

Formulation of the Next Mid to Long-Term Objectives

1. Review of Operations and Organization

○ The Act on General Rules for Incorporated Administrative Agencies stipulates that at the end of the agency's mid to long-term objectives, the Competent Minister shall review its Operations and organizational capabilities to formulate the next term objectives and that the MIC's Committee on the System of Evaluating Incorporated Administrative Agencies (hereinafter referred to as "Committee") shall provide their assessments about the review.

○ The Minister of Education, Culture Sports, Science and Technology determined and announced details of the review for RIKEN and for Japan Aerospace Exploration Agency, whose objective period ends this fiscal year, (Attachment 1 (P. 2), Attachment 2 (P. 6)) on August 25 and on August 31, respectively, and the Committee put together their opinions and the like on December 4 (Attachment 3 (P. 10)).

○ The Council for Science, Technology and Innovation puts together their opinions on RIKEN on December 1 (Attachment 4 (P. 14)) according to the Act on Special Measures Concerning the Promotion of Research and Development by Designated National Research and Development Agencies.

2. Future Schedule

February	MIC's Committee on the System of Evaluating Incorporated Administrative Agencies* <ul style="list-style-type: none"> determines its opinions about the draft of the mid to long-term objectives
Until March 1	Instructs on the mid to long-term objectives
During March	Approves the mid to long-term objectives
* For Designated National Research and Development Agencies, the Council for Science, Technology and Innovation in addition to MIC's Committee on the System of Evaluating Incorporated Administrative Agencies	

Contents of Review of National Research and Development Agency RIKEN

August 25, 2017

Ministry of Education, Culture, Sports, Science and Technology

1. Policy requests and current issues

National Research and Development Agency RIKEN is a corporation aimed at improving the standard of science and technology by comprehensively conducting tests and research on science and technology. This agency has created outstanding outcomes in a wide range of fields so far. In light of this, RIKEN was designated as a Designated National Research and Development Agency in October 2016. Subsequently RIKEN is expected to play a policy-driven role of a core institution that leads Japan's innovation system by creating the world's best research and development (R&D) outcomes and promoting the spread and utilization of the outcomes.

To fulfill such a duty and respond to the expectations of the citizens, RIKEN needs to further develop its efforts so far and address the following issues.

- Continue to create innovative outcomes that will be the source of innovation as a comprehensive research institute on natural sciences, while further tackling strategic R&D toward realization of Society 5.0 as a National Research and Development Agency that implements R&D based on national missions, including the 5th Science and Technology Basic Plan decided on during the current mid to long-term objective period and in light of national issues and social demands according to recent circumstances.
- Strengthen management functions further as a Designated National Research and Development Agency conducting researches in a wide range of fields and with a large number of bases, thereby maximizing R&D outcomes and realizing integrated and efficient management operation under the leadership of the president.
- Further promote social return of R&D outcomes by strengthening collaboration with external institutions that have functions toward practical application of the outcomes to realize the role as the core institution of maximizing R&D outcomes and creating innovation.
- Continue to foster and produce outstanding researchers both in Japan and abroad to act as an international hub of brain circulation, while working on reform of personnel system that leads Japan's innovation system to develop an environment allowing for

concentrated research with a mid to long-term vision, taking into account the current situation that many young researchers are required to produce results in a short period of time.

- Increase self-generated income by utilizing external funds such as competitive funding and R&D outcomes to strengthen the fiscal foundation and further revitalize R&D activities in the tough financial situation.
- The “Common Standards of Information Security Measures for Government Agencies” (hereinafter referred to as “Common Standards”) formulated subject to the Basic Act on Cybersecurity (Act No. 104 of 2014) was revised in FY2016 so that incorporated administrative agencies came to be required to thoroughly implement information security measures according to the Common Standards. Furthermore, the “Basic Policy for Inspecting the Strengthening of Cyber Security Measures” (decided by the Cybersecurity Strategic Headquarters on May 25, 2015) was partially revised, causing the incorporated administrative agencies to become the target of auditing implemented by the Cybersecurity Strategic Headquarters.

