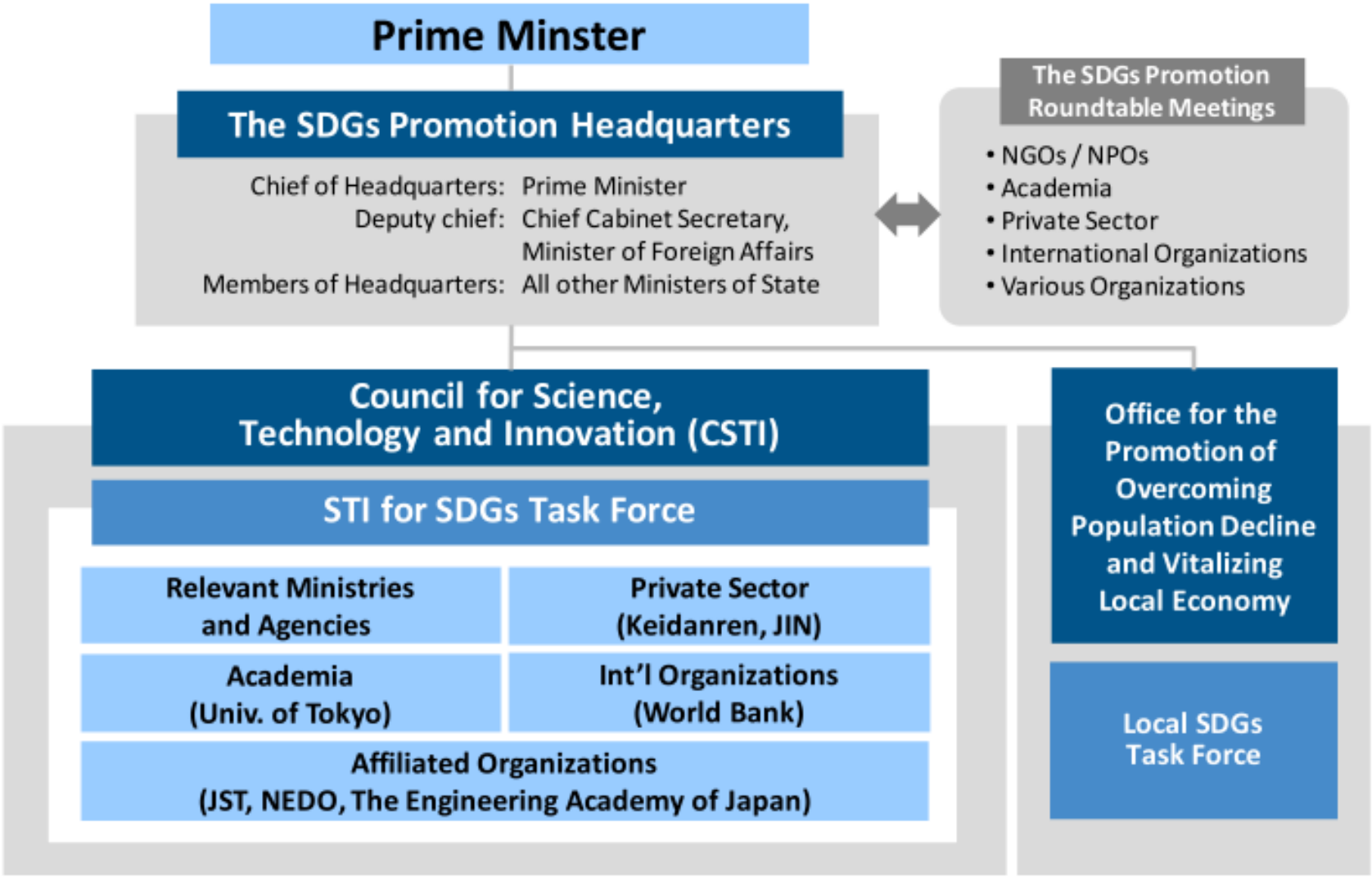
- ✓ SDGs helps companies identify social problems and corporate risks. Considering these problems/risks as business opportunities, companies can aim to strengthen and expand existing businesses, and to develop new businesses (In particular, ICT and AI technologies etc. have huge potential, and key to capture business opportunities).
- ✓ An effective measure to boost this approach is to give incentives to SDGs-related activities through the establishment of a mechanism to facilitate solutions to social problems (awards, remuneration, evaluation system etc.) within a company. This could be useful to increase SDGs awareness among middle managers.
- ✓ Approaches to improve market environment, social business with small profit and philanthropic activities associated with core business could be regarded as useful measures to capture new business opportunities. These should be implemented aligned with core business operations.
- ✓ In order for these activities to be considered as investment rather than cost, it is necessary that SDGs elements are incorporated into mid- and long-term plans and strategies. Desirably, mid- and long-terms goals should be set ambitiously, rather than limiting them to readily achievable.

