Realizing Japan as a "Nation Built on Scientific and Technological Creativity"

January 11, 2008

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The Basics of Japan's Science and Technology Policy

The Council for Science and Technology Policy (Normally meets once a month)

Meetings of the Minister of State for Science and Technology Policy with executive members of the Council for Science and Technology Policy (Normally once a week)

(1) Examination and deliberation on basic science and technology policies (e.g. development of the 3rd Science and Technology Basic Plan)
(2) Examination and deliberation on the policy for the allocation of budgetary, human and other resources (e.g. determination of priorities for the science and technology budget for each fiscal year)
(3) Evaluation of research and development with national implications

Members of the Council for Science and Technology Policy

	Name	Position, title, etc.
Cabinet Members	Yasuo Fukuda	Prime Minister
	Nobutaka Machimura	Chief Cabinet Secretary
	Fumio Kishida	Minister of State for Science and Technology Policy
	Hiroya Masuda	Minister of Internal Affairs and Communications
	Fukushiro Nukaga	Minister of Finance
	Kisaburo Tokai	Minister of Education, Culture, Sports, Science and Technology
	Akira Amari	Minister of Economy, Trade and Industry
Executive Members	Masuo Aizawa	Full-time member; former President, Tokyo Institute of Technology
	Taizo Yakushiji	Full-time member; Visiting Professor, Keio University
	Tasuku Honjo	Full-time member; Visiting Professor, Kyoto University
	Naoki Okumura	Full-time member; former Representative Director and Executive Vice President of Nippon Steel Corporation, Ltd.
	Sadayuki Sakakibara	President, CEO & COO of Toray Industries, Inc.
	Yoko Ishikura	Professor, Graduate School of International Corporate Strategy, Hitotsubashi University
	Michiko Go	President, Ochanomizu University
Head of Related Organization	Ichiro Kanazawa	President, Science Council of Japan

Major Events in Science and Technology Administration

- **1995:** Science and Technology Basic Law enacted
- **1996-2000:** 1st Science and Technology Basic Plan
- **2001:** Cabinet Office and **the Council for Science and Technology Policy** inaugurated after a reorganization of governmental bodies
- **2001-2005:** 2nd Science and Technology Basic Plan
- **2006-2010:** **3rd Science and Technology Basic Plan**

Building an advanced science and technology oriented nation

- Innovations based on science and technology

S&T Basic Law
(Enacted in 1995)

1st S&T Basic Plan
(FY1996-2000)

2nd S&T Basic Plan
(FY2001-2005)

3rd S&T Basic Plan
(FY2006-2010)

- Rising R&D budget
During the period, total S&T expenses reached 17 trillion yen.
(Actual expenditures amounted to 17.6 trillion yen)

- Structuring a new R&D system
e.g.
- Increasing in competitive research funds
- Support plan for 10,000 post-doctoral fellows
- Promotion of industry-academia-government collaboration
- Implementation of evaluation systems

- Three basic ideas
- Creation of wisdom
- Vitality from wisdom
- Sophisticated society by wisdom

