

The Response to the 4th RAC Recommendations

RIKEN received the report and recommendations of the 4th RIKEN Advisory Council (RAC) in September 2000. Discussions were held to decide how the recommendations could best be implemented and the results summarized in the RIKEN response to the report.

The RAC recommendations included strategic issues on RIKEN management, research subjects across the entire RIKEN research organization, and individual research within each system. This report will however mainly address the management and research issues relevant to the entire RIKEN research organization. The individual research strategy inherent in each system and their detailed strategy will be given in the responses to relevant Advisory Councils (AC), namely Institute Laboratories Advisory Council (ILAC), Frontier Research System Advisory Council (FRAC), Brain Science Institute Advisory Council (BSAC), Genomic Sciences Center Advisory Council (GSAC), etc.

The 4th RAC recommendations have been compiled in accordance with the "Basic Concept for the future of RIKEN" document (March 2000). Because the plan and the recruitment of researchers are mentioned frequently in the recommendations, detailed information on the Research Planning Committee and relevant employment contractual issues are summarized in Chapter I as the response to general topics. Response to each recommendation is given in Chapter II.

It should be noted that the response to the recommendations is based on the current position of RIKEN. Obviously RIKEN may modify certain parts if necessary.

I Response to General Topics

I-1. Establishment of the Research Planning Committee

1. The Board of Executive Directors decided to establish the Research Planning Committee (Scientific Priority Committee) on September 14, 2000 to discuss basic research issues including the response to the recommendations.
2. To collect various opinions, RIKEN's research fields were divided into 5 (physics, chemistry, biology, engineering and medicine). Several researchers were recommended for each field, by the Chairman of the Chief Scientists' Assembly of ILs and the Director of each Center, as candidates for committee members. Then two researchers from each of 5 research fields were selected and two Directors from the Planning and General Affairs Divisions added. The President appointed an Executive Director, with responsibility for research matters, as the committee chairman.
3. The Research Planning Committee held seven meetings between mid-September and the end of November to draw up the interim report, which identified main points for implementation.

Comments from the Chair of the Chief Scientists' Assembly and the Director of each Center were also incorporated into this report.

4. The Research Planning Committee Report (published in Japanese in November 2000) makes various proposals for the reinforcement and operation of the entire RIKEN research organization, via:
 - 1) Reorganization of Research Hubs;
 - 2) Reorganization and Management of Research System;
 - 3) Reorganization and Strengthening of Management and Administration Systems;
 - 4) Review System to Select Important Areas of Research;
 - 5) Reorganization and Management of Evaluation System;
 - 6) Reorganization of Employment Contractual System;
 - 7) Establishment of a Technology Transfer System;
 - 8) Reorganization and Strengthening of Administration and Clerical Organization.
5. The report was forwarded to the meeting of the Board of Executive Directors held on November 30, 2000, and used as the basis for the "The Future Vision of RIKEN," compiled in December (attached to this report) and subsequently submitted to the Science and Technology Agency.

I-2. Employment Contractual System

Current RIKEN employment systems are mandatory retirement age and fixed-term contract systems. New employment systems and their implementation plan are under consideration based on "The Future Vision of RIKEN" and are outlined below:

1. Rolling tenure system: annually renewable, no age-limit, contract system for a fixed period. The period is decided at the time the contract is signed.
2. Tenured researcher system: individuals with a high international reputation and ability to secure external research funds may be granted Tenured researcher positions with no age limits, in which RIKEN provides the research environment.
3. Mandatory retirement age system: following a favorable evaluation, a researcher may be transferred to a "mandatory retirement age" contract on completion of an initial five year term.
4. Clerical and technical personnel: the mandatory retirement age system will be the principal method of employment, but more flexible systems such as fixed term contracts will be also considered.

II Response to Each Recommendation

The 4th RAC recommendations have been compiled in accordance with the “Basic Concept for the future of RIKEN” document (March 2000).

