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Council for Science and Technology Policy (CSTP) Review of S&T Programs/Projects Requested in the JFY2010 Budget

The following is a report on CSTP's review of the S&T-related programs/projects requested by the various ministries for funding in JFY2010.

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(An exchange rate of ¥100/\$ is used throughout this report.)

The Council for Science and Technology Policy (CSTP) conducted their customary scientific review of science and technology-related programs and projects requested by various ministries and agencies in the JFY 2010 (April 2010-March 2011) budget requests. These requests were submitted to the Ministry of Finance in October 2009, as reported in <http://www.nsftokyo.org/rm09-06.pdf>. The review results were recently posted on the CSTP's website.

Differing from the previous years, CSTP posted their preliminary ratings on their website and solicited public comments during the period from November 17th through 24th, 2009. A total of 3,249 comments were received, 1,964 of which were from researchers. The CSTP's

public comment period coincided with part of the Government Revitalization Unit's (GRU) fiscal and programmatic review (see <http://www.nsftokyo.org/rm09-07.pdf>) of a wide range of government programs included in the JFY2010 budget request. The entire GRU's proceedings were open to the public and the Japanese media reported daily on the GRU's review results, including science and technology-related programs/projects, which most likely prompted researchers and the general public to send comments to CSTP. All the submitted comments were posted on the web and the CSTP members studied them carefully. This additional process resulted in a few, slight modifications to the original ratings. Tables 1 and 2 below summarize the final ratings given by CSTP. Table 1 covers ratings for 69 new programs/projects; and Table 2 for 178 continuing programs/projects. CSTP forwarded these results to the Ministry of Finance (MOF) for their consideration in finalizing the JFY2010 Budget Proposal.

New Programs/Projects: CSTP reviewed 69 new programs/projects whose budget is over ¥100 million (~\$1 million) plus those that have been singled out based on the government's policy priorities or strategic importance. The total amount requested for the 69 programs/projects was ¥71.5 billion (\$715 million). CSTP rated each program/project as S (excellent), A (very good), B (good), or C (in need of further review). CSTP rated 21 as S, 26 as A, 28 as B, and 4 as C. A few examples of S-rated programs are 'Power semi-conductor for a low carbon society' by METI; 'Ultra low-voltage device for a low carbon society,' and 'Infectious diseases: international network' by MEXT. A few examples of A-rated programs are 'Strategic initiative for climate change' by MEXT; 'Polymer electrolyte fuel cells' by METI/NEDO; and 'Highly reliable/energy-saving network for cloud computing' by MIC. An example of C-rated program is 'Industry-led technology development' by MAFF.

Continuing Programs/Projects: CSTP also reviewed 178 continuing programs/projects with budgets over ¥1 billion (\$10 million) plus those programs/projects with budgets over ¥500 million (\$5 million) that are in priority technology areas. The total amount requested for the 178 programs/projects was ¥493 billion (\$4.93 billion). CSTP determined whether they are (1) to be accelerated (48 programs/projects); (2) to be renewed (127 programs/projects); or (3) to be decelerated (3 programs/projects). A few examples to be accelerated are '21st century climate change prediction program' by MEXT; 'Comprehensive research on infectious diseases' by MHLW; and 'Photonic network' by MIC/NICT.

In discussing the final budgets, the Cabinet took into consideration both the GRU's and CSTP's review results. The complete JFY2010 budget proposal was finalized by MOF on

December 25, 2009, which will be discussed at a Diet session in early 2010. The Japanese Diet is scheduled to pass the JFY2010 budget by the end of March 2010. It will be the first budget under the Hatoyama Administration following the Administration's S&T policy.

NOTE: The titles of the project/program used in the tables below are not the literal translation of the Japanese titles, but rather represent an attempt to more accurately describe the nature of the projects/programs.