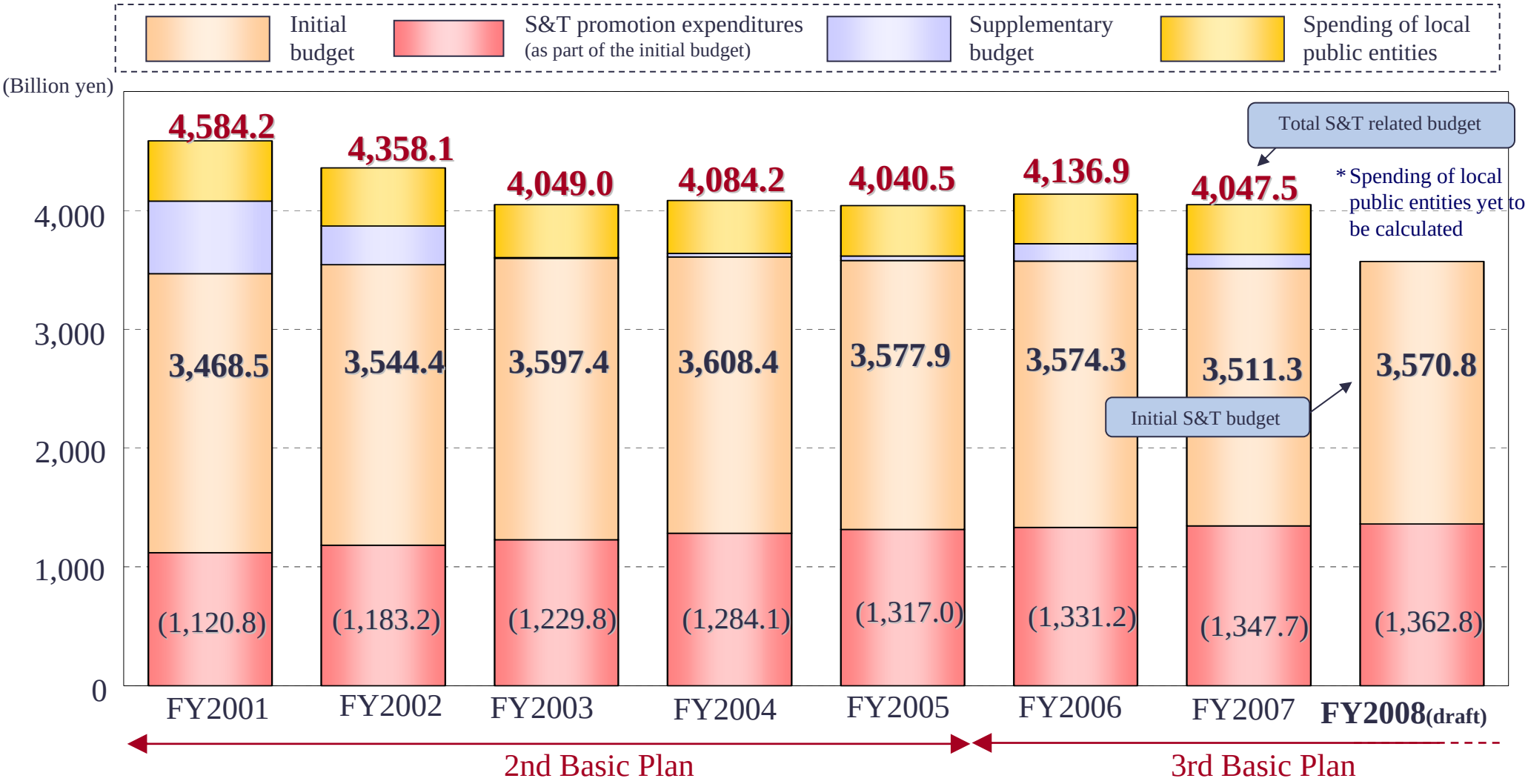
- Key policies
- Strategic priority setting
  - Promoting basic research
  - Prioritization of R&D on national/social sbjects
- S&T system reforms
  - Doubling of competitive research funds
  - Enhancement of industry-academia-government collaboration
- Total budget: 24 trillion yen
  (Actual expenditures: 21.1 trillion yen)
- About 30 Nobel laureates in 50 years

[Basic stances]
(1) S&T to be supported by the public and to benefit society
(2) Emphasis on fostering human resources and competitive research
~ Shift of emphasis from "hard" to "soft" such as human resources; greater significance of individuals in institutions ~

[Policy Goals]
"Innovator Japan" and five other policy goals

Total budget: 25 trillion yen

Trends in the Science and Technology Budget



1st Plan (FY1996-2000)
Investment under the basic plan:
Approx. 17 trillion yen
Actual budget: 17.6 trillion yen

2nd Plan (FY2001-2005)
Investment under the basic plan:
Approx. 24 trillion yen
Actual budget: 21.1 trillion yen

3rd Plan (FY2006-2010)
Investment under the basic plan:
Approx. 25 trillion yen

Strategic Priority Setting in S&T

Basic research

Steadily promote basic research based on free ideas in a way that maintains diversity and a certain level of resources

Policy mission-oriented R&D

Further Prioritization

1 Four priority promotion areas
(i.e. life sciences, information and telecommunications, environmental sciences and nanotechnology/materials)