BASIC CONCEPT FOR THE FUTURE OF RIKEN

- I. RIKEN will play the role of a comprehensive, core research institute in Japan.
- II. RIKEN will implement a dynamic research system and recruit top international scientists.
- III. RIKEN will consist of traditional Institute Laboratories with an incubator function and new systems of Fixed Term Research Projects.
- IV. RIKEN will establish a strong identity and form complementary relationships with universities and industries as collaborators.
- V. RIKEN will be conscious of its optimal size and avoid easy expansion.

- I. RIKEN will play the role of a comprehensive, core research institute in Japan.
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RAC Recommendation #1

RIKEN should undertake on an urgent basis a specific project with the purpose of defining the vision, mission, mandate, strategy and identity of RIKEN. Through this exercise the definitions and understanding of a “comprehensive, core research institute”, “optimal size” and “easy expansion” should be clarified.

The strategic planning process should encourage and support a fundamental dialogue about RIKEN’s reason for being, its unique potential anchored in the national science system of Japan and its aspirations to achieve global scientific leadership in strategic areas. This must be a cross-RIKEN effort and potentially cross-national. RIKEN should create an inventory of its knowledge assets from which can be built a unique and unshakeable identity as it promotes itself both nationally in relation to national Universities and Research Institutes, and internationally in relation to international science endeavors abroad. RIKEN should recommit itself to maintaining the core values of quality and flexibility as it moves forward.

This project must be followed by the development of an implementation map with concrete objectives, strategies and time-lines for achievement, and defined measures of success as part of an on-going evaluation and accountability regime. RIKEN’s capacity in the area of knowledge management should be carefully considered.

Within the context of this strategic planning exercise, RAC makes several specific recommendations.

(Response)

1. The Research Planning Committee was established in September 2000 as a standing committee to respond to the recommendations given at the 4th RAC meeting and the basic research issues being raised in RIKEN. Based on the report forwarded to the Board of Executive Directors in November, the Board compiled "The Future Vision of RIKEN" in December 2000.
2. RIKEN explained matters on the definition and concept of 'a comprehensive, core research institute', 'its optimal size' and 'easy expansion' in more detail in "The Future Vision of RIKEN". An initial implementation strategy will be drawn up for a budget request for years 2002 to 2005.
3. An action plan for compiling an 'inventory of knowledge assets' will be discussed.

Information and data of research papers and patents have already been compiled by using computer and will be on general release in the near future. Along with this work the inventory of knowledge assets will be compiled, incorporating research and personnel costs and the quality of results and SWOT analysis (strengths, weaknesses, opportunities and threats) in order to review and remodel the entire RIKEN research organization. Using this inventory, the Research Planning Committee will make a research strategy plan.

Recommendation #1a

We recommend to the Government (through the Executive) that the independence, discretion, flexibility and unique character of RIKEN be maintained regardless of any forthcoming changes in the administration of science and technology in Japan.

(Response)

The President and Board of Executive Directors will continue to promote the independence, flexibility, and unique characteristics of RIKEN at every opportunity, in particular with regard to RIKEN's new position within the Ministry of Education, Culture, Sports, Science and Technology (*Monbu-Kagaku Sho**).

*after the merger of the Science and Technology Agency (STA) and Ministry for Education, Science, Sports and Culture (*Monbusho*) in January 2001

Recommendation #1b

We recommend that RIKEN establish, nurture, and maintain an on-going scientific priorities committee (an agenda setting committee) with representation from the whole of RIKEN together with external advisors. This committee should provide the President of RIKEN with constant feedback and advice regarding RIKEN's pursuit of current and emerging opportunities. It should focus on capturing RIKEN's strategic advantages and identifying the frontiers of science.

(Response)

According to instructions from the President, the Research Planning Committee shall provide regular feedback and advice, and as such, may be regarded as the "ongoing scientific priorities/agenda setting committee" proposed in the 4th RAC Report. Although it does not specifically include external members, the opinions of external experts received via the Advisory Councils are taken into consideration during the decision making process.