RIKEN also needs to promote internal controls and the like to appropriately facilitate efforts necessary for corporate governance, while continuing to engage in research misconduct prevention measures.

2. Measures to be taken

In light of the policy requests and the current issues required of RIKEN as mentioned above, the following measures will be taken.

(1) Mid to long-term objective period

Given the fact that this corporation is a National Research and Development Agency primarily aimed at maximizing R&D outcomes and it is necessary to formulate mid to long-term objectives with due consideration to the characteristics of R&D from long-term perspectives, the mid to long-term objective period shall be seven years.

(2) Direction of mid to long-term objective

- Exploiting and creating strategic R&D and new science based on national strategy, etc.

Implement strategic R&D to realize Society 5.0 by utilizing innovative R&D outcomes

conducted by RIKEN in various fields and its outstanding human resources and research infrastructure/technology and further developing the results of the past efforts, based on the Science and Technology Basic Plan and the national strategy, etc. concerning each research field, and to respond to social demands.

At the same time, implement research aimed at the exploitation and creation of new science by making arrangements for effective mixing-up/adjustment of different fields, etc., taking advantage of the characteristics as a comprehensive research institute to the fullest, thereby creating innovative R&D outcomes leading to future innovation.

○ Establishment, operation and upgrading of the world's most advanced research infrastructure

In light of the national strategy such as the Science and Technology Basic Plan, conduct the shared use with a wide range of users of industry, academia and government and the planned operation of the world's most advanced research infrastructure such as the large common facilities that RIKEN owns, and properly make efforts for advancement of the facilities to produce innovative outcomes while paying attention to the trend of R&D worldwide and considering the needs of domestic and overseas users.

○ Strengthening of collaboration with universities, industries and local governments, etc.

Strengthen collaboration with external organizations while making use of RIKEN's strengths as a core institution creating innovation and a comprehensive research institute, thereby enhancing pioneering efforts to promote open innovation as follows:

- Effectively utilize the research capabilities, R&D outcomes and intellectual property owned by RIKEN, such as advanced collaborative research with organizations including the industry, thereby strengthening collaboration with the industries according to each stage from basic research to application and advancing the functions of fostering/supporting venture business, while increasing self-generated income through such endeavor.
- Strive to strengthen the research capabilities by facilitating collaboration with organizations such as universities and research institutions to utilize each other's strengths in various fields, while trying to create new innovative seeds. Furthermore, deepen collaboration with local governments and regional industries through the said universities and research institutions, thereby leading to social return of R&D outcomes.

○ Strengthening of management system as a Designated National Research and

Development Agency

Appropriate administrative organization and the function for supporting the president will be developed to allow for the maximization of R&D outcomes, by managing effectively and integrally the activities as research institutes located across the country under the solid foundation that supports the president by various knowledge and experiences in and outside of the organization and, as a Designated National Research and Development Agency, having the president take the leadership to facilitate efforts for innovative reforms that will serve as the model for other National Research and Development Agencies and for cross-sectional and mixed-up research in different fields, including creation of new value for future innovation and establishment of a flexible research system among the organizations.

○ Reform of personnel system to lead Japan's innovation system

RIKEN is also expected to ensure the liquidity of human resources and act as an international hub of brain circulation by continuously implementing efforts to appoint and develop/produce outstanding researchers both in Japan and abroad with a fixed term, and by actively utilizing the cross-appointment system. On the other hand, a reform of the personnel system will be advanced, such as maintenance of indefinite employment, thereby creating an environment where young researchers and others can devote themselves to research with a mid to long-term vision, while taking account of the balance between mobility and stability of human resources. Furthermore, the appointment of foreign researchers and female researchers will be promoted, and an exchange of human resources will be facilitated with external organizations.