Table 1: Rated New S&T-related Programs/Projects Requested for JFY2010

Rating	Program/Project	Agency/ Res. Inst.	JFY2010
	NOTES		Budget
	Red letters: Competitive funds		Request (¥ Mil.)
Life Science			
S	Infectious diseases: International network	MEXT	2,100
S	Early stage cancer diagnosis/treatment	METI	1,512
S	National survey for children's health and environment	MOE	3,403
A	Molecular imaging	MEXT	700
A	Development of new processes for value added domestic animal products	MAFF	706
A	Efficient and sustainable uses of rice paddies	MAFF	805
A	Practical uses of agro-health	MAFF	708
A	Development of new technologies in gene regulation	MAFF	400
B	Epigenome-based pharmaceutical R&D	METI	400
B	Next-generation technology in substitution of molecular functions	METI	560
B	Increasing labor efficiencies through farm automation	MAFF	616
Information Technology			
S	High-speed processing/energy-saving network node	MIC	561
S	Ultra-high-speed edge node	MIC	630
S	Ultra low-voltage device for a low carbon society	METI	2,120
A	Highly reliable/energy-saving network for cloud computing	MIC	980
A	Improved communications through fiber optics	MIC	510
A	High-speed non-volatile memory	METI/NEDO	490

A	Information security for a large-scale virtual server	MIC	522
A	Highly reliable and energy -saving next-generation IT	METI	1,253
A	Next-generation supercomputer	MEXT	750
B	Environmentally friendly home network	MIC	350
B	IT infrastructure for medium and small businesses	METI	1,100
Environment			
S	Global warming mitigation and adaptation in agriculture, forestry and fisheries	MAFF	767
A	Building a network for monitoring and assessing climate change	MOE	139
A	Behavioral science of low carbon society development	MEXT/JST	300
A	Strategic initiative for climate change	MEXT	2,440
A	Prevention of nano materials' potential negative effects on the environment	MOE	30
A	Biomass engineering	MEXT/RIKEN	560
B	CO2 reduction in automobile transport	MLIT	20
B	Agrochemical's impact on the atmosphere	MOE	154
C	Industry-led technology development	MAFF	3,000
Nanotechnology/Materials			
S	Power semi-conductor for low carbon society	METI	2,000
A	Super-light and super-strong materials for a low carbon society	METI	1,500
B	New green materials for the future	MEXT/RIKEN	550
Energy			
S	International nuclear power-related personnel training initiative	MEXT	557
S	New energy technology (next-generation technologies on solar power)	METI/NEDO	4,411
S	Advanced low-carbon technologies	MEXT/JST	3,500
S	Advancement of CO2 capturing technology (US-J cooperative research)	METI	180
S	Comprehensive energy storage systems	METI/NEDO	6,430
S	Next-generation heat pump system	METI/NEDO	400
A	Nuclear safety research	CAO	181
A	Strategic and advanced use of nuclear power	METI	1,630
A	Polymer electrolyte fuel cells	METI/NEDO	5,100
A	Modeling CO2 emission patterns (US-Japan Cooperative Research)	METI	400

A	Clean coal technology: innovative coal gasification system	METI/NEDO	1,500
A	Materials for the next-generation batteries	METI/NEDO	200
B	Re-processing of spent plutonium fuel	METI	20
B	Innovative cement manufacturing process	METI/NEDO	210
C	Advanced oil refinery technology	METI	100
Manufacturing			
S	High-output multi-beam complex laser processing system	METI/NEDO	890
Social Infrastructure			
S	Haplotype analysis in screening of individuals	PA	45
S	Technologies to ensure the safety and security of public infrastructure	MLIT	80
S	Evaluation of anti-seismic buildings in accordance with the latest seismological information	MLIT	20
A	Research on interviewing techniques in criminal cases	PA	18
Frontier (Space and Ocean)			
S	Ultra-small satellites	MEXT	1,000
B	Coordination for promoting use of space with the Quasi-zenith satellite	MEXT	650
Universities			
B	Strengthening of R&D with Postdoc's participation	MEXT	953
Competitive funds			
C	Strengthening of Strategic Basic Research	MEXT	2,000
Intellectual Property/Local S&T/Industry-university-Government Cooperation			
A	Promotion of innovation through the increased industry-university cooperation	MEXT/JST	1,373
A	Improving R&D capacity of small /medium businesses	METI	900
B	Regional industry-university-government cooperation	MAFF	300
B	Technology development for local community development	MAFF	1,955
B	Building innovation clusters through industry-university-government cooperation	MEXT	1,500
Human Resource Development for Science and Technology			
B	Training of the next-generation of workers in frontier technologies at small- and medium-sized companies	METI	450
B	Training for R&D managers	MEXT	200
C	Training of advanced industrial personnel in Asia	MEXT	1,000

