



April 2015

Japan's Science and Technology Budget and Policy

Science and technology budget

Japan's overall budget on science and technology for fiscal year 2014 is 3.6 trillion yen (\$38 billion), an increase of 1.1% over the previous year. As reported by the OECD, Japanese science and technology budgets have been "preserved in spite of severe budgetary stringency".

- Japan ranks 4th in the OECD 2013 STI Outlook for R&D/GDP
- Japanese R&D intensity rose above 3% in 2000
- 77% of total Japanese R&D is undertaken by business
- Japan's patent output as a share of GDP is the highest in the OECD
- 14 Nobel Prizes in the sciences since 2000.

The Japanese Government's framework for science and technology is the 4th Science and Technology Basic Plan (2011-15) and the Abe administration's Comprehensive Science, Technology and Innovation (STI) Strategy, released in June 2013 and revised in June 2014. Work has commenced on the 5th plan.

The most significant recent change has been the strengthened role of the Cabinet's central Council for Science and Technology Policy (CSTP). CSTP has been given additional responsibility to set national priorities and coordinate the STI budget across government. In May 2014, CSTP was renamed the Council for Science, Technology and Innovation (CSTI). It is chaired by Prime Minister Abe, includes seven Ministers and eight Executive Members, and is staffed by the Cabinet Office.

New Council for Science, Technology and Innovation programs

From 2014, CSTI is administering two new programs (with funds drawn from other parts of the science budget) designed to improve cross-ministerial coordination and high-impact innovation. CSTI has also established a STI Budget Strategy Committee which now reviews all budget requests from Ministries before they are submitted to the Ministry of Finance.

Strategic Innovation Promotion Program (SIP)

CSTI has a budget of 50 billion yen (\$500 million) in 2014 for the SIP program, to fund coordinated, cross-ministerial programs in five priority areas:

1. Clean and economical energy systems (eg. hydrogen systems)
2. Healthy and active aging society
3. Next generation infrastructure (eg. robotics)
4. Regional revitalisation and new industry creation (eg. primary industries and manufacturing)
5. Recovery from the Great East Japan Earthquake in 2011.

Impulsing Paradigm Change through Disruptive Technologies Program (ImPACT)

CSTI also received funding of 55 billion yen (\$550 million) for a new ImPACT program which supports high-risk and high-impact research and development, modelled on the US Defence Advanced Research Projects Agency (DARPA). CSTI selects themes and appoints program managers from academia and industry – 12 programs were selected for 2014 funding (from 180 applications), including:

- Flexible and tough polymers
- Ecological IT equipment – long life without batteries
- Materials industry innovation
- Robotics challenge
- Recycling of high-level radioactive waste
- New industry creation through innovative visualisation technologies
- Smart communities – highly functional information network society
- Innovative systems for nursing care in aging society.

Reform of health and medical research

Another major development is the **establishment** of the **new Japan Agency for Medical Research and Development (A-MED)** in April 2015, designed to be a Japanese version of the National Institutes of Health (NIH) in the US. A-MED will manage the country's medical research and administer a consolidated budget which is currently managed by at least three ministries. The budget allocated to A-MED for FY2014 is 121 billion yen (\$1.27 billion). The stated aim of this reform is to increase the health and economic benefits from investment in medical research, including a strong focus on translation and coordination.

Other priorities

- Reform of science agency governance – legislating to free up agencies (Riken, AIST, etc.) and strengthen their role in linking to industry
- Internationalisation of Japanese universities
- Post-Fukushima debate about the role of science in policy and regulation
- Promoting women in science – currently only 14% female researchers
- 2020 Olympics and Paralympics – showcasing Japanese innovation
- Funding for regional clusters – strengthening university/industry links
- Other funding priorities for Ministry of Education, Culture, Sports, Science and Technology (MEXT) – over 60% of total science budget:
 - energy technologies
 - space – astronomy, next generation launch vehicles, earth observation satellites
 - regenerative medicine
 - marine research
 - investment in International Thermonuclear Experimental Reactor (ITER).

Science and Technology in Society (STS) Forum, Kyoto

Japanese Prime Minister Abe opened the annual STS Forum in October 2014 and set out three overarching R&D priorities for his government, saying that “innovation holds the key for Japan to grow”:

- developing fuel cells and the hydrogen economy – all Japanese Government agencies required to purchase fuel cell vehicles
- IPS stem cell technologies
- robotics, particularly for application in aged care, agriculture and manufacturing.