# Concept of "Society 5.0" by Japanese Government

- The basic concept: "human-centered" society pursuing human well-being and happiness released from physical restrictions
- Same idea aimed at SDGs which is " No one will be left behind"


Source: Cabinet Office Japan, 2018, "Framework of 'STI for SDGs Roadmap' – case in Japan"
http://www8.cao.go.jp/cstp/english/egm_presentation.pdf

# Overview Structure for SDGs Initiative




Source: Cabinet Office Japan, 2018, "Framework of 'STI for SDGs Roadmap' – case in Japan"
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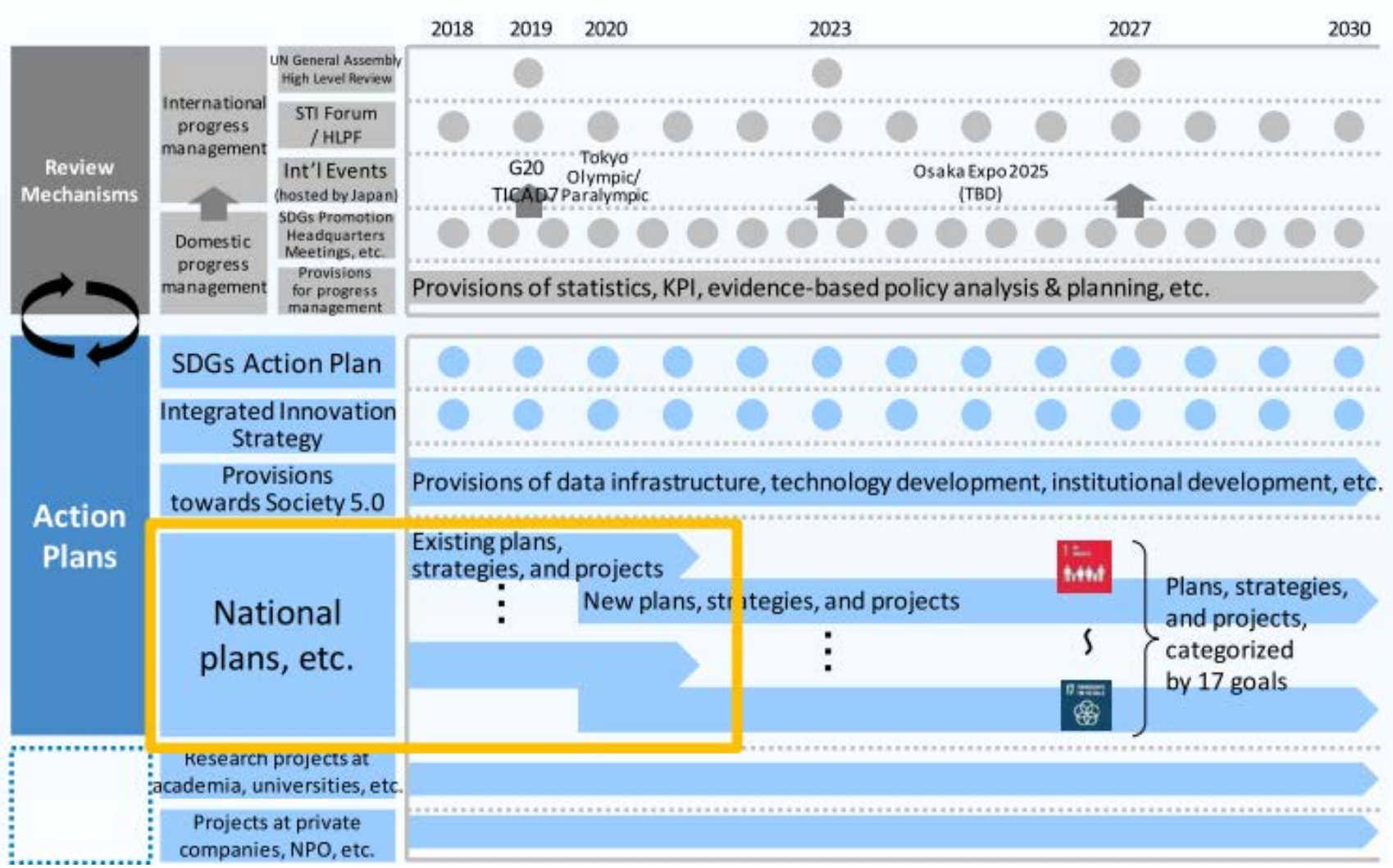
# STI for SDGs Roadmap（draft）by Japan




