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Study for Evaluating the Achievements of the Japanese S&T Basic Plan: Government S&T Budget Analysis During the First and Second S&T Basic Plans

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Abstract

In considering the following Basic Plan measures in the fourth year of the Second Basic Plan, a determination of the situation with respect to interim effects attributable to the Basic Plans is necessary.

In our presentation, the state of fulfillment of the Basic Plans will be analyzed by focusing on budgetary S&T-related expenditures as pertains to research and development by the Japanese government and by grasping the situation concerning allocations and disbursements as concerns the main goals of the Basic Plans.

The core of the presentation will deal with the following points:

1. How is S&T budget in Japan changing?
   →S&T budget of the national government is increasing, whereas the local government budget is decreasing.
2. Into what kinds of areas are science and technology-related funds invested?
   →Allocation by use and by type of institutions, etc.
3. How is the allocation of R&D-related budget to the basic research changing?
   →Increasing basic research ratio.
4. How is the allocation of R&D-related budget to the four prioritized areas changing?
   →Advancement in the narrowing of the focus.
5. How are competitive research funds changing?
   →Rapid growth occurred during the execution of the First Plan and sluggish growth can be seen during the execution of the Second Plan.

Introduction

This is to introduce some of the results of the project worked on this past year, an analysis of the Science and Technology budget. The project was conducted jointly by the National Institute of Science and Technology Policy and Mitsubishi Research Institute, Inc..

This is a two-year project and during the first year the project focused mainly on finding out the facts. That is, to figure out how the S&T budget is allocated or distributed. Further, it was investigated whether the objectives called for by the Basic plan have been achieved and, where applicable, how they have been achieved. The target period was not only the period of the Second Basic Plan but also of the First Basic Plan and the period prior to the First Plan, which was labeled as the Pre-First Basic Plan. This makes for a target period of 12 years spanning from 1991 to 2003. The first challenge for this budget analysis was that there was no existing plan comprehensively covering the period of our study.

As for government R&D expenditures, the goal for total expenditure has been set at 24 trillion yen in this second planning period. In addition, the following objectives were highlighted as critical strategic elements:

1. the promotion of basic research,
2. the prioritization of four areas of social importance, (Life Sciences, Information Technology and Telecommunications, Environmental Science, and Nanotechnology)
3. increasing the availability of competitive research funds.

The plan states that in order to promote these objectives, more effective and prioritized distribution of government R&D expenditures is absolutely essential.

In the presentation, we focused primarily on the relationship between the various Japanese governments R&D expenditures, how they are distributed as a whole as well as according to some of the specific measurements that were mentioned earlier.

First, the recent trends in the S&T budget viewed both in the aggregate and according to various breakdowns will be mentioned briefly. Next, the budget distribution according to some strategic measures, such as trends in the S&T budget by type of R&D, viewed by prioritized area, and viewed by competitive research funding will be introduced in this paper.

In conducting this analysis, we faced one critical hurdle, namely, the lack of databases and resources with which to conduct time series estimates. Although, there are several fragmental databases or sources for each year, each measurement, and each program and so on, however, there was no common database that covered a long span of the time.

Therefore, this project had to begin by creating an enormous database. In order to do so, we

used all kinds of available resources, inquires to ministries, research institutes, universities, and so on. This task could be stated as the most time-consuming, but one of the most challenging part of the project. Now that such a database has been created, it is now possible to conduct a proper analysis of the S&T budget in Japan.

Results from the 1st year of the project

1. Total S&T Budget

1-1. Trends in S&T Budget

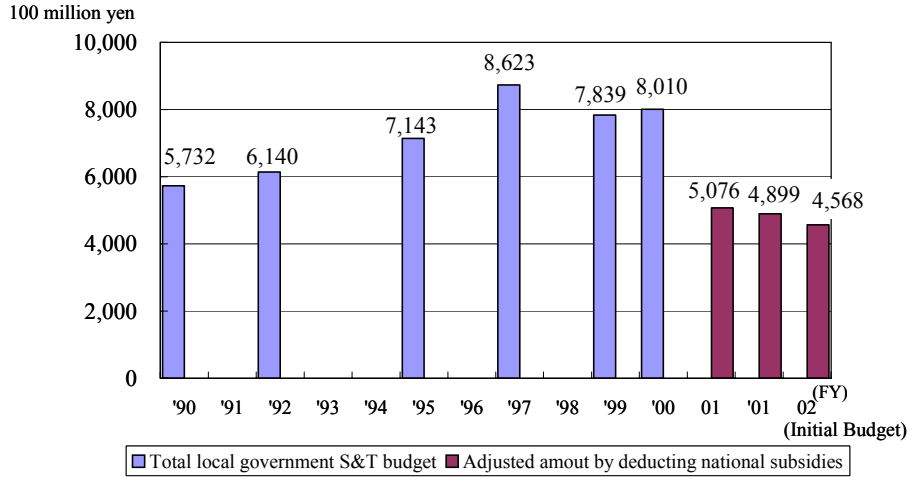
In 2000, the Japanese government's expenditures on Science and Technology-related fields was 3.6 trillion yen. Viewed by planning period, previous to the first period expenditure was 12.6 trillion yen, first period expenditure was 17.6 trillion yen, and the first three years of the second period amounted to 15.1 trillion yen. The yearly average has been increasing from the pre-first period into the second period.

On the other hand, the S&T budgets of local governments show a different trend. Before the first period, expenditures by local government had been increasing, but began to decrease during the first period. The expenditure was 8,623 million yen in 1997 and 8,010 million in 2000. In the second planning period, due to particularly tight regional finances, the decrease in local government has continued. It decreased from 5,076 million yen in 2001 down to 4,568 million in 2003.

There is a gap between first and second period due to the different data sources for each period, however, the decrease can be seen apparently.

For the reference, the budgets of local governments account for approximately one-third to one-fourth of the national S&T budget.

Trends in S&T Budget of the Local Governments



Note: The coverage is 47 prefectures and 12 ordinance-designated cities. Figures after FY2001 exclude national subsidies.

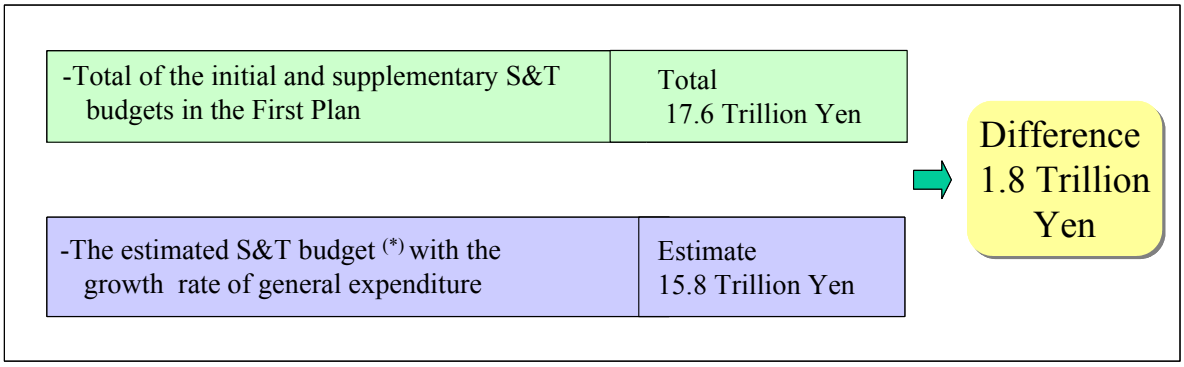
Source: NISTEP, "Study on Regional Science and Technology Promotion Policies (5th Survey)" (2001), Japan Association for the Advancement of Research Cooperation, "Survey of the S&T Activities in FY2002," March 2003, MEXT S&T Policy Bureau, "Budget for Science and Technology in FY 2004 and in FY2003 Supplementary Budget in FY2003,"December 2003.