Recommendation #1c

We recommend that the bottom-up curiosity-driven basic science that has driven years of scientific achievement at RIKEN through the Institute Laboratories should continue to be preserved and strengthened. To achieve this outcome it is important that the ILs develop and pursue a clear strategy for the re-direction of research fields and employ a transparent system of metrics for measuring performance. There is a need to improve visibility of the Institute Laboratories both nationally and internationally.

(Response)

1. In accordance with "The Future Vision of RIKEN" there are two research systems: an innovative and curiosity-driven research system, which pursues basic science based on a researcher's idea and a fixed term research system with predetermined goals and objectives.
2. Institute Laboratories (ILs) fall into the first category.
3. The ILs will be restructured into a new Central Laboratory (CL), headed by a Director, to further enhance innovative, curiosity-driven, basic scientific research. The new Director will be responsible for clearly explaining CL activities both in and outside the entire RIKEN research organization. The CL will incorporate a Research Promotion Division to manage and support its research activities. Collaboration with the Public Relations Office will further encourage research activities, enhance visibility and promote achievements.
4. The interval between Institute Laboratory reviews will be reduced from seven to three years and include a mail-review by international experts.
5. In order to systematize and make effective the evaluations performed across the entire RIKEN research organization, the administrative and clerical section dealing with evaluations will be established in FY 2001 and the transparency of the evaluation will thus be enhanced.

Recommendation #1d

We recommend that the development plans for the RIKEN Brain Science Institute be implemented, including expansion of the human resource base and the provision of necessary space and infrastructure resources. Key recommendations of the BSI Advisory Council should be given serious consideration.

The BSI has become a current flagship of RIKEN internationally and every effort should be made to support its future development. Consideration should be given to the deployment of a

few permanent positions to ensure its great potential is fully realized. It is also important to ensure that the inspired leadership of its founding director is continued.

(Response)

1. BSI is now drawing up the interim future plan, which in addition to setting goals for the existing research fields (namely, Understanding, Protecting and Creating the Brain,) may establish a new research field, tentatively called 'Nurturing the Brain' or 'Post-understanding the Brain'. The cost of additional human resources and laboratory space will come from RIKEN budgets.
2. RIKEN as a whole will consider simultaneously adopting various employment systems for researchers such as the mandatory retirement age, fixed-term contract, tenured researcher, and rolling tenure systems and find the best scheme. BSI will also change its current employment system if necessary, taking into consideration of the characteristics of a core institute engaged in a goal oriented research.
3. RIKEN fully acknowledges the recommendation on the leadership of the Director of BSI.

Recommendation #1e

RAC highly appreciates the accomplishments of GSC in the past years but has some concerns with respect to the diversity of projects and the seeming lack of a coherent strategic approach to achieving some of the specific goals encompassed by some research projects.

RAC recommends a review of all projects within the GSC with a focus on future plans to set priorities with respect to the research to be pursued and to ensure that the components all support the strategic directions and values and are integrated to provide maximal coherence and synergy.

Consideration should be given to possible integration and the optimal setting for the Plant Functional Genomics group within the GSC in relation to the new Plant Sciences Center. Both the Protein Research Group and the Mouse Functional Genomics Research Group are of great importance in the post-genomics era but need clearer short-term (3-5 year) goals.

RIKEN should continue to support the three new research centers started by the Millennium Project, (SNPs Center, Center for Developmental Biology, and Plant Sciences Center). At the appropriate time, Millennium Projects must be reviewed and continued funding assured if the outcomes of current investment are to be fully realized.

(Response)

1. GSC had already partially recognized the need for setting research subject priorities and also the need for integrating the GSC Plant Functional Genomics Group with the Plant Sciences Center to optimize resources, mentioned in the 4th recommendations. RIKEN agrees with

and fully supports GSC strategy to date and the proposals to formulate a future plan. GSC response to the recommendations of the first Genome Science Advisory Council, (which met in March 2000,) were published on-line in September 2000.

2. The Millennium Project was launched one year ago, so it is obviously necessary to observe progress. To this end, each Center will be subject to external evaluation every year. RIKEN will assess activities, potential and other criteria and form the basis of budget requests for the following year, based on the evaluations and predicted potential. Currently each Center is preparing an outline, long-term plan beyond the initial five year period. However, a final decision on whether or not to continue the Millennium Project will only be made after serious discussions, and subject to significant results and favorable evaluations.

