

Report
of the
2nd
RIKEN Advisory Council
to the
President and Board of Executive Directors
of the
Institute of Physical and Chemical Research

September 1, 1995

Members of the RIKEN Advisory Council

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Introduction

The President and Board of Executive Directors of The Institute of Physical and Chemical Research (RIKEN) established the RIKEN Advisory Council (RAC) in 1992 to evaluate the scientific programs and management of the Institute, and to advise the President on ways in which the performance of the Institute toward achievement of its goals might be enhanced. The RAC is a continuing body with a rotating membership of Japanese and foreign experts who meet periodically at RIKEN for several days, examine the state of the Institute, and submit a report to the President of RIKEN with advice in the following areas:

1. proposals to maintain high research standards and to stimulate research activities;
2. indications of research fields in which more resources should be invested;
3. suggestions of new directions for research;
4. suggestions of ways to promote RIKEN's internationalization and international cooperation;
5. proposals for RIKEN's further development as a center for interdisciplinary research.

The first meeting of the RAC was held in June 1993, and a formal report of the findings and recommendations was duly submitted to the RIKEN management.

This document is the formal report of the second meeting of the RAC which was held from June 26 to 29, 1995 at the Wako and Tsukuba campuses of The Institute. Fourteen of the fifteen members of the RAC were in attendance during the four days of meetings in Tokyo. Several members then traveled to Nishi Harima and on June 30 inspected the SPring-8 Project.

Updated versions of two White Papers had been distributed to the RAC members prior to the meetings. Volume I gave detailed information about the administrative structure, management policies, and support of the Institute. Volume II summarized the personnel, research programs, budget, and productivity of each of the Institute Laboratories and Research Groups. These volumes were similar in format to those distributed before the 1993 meeting, but contained substantially expanded descriptions of the RIKEN organization and its research programs. In addition, Volume I included a summary of actions taken by RIKEN in response to the recommendations of the first RAC. Both volumes were of great value to the Council members in their preparations for the meetings.

Professor Akito Arima, President of RIKEN, opened the sessions at the RIKEN Headquarters on the Wako Campus with a brief history and general description of RIKEN as a multidisciplinary research institution funded primarily by the Science and Technology Agency of the Japanese Government. He presented a broad description of the RIKEN activities which are located at several sites in Japan, with Headquarters at the Wako Campus in Tokyo. President Arima pointed out the innovative nature of the RAC in the context of the academic and research institutions in Japan, and said that other research organizations in Japan had begun to experiment with similar international advisory committees. He expressed his appreciation for the advice given in the report of the first meeting of the RAC, and stated his desire for a frank report on the findings and recommendations of the current RAC. President Arima assured the Council that he and the Board of Executive Directors would continue to give the most serious consideration to the advice of the RAC.

Dr. Ki-ichiro Nagara, Vice President of RIKEN, explained the administrative structure of RIKEN and its organization of research activities in 46 Institute Laboratories, eight Institute Research Groups for interdisciplinary and multidisciplinary projects, the Frontier Research Program, and the large facilities (the Ring Cyclotron Accelerator Research Facility and the SPring-8 synchrotron radiation facility, currently under construction on a schedule for first operation in 1997). In addition, since 1990 RIKEN has established two Regional Research Centers, the Photo

Dynamics Research Center in Sendai, and the Mimetic Control Research Center in Nagoya.

The RIKEN budget has risen steadily for more than a decade to a FY1994 value of ¥28.8 Bil. By government policy, the permanent staff has remained constant at 614, while the non-permanent research staff has increased to a total of 2056, consisting of 204 contract researchers and 1852 visiting researchers and trainees.

Dr. Nagara then summarized the actions taken in response to the advice of the first RAC as described in detail in Volume I of the White Papers. With respect to the recommendations of the first RAC regarding appointments to permanent positions, two major changes have been made. The age limit for appointment of scientists to permanent positions has been raised from 32 to 35, which will allow more time for young scientists to demonstrate their research achievement and promise during their most creative years. A substantial revision has been made of the procedures for establishing new laboratories when an existing laboratory is closed on retirement of its Chief Scientist at the age of 60. Specifically, the choice of research area of a new Institute Laboratory has been separated from the process of appointment of the Chief Scientist of the new laboratory, thereby permitting a wider and more objective choice of a new research theme, and a more effective search for the most highly qualified candidate to lead the new laboratory. New research themes are to be selected according to the following three criteria:

1. Newly emerging research areas in which RIKEN has a comparative advantage over other institutes.
2. Areas that reflect government science and technology policy objectives and can be addressed more effectively at RIKEN than elsewhere.
3. Areas that would be difficult or impossible for other institutes to enter.

In response to the recommendation regarding the participation of graduate students, RIKEN now has graduate school agreements with Tokyo

Science University, Saitama University, and Tsukuba University. The numbers of graduate students conducting research at RIKEN has increased, and a continuing effort, so far unsuccessful, will be made to obtain specific government funding for a budget item for graduate student support.

Concern of the RAC about the administrative loads on research scientists responsible for the large accelerator projects has been met with specific plans to place responsibility for operation, maintenance, upgrading, and technical support at the SPring-8 project with the Japan Synchrotron Radiation Research Institute (JASRI), thereby relieving RIKEN researchers of facility management. In this way, RIKEN scientists will be free to concentrate on the development and use of beam lines for research in such areas as, for example, biological structures and condensed matter physics. Similarly, some of the routine tasks of the Ring Cyclotron operation will be contracted out to a private company, and plans for the Radioactive Isotope Beam Facility include an organization like JASRI to manage it.

Following the conclusion of the morning's briefings, the RAC divided into five subcommittees to undertake separate reviews of the institute laboratories in the areas of physics, chemistry, biology, medicine and engineering. Monday afternoon and all day Tuesday were devoted to scientific briefings by the Chief Scientists and their associates, and inspections of selected laboratories. In addition to the laboratory visits attended by the members of each subgroup, each member also visited particular laboratories according to requests made prior to the meeting. The medical subcommittee traveled to the Life Sciences Center at Tsukuba. Wednesday morning was devoted to the preparation of draft reports of the subcommittees. A plenary session was held on Wednesday afternoon to discuss the draft reports and to draw from them the general conclusions and recommendations that would constitute the formal report of the 2nd RAC.

On Thursday morning the RAC met in executive session to finalize its general report, and then met with President Arima and the Board of Executive Directors to discuss its findings and recommendations. The RAC chairman presented the general findings and recommendations that constitute the body of the present report. The rapporteurs of the

subcommittees then gave their detailed reports on each of the five areas of specialization, and presented to the President the written versions which are not included in this general report. The RAC agreed that the formal report of the Council's work, its findings, and its general recommendations would be submitted to President Arima after review and approval by members of the Council. The present report is the product of these arrangements.

Findings:

1. RIKEN continues to produce excellent research results which are widely disseminated in refereed journals and international meetings.
2. RIKEN management has responded to the recommendations made by the RAC two years ago with valuable policy developments in a number of areas.
3. RIKEN has developed powerful and unique facilities for research in a number of fields. The RAC commends the openness and generosity with which use of these facilities by domestic and foreign investigators from outside of RIKEN has been encouraged and facilitated. Especially noteworthy are the plans for wide participation in the use of the SPring-8 synchrotron X-ray facility and the Radioactive Isotope Beam Facility.
4. The expanding RIKEN post-doctoral program will have important benefits for the development of scientific research in Japan and abroad. The participating scientists will bring new ideas and enthusiasms to RIKEN, and will comprise an important pool of talent from which RIKEN and other research organizations can draw candidates for future term or permanent appointments.
5. RIKEN has devised effective modes of inter-laboratory and inter-disciplinary cooperation and collaboration that ameliorate any rigidity that may result from the Institute Laboratory system.

Issues of Concern:

1. The RAC is concerned about hiring scientists on permanent appointments before definite evidence of their sustained scientific creativity is available.
2. There appear to be instances in some areas in which the definition of theme of an Institute Laboratory has restricted the freedom of a Chief Scientist to change the direction of research to take advantage of new scientific opportunities or to abandon a line of investigation that may no longer be fruitful.
3. A large number of permanent research staff associated with some Institute Laboratories creates a specially difficult problem of adjustment when the laboratory is closed on retirement of the Chief Scientist.
4. Sometimes a Chief Scientist is still highly productive and eager to continue scientific work when he or she reaches the retirement age of 60. If that work requires facilities unique to RIKEN, such a retirement may cause a painful disengagement on the part of the scientist and deprive RIKEN of the most effective continuation of a productive line of research.

In addition to these major concerns, the RAC wishes to draw attention to the following:

5. Members of the RAC have heard complaints from Chief Scientists about the amount of their time consumed in meetings and administrative matters.
6. The large and commendable increase in the number of foreign visitors appears to have placed a strain on the office responsible for helping the visitors with personal and logistical problems. One consequence of the strain is that some RIKEN scientists have felt obliged to offer their own time and resources to help the visitors with problems that could be handled more efficiently by the Visitor's Office.
7. The RAC is concerned that a Council meeting every two years may be more frequent than necessary to achieve the benefits of external review.

Recommendations:

1. We recommend that permanent appointments in the research area be offered only to scientists (inside or outside RIKEN) with a clear record of sustained creativity and productivity and a demonstrated ability to participate in the international scientific dialog of their field. Young scientists who may not yet have had an opportunity to establish such a record should be hired on non-permanent term appointments with the possibility for future tenure. We believe that ambitious and able persons with some years of post doctoral experience and the opportunity to carry out exciting research at RIKEN or abroad will rise to the challenge of proving their scientific qualifications during a term appointment. Opportunities must be provided for non-tenured scientists to demonstrate their capabilities for independent research and presentation.
2. We recommend that there should be great flexibility in facilitating appropriate change in direction of an Institute Laboratory in "midlife" when new scientific opportunities appear that are substantially more promising than those encompassed in the original theme of the laboratory.
3. We recommend that the permanent research staffs of future Institute Laboratories working directly under a single Chief Scientist be limited to a small number, and that the additional research personnel that may be required to carry out the program of the Chief Scientist in a new Laboratory be recruited from post-doctoral scientists on term appointments as well as technical staff and graduate students. Some of the permanent research positions saved in this way might be used to create independent Institute Laboratories. Alternatively, these positions might be used to form a subgroup(s) within an Institute Laboratory, allowing younger talented scientists to carry out research independently of the Chief Scientist of the Laboratory.
4. We recommend that ways be found for scientists of outstanding ability and productivity to continue their work beyond the current RIKEN retirement age. Such a continuation need not imply a continuation of administrative and directive responsibilities.

The RAC members consider the preceding recommendations to be of special importance. The following recommendations address the remaining concerns expressed above:

5. We encourage RIKEN to examine its administrative procedures in the spirit of "reengineering" in a concerted effort to reduce to the greatest possible degree the burdens of meetings and administration carried by scientists.

6. We recommend that additional administrative and logistical support for foreign visitors be made available to help in the solution of housing and other problems of living adjustments.

7. We suggest that there be a three-year interval between meetings of the RIKEN Advisory Council.

The RAC members believe that execution of these recommendations will further enhance RIKEN's scientific productivity and its reputation for innovative and effective management of research activities.