Source: Cabinet Office Japan, 2018, "Framework of 'STI for SDGs Roadmap' – case in Japan"
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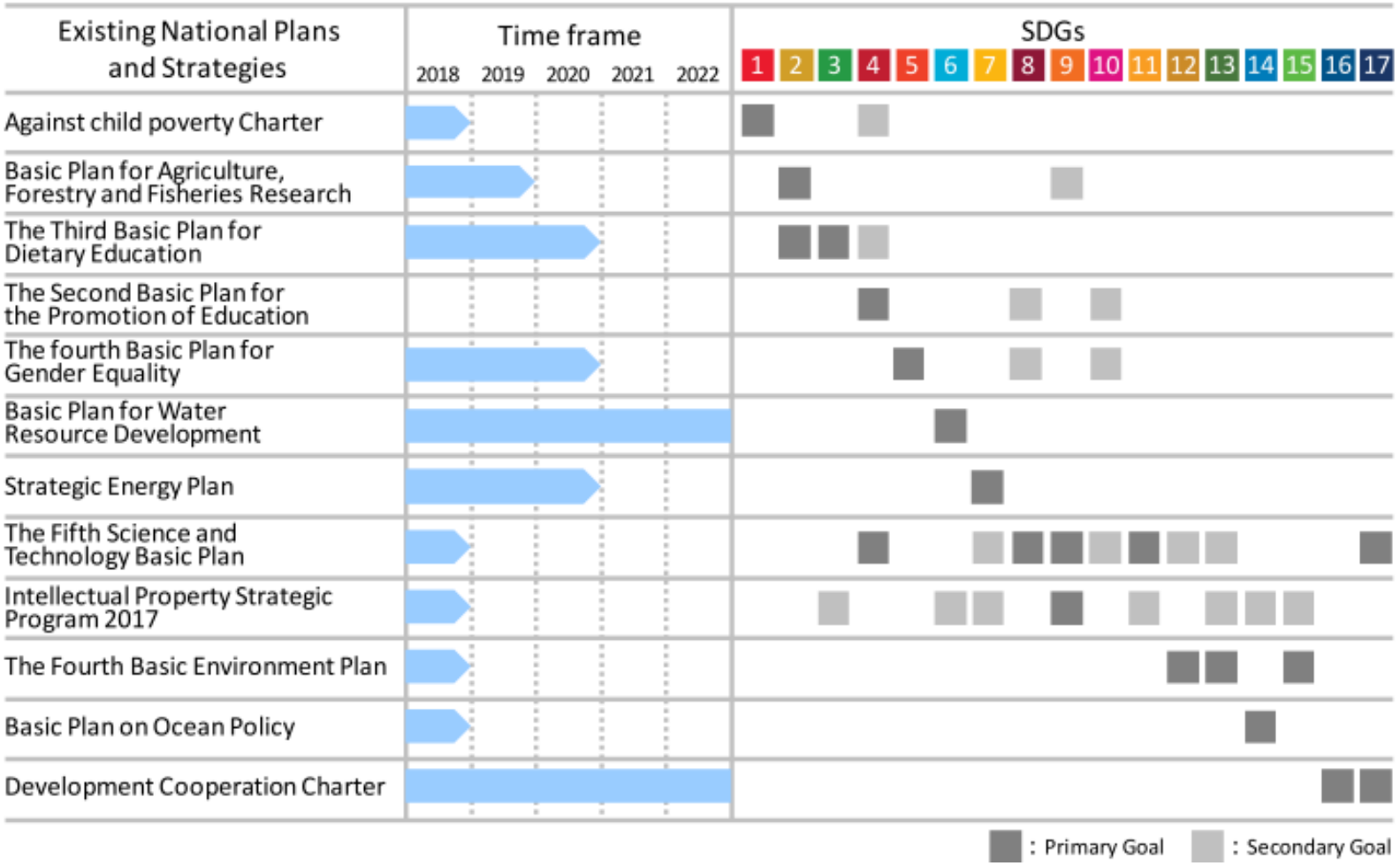
# STI for SDGs Roadmap（draft）by Japan

*Contents in yellow square in the previous page




Source: Cabinet Office Japan, 2018, “Framework of ‘STI for SDGs Roadmap’ – case in Japan”
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# International Contribution as of Japan

Contribution on Roadmap

- Extracting principal elements and co-developing 'Guideline' on how to formulate STI for SDGs Roadmap at country and international levels, taking into account various experiences including Japan

Contribution on Seeds-Needs matching

- Essential characteristic of international contributions from Japan i.e., Win-Win approach through nourishing burgeoning business ⇔ one time ODA, unsustainable infrastructure, etc...

Source: Cabinet Office Japan, 2018, "Framework of 'STI for SDGs Roadmap' – case in Japan"
http://www8.cao.go.jp/cstp/english/egm_presentation.pdf

# Thank you very much for your attention.

Hideyuki Mori
Executive Director

IGES
Institute for Global Environmental Strategies