1-2. Comparison of S&T Budget Estimated with the growth Rate of General Expenditures

We undertook to estimate the S&T budget by using the growth rate of general expenditure as the standard. This figure below shows the result of the estimation.

The total of the initial and supplementary S&T budgets in the first Plan was 17.6 trillion yen. On the other hand, the estimated budget with the growth rate of general expenditure was 15.8 trillion yen. That is, during the first planning period, the actual budget called for by the Basic Plan exceeded the above estimates by 1.8 trillion yen. From this result, it can be assessed that the basic plan did play an important role to push up the S&T budget during the first period.

Actual and estimated S&T budget during the First Plan Period
(Initial Budget, National government)



1-3. Breakdown of S&T Budget by Category

(1)Breakdown of Initial and Supplementary S&T Budget

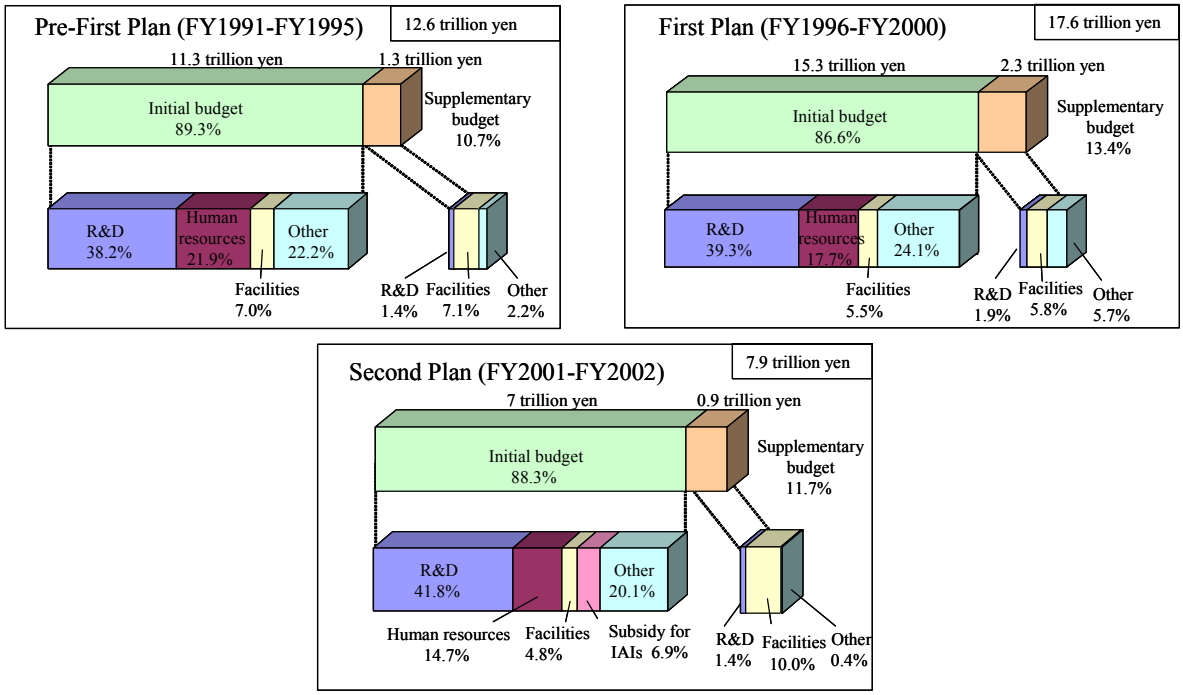
In each period, the initial budget accounted for close to 90% of the total. As an element of the initial budget, R&D accounted for over 40%.

The supplemental budgets are almost entirely used for facilities expenditure. For example, the majority of facilities maintenance expenditure of the national universities is provided by supplemental budgeting.

For the second period, subsidies for IAIs have been added as a category. Within the subsidies, some funds used in practice for R&D or for human resources are included.

“Management subsidies” are defined as subsidies paid to IAIs by the government for the purposes of operating the IAIs. How to use the subsidies is left to the judgment of the IAIs and may be used elastically to support their operations generally.

Breakdown if initial and supplementary S&T budget

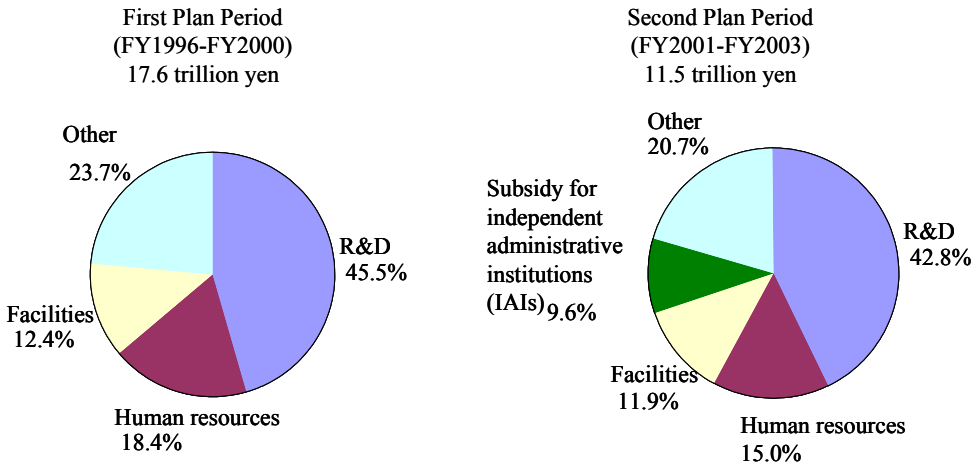


Note: From the 2nd planning period, subsidies paid to IAIs were added as a category. Within this figures are included some funds used in practice for R&D or for human resources.
Source: MEXT S&T Policy Bureau's, "Budget for Science and Technology in FY 2003," May 2003, its annual issues, and the budget for S&T data of the Bureau.

(2)Breakdown by account

As for breakdown by account, R&D expenditures exclude expenditures on human resources and on facilities. The proportion does not show any significant change between the first and second planning period.

Breakdown by account



Note1: Totals of initial and supplementary budgets, other than FY 2003 in which only the initial budget was counted.
Note2: From the 2nd planning period, subsidies paid to IAIs were added as a category. Within these figures are included some funds used in practice for R&D or for human resources expenses.
Note3: R&D includes typical research institution activities (critical thinking, information gathering, experiments, surveys, analysis, reporting). It also includes budgets for research, development, experimental studies, etc., conducted outside research institutions as well as fees for outsourced research-oriented projects, grants, subsidies, part-time labour.

