Administration

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Introduction

The SPring-8 Project -- to construct and operate an 8 GeV synchrotron radiation source -- started in October 1988. It is being undertaken jointly by the Japan Atomic Energy Research Institute (JAERI) and the Institute of Physical and Chemical Research (RIKEN), with funding provided by the Japanese Government's Science and Technology Agency (STA).

JAERI was established in 1956. It is incorporated as a non-profit research institute for the purpose of contributing to all aspects of research and development for the utilization of atomic energy and the development of Japan's nuclear power program. The institute currently has about 2,500 staff and an annual budget of 120 billion yen.

RIKEN was originally founded in 1917 as a private research foundation and, in 1958, was reorganized as a non-profit research institute. It has an annual budget of 26 billion yen and undertakes research in a wide range of physical, chemical, engineering, medical and biological sciences. There are approximately 600 permanent staff.

Implementation of the SPring-8 project combines the skills and resources of JAERI and RIKEN, thereby creating a unique collaboration between two Japanese non-profit research institutes. A joint JAERI-RIKEN project team was formed to plan and construct the SPring-8 facility. Research and development at SPring-8 is being conducted according to a collaboration agreement concluded between the two institutes. In addition, the institutes have established a Steering Committee to consider major policy issues concerned with the project's development. The division of responsibility for SPring-8's first phase of construction is as follows:

JAERI: Injector System (a 1 GeV linac and an 8 GeV booster synchrotron), utilities and site facilities;

RIKEN: Storage Ring.

During the first phase of construction, JAERI and RIKEN will also take joint responsibility for building 10 public beamlines. Moreover, JAERI and RIKEN will each build beamlines for their own use. (These will cover actinide science and structural biology, respectively.)

The estimated cost of the SPring-8 Project is 108.9 billion yen. This will be spread over a 10-year period and includes facility design and construction, as well as related research and development. The project is now well established and, once complete, will add a key dimension to Japan's basic research infrastructure.

The SPring-8 facility will be made available to a wide range of domestic and overseas researchers. Management and operation of the facility will be undertaken by a specially-created body, known as the Japan Synchrotron Radiation Research Institute (JASRI). This organization's formal status was approved by the Japanese Government in December 1990. Once the facility is completed, JASRI will assume overall responsibility for administering its exploitation by Japanese and overseas users.

A special law to facilitate access to SPring-8 by public users (i.e., researchers who do not belong to JAERI or RIKEN) was enacted in June 1994. The law provides a legal basis for JAERI and RIKEN to entrust the operation and management of the completed SPring-8 facility to JASRI. This means that JASRI will act as the exclusive point of contact for external users of SPring-8. JASRI will also be responsible for upgrading the facility and installing new beamlines.

The SPring-8 project is now constructing the first 10 public beamlines, which will be available to users during the latter half of 1997. These beamlines will cover the following research areas:

- Bio-Crystallography;
- Soft X-ray Spectroscopy of Solids;
- High Energy inelastic Scattering;
- Nuclear Resonant Scattering;
- Extremely Dense State;
- Physicochemical Analysis;
- Soft X-ray Photochemistry;
- Crystal Structure Analysis;
- High Temperature Research;
- XAFS.

Completion of the first phase of construction, including all ten public beamlines, is scheduled for the second half of 1997.

SPring-8 Facility Construction Schedule

SPring-8's construction schedule is outlined in Table 1. This shows that the decision to locate the facility in Harima Science Garden City, Hyogo Prefecture was approved by STA in June 1989. The 141 ha SPring-8 site was donated to RIKEN by the Hyogo Prefecture Government in March 1992.

Manufacture of equipment for the linac started in March 1991 and the production of synchrotron equipment began in March 1993. Commissioning of these accelerators will take place in September and December 1996, respectively.

Storage ring equipment manufacture started in March 1991 and the magnets will be installed in January 1995. Commissioning of the SPring-8 facility will begin in March 1997.

The construction of site facilities and utilities began in November 1991. All buildings, including a central research building and cafeteria, are scheduled for completion by October 1997. (SPring-8's construction schedule has been brought forward following the provision of three supplementary budgets in fiscal years 1992, 1993 and 1995.)

Budget

A breakdown of the SPring-8 project is given in Figure 1. The estimated cost for the first phase of the SPring-8 project (1988-97) is 108.9 billion yen. Some 40 per cent of this figure will come from JAERI, while RIKEN will provide 60 per cent of the budget.

The construction cost of the accelerators amounts to 38 per cent of the total budget, while the 10 public-use beamlines will account for 6 per cent of the total. Some 48 per cent of budget has been allocated to the provision of general site facilities. This leaves 8 per cent for other purposes.

Figure 2 illustrates the total value of contracts placed with contractors, expressed as a percentage of the overall construction budget. At the end of FY1991, contracts worth 16 per cent of the total budget had been placed with contractors. By the end of the FY 1993, this figure reached 69 per cent and it is expected to rise to 99 per cent by the end of FY 1995.

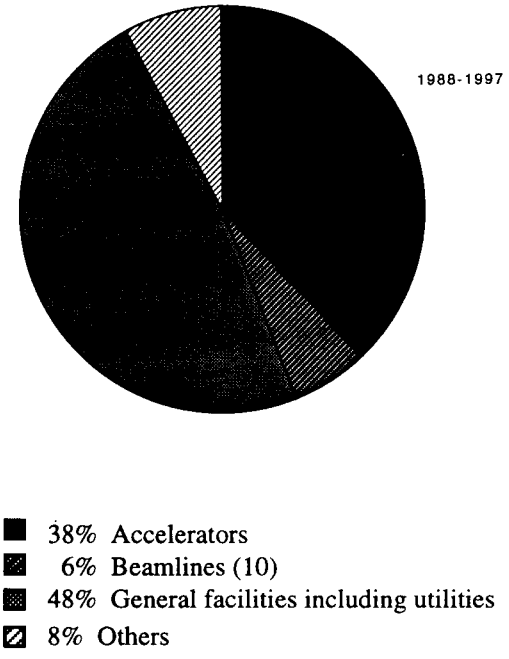

Fig. 1: A breakdowm of the SPring-8 construction budget.

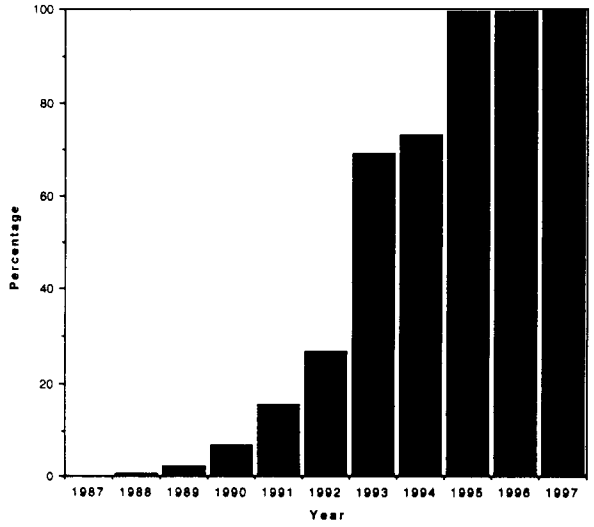

Fig. 2: Percentage of the total construction budget placed with contractors per year

Staff

Figure 3 provides a breakdown of SPring-8's staff numbers. The SPring-8 project team was formed in October 1988 with 66 researchers and administrators. This subsequently increased, reaching a total of 220 by April 1, 1995. This figure includes staff that have been transferred to JASRI in preparation for operation and administration of the completed SPring-8 facility. (In April 1995, JASRI's staff included 36 researchers and engineers.)

Figure 4 shows organization of SPring-8 Project Team. The SPring-8 project is led by Dr. Hiromichi Kamitsubo, and has four divisions, which are directed by sub-leaders: Dr. H. Ohno (Research and Development Division); Mr. Y. Nishimura (Planning and Coordination Division); Mr. S. Hino (Project Management Division), and; Mr. R. Ono (Harima Branch Office).

Groups concerned with accelerators and beamlines are currently working at three different locations: the SPring-8 construction site at Harima Science Garden City, Hyogo Prefecture; JAERI's facilities in Tokai, Ibaraki Prefecture, and; RIKEN's main campus at Wako-shi, Saitama Prefecture. By the end of FY 1995, these groups will have been transferred to accommodation on the SPring-8 construction site. SPring-8's main office -- which was located in Komagome, Tokyo -- moved to the construction site in November 1994.

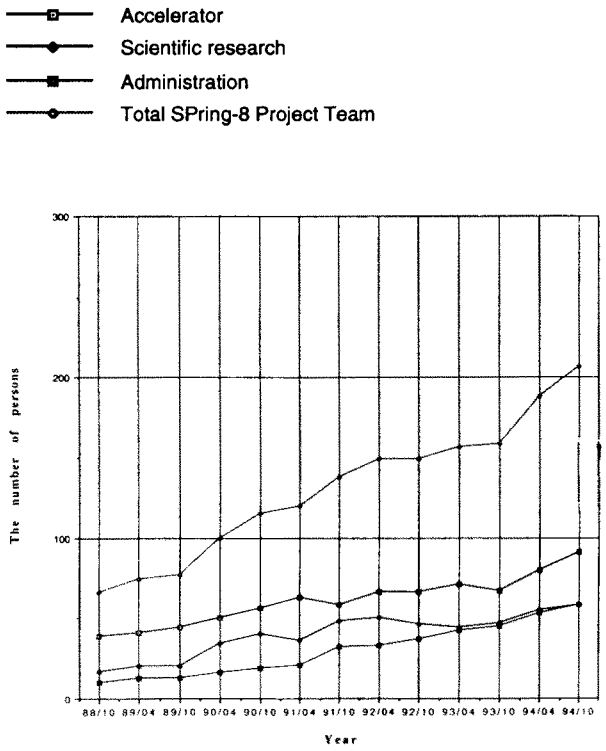

Fig. 3: A breakdown of SPring-8's staff numbers (1988/10 - 1994/10)

Committees

Implementation of the SPring-8 Project is supported by a hierarchy of committees.

At the top of the hierarchy, there are two committees that report directly to the respective presidents of JAERI and RIKEN:

i) The SPring-8 Project Advisory Committee (chaired by Professor Kazutake Kohra) -- covers issues relating to overall project development;

ii) The SPring-8 Safety Advisory Committee (chaired by Mr. Tatsuji Hamada) -- is responsible for safety issues.

The SPring-8 Steering Committee considers scientific and technical issues and forms policy for these aspects of the project. (Successive Steering Committee meetings are chaired alternately by the Vice Presidents of JAERI and RIKEN).

The Beamline Committee (chaired by Professor Shigemasa Suga) assesses scientific and technical issues related to the construction of beamlines and reports to the Steering Committee.

The JAERI-RIKEN project team is guided by the Steering Committee. This team also receives external advice from an International Advisory Committee (IAC), chaired by Professor Masami Ando, that includes some of the world's leading experts on Synchrotron Radiation. The IAC meets annually and comments on technical issues, together with more general aspects of project management.

A further Advisory Committee will be organized by JASRI in October 1994 to evaluate SPring-8's research themes. This committee will operate according to the terms of the recently enacted law to give public users access to the facility.

SPring-8: Collaboration with APS and ESRF

In May 1993 the APS, the ESRF and the SPring-8 projects signed a Framework Agreement to support collaboration in synchrotron radiation projects. Under the auspices of this agreement, a joint workshop -- involving all three projects -- was held in January 1994 at the ESRF facility site in Grenoble, France. A second joint workshop was held in May 1995 at APS in the US, while a third workshop will take place at SPring-8 in spring 1996.

SPring-8 Users' Society

The SPring-8 User Society was formed in April 1993 and now has 900 members that include researchers and engineers drawn from national institutes, universities and industry. Its secretariat is based at JASRI. The society is assisting with planning of the SPring-8 beamlines and, in concert with the JAERI-RIKEN project team, will act as a forum for discussing future scientific programs to be conducted at SPring-8.