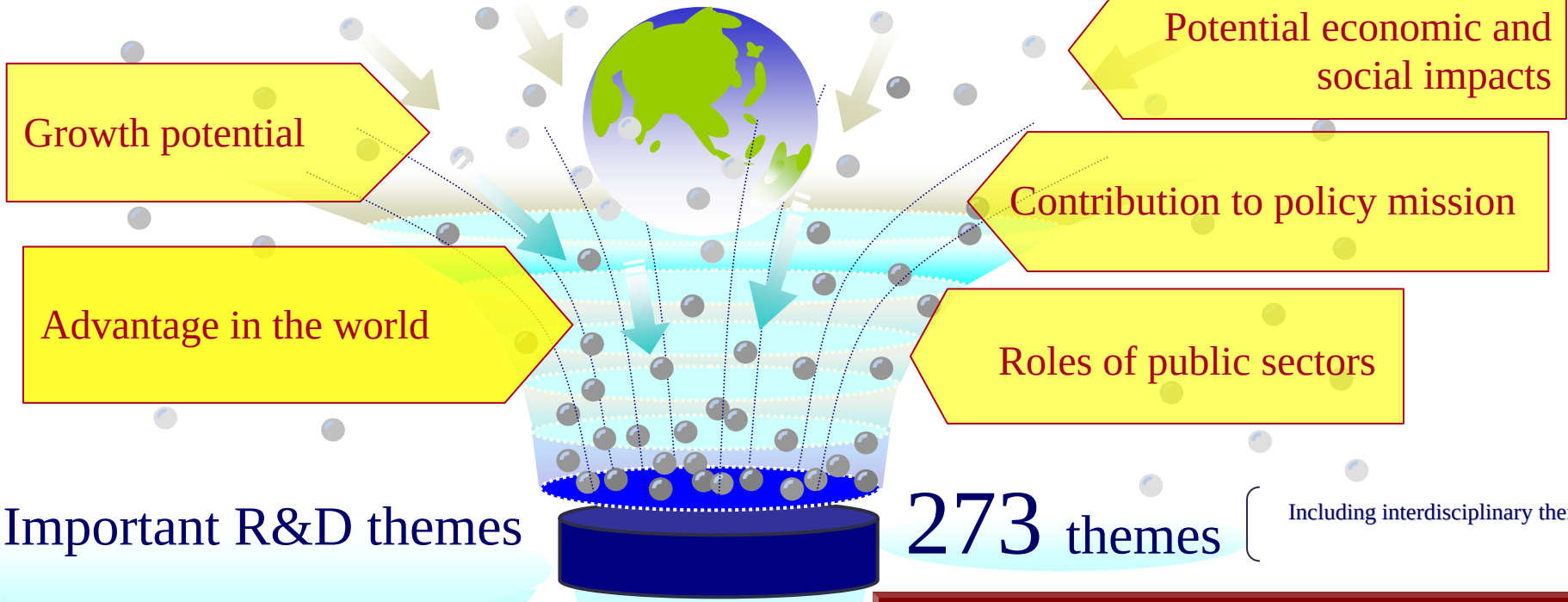
Four promotion areas
(i.e. energy, *MONODZUKURI* technology, social infrastructure and frontiers)

2 Prioritization in investment in each areas

Promotion strategies

- ○ Present situation
- ○ Goals
- ○ Important R&D themes: **Key themes to be addressed by the government in the next five years**
- ○ Strategic S&T priorities: **S&T to receive intensive investment in the next five years**
- ○ R&D promotion measures

