

Evaluation of FY2018 Operating Results for
Institute of Physical and Chemical Research (RIKEN)

August 2019

Minister of Education, Culture, Sports, Science and Technology

1. Items related to the evaluation		
Agency	Institute of Physical and Chemical Research (RIKEN)	
FY for evaluation	FY evaluation	FY2018 (4th term)
	Mid to long-term objective period	FY2018-FY2024

2. Items related to the assessor			
The Competent Minister	Minister of Education, Culture, Sports, Science and Technology		
Incorporated jurisdiction dept.	Research Promotion Bureau	Dept. and person in charge	Basic Research Promotion Division, Yasunori Yamashita
Evaluation and Inspection dept.	Science and Technology Policy Bureau	Dept. and person in charge	Planning and Evaluation Division, Masao Yokoi

3. Items regarding implementation of the evaluation
<p>July 3, 2019: The 17th Institute of Physical and Chemical Research Sub-Committee (“RIKEN Sub-Committee”) of the National R&D Agency Council was held (hearing 1 from RIKEN).</p> <p>July 5, 2019: The 18th RIKEN Sub-Committee of the National R&D Agency Council was held (hearing 2 from RIKEN).</p> <p>July 31, 2019: The 19th RIKEN Sub-Committee of the National R&D Agency Council was held (opinion gathering)</p> <p>August 6, 2019: The 15th National R&D Agency Council was held (opinion gathering).</p>

4. Important items and others relating to the evaluation
<p>March 1, 2018: The 4th Term Mid to Long-term Objectives</p> <p>March 1, 2019: Revision to the 4th Term mid to long-term objectives</p> <p>March 29, 2019: Revision to the 4th Term mid to long-term plan</p>

1. Overall rating								
Rating (S, A, B, C, D)	A	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024
		A						
Reasons for rating	As shown in the overall evaluation of the agency as a whole, the creation of considerable achievements and anticipated creation of achievements in the future and so on were recognized as a result of comprehensive consideration based on circumstances surrounding the agency's business achievements, efforts and so on through its activities and with the national research and development agency's mid to long-term objectives taken into account.							

2. Evaluation of the whole agency								
<p>○ We recognize significant achievements in various areas concerning, for example, the reorganization of the organization's structure towards building, operating, and upgrading the world's most innovative research platform, and towards strategic research and development based on, for example, the national strategy, throughout the first year of Term 4 Mid to Long-Term Objectives period.</p> <p>○ With regard to the new organization structure, we can give good marks to the reform of the research center's operation system, in working towards innovation creation and maximization of research and development achievements, under the President's leadership. In addition, we can give good marks to the creation of achievements in research and development, which in particular are expected to be applied broadly to destinations including the industry, or which lead the world in each area of research, and to building a track record.</p> <p>○ The following are provided as examples of our achievements in research and development, which were created in fiscal 2018.</p> <p>【Management, Human Resource Education and Training, Coordination with Outside Organizations, etc】</p> <ul style="list-style-type: none"> • We can give good marks to the work towards the contribution to society, the cooperation, the human resource education and training, and the research management to meet the needs of the research area, and to the building of a new swift and appropriate system, and furthermore to the creation of research achievements at the world's highest level, and to the creation of an organization with a view to implementing the achievements, from RIKEN's research, into society in cooperation with research organizations in Japan and abroad of RIKEN. <p>【Achievements in our progress including strategic research and development based on national strategy among others】</p> <ul style="list-style-type: none"> • Brain science research: We can give very high marks to the achievements in research which discovered that dopamine is involved in the removal of memory concerning trauma, as we can expect this to lead to improvements moving forwards in behavioral therapy for PTSD. Furthermore, we can give very high marks to also, for example, becoming the first in the world to decipher successfully memory information that is stored in the brain's nerve cells, and deciphering the mechanism by which memory of episodes are stored. • Environmental resources science research: We can give very high marks to, for example, the success of developing a new functional polymer with shape-memory function and self-repair function in not only dry air but in also water, acid, and alkali solution. • Emergent matters science research: We have leading achievement in the world in the area of quantum bit development and quantum non-demolition measurement, in working towards the realization of quantum computing technology. Furthermore, in the area of quantum simulator, we can give very high marks to the measurement of signals from topological transition in superconducting circuits, and to the important achievement that will build the foundation for a quantum simulator. • Photon engineering research: We can give very high marks to the achievements in research that enlarged the wavelength range of a high-power mid-infrared femto-second light source from the current 1.5 μm to a 3.6 μm, and attaining peak power of a terra-watt grade in the 1~2 μm wavelength range, significantly surpassing the fiscal year plan at the outside in both wavelength range and output, and this is an achievement in research that brings revolutionary progress to the development of high-intensity mid-infrared femto-second lasers. <p>【Achievements in the building, operations, and upgrades in research platform】</p> <ul style="list-style-type: none"> • Computational science research: We can give very high marks to the contribution to "Kyo" which was operated and maintained appropriately, including stable operations with a 98.5% availability rate and 8,348 hours of operation which surpasses the target of 8,000 hours, and producing more than adequate computational resources to researchers and others; and to the contribution to the advancement in computational science technologies through, for example, the realization of a system design for "Fugaku". • Radiation beam science research: We can give high marks to setting the radiation beam usage time to approximately 85% of the total annual runs for SPring-8, and to providing resources to users through, among others, an increase in the usage time through concurrent operation of multiple beam lines in SACLA, and to the usage of approximately 20% of SPring-8 in the industry, and to the contributions through cooperation on readying "a next-generation radiation beam facility" by the National Institute for Quantum and Radiological Science and Technology. 								