Recommendation #1f

We recommend that the strategic vision of the Frontier Research System be reexamined. The position of the Frontier Research System is changing due to the development of multiple new centers and the mechanism by which new research areas are selected has become even more important. The above mentioned scientific priorities committee (including external experts) could prove to be an excellent source for priority setting among frontier research areas. At a minimum, the process for selection of new Frontier research areas must be made explicit. The FRS along with the Laboratories might be seen as the wellspring for innovation and the incubator for maturation and development of the next generation of research fields.

(Response)

1. The Research Planning Committee (Scientific Priority Committee) will not be involved in matters specific to FRS. FRS will establish a Strategy Committee, under the Director, to discuss the future plan for the Research System and the mechanism for selecting research areas. This committee will have input from external experts.
2. FRS falls into the category of innovative and curiosity-driven research.
3. It will pilot new research systems. Interactions between ILs and other Centers will be actively promoted on this trial base.
4. Together, ILs and FRS will take a leading role in establishing a new research program on nano-science which may be a new trial research system.

II. RIKEN will implement a dynamic research system and recruit top international scientists.

Recommendation #2

We recommend that RIKEN establish a concrete plan to recruit and retain research personnel of the very highest caliber and supportive of RIKEN's strategic goals identified by the scientific priorities committee.

The impending retirement of Chief Scientists in the coming years presents an opportunity for redeployment of human resources in light of the strategic plan. The recruitment and retention plan should include provisions for the recruitment of top scientific leadership for the research centers as current leaders come to the end of their terms (i.e. succession planning). It should also include an attractive, well positioned, and innovative evaluation system, and a compensation and promotion system that will assist RIKEN in maintaining the quality of its personnel over the long term. Even more creative and comprehensive support systems need to be developed to facilitate recruitment of international scientific research stars.

(Response)

1. RIKEN recognizes that in order to become a top international institute, it is important to recruit high caliber scientists from across the world.
2. The following are some of the steps RIKEN intends to take to realize this objective.
 - 1) Improve the research environment and facilities, in particular at the large experimental facilities, and strengthen research support systems.
 - 2) Publicly advertise positions for researchers and research leaders. Consideration is being given to offering special incentives to attract top scientists.
 - 3) Create a competitive environment with incentives and rewards for outstanding research and results, balanced with flexible employment systems by introducing rolling tenure, to eliminate uncertainties about future income.
 - 4) Allow each research system to pursue independent research activities. Evaluate research according to international standards and expand or contract resources accordingly. In addition, outstanding researchers may be offered tenure positions.
 - 5) Overcome language and communication difficulties by promoting bilingual systems (Japanese and English) in all research activities, making RIKEN more attractive to overseas researchers.
 - 6) Ensure equal opportunities for women, for example by providing child-care.
 - 7) Fourteen Chief Scientists will retire between 2001 and 2005. RIKEN management plans to appoint top scientists to these positions.
 - 8) The recruitment of top scientific leadership for the research centers is crucial.

III. RIKEN will consist of traditional Laboratories with an incubator function and new systems of Fixed Term Research Projects.

Recommendation #3

RAC believes that the existence of two parallel systems within RIKEN (the ILs and the Centers) poses very real administrative challenges. This is a core issue for RIKEN. Active leadership must be brought to bear in the management of this parallel relationship to ensure that the two systems exist in a state of maximal harmony and synergy.

There is a need to make explicit the strengths and weaknesses of the two research systems (ILs and Centers) in relation to their stated mission and function. These should be made explicit through the development of an inventory of RIKEN's knowledge assets, and the strategic planning process. Consideration should be given to building more flexibility into both systems (ILs and Centers) allowing distribution of permanent positions across the full spectrum of RIKEN activities based on needs analysis. For example, the bio-resource center will need to maintain a cadre of excellent staff over the long term to be effective in carrying out its mission. Similarly, a cadre of expertise to support other facilities will be required.