Prioritization



Important R&D themes

273 themes

Including interdisciplinary themes

S&T to receive intensive investment

Concepts of strategies

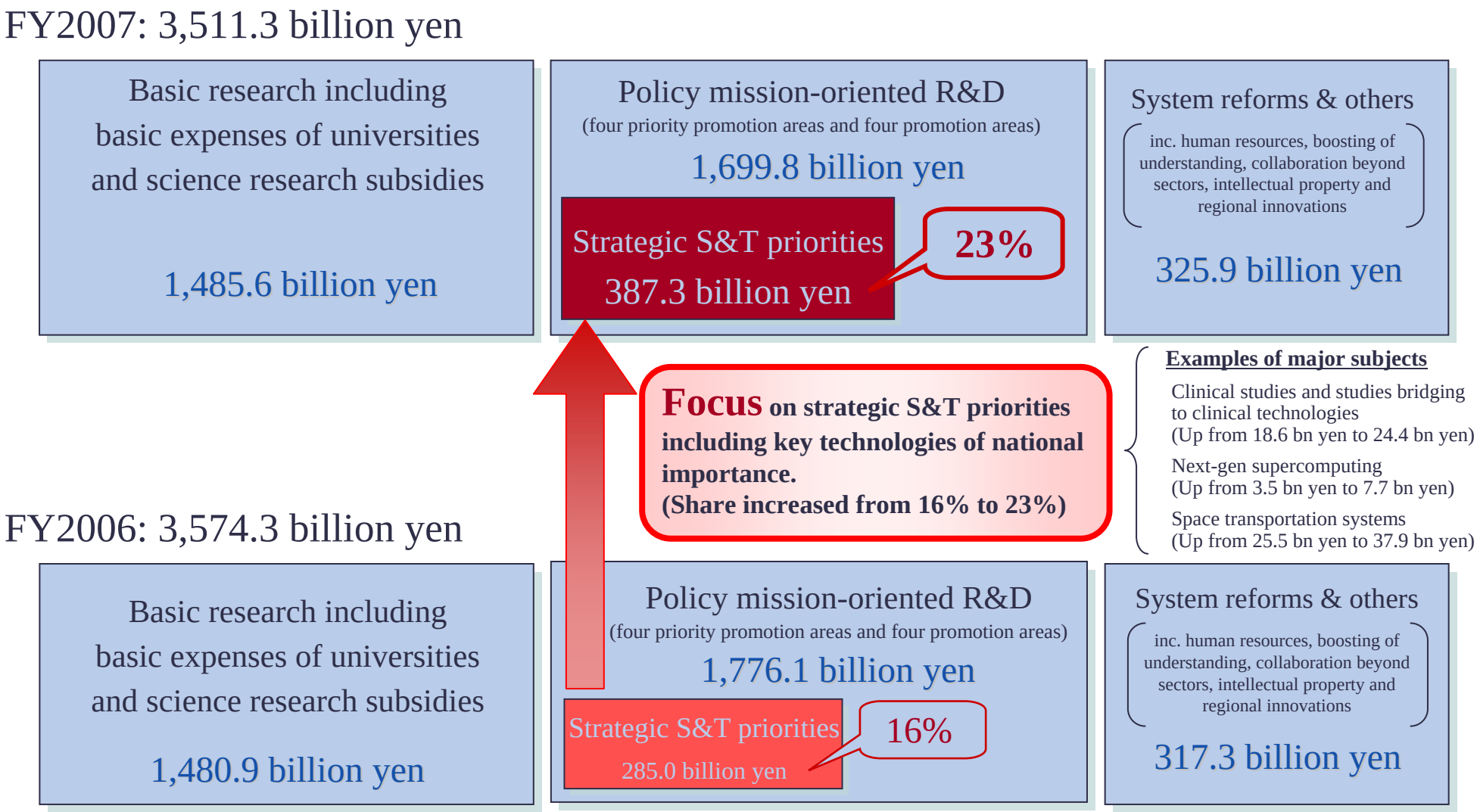
- Immediate solutions to social needs
- Essential to successfully competing internationally
- Key technologies of national importance*
  (State-led large-scale projects based on long-term strategies)

* Next-generation supercomputing, earth observation and ocean exploration systems, X-ray free electron lasers, fast-breeder reactor cycle technology and space transportation systems