- Bioresource research: We can give very high marks to the research consistently providing high quality resource and attaining 14,987 in the number of times that resources were supplied, which is 136% over our target; and to maintaining 0% in the recalls rate for 3 years running since fiscal 2016.
- Regarding items related to management, such as streamlining business operations, it can be evaluated that steady efforts are underway generally as planned.

3. Issues to be solved and /or improved for each subject

4. Other items	
Main opinions of the council on research and development	<ul style="list-style-type: none"> ○ We recognize, for example, the expectation on the creation of significant achievements and creation of achievements in our future in working towards “a maximization of achievements in research and development” as work in various areas is being autonomously done in regard to, for example, education, training, and development of outstanding researchers and readying a research environment for generating achievements in research of the world’s highest level and for reinforcing the operations of our research center. ○ In addition to the creation of achievements in research of the world’s highest standard in all areas of research, the organization is structured with a view to implementing achievements into society by way of giving back to society in coordination with research organizations in and outside of our research center, and management is performed on schedule.
Auditor’s special comments	○It is recognized that the agency’s operation has been properly carried out according to relevant laws and regulations, and effectively and efficiently promoted for attaining mid to long-term objectives..

* Evaluation categories are as follows:

- S: Based on the National Research and Development Agency’s aims, businesses with mid to long-term objectives due to comprehensive consideration based on some circumstances regarding the agency’s business achievements, and efforts through its activities, especially the creation of considerable achievements, anticipated creation of special achievements in the future and so on toward “maximization of R&D achievements” under the conditions of appropriate, effective and efficient operations are recognized.
- A: Based on the National Research and Development Agency’s aims, businesses with mid to long-term objectives due to comprehensive consideration based on some circumstances regarding the agency’s business achievements, and efforts through its activities, especially the creation of considerable achievements, anticipated creation of special achievements in the future and so on toward “maximization of R&D achievements” under the conditions of appropriate, effective and efficient operations are recognized.
- B: Based on the National Research and Development Agency’s aims, business with mid to long-term objectives due to comprehensive consideration based on some circumstances regarding the agency’s business achievement, and efforts through its activities, a certain degree of expectation for the creation of achievement and creation of achievement in the future toward “maximization of R&D achievements” were recognized, and steady business operations have been also recognized.
- C: Based on the National Research and Development Agency’s aims, businesses with mid to long-term objectives due to comprehensive consideration based on some circumstances regarding the agency’s business achievements, and efforts through its activities, the creation of achievements, further drastic efforts and improvements toward “maximization of R&D achievements” or “appropriate, effective and efficient operations” are anticipated.
- D: Based on the National Research and Development Agency’s aims, businesses, mid to long-term objectives and so on, as a result of comprehensive consideration based on some circumstances regarding the agency’s business achievements, efforts and so on, through its activities, special efforts and improvements including a fundamental drastic review, toward “maximization of R&D achievements” or “the appropriate, effective and efficient operations” are required.