Note4: Human Resources expenses include human resources costs for full-time staff of national research institutes, non including part-time labour.
Note5: Facilities expenses include costs related to facilities, equipment maintenance, and subsidies for equipment maintenance as applied to incorporated administrative agencies and public and private universities.
Note6: Other expenses include expenses not listed above, such as basic expenses for academic research, administrative costs for national research institutions, network maintenance, miscellaneous costs that do not fit into one of the above three categories. Expenses involving a mixture of research and other operations are occasionally recorded as other expenses, for example, the budget for the Regional; R&D Infrastructure Project Funds operated under the auspices of the Japan Science and Technology Agency 21st Century COE Program (Research Center Formation Grant).
Source: MEXT S&T Policy Bureau's, "Budget for Science and Technology in FY 2003," May 2003, its annual issues, and the budget for S&T data of the Bureau.

(3)Breakdown by Sectors

The figure shows the breakdown according to the sectors to which the S&T budget has been allocated. These sectors are government departments and agencies, national research institutes, and special corporations and universities.

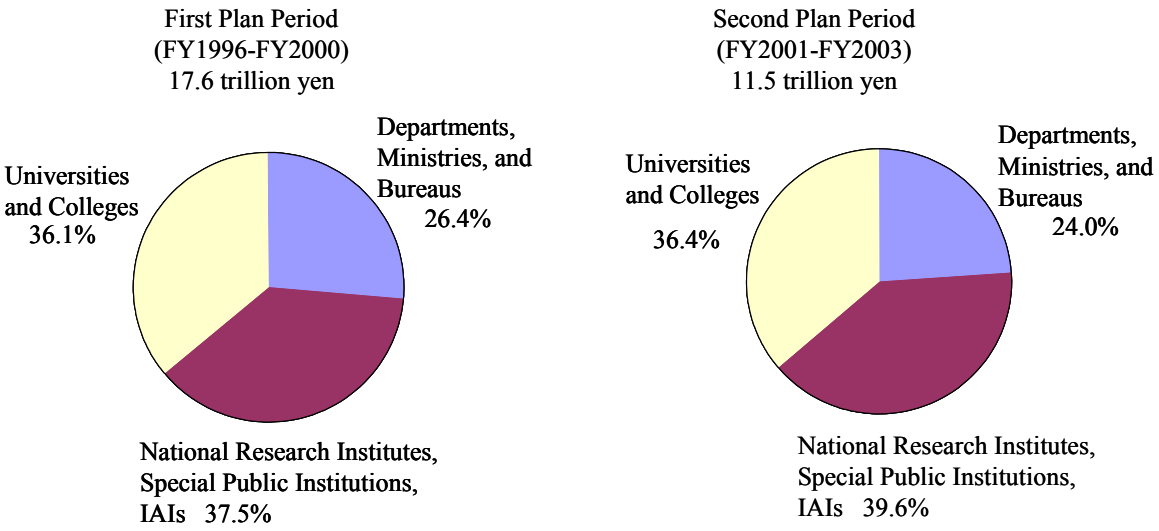
National research institutes and special corporations account for a little under 40%, and universities account for 36%.

As for universities, the figures here do not show the total university budget but only budget that is counted as S&T budget. This amounts to about a third of the total budget.

As for the S&T budgets for Ministries and Bureaus, they are not used by the departments themselves but are further allocated to universities, institutes, companies, and so on.

Considered by sector, there was no great change between the first and second periods.

Breakdown by sector



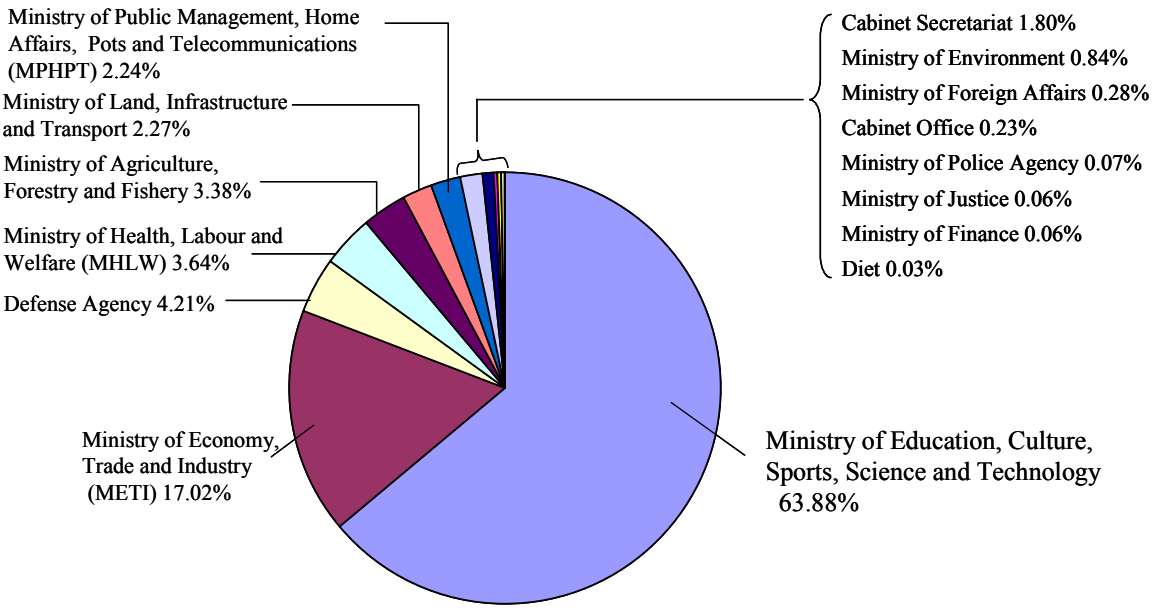
Note1: Totals of initial and supplementary budgets, other than FY 2003 in which only the initial budget was counted.
Note2: S&T budget for Department of Ministries and Bureaus are to be further allocated to universities, institutes, companies and so on.
Source: MEXT S&T Policy Bureau's, "Budget for Science and Technology in FY 2003," May 2003, its annual issues, and the budget for S&T data of the Bureau.

(4)Breakdown by Ministries and Agencies

The figure shows the breakdown by governmental department in the second planning period.

The largest share was occupied by MEXT with about 64%, followed by the METI with 17%. These two occupy 80% of the total.

Breakdown by Ministries and Agencies



Note: Totals of initial and supplementary budgets, other than FY 2003 in which only the initial budget was counted.
Source: MEXT S&T Policy Bureau's, "Budget for Science and Technology in FY 2003," May 2003, its annual issues, and the budget for S&T data of the Bureau.