Strategic S&T priorities

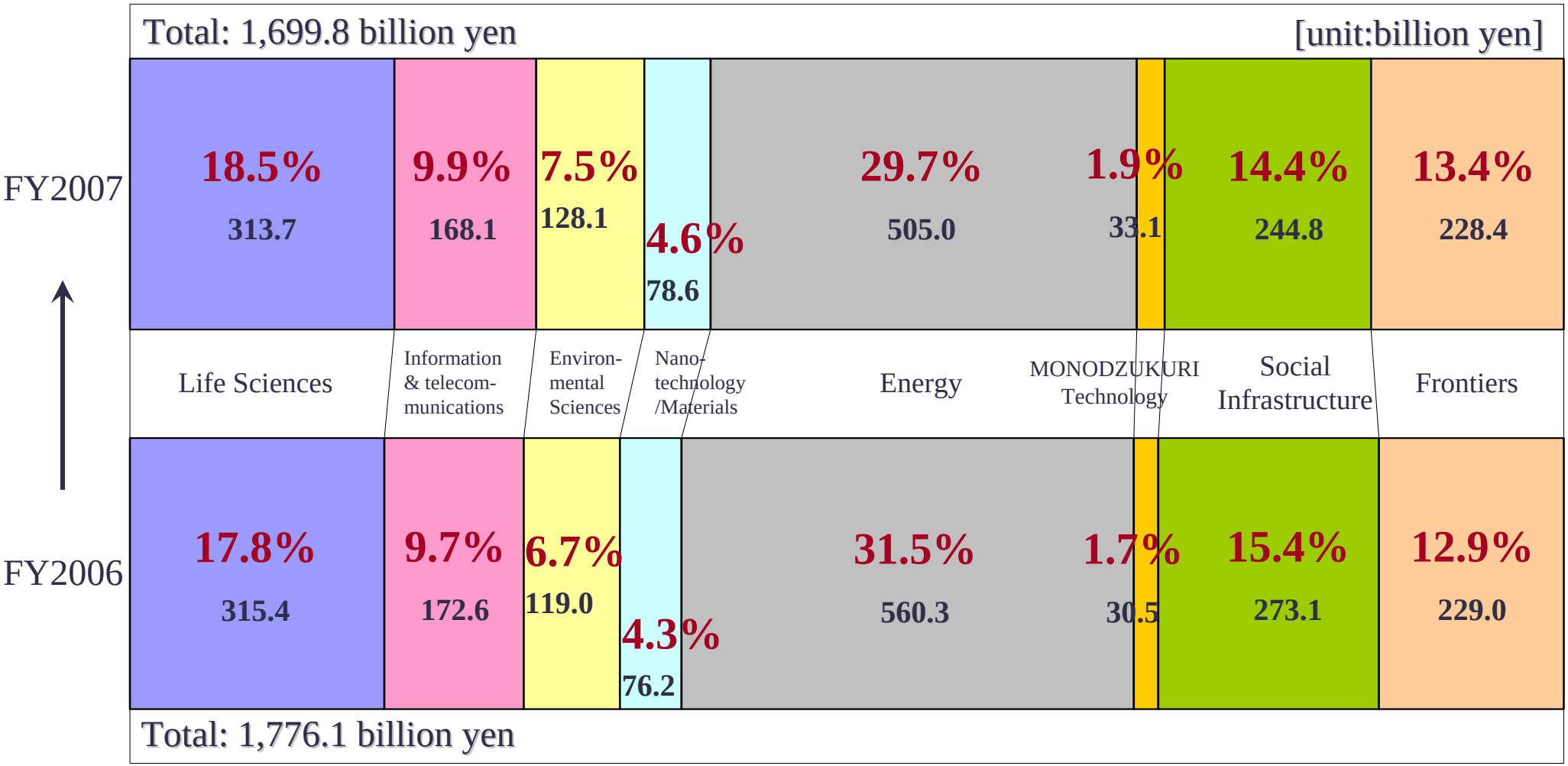
62 subjects

Outline of Prioritization in the FY2007 S&T Related Budget



* The figures have been calculated by the Cabinet Office on the basis of data produced from ministries and offices.
* Competitive funds and subsidies for the operation of independent administrative agencies are estimated in proportion to actual budgets in FY2005 and estimated budgets for FY2006 and may be subject to change.
* A new method of field-specific calculation was introduced in FY2006 based on the 3rd S&T Basic Plan.