Mid to long-term objectives (Mid to long-term plan)	FY evaluation							Itemized evaluation document No.	Remarks
	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024		
I. Maximization of R&D achievements and quality improvement of the other operations									
1. Building and operating a system that is operated by the research center	A							□-1	
(1) Reinforcement to the system and functions that support the operations of a research center								□-1-(1)	
(2) Preparation of a research environment and education, training, production, so on, of outstanding researchers to create achievements in research of the world's highest quality								□-1-(2)	
(3) Promoting the giving back of research achievement to society by, eg, reinforcing cooperation with concerned bodies.								□-1-(3)	
(4) Creation and development of new sciences to support sustainable innovations creation								□-1-(4)	
2. Promoting eg strategic research and development based on eg national strategies.	S							□-2	
(1)Advanced intelligence project research								□-2-(1)	

Mid to long-term objectives (Mid to long-term plan)	FY evaluation							Itemized evaluation document No.	Remarks
	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024		
□. Items on improved efficiency in business management	B							□	
1. Streamlining cost and better cost efficiency								□-1	
2. Towards a proper level of human resource cost								□-2	
3. Streamlining procurements and optimization of contracted work								□-3	
□. Items on improvements to our finance	B							□	
1. Budget (including human resource estimates), earnings and expenses plan, funding plan								□-1	
2. Securing external funds								□-2	
3. Limit amount of short-term borrowing								□-3	
4. If the agency has any Unnecessary Property or any property that is expected to be Unnecessary Property, a plan for disposal of such property								□-4	
5. If the agency intends to transfer or provide as collateral any important property other than the property provided for in the preceding item, a plan therefor;								□-5	
6. Purpose of using accumulated profit								□-6	
7. Debt burden over the mid to long-term objective period								□-7	
8. Use of a reserve fund							□-8		

	(2) Interdisciplinary theoretical and mathematical sciences research								<input type="checkbox"/> -2-(2)	
	(3) Integrative medical sciences research								<input type="checkbox"/> -2-(3)	
	(4) Center for biosystems dynamics research								<input type="checkbox"/> -2-(4)	
	(5) Brain science research								<input type="checkbox"/> -2-(5)	
	(6) Sustainable resource science research								<input type="checkbox"/> -2-(6)	
	(7) Emergent matter science research								<input type="checkbox"/> -2-(7)	
	(8) Advanced photonics research								<input type="checkbox"/> -2-(8)	
	(9) Accelerator science research								<input type="checkbox"/> -2-(9)	
	3. Building, operating, and upgrading research platforms								S	
(1) Computational science research	<input type="checkbox"/> -3-(1)									
(2) Synchrotron radiation science research	<input type="checkbox"/> -3-(2)									
(3) Bioresource research	<input type="checkbox"/> -3-(3)									

□. Other items	B									<input type="checkbox"/>		
										1. Reinforcement and enhancement to governance	<input type="checkbox"/> -1	
										2. Legal compliance, maintenance of ethics	<input type="checkbox"/> -2	
										3. Securing safety in our business	<input type="checkbox"/> -3	
										4. Promoting information disclosure	<input type="checkbox"/> -4	
										5. Reinforcement in information security	<input type="checkbox"/> -5	
										6. Facilities and plan on facilities	<input type="checkbox"/> -6	
										7. Plan on human resource	<input type="checkbox"/> -7	

*1 For items that are set to “high” level of importance, a “circle” shall be marked next to each comment.

*2 For items that are set to “high” level of difficulty, each comment shall be underlined.