Science Diplomacy			
S	Improvement of the institutional environment for foreign researchers	MEXT	200
S	US-Japan cooperation on energy and environment technology research and standardization	METI	400
B	International research networks for global-scale issues	MAFF	116

Table 2: Prioritized Continuing Programs/Projects Requested for JFY2010

Program/Project	Ministry/ Agency/ Res. Inst.	JFY2009 Budget (¥ Mil)	JFY2010 Budget Request (¥ Mil)
NOTES: RED letters: Competitive funds			
	To be accelerated		
	To be renewed		
	To be decelerated		
Life Science			
Comprehensive database project: bioinformatics	MEXT/JST	1,841	1,771
Comprehensive genomic information for organisms relevant to agriculture, forestry, and fisheries	MAFF	700	645
Bioresource program	MEXT/RIKEN	1,590	1,578
Translational research promotion	MEXT	2,400	2,400
Risk analyses of food and drug (those items not included in the "Return to the Society")	MHLW	Part of 611	Part of 678
Comprehensive research on infectious diseases	MHLW	6,227	6,920
Comprehensive research on practical use of medical technologies	MHLW	6,182	6,088
Translational research from basic to clinical	METI	3,300	2,550
Biological basic research to accelerate genome-enabled pharmaceuticals	METI	2,800	1,570
Industrial application of stem cell technologies	METI	1,000	900
Environment-friendly manufacturing technology utilizing microorganisms	METI	545	500
National bioresource project	MEXT	1,368	1,368
Innovative research on protein/cell analysis	MEXT	5,800	5,600
Strategic promotion of brain research	MEXT	2,300	2,400
Comprehensive brain research program	MEXT/RIKEN	3,937	3,573

Comprehensive research on immunology/allergy	MEXT/RIKEN	1,238	1,141
Comprehensive research on developmental/regenerative science	MEXT/RIKEN	1,545	1,413
Basic Omics research	MEXT/RIKEN	950	942
Personalized medicine	MEXT	2,718	2,027
Genome-based medical science program	MEXT/RIKEN	841	845
Molecular imaging	MEXT/NIRS	1,516	1,516
Heavy ion cancer treatment	MEXT/NIRS	5,330	5,578
Comprehensive research on lifestyle-related diseases/rare diseases: cardiovascular diseases/diabetes, kidney diseases, immune/allergy	MHLW	3,628	3,670
Comprehensive research on lifestyle-related diseases/rare diseases: rare diseases	MHLW	10,000	7,550
Frontier basic research: pharmaceuticals	MHLW	3,957	4,251
Frontier basic research: medical equipment development, excluding those in nanotechnology field	MHLW	Part of 2,969	Part of 3,172
Comprehensive research on longevity and the disabled	MHLW	Part of 3,288	Part of 3,682
Basic research on medical science	MHLW/NIBIO	8,162	6,502
Third comprehensive research on cancer	MHLW	5,835	6,170
Glyco-engineering project	METI	950	730
Risk analyses of food and drug: food safety and security	MHLW	1,531	1,684
Efficient risk management of bird flu and BSE (mad cow disease)	MAFF	691	637
Genome projects for new business opportunities in agriculture	MAFF	3,965	3,656
Experiments on MAFF designated topics	MAFF	924	924
Basic research to create innovation	MAFF	6,800	6,469
Advanced <i>in planta</i> manufacturing technologies	METI	1,040	1,040
Information Technology			
Photonic network	MIC/NICT	3,602	3,749
Green IT	METI/NEDO	5,000	4,000
Ubiquitous network robots for the aged and disabled	MIC	550	739
Next-generation intelligent robots	METI/NEDO	1,350	910
Universal voice/language communication	MIC/NICT	1,455	1,543
Next-generation network	MIC/NICT	2,617	2,602
New-generation network	MIC/NICT	2,003	1,756
Element technologies for advanced use of frequency in mobile communications	MIC	3,578	Part of 8,816

Shift of wireless system into unused bandwidth	MIC	1,821	Part of 8,816
Mobile phone system for dual terrestrial and satellite uses	MIC	558	Part of 8,816
MIRAI (Millennium Research for Advanced Information Technology)	METI/NEDO	4,100	2,850
Ubiquitous platform	MIC	1,276	1,032
Dream chips	METI/NEDO	1,200	900
Next-generation process-friendly design	METI/NEDO	690	578
Next-generation large-scale energy-efficient display	METI/NEDO	445	520
Network security	MIC/NICT	1,021	750
Countermeasures for cyber attacks	MIC	596	547
Computer security early warning system	METI	1,214	971
Corporate/individual information security	METI	757	702
Information security	METI/IPA	1,195	1,159
Promotion of use of open software	METI/IPA	540	540
System engineering implementing center	METI/IPA	845	849
Innovative three-dimensional imaging	MIC/NICT	1,139	1,133
New market creation through integration of IT with service	METI	1,500	800
Strategic information communication	MIC	2,179	1,806
Training of advanced IT specialists	MEXT	895	540
ICT innovation to solve global warming	MIC	390	572
Basic technology research in the industry sector	MIC	2,600	1,500
Environment			
21st century climate change prediction program	MEXT	1,540	1,640
Non-Freon based energy-saving air cooling system	METI	810	770
Network for monitoring and assessing impacts of climate change	MOE	237	197
GOSAT: Global environment observation by satellite	MOE/NIES	631	696
Efficient and environment-friendly water circulation system	METI/NEDO	1,172	1,400
Modeling of global environment change predictions	MEXT/JAMSTEC	1,309	1,305
Climate change simulation from the regional to global	MEXT/JAMSTEC	1,032	1,026
Comprehensive research on environment research	MOE	5,115	5,420
Observation of water/heat/matter circulations at all levels	MEXT/JAMSTEC	602	600
Survey/analyses/evaluation of ecosystems and biodiversity of rivers	MLIT	17	10
Risk analyses on foods/pharmaceuticals: chemical substances	MHLW	1,118	1,237
Building a recycle-minded society	MOE	1,803	1,738

Nanotechnology/Materials			
Strategies for elements	MEXT	651	520
Alternative rare materials	METI/NEDO	1,550	1,240
Nanotechnology network	MEXT	1,305	1,528
Nanotech challenge across disciplines and industries	METI/NEDO	3,600	2,592
Nanoelectronics semiconductor: new materials and new structure for nanoelectronic devices	METI/NEDO	600	500
Next-generation super-strong and heat-resistant steel	MEXT/NIMS	370	582
Efficient and low-cost next-generation solar battery	MEXT/NIMS	250	698
New-century heat-resistant materials	MEXT/NIMS	306	541
Sustainable hyper composite technology	METI/NEDO	643	600
Minimally invasive and noninvasive medical equipment (those not in Life Science)	MHLW	1,730	Part of 2,322
Advanced optics	MEXT/RIKEN	875	832
Basic technology development to form optical/quantum research centers	MEXT	1,721	1,621
Energy			
ITER	MEXT	11,088	10,000
Nuclear power strategic research initiative	MEXT	810	1,050
New Energy technology R&D (Solar, wind, new energy venture)	METI/NEDO	4,320	4,285
Hydrogen production/transport/storage system	METI/NEDO	1,360	1,350
Hydrogen storage materials: frontier basic research	METI/NEDO	1,000	900
Innovative fuel cells: frontier science basic research	METI/NEDO	3,000	3,000
Environment-friendly steelmaking process	METI/NEDO	1,120	1,000
Nuclear power system R&D	MEXT	5,769	5,555
High-level radioactive waste processing	MEXT/JAEA	8,734	8,302
Innovative hydrogen manufacturing system	MEXT/JAEA	100	550
Underground radioactive processing	MEXT	3,652	2,949
Full MOX fuel nuclear reactor facilities	METI	3,000	2,400
Next-generation light water reactor	METI	1,940	1,940
Advanced reprocessing of spent nuclear fuel	METI	1,596	1,796
SOFC (Solid Oxide Fuel Cell) system: element technology	METI/NEDO	1,200	800
SOFC (Solid Oxide Fuel Cell) : practical application	METI/NEDO	720	800
Fuel cells: practical application	METI/NEDO	988	900
Hydrogen: frontier science basic research	METI/NEDO	1,125	1,000
CO2 storage and sequestration	METI	580	580

Innovative next-generation oil-refining technology	METI	4,162	3,376
GTL (gas to liquid) technologies for natural gas	METI/JOGMEC	3,802	2,500
Advanced Ultra Super Critical (A-USC) : element technology	METI	743	743
Development of methane hydrate	METI	4,526	3,244
Practical application of highly efficient gas turbine	METI	1,645	2,500
Practical application of CO2 emission mitigation technologies	METI	2,260	5,900
Next-generation environment-friendly oil	METI	905	750
Superconducting power apparatus with Yttrium	METI/NEDO	3,000	2,916
Strategic technology development for commercializing next-generation power storage system	METI/NEDO	4,310	3,280
Energy-saving innovative technology development	METI/NEDO	7,000	7,000
Decontamination of uranium generation by the fast reactor reprocessing	METI	540	513
Monozukuri (Manufacturing)			
Advancement of strategic basic technologies	METI	5,400	4,000
Advanced measurement/analyses technologies	MEXT/JST	6,300	5,501
Photocatalysis industry for a recycle-minded society	METI/NEDO	839	669
Basic technology for sustainable, green chemical processing	METI/NEDO	1,500	1,080
Interdisciplinary technology for manufacturing the next-generation device	METI/NEDO	1,150	802
Simulation software for creating innovation	MEXT	510	520
Social Infrastructure			
All weather/high density space flight technology	MEXT/JAXA	546	619
Development of carbon fiber complex materials	METI	5,207	1,462
Safe and Secure S&T	MEXT	538	501
Comprehensive research on active faults	MEXT	660	620
Analysis of the relationships between earthquakes originating in Tokai, East Nankai, and Nankai areas (middle of Japan)	MEXT	501	501
Focused study/observation/research on geological stresses caused by earthquakes	MEXT	596	596
Special project for prevention/mitigation of urban-area large-scale earthquakes	MEXT	809	755
Seismic experiments using the 3-dimensional shake table facilities	MEXT/NIED	1,812	2,112
Increased monitoring/modeling of the crust changes to mitigate disasters caused by earthquakes and volcanic eruptions	MLIT	983	798
Domestic airplane: highly functional technology/clean engine technology R&D	MEXT/JAXA	2,166	1,731

Environment-friendly engine for small airplanes	METI/NEDO	600	534
Advanced aero dynamics design	METI	4,100	3,330
Marine environment initiative: R&D on highly efficient vessels; comprehensive policy for promoting international standards	MLIT	844	841
Frontier (Space and Ocean)			
the Japanese module "Kibo", an integral part of the International Space Station	MEXT/JAXA	15,371	15,437
BepiColombo (Mercury magnetic orbiter and Mercury planetary orbiter)	MEXT/JAXA	2,010	2,010
Frontier space system through miniaturization	METI/NEDO	1,637	2,275
Development of basic tools to make use of marine resources:	MEXT	700	700
Quasi-zenith satellite system	MIC	1,529	1,063
Coordination for promoting use of space (excluding the use of the Quasi-zenith satellite)	MEXT	300	850
Space-based solar power generation	MEXT/JAXA	271	500
International cooperation experiment, using "Kizuna," supersonic internet satellite	MEXT/JAXA	1,264	1,310
Next-generation earth observation sensor research (high-quality hyper spectrum sensor)	METI/NEDO	2,996	2,400
Oil resource remote detection technology	METI	1,477	1,188
Basic Research			
ALMA (Atacama Large Millimeter/sub millimeter Array)	MEXT/NINS	4,305	4,242
J-PARC (Japan Proton Accelerator Research Complex)	MEXT/JAEA/ KEK	14,760	15,320
RI Beam Factory	MEXT/RIKEN	3,216	3,480
Spring-8	MEXT/RIKEN	9,226	9,259
Competitive funds			
Global COE (Center of Excellence) program	MEXT	34,228	34,136
WPI (World International Premium) program	MEXT	7,109	9,312
Intellectual Property/Industry-University-Government/Regional Revitalization			
Industrial standardization/Intellectual infrastructure	METI/NEDO	2,117	2,582
Strategic deployment of Industry-University-Government programs	MEXT	2,967	2,881
Technology transfer support center	MEXT/JST	2,557	2,357
Promotion of technology transfers	MEXT/JST	10,078	9,674
Sharing of advanced research facilities	MEXT	1,691	1,498
Industrial technology research grants	METI	4,445	3,092

Regional Innovation promotion	METI	6,508	3,440
Comprehensive support for regional innovation	MEXT/JST	11,593	10,923
Urban-area industry-university-government cooperation	MEXT	4,500	3,500
Intelligent cluster creation	MEXT	8,930	7,942
New technologies in support of new MAFF policy goals	MAFF	6,516	5,215
Testbed network for frontier research	MIC/NICT	3,881	3,842
Okinawa Institute of Science and Technology	CAO/OIST	11,229	14,912
Human Resource Development for Science and Technology			
Organizational graduate education reform	MEXT	5,746	2,418
Doctoral/postdoctoral Fellowship program	MEXT	16,314	17,042
Facilities/equipment for science education	MEXT	2,000	2,000
Industry-university partnership in training the future workforce	METI	1,511	1,137
Centers for science teacher training	MEXT	340	647
Science Diplomacy			
Science and technology cooperation on global issues	MOFA/JICA	3,284	Part of the Gov funds to JICA
Science and technology research partnership for sustainable development	MEXT	1,154	2,127
Postdoctoral fellowship for research abroad	MEXT	1,602	1,599
Research Cooperation programs	METI	872	600
S&T diplomacy experts exchange	MOFA	2	2
Strategic International S&T Cooperation	MEXT	1,568	1,645
Network for inviting foreign researchers	MEXT	5,353	4,982
International opportunities for Japanese young researchers	MEXT	740	690

Appendix

Abbreviation	Full Name
CAO	Cabinet Office
IPA	Information-technology Promotion Agency
JAEA	Japan Atomic Energy Agency
JAMSTEC	Japan Agency for Marine-Earth Science and Technology
JAXA	Japan Aerospace Exploration Agency
JICA	Japan International Cooperation Agency
JOGMEC	Japan Oil, Gas and Metals National Corporation
JSPS	Japan Society for the Promotion of Science
JST	Japan Science and Technology Agency
KEK	High-energy Accelerator Research Organization
MAFF	Ministry of Agriculture, Forestry and Fisheries
METI	Ministry of Economy, Trade, and Industry
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MHLW	Ministry of Health, Labor, and Welfare
MIC	Ministry of Internal Affairs and Communications
MLIT	Ministry of Land, Infrastructure, and Transportation
MOE	Ministry of Environment
MOFA	Ministry of Foreign Affairs
NEDO	New Energy and Industrial Technology Development Organization
NIBIO	National Institute of Biomedical Innovation
NICT	National Institute of Information and Communication Technology
NIED	National Research Institute for Earth Science and Disaster Prevention
NIES	National Institute for Environmental Studies
NIMS	National Institute of Materials Sciences
NIRS	National Institute of Radiological Sciences
OIST	Okinawa Institute of Science and Technology
PA	Police Agency
RIKEN	Institute of Physical and Chemical Research