○ Ensuring and expanding financial resources leading to further research revitalization

RIKEN is expected to increase self-generated income by expanding joint research with industry and effectively utilizing intellectual property to revitalize its R&D activities and strengthen the management foundation.

○ Promotion of information security measures

RIKEN is asked to target the resolution of issues identified in the auditing conducted by the Cybersecurity Strategy Headquarters in addition to continuing to promote information security measures, based on the information security policy formulated in line with the Common Standards.

Contents of Review of National Research and Development Agency JAXA

August 31, 2017

Cabinet Office

Ministry of Internal Affairs and Communications

Ministry of Education, Culture, Sports, Science and Technology

Ministry of Economy, Trade and Industry

1. Policy requests and current issues

National Research and Development Agency Japan Aerospace Exploration Agency (hereinafter referred to as “JAXA”) has been consistently implementing basic research and development/utilization in the field of aerospace and aeronautics. In the Basic Plan on Space Policy (decided by the Cabinet on April 1, 2016), “Assurance of space security,” “Promotion of civilian space utilization” and “Maintenance and strengthening of Japanese space industry, science and technology infrastructure” are listed as policy objectives. As a specific approach on the space policy, the measures to achieve the policy objectives are indicated in a table of work schedule. In the table, JAXA continues to be positioned as “the core implementing agency which technically supports the government entirely for space exploration,” and is required to advance technological capability toward realizing the policy objectives as scheduled, thereby steadily implementing the project leading to social development of its outcomes. Furthermore, in aviation science technology, JAXA is expected to play a role of promoting research and development contributing to the improvement of international competitiveness of the Japanese aviation industry, based on the Research and Development Plan corresponding to the 5th Science and Technology Basic Plan (February 2017, CST’s Subdivision on R&D Planning and Evaluation (MEXT), hereinafter referred to as the “R&D Plan”).

In the 3rd mid to long-term objective period, JAXA, amid facing a new situation directly linked to national security and social growth/development due to changes in the situation of formulating a new Basic Plan on Space Policy and shifting to a National Research and Development Agency, has well responded to the changes in the situation to steadily produce outcomes.

During the next mid to long-term objective period, JAXA, while taking advantage of the outcomes created during the 3rd mid to long-term objective period, is expected to lead society with technology and transform itself into an organization that creates new value by strengthening its organizational functions and collaboration with different

fields that will not be closed only in the field of aerospace aviation and conducting proactive planning and proposals with an eye on outcomes in addition to the conventional role, with due consideration to the increased number of players surrounding the aerospace sector and changes in the environment surrounding JAXA such as expectations for new business creation, and the issues arising therefrom, as shown below:

- In recent years, while the importance of security in space has increased, threats and risks in space are increasing, causing the necessity of securing stable use of space to further increase
- With the establishment of the two space-related acts in 2016 and the formulation of the “Vision 2030 for the Space Industry,” the environment for promoting space activities by the private sector is being developed in Japan, and the activation of the space industry is expected in the future, from which it is necessary to make further efforts to promote the space industry
- In response to the emerging nations in the field of space science and exploration, there is a need for Japan to maintain and improve the level of research and international presence in that field
- In the field of aviation science technology, the demands for improving the compatibility between safety/environmental adaptability and economy are increasing internationally

The business and organization of JAXA is reviewed as indicated below to formulate the next mid to long-term objectives, under the concept of “proper, effective and efficient business operation” of Incorporated Administrative Agency so that the primary objective of National Research and Development Agency can be achieved of maximizing R&D outcomes, based on the evaluation results on the performance of the mid to long-term objective period expected at the end of the period, the past Cabinet decisions/government policies such as “Basic Policy on Reform of the Incorporated Administrative Agency” (decided by the Cabinet on December 24, 2013), “Common Standards of Information Security Measures for Government Agencies” (decided by the Cybersecurity Strategic Headquarters on August 31, 2016, hereinafter referred to as “Common Standards”) and “Basic Policy for Inspecting the Strengthening of Cyber Security Measures” (decided by the Cybersecurity Strategic Headquarters on May 25, 2015) as well as the aforementioned situation surrounding JAXA.