*3 For items that were selected for reinforcement shall be marked with “Target” next to each criterion.

*4 In the “Itemized Evaluation Document No” column, the itemized document no in the itemized evaluation document for fiscal 2018 shall be entered.

*5 Evaluation categories are as follows:

[Administrative and projects related to research and development (I)]

S: Based on the National Research and Development Agency’s aims, businesses, mid to long-term objectives and so on, and as a result of comprehensive consideration based on some circumstances regarding the agency’s business achievements, efforts and so on through its activities, especially the creation of considerable achievements, anticipated creation of special achievements in the future and so on toward “maximization of R&D achievements” under the conditions of appropriate, effective, and efficient operations are recognized.

A: Based on the National Research and Development Agency’s aims, businesses, mid to long-term objectives and so on, and as a result of comprehensive consideration based on some circumstances regarding the agency’s business achievements, efforts and so on through its activities, the creation of considerable achievements, anticipated creation of achievements in the future and so on toward “maximization of R&D achievements” under the conditions of appropriate, effective, and efficient operations are recognized.

B: Based on the National Research and Development Agency’s aims, businesses, mid to long-term objectives and so on, and as a result of comprehensive consideration based on some circumstances regarding the agency’s business achievement, efforts and so on through its activities, a certain degree of expectation for the creation of achievement and creation of achievement in the future toward “maximizing the achievements of R&D achievements” were recognized, and steady business operations have been also recognized.

C: Based on the National Research and Development Agency’s aims, businesses, mid to long-term objectives and so on, and as a result of comprehensive consideration based on some circumstances regarding the agency’s business achievements, efforts and so on through its activities, the creation of achievements, further drastic efforts and improvements toward “maximization of R&D achievements” or the “appropriate, effective, and efficient operations” are anticipated.

D: Based on the National Research and Development Agency's aims, businesses, mid to long-term objectives and so on, and as a result of comprehensive consideration based on some circumstances regarding the agency's business achievements, efforts through its activities, special efforts and improvements including a fundamental drastic review, toward "maximization of R&D achievements" or the "appropriate, effective, and efficient operations" are required.

[Other than administrative work and projects regarding research and development (After II)]

S: Based on the activities of a corporation, remarkable performance exceeding the intended objectives is recognized quantitatively and qualitatively in the mid- to long- objective plan (in terms of quantitative indicators, 120% or more vis-à-vis planned mid to long-term objective value (or planned FY value), and remarkable performance is also recognized qualitatively)

A: Based on the activities of a corporation, remarkable performance exceeding the intended objectives is recognized in the mid to long- term objective plan (in terms of quantitative indicators, 120% or more vis-à-vis planned mid to long-term objective value (or planned FY value).

B: Performance exceeding the intended objectives is recognized in the mid to long- term objective plan (in terms of quantitative indicators, 100% or more but less than 120% vis-à-vis planned mid to long- term objective value (or planned FY value).

C: Performance falls below the intended objectives in the mid to long- term objective plan, requiring improved performance (in terms of quantitative indicators, 80% or more but less than 100% vis-à-vis planned mid to long- term objective value (or planned FY value).

D: Performance falls below the intended objectives in the mid to long-term objectives, requiring drastic improvement of business including its abolishment (in terms of quantitative indicators, less than 80% vis-à-vis the planned mid to long-term values (or values on prior fiscal year), or it is recognized that the competent Minister is required to make an order for improving business operation or taking other necessary measures).

The following grades are to be assigned when one is forced to raise an evaluation based on qualitative indicators such as evaluation of internal controls, and when operations performance is difficult to measure such as when meeting certain conditions is set as the target.

S:—

A: The agency reached the target level, for targets whose difficulty grade were set high.

B: The agency reached the target level(This excludes items that correspond to "A").

C: The agency couldn't reach the target level(This excludes items that corresponding to "D").

D: A fundamental review of operations is needed because the agency couldn't reach the target level , and this includes when the Minister in charge finds that the Minister needs to order improvements in operations management and order other necessary actions.