Share of Spending on R&D for Eight Policy Mission-Oriented Fields



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Innovation 25 Strategy Council

Members

Minister of State for Innovation

Oct. 20, 2006~May.25,2007

Chair:	Kiyoshi Kurokawa	(Special Advisor to the Cabinet)
	Katsuhiko Eguchi	(President of PHP Research Institute)
	Tadashi Okamura	(Vice Chairman of Nippon Keidanren and Chairman of the Board of Toshiba Corporation)
	Ichiro Kanazawa	(President of the Science Council of Japan and President of the National Center of Neurology and Psychiatry)
	Ken Sakamura	(Professor, Graduate School of Interdisciplinary Information Studies, University of Tokyo)
	Chiyono Terada	(Vice Chairman of the Kansai Economic Federation and President of Art Corporation)
	Taizo Yakushiji	(Member of the Council for Science and Technology Policy, and Visiting Professor of Keio University)

Deliberations

Long-Term Strategic Guidelines *Innovation 25*
(approved by the Cabinet on June 1, 2007)

Strategies for social system reform to create a social environment conducive to a nation of innovation

1. Roadmap of strategies for social system reform
   (1) Urgent measures
   (2) Plan for social system reform over the medium and long terms
2. Roadmap for technology innovation strategies

Roadmap for Technology Innovation Strategies

(4) Strengthening of the R&D framework

(3) The Pioneering Project for Accelerating Social Return
to speed up the transfer of technology to people through verification studies

Characteristics:

Integration of different fields, public-private cooperation, integration of ministries, verification studies involving system reforms and system to promote the project in a centralized manner

(2) Field-specific and strategic R&D roadmap
for focused R&D geared to addressing policy issues:

What Japan should be like in the future and strategic prioritized S&T

Technology reaching the stage of verification studies

Basic and generic technologies (to receive continued emphasis)

(1) Basic research that is highly creative and that includes challenging activities that generate the seeds of innovation

- Support for ambitious research with high goals
- Support for independence of young researchers to build a broad research base

Transfer of new technology to society

Transfer of new technology to society

Our image of Japan in 2025

- A society where all can stay healthy throughout life
- A safe and secure society
- A society diversified lifestyles
- A society contributing to solution of the global issues
- A society open to the world

The Pioneering Projects for Accelerating Social Return

The Pioneering Projects for Accelerating Social Return

Problem:

People cannot reap the benefits of the basic technology that is being developed.

Accelerate the transfer of outcomes to society through the integration of different fields, public-private cooperation, integration of ministries, system reforms and verification studies of technology as a social system (to be initiated within five years).

Examples of The Pioneering Projects for Accelerating Social Return

1. A society where all can stay healthy throughout life

- Realization of medical care that replaces and restores a lost function

2. A safe and secure society

- Construction of the information and communication system which gives detailed disaster information to each resident, and helps disaster counter measures

- Realization of a safe and effective road and traffic system using information and telecommunications technology

3. A society with diversified lifestyles

- Realization of advanced home medical and nursing care

4. A society contributing to solution of the global issues

- Biomass utilization for energy and environmental issues

5. A society open to the world

- Realization of speech communication technologies that overcome language barriers

Example of a Pioneering project for Accelerating Social Return(1):

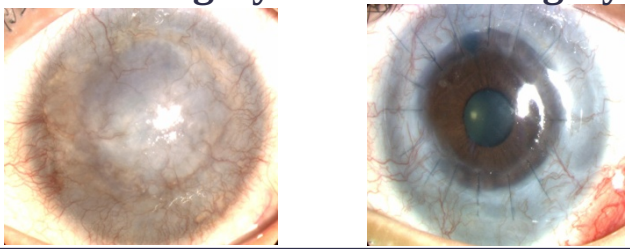
Aiming for *a society where all can stay healthy throughout life*

Realization of medical care that replaces and restores a lost function

Problems

- **Japan lags behind Europe and the United States in practical applications in regenerative medicine.**
- **Safety evaluation and other standards essential to practical application of regenerative medical treatment are underdeveloped.**

Before surgery → After surgery



Example of regenerative medical treatment:
Recovery from corneal injury

Approximately 4,000 patients per year are on the waiting list for cornea transplantation, but there are only about 900 eye donors a year.

Aim to build a society in which people can enjoy the benefits of regenerative medical treatment.