2. Measures to be taken

(1) Mid to long-term objective period

Given the fact that JAXA is a National Research and Development Agency conducting R&D in response to the long-term national policy such as the Basic Plan on Space Policy and it is necessary to formulate mid to long-term objectives with due consideration to the characteristics of R&D from long-term perspectives, the mid to long-term objective period shall be seven years.

(2) Direction of mid to long-term objective

In formulating the next mid to long-term objectives, appropriate objectives shall be set such that JAXA can maximize its own abilities to become an organization leading the society with technology and creating new value while utilizing limited resources efficiently and effectively, from the viewpoint of maximizing R&D outcomes as a whole in Japan with due consideration to the items indicated below. In addition, indicators shall be set that concretize the content and level to be achieved from the viewpoint of objectively and accurately evaluating the efforts of JAXA and its achievements.

○ Priority measures

In addition to continuing to implement the measures indicated in the Basic Plan on Space Policy and the R&D Plan, JAXA makes efforts with focus on the following matters in the next mid to long-term objective period. To reinforce these efforts, JAXA will also improve the foundation of human resources and facilities necessary for promoting leading-edge R&D and space aeronautics projects to create new businesses, and strengthen activities concerning international collaboration and public understanding.

- Advancement and promotion of international efforts to ensure the stable use of space, enhancement of measures to respond to needs in the security field, including contribution to the guarantee of function of the space system, and promotion of research and development, etc. contributing to the realization of a safe and secure society, such as for disaster prevention

- Promotion of efforts to expand space use, such as creation of new business based on cooperation with private business operators and technical support/advice, etc. and promotion of R&D contributing to enhancement of international competitiveness in the space industry

- Promotion of space exploration activities contributing to improvement of

international presence of Japan, and space science research collaborating with other institutions with a view to creating the world's best standard of scientific outcomes

- Promotion of research and development contributing to the compatibility between safety/environmental adaptability and economy of aircraft including the next-generation's one, aimed at improving the international competitiveness of the Japanese aviation industry

○ Efforts concerning operation and organization

To achieve the above-mentioned priority measures smoothly and maximize R&D outcomes, as well as to connect self-generated income to outcomes steadily and effectively, JAXA needs to develop an organizational system with research and development functions, project implementation functions, and common function of administration/project as pillars, while establishing an optimal personnel assignment including active recruitment of external human resources such as those from private enterprises and human resource development leading to the future in light of JAXA's role. In addition, JAXA will work on the creation of new projects in collaboration with private enterprises and public research institutes, etc., and on the operation and reform of organization to improve planning and proposal functions. JAXA will also need to do further efforts to timely and appropriately fulfill accountability to the people. Note that, in proceeding with its operation, JAXA will respond flexibly based on social situation and technology trends in other countries.

○ Efforts on project execution

To steadily execute projects with reduced risks, JAXA will enhance the initial stage of research and development while thoroughly observing the management rules.

○ Efforts on financial content

To efficiently advance the creation of new business and social return of outcomes in addition to implementing measures to respond to the realization of policy and social needs, JAXA will promote an increase in self-generated income through available external funds, etc. by acquiring competitive research funds and strengthening cooperation with private enterprises and public research institutions, both in Japan and abroad.

○ Efforts on information security measures

Based on the information security policy formulated in accordance with the Common Standards, and with due consideration to advice, etc. from the auditing conducted by the

Cybersecurity Strategic Headquarters, JAXA will set the promotion of information security measures as mid to long-term objectives.

Formulation of Mid to (Long-Term) Objectives for Incorporated Administrative
Agencies (excerpt)

December 4, 2017

Determined by Committee on the System