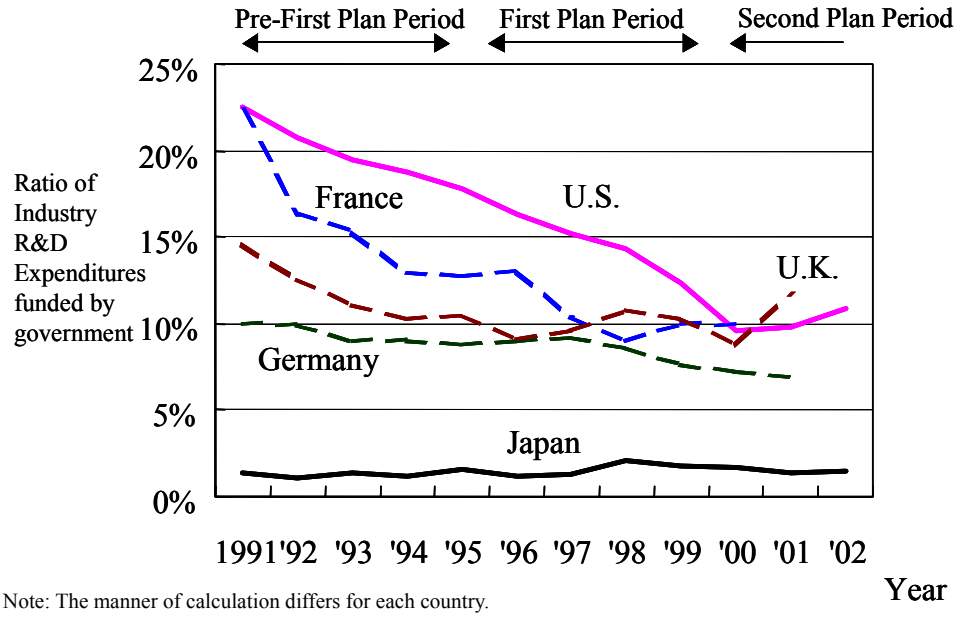
1-4. Industry R&D Expenditures funded by Government

When we consider the industry R&D expenditures funded by the government, the outlays of the Japanese government for R&D conducted by private firms have remained stable at around 1-2%, a relatively low level when compared to other advanced nations.

As for Japan, the data indicate funds paid to private firms by the central and regional governments for the purpose of intramural R&D expenses. This means that when the funds are paid to private firms, if the firms do not themselves recognize it as earmarked for R&D expenditures, the figure is not reflected in these data.

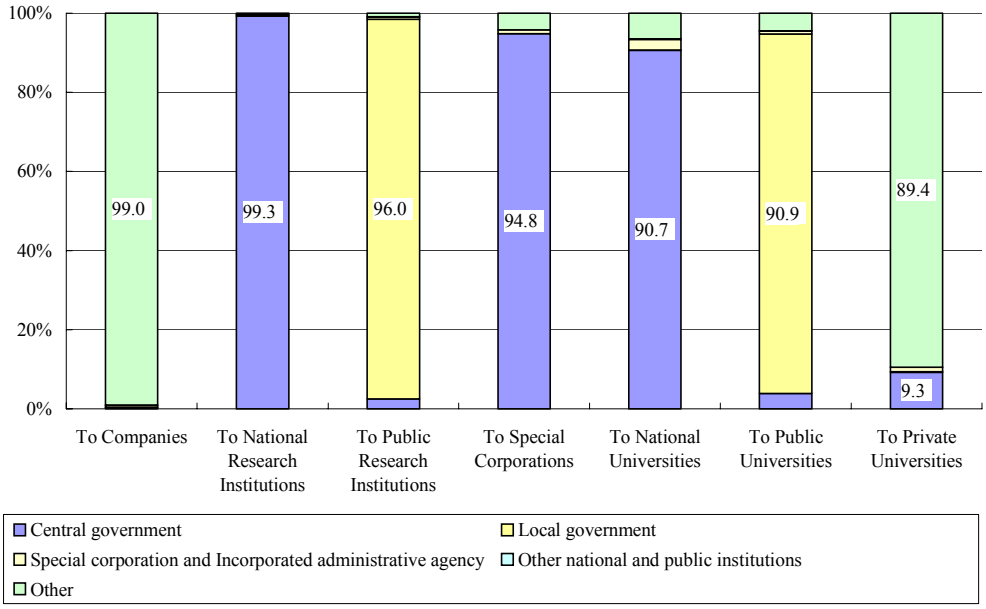
According to the figure showing the utilized research expenditure viewed by research institution and source of funding, the ratio shows how small a portion of the government funds are for the private sectors.

Industry R&D funded by Government



Note: The manner of calculation differs for each country.
Source: MPHPT, "Report on the Survey of Research and Development"

Total utilized research expenditure viewed by research institutions and source of funding



Source: MPHPT, "Report on the Survey of Research and Development"

2. Strategic Measures

2-1. S&T budget by some strategic measurements of the Basic Plan

In this section, we will describe the allocation of the S&T budget corresponding to some important measures in the Second Basic Plan. These important measures are the strategic prioritization of S&T, the reform of the R&D system, the reform of Industry-Academic-Public Sector collaboration, the promotion of S&T in the regions, infrastructure development for S&T promotion, and the internationalization of S&T activities and promotion of international scientific exchanges.

Those figures that have been shown up to this point concerned the total S&T budget. From now on, the data will focus on just the R&D budget to see how it has changed. Some of the figures will include non-R&D funds that relate to R&D activities, which have been labeled as R&D–related expenditure for this analysis. R&D-related expenditures include expenditures that are classified as "R&D", R&D expenditures of IAIs, and academic research basic expenditures of the universities that are counted as S&T budget.

As can be seen from the table below, the figures in every category have shown a steady increase over the relevant period.

However, in regard to competitive research funding, the Basic Plan calls for a doubling of such funding by the end of the second period, but this would require an increase to 600 billion yen. Thus, it is unlikely that this goal will be achieved.

Trends in S&T budget for major policy objectives

Major policy objectives	Corresponding budgets	Pre-First Plan Period [FY1991 – FY1995]	First Plan Period [FY1996 – FY2000]	Second Plan Period [FY2001 – FY2003]
Strategic prioritization for S&T	R&D expenditures for basic research (*1)	2076.5 Billion Yen (415.3 Billion Yen)	3265.9 Billion Yen (653.2 Billion Yen)	2205.4 Billion Yen (735.1 Billion Yen)
	Budget for the four priority areas (life sciences, ICT, environment, and nanotechnology & materials) (*1, *2)	1783.7 Billion Yen (356.7 Billion Yen)	3308.4 Billion Yen (661.7 Billion Yen)	2417.9 Billion Yen (806.0 Billion Yen)
Reform of R&D systems	Competitive research funds	499.3 Billion Yen (99.9 Billion Yen)	1177.0 Billion Yen (235.4 Billion Yen)	1021.0 Billion Yen (340.3 Billion Yen)
	Budget for R&D evaluation	–	FY2000 only 1.3 Billion Yen	FY2003 only 2.5 Billion Yen (*3)
Reform of industry-academic-public sector collaboration	Receipts of joint-research & commissioned research from industry (national universities & higher professional schools)	FY 1995 only 3.6 Billion Yen	29.2 Billion Yen (5.8 Billion Yen)	21.6 Billion Yen (10.8 Billion Yen)
Promotion of S&T in regions	Budget for regional promotion (*1)	45.9 Billion Yen (9.2 Billion Yen)	193.6 Billion Yen (38.7 Billion Yen)	182.2 Billion Yen (60.7 Billion Yen)
Infrastructure development for S&T promotion	Budget for intellectual infrastructure development (*1)	3.7 Billion Yen (0.7 Billion Yen)	43.8 Billion Yen (8.8 Billion Yen)	70.2 Billion Yen (23.4 Billion Yen)
Internationalization of S&T activities and Promotion of international scientific exchanges	Grant-in-aid for the promotion of international joint research and active support to international cooperation (*1)	132.0 Billion Yen 26.4 Billion Yen	256.1 Billion Yen (51.2 Billion Yen)	192.7 Billion Yen (64.2 Billion Yen)