Project Outline

The following technological development and system reforms will be completed within five years to accelerate the transfer to the public.

[Technological Development]

- **Practical application of regenerative medical treatment for corneas, skin, cardiac muscles and others**
- **R&D for practical use of pluripotent stem cells, such as iPS cells**

[System Reforms]

- **Establishment of appropriate evaluation standards for ensuring safety and quality**
- **Increase in the number of examination personnel to speed up the approval process**

Example of a Pioneering project for Accelerating Social Return(2):

Aiming for *a safe and secure society*

Construction of the information and communication system which gives detailed disaster information to each resident, and helps disaster countermeasures

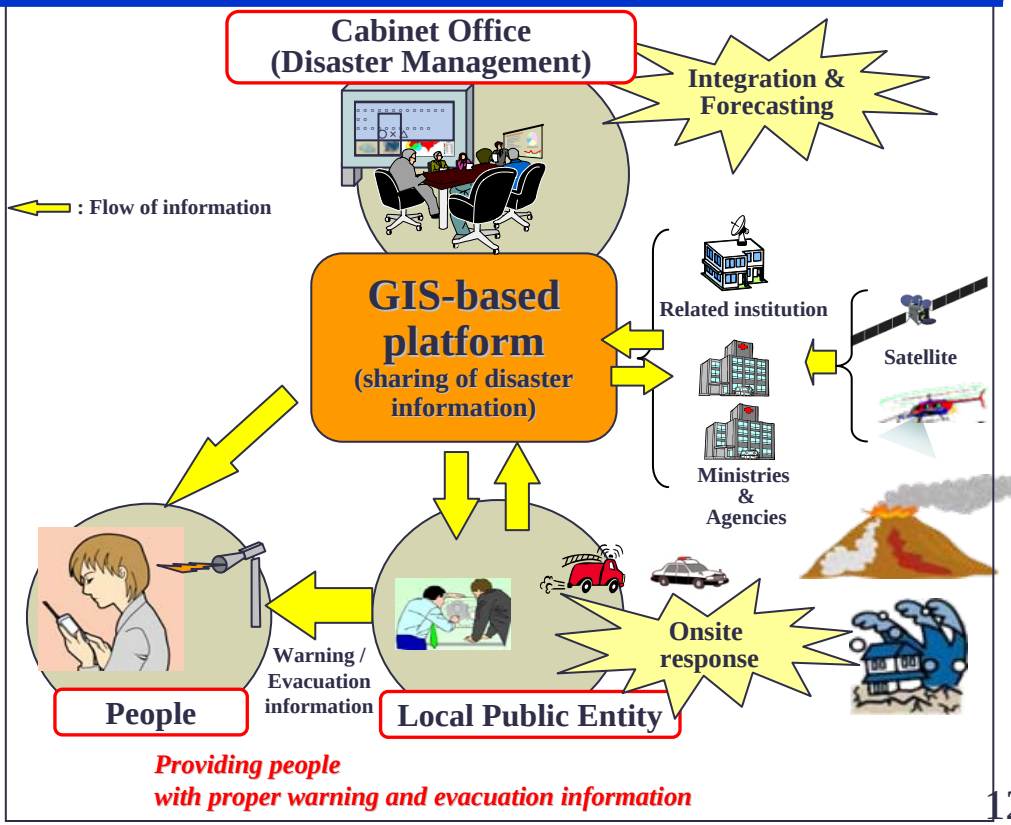
Problems

- Disaster information is not smoothly communicated and collected. There is no **central control or distribution** of integrated information covered with a single map.
- The system is incapable of **providing every member of the public with disaster information**.

Project Outline

Within five years, **verification studies will be done in model areas**.

- Create an information and communication system that **integrates disaster and damage information into a single map** for central control and sharing.
- Develop a communication network and information terminals that can quickly offer information to **everybody**.



Summary

Realizing Japan as a "Nation Built on Scientific and Technological Creativity"

1. **Creating persistent innovation**
   - **Improve basic research.**

2. **Highly selective investment**
   - **Implement promotion strategies and promote strategic prioritized S&T.**

3. **Science and technology to benefit society**
   - **Work on the Pioneering projects for Accelerating Social Return**