(Response)

1. RIKEN plans to strengthen the two research systems (described in Response 1c,) and promote diversity, flexibility and multidisciplinary research within each system, and at the same time enhance competitiveness and take the initiative in responding to the needs of society.
2. RIKEN will further promote research collaboration and interaction between the research systems and consider the mobility of researchers.
3. In order to encourage multidisciplinary research between different research systems, a competitive "Research Collaboration Fund" of approximately \$1.5 million was authorized in October 2000 and was allocated to collaborations between BSI/ILs, GSC/ILs and BSI/FRS. RIKEN plans to increase the size of this fund.
4. Taking into consideration the advantages of a tenured researcher system and a mandatory retirement age system, RIKEN will introduce a rolling tenure system. At the same time permanent, mandatory retirement age positions will be distributed to the support divisions over the entire RIKEN research organization. We wish to point out that currently there are 27 permanent positions in the Biogenic Resources Center.

IV. RIKEN will establish a strong identity and form complementary relationships with universities and industries as collaborators.

Recommendation #4

We recommend that RIKEN management should consider developing mechanisms to encourage the formation of collaborations and research clusters across RIKEN as well as with the national and international research and development community.

These efforts should focus on developing synergistic interactions. Any such intervention should be based on a system of incentives that allows collaborations to develop naturally across national, geographic, programmatic, and disciplinary boundaries within and beyond RIKEN.

(Response)

1. ILs and Centers have actively promoted research collaboration with others regardless of regional, country or disciplinary boundaries. Research support facilities will be strengthened, (eg. the Biogenic Resources Center, SPring-8, RIBF and others,) in order to build a strong foundation for research collaborations with others.
2. To enhance international links, the Joint Graduate School Program with Asian universities will commence in fiscal year 2001.
3. RIKEN currently has overseas collaborations, including major centers at RAL, BNL and MIT. Further development of such bases will be subject to strict evaluation of the potential of the partnership, cost-effectiveness and mutual benefits to be derived from working together.

Recommendation #4a

RIKEN is producing top quality research and technology development in large volumes. This should generate sizeable intellectual property with significant commercial value. Despite increased efforts at the level of patents and technology transfer, licensing contracts and royalties have not shown an increase over the past seven years.

We recommend that RIKEN further accelerate the build up and researching of a technology transfer division at a similar level of professional quality as the research and technology development at the . The success of this endeavor should be measured against established goals.

(Response)

Industrial collaborations have mainly been focused in life science and engineering. To further promote technology transfer, RIKEN will employ commercialization experts and set up a clerical function to specifically deal with such matters. At present there are nine RIKEN Venture Businesses utilizing patents. The possibility of investing in RIKEN Venture Businesses and establishing a technology licensing will be considered from the legal point of view.

4th RAC Response to Individual Advisory Committee Reports

General Statement

RAC has not directly reviewed the science within RIKEN. However, based on the reports of the four Advisory Councils, RAC concluded that the science within RIKEN is being performed at a high level when compared with the state of a given field of science in the international context. There are pockets of extraordinary excellence. RIKEN should be proud of its continued success in producing top-rate science across a broad array of research fields.

RAC believes that it is imperative that RIKEN continue to measure the success of its science against an international benchmark, rather than, for example, against specific national objectives or agendas. The RAC suggests that RIKEN could benefit from articulating its specific goals in this regard. RIKEN science – across the full spectrum of fields - should aspire to perform within the top 10% in the world. Quality of science must remain an absolute priority. For any given area of science, if high quality cannot be achieved within RIKEN, it should be phased out.

(Response)

As mentioned previously, a section dealing with evaluations will be established in 2001, under the auspices of the Research Planning Committee to deal with all research evaluation matters throughout the entire RIKEN research organization. It will ensure the quality and transparency of research evaluation. The top priority of research evaluation is quality, compared to the standards achieved by international counterparts. The result of the evaluation will reflect on matters like continuity, expansion, curtailment or cessation of research activities, research resources and the working conditions of research leaders.

(January 26, 2001)