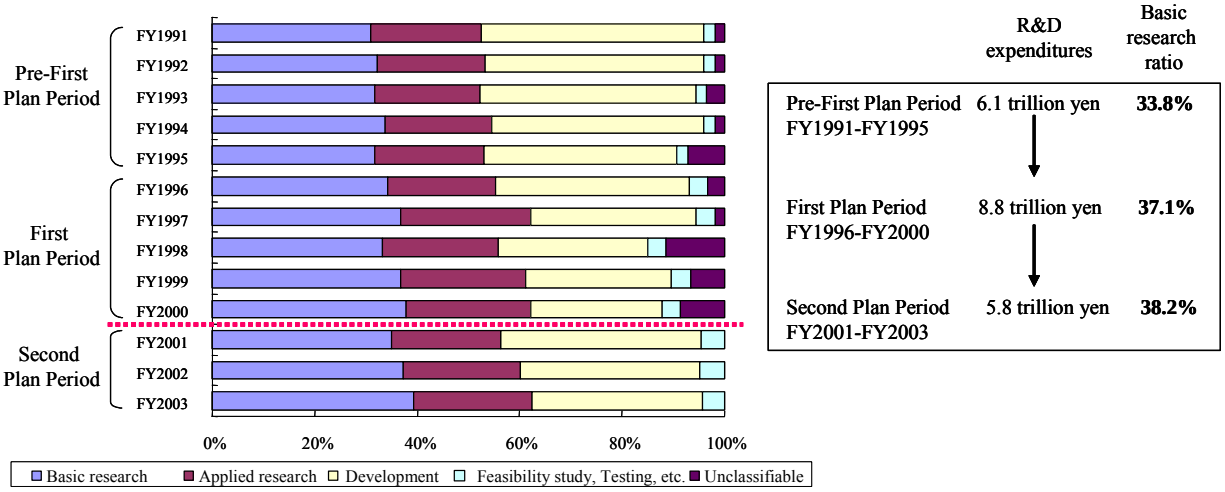
Note1: Data collection methods differ between the First and Second Plan due to the differences in policies and the nature of their data.
Note2: The R&D expenditures for competitive research funds and IAIs were calculated based on the faculty number and the data obtained by MEXT from relevant governmental bodies and includes estimations. For universities, the number of national university faculty by area was calculated and then applied to acquire the expenditures by area using an integrating unit price per person.
Note3: IAIs not included
Note4: Total between FY2001 and FY2002
Note5: Figures in parentheses are annual average.
Source: Calculated by NISTEP and Mitsubishi Research Institute, Inc. with various data.

2-2. Trends in S&T budget by Type of R&D

The Second Basic Plan calls for the promotion of basic research as a part of the larger set of strategic priorities for S&T.

The share of basic research increased to 38.2% during the second planning period. This is a one-point increase from the first planning period.

S&T budget by type of R&D



	R&D expenditures	Basic research ratio
Pre-First Plan Period FY1991-FY1995	6.1 trillion yen	**33.8%**
First Plan Period FY1996-FY2000	8.8 trillion yen	**37.1%**
Second Plan Period FY2001-FY2003	5.8 trillion yen	**38.2%**

Note1: Calculation methods differ for the years before and after FY2001.
Note2: Of the S&T budget, R&D expenditures were classified into basic research, applied research, development research, feasibility study, testing research, and unclassifiable.
Note3: R&D expenditures for national and Special Public Institutions' research institutes were calculated based on the type of R&D ratios in the "Report on the Survey of Research and Development" by Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT). R&D expenditures after FY2001 were categorized by type of R&D, using MEXT's S&T budget database.
Note4:R&D expenditures of national, public, and private universities in the S&T budget were multiplied by type of R&D ratios by sector in MPHPT, "Report on the Survey of Research and Development".
Note5: R&D expenditures for MEXT departments, operating bodies of Special Public Institutions, Special Public Institutions, and others were categorized for each project based on the type of R&D classifications used in the MEXT's S&T budget database.
Note6: Budgets for competitive research funds were excluded from the R&D expenditures of Special Public Institutions operating bodies and MEXT departments. Each project was categorized by research type based on its contents.
Note7: Ratios in FY2003 are based on the initial budget only.
Source: MEXT S&T Policy Bureau, "Budget for Science and Technology in FY 2003," May 2003, and its annual issues, MPHPT, "Report on the Survey of Research and Development," and competitive research funds data.

2-4. R&D Expenditures Ratio by Priority Areas

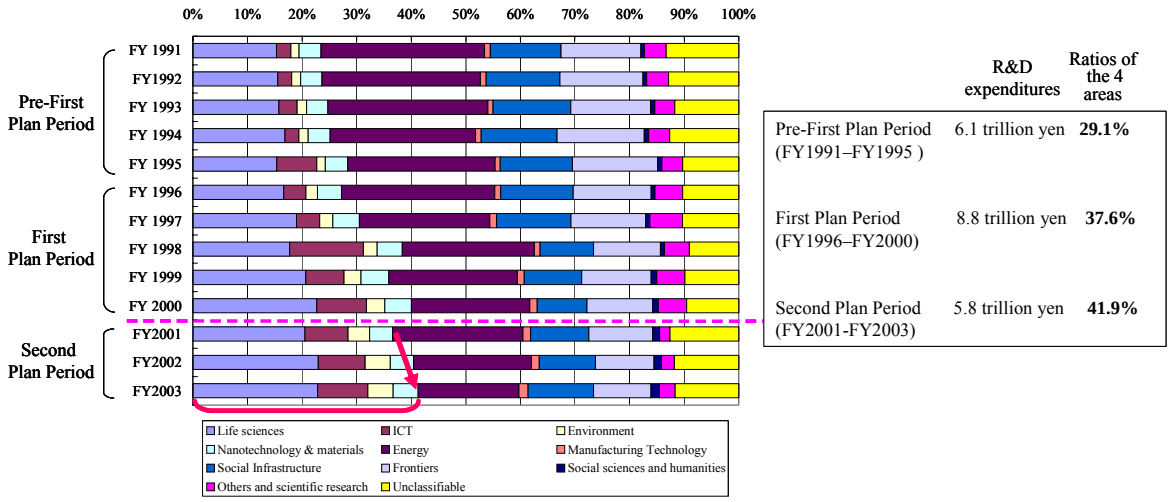
In the Second Basic Plan, R&D that responds in some way to questions of major national or social importance was emphasized, and fields in which great contributions could be made to knowledge, to economics, and to society were met with great approval. Thus, the four Priority Fields—Life Science, Telecommunications, Environmental Science, and Nanotechnology/Materials Science—received prioritized treatment in the distribution of R&D funding.

The share of the four priority areas increased to 41.9% during the second planning period. This reflects a 4-point increase from the previous planning period.

There is a shift between dominant areas. In the first planning period, the largest share was occupied by Energy with 23.7%, followed by Life Sciences with 21.3%. These figures have shifted during the

second planning period. The largest is now Life Sciences with 23.7%, and then Energy with 19.8%. Data for the period previous to the year 2000 were extremely limited, so calculations were performed using a compilation of various materials. From 2001 on, the data are generally available, but as information regarding management subsidies for IAIs is not readily available, calculations could only be performed based after inquiries to each IAI or its antecedent organization.

R&D expenditures ratio by priority areas



	R&D expenditures	Ratios of the 4 areas
Pre-First Plan Period (FY1991–FY1995)	6.1 trillion yen	**29.1%**
First Plan Period (FY1996–FY2000)	8.8 trillion yen	**37.6%**
Second Plan Period (FY2001-FY2003)	5.8 trillion yen	**41.9%**

Note1: Data collection standards differ between before and after FY 2001.
Note2: Data include initial and supplementary budgets, other than FY 2003 in which only the initial budget was included.
Source: Calculated by NISTEP and Mitsubishi Research Institute, Inc, using the MEXT "Budget for Science and Technology in FY 2003" and its annual issues, "Nationwide List of Research Institutes in Japan," and data and information provided by the MEXT and other government bodies

2-4. Proportion of Public Institutions in Japanese Total Research Expenditures

The public sector includes non-profit research, national and public research institutes, special corporations, IAIs, and national and public universities. That is, these figures exclude companies and private universities.

The largest public sector share is found in the life sciences. The proportion increased from 32.7% in 1995 to 37.3% in 2001. It shows a decrease during the second planning period in fiscal year 2002, however, when the proportion of the private sector expanded.

The second largest contribution of the public sector is in the fields of nanotechnology and materials. It was 42% in 2002 fiscal year.

In the field of information and telecommunication, the proportion increased from 5.1% in 1995 to 7.1% in 2002.

Proportion of public institutions in Japanese total research expenditures

Intramural expenditure on R&D		Pre-1st Plan (FY 1995)	Last year of 1st Plan (FY 2000)	First year of 2nd Plan (FY 2001)	Mid year of 2nd plan (FY 2002)
Life Sciences	Public and Private	1.75 trillion	1.78 trillion	1.97 trillion	2.07trillion
	Public	572.6 billion 32.7%	609.1 billion 34.2%	737.1 billion 37.3%	724.2 billion 35.0%
Information and Telecommunications	Public and Private	1.14trillion	1.75 trillion	2.25 trillion	2.26trillion
	Public	57.5 billion 5.1%	99.8 billion 5.7%	157.1billion 7.0%	160.9billion 7.1%
Environment	Public and Private	313.5 billion	538.3 billion	678.7 billion	679.9 billion
	Public	58.1 billion 18.5%	86.8billion 16.1%	171.1billion 25.2%	156.0billion 22.9%
Nanotechnology and materials	Public and Private	–	–	350.6 billion	409.9 billion
	Public	–	–	138.7 billion 39.6%	172.0 billion 41.9%

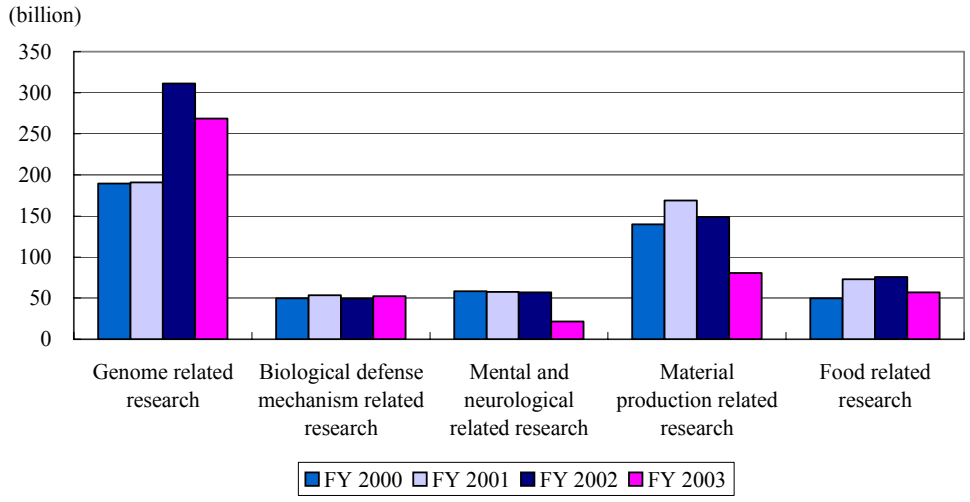
Note1: Public sector includes non-profit research institutions, national and public research institutes, special corporations, IAIs and national and public universities. (i.e. Figures exclude companies and private university from the total).
Note2: The figures in parentheses show the proportion of the public institutions' expenditure in R&D in each fiscal year.
Note3: The figures here are based on the MPHP database, so the total is different from the R&D-related expenditures that we saw in the previous slide.
Source: MPHPT, "Report on the Survey of Research and Development".

2-5. Effects of Promotional Strategies Viewed by Priority Areas (in the case of Life Sciences)

The CSTP announced a "strategy for promoting R&D in each priority area" in September 2001. This announcement emphasized themes in each priority area that are to be specially prioritized. In this section, we will see the situation of the life sciences field as an example. The announcement states the following themes as priority research themes within the life sciences field: 1.Genome related research, 2. Research related to biological defense mechanisms, 3. Mental health and neurological research, 4. Materials production research, and 5. Nutritional research.

Under the rubric of life sciences, outlays for genome research are significant. They have tended to increase since 2000.

Effects of promotional strategies viewed by priority areas (Life Sciences)



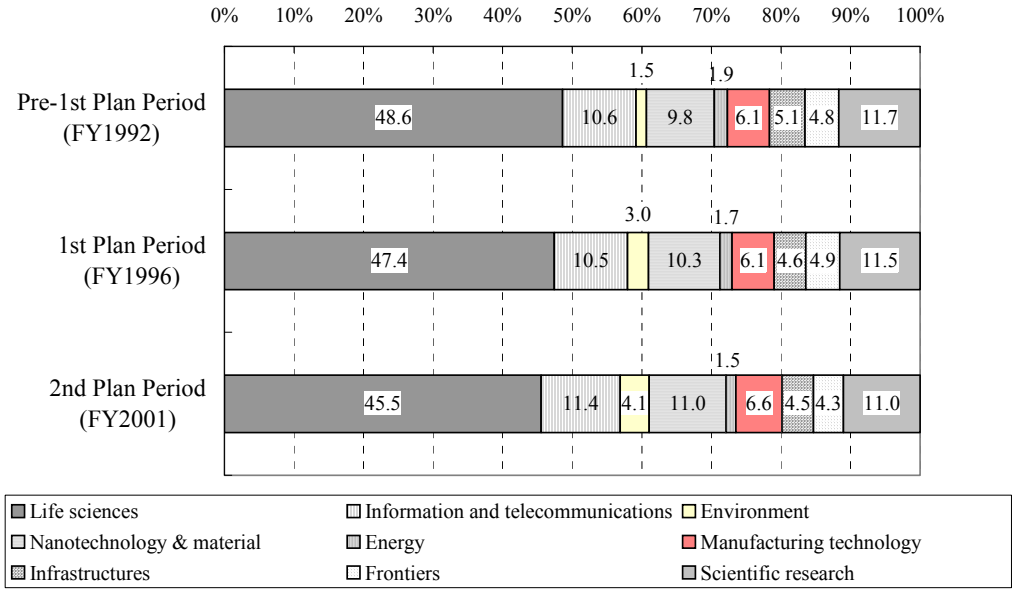
Note1: This figure is the one that totaled how the R&D related budget were allocated within the Life Science field by classifying each items into small categories. It totaled corresponding budget for departments of ministries and bureaus, national research institutes, and special corporations after FY 2001, because there were no details about the R&D budget of universities and IAIs and national research laboratories before.
Note2: Figures include R&D related budged excluding competitive research funds for departments of ministries and bureaus, national research institutions, and special corporations. Budget for IAIs and universities are not included. Budget for Japan Science and Technology Agency (JST) and New Energy and Industrial Technology Development Organization (NEDO) for the latter half of FY 2003 are not included.
Note3: For some projects, budget can not be calculated in a time series, because of program integration, different ways of budget registration, restructuring of national research institutes and Special Corporation into IAIs.
Note4: Each item is classified by Mitsubishi Research Institute, Inc. according to the definitions defined by "Promotion Strategy by Prioritized Areas", MEXT.
Note5: Projects that are classified other than above categories are omitted from the figure.
Note6: The figure does not include IAIs, competitive research funding, or universities.
Note7: These figures are only for those research projects that can be classified into the prioritized themes. Those that cannot be classified are excluded.
Source：Classified and calculated by Mitsubishi Research Institute, Inc, using the MEXT "Budget for Science and Technology in FY 2003 " and its annual issues, and other various data.

2-6. Changes in Research Expenses of National Universities Viewed by Priority Areas

The proportion of life sciences shows a decrease through the pre-first, first, and second planning periods.

On the other hand, the proportions of the information and telecommunications field, the environmental field, and the nanotechnology and materials fields have increased.

Changes in research expenses of national universities viewed by priority areas



Note1: R&D expenditures viewed by field proportion were estimated as follows,
1) Numbers of professors, assistant professors, lecturers, and assistants were totaled at each subject level.
2) Each subject was classified into research areas written in the Basic Plan and the number of teaching staffs was totaled in each research area.
3) The ratio of R&D budget of each research area was calculated by using the unit price of basic expense for academic research at each teaching staff level (i.e., professors, assistant professors, lecturers, assistants).
4) R&D budget of each research area was estimated by using the above ratio.
Note2: National universities, university hospitals, and university research institutes
Source: Classified and calculated by Mitsubishi Research Institute, Inc. using MEXT supervision, "Nationwide list of Research Institutes in Japan" and its annual issues, materials by MEXT concerning unit price of basic expense for academic research for national universities.

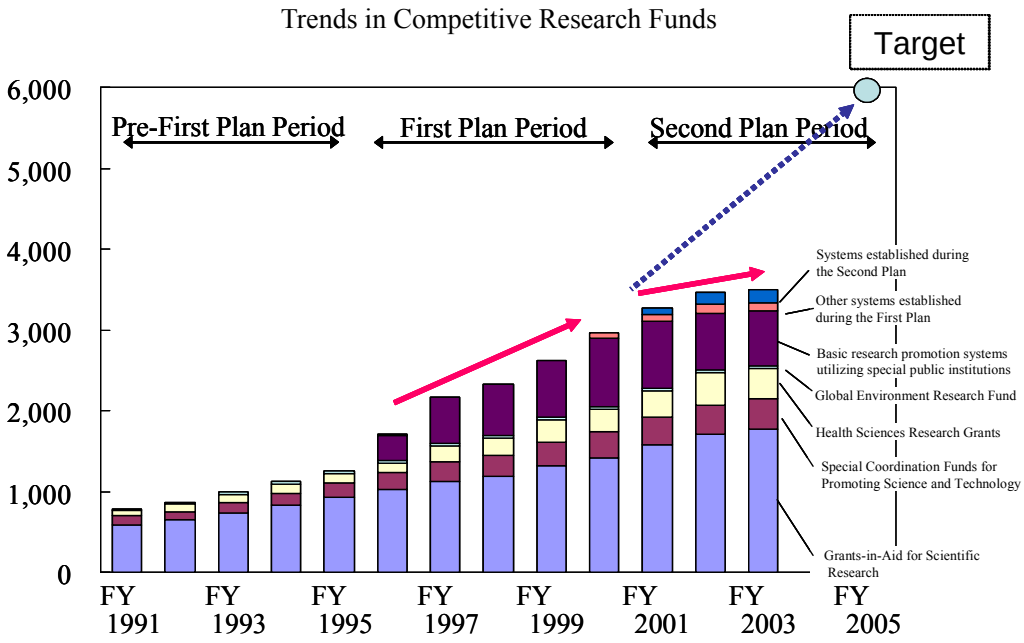
2-7. Trends in Competitive Research Funds

The competitive research funds show an increase since 1995.

The funds increased markedly during the first period. At this time, the new competitive financing schemes put into practice by semi-governmental corporations were an important factor.

Among the Competitive Research Funds, the Grant-in-Aid accounts nearly half of the total amount of the competitive research funds.

As has been mentioned earlier, the basic plan calls for a doubling of the funds by 2005. However, this seems to be a difficult task to achieve in practice.



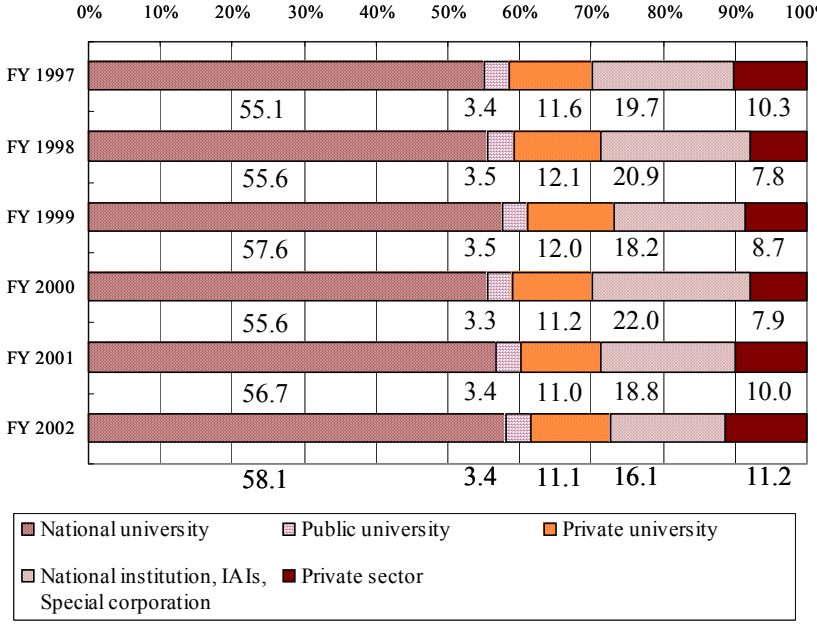
Note: The competitive research funds do not include payments to researchers.
Source: MEXT S&T Policy Bureau, "Budget for S&T in FY 2003," May 2003 and its annual issues, and budget for S&T data

2-8. Distribution of Competitive Research Funds Viewed by Sector of Financing Recipients

When we look at the distribution of competitive research funds viewed by sector of financing recipient, national universities dominate with 58% of the total. All universities, both public and private, account for 73%. On the other hand, the share of the private sector is a mere 11%.

These proportions have not shown any significant changes.

Distribution of Competitive Research Funds viewed by sector of financing recipients



Note1: Calculation was performed based on inquiries to ministries and agencies, asking for actual R&D expenses for each field. For those for which actual expenses were not available, budget was used to calculate instead. The estimation covers 99.5% of the total competitive research funds in FY 2002.

Note2: For some of the competitive research schemes, distribution ratio before a certain period of time is not available. In this case, the oldest data that could be acquired were retroactive to the past for estimation.

Source: MEXT S&T Policy Bureau, "Budget for S&T in FY 2003," May 2003 and its annual issues, materials concerning Special Coordination Funds for Promoting S&T by MEXT, annual issues of MEXT's "Selected Subjects for Grant-in-Aid for Scientific Research and Judgment Outline of the Open Competition", materials obtained from other ministries and agencies.

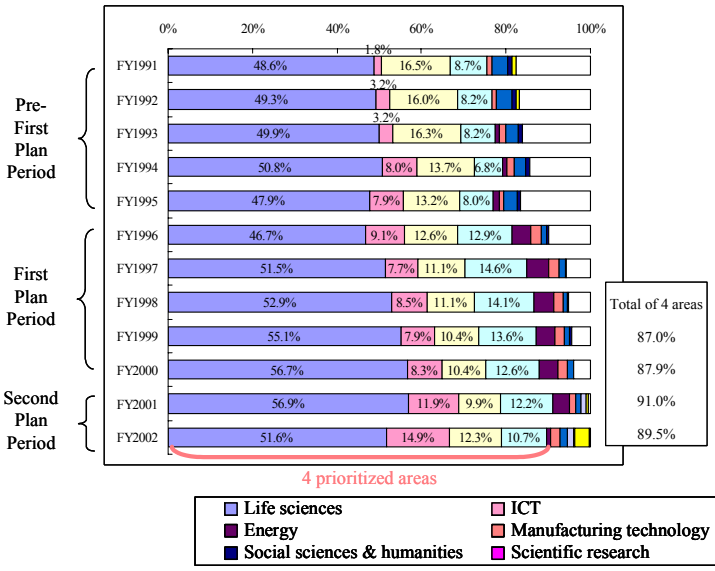
2-9. Competitive Research Funds and Priority Areas

In this section, we see the trend of how the competitive research funds has been allocated by dividing the funds into two categories, non-Grand-Aid-funding and Grand-Aid-funding.

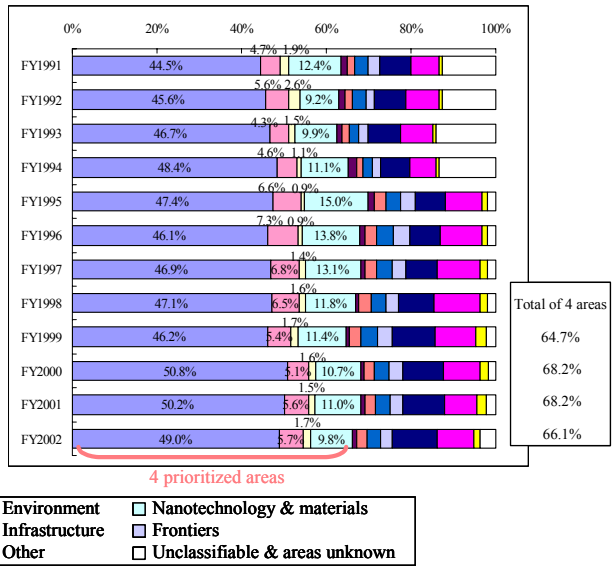
For non-Grand-in Aid funding, the priority areas dominate, accounting for about 90% of the total.

On the other hand, the proportion of the four priority areas ranges lower than non-Grant-in Aid-funding, between 65 to 70%. This is due to the fact that Grant-in-Aid is not geared specifically to the priority areas and tends to focus on a wider scope of research fields. Grant-in-Aid, a program representative of the competitive financing system generally, comprises approximately 50% of all competitive finance funding. With an objective of increasing research in all fields, it accepts proposals for a vast array of projects.

Field share of Competitive Research Funds other than Grant-in-Aid for Scientific Research
(174.0 billion yen in FY2002)



Field share of Grant-in-Aid for Scientific Research
(170.3 billion yen in FY2002)



Note1: "Scientific research" includes mathematics, physical science, and physical chemistry, which do not fit into the categories of priority areas. "Other" includes physical education and household economics.

Note2: For the Grant-in-Aid for Scientific Research, research ratios were calculated through the assignment of research category, based on the title and area name of the researches in Scientific Research, Exploratory Research (Comprehensive and Test Researches before FY 1996), Grant-in-Aid for Young Scientists, Encouragement of Scientists (A), Specially Promoted Research, Scientific Research in Priority Areas, and Basic Research for COE.

Note3: Special Coordination Funds for Promoting S&T were categorized into priority areas based on research title and its area name. Area ratio data (FY 2000 and 2002), acquired from governmental bodies by MEXT, was used for the projects other than Grant-in-Aid for Scientific Research and Special Coordination Funds for Promoting S&T.

Source: Calculated by Mitsubishi Research Institute, Inc. using materials concerning Special Coordination Funds for Promoting S&T by MEXT, annual issues of MEXT's "Selected Subjects for Grant-in- Aid for Scientific Research and Judgment Outline of the Open Competition".

Concluding Remark

As was mentioned earlier, for the first year of this project, the focus was mainly on fact-finding, that is, on how the S&T budget has been allocated or distributed in order to see whether the objectives of the Basic Plan are being achieved. Now that we have assembled the necessary facts with the help of the database we created, the focus will shift as we enter the second year of the project to an analysis of the way the budget should be distributed in the future so as to promote the effective and efficient use of the S&T budget for objective achievements. In other words, our goal is to determine how best to structure and manage the S&T budget in the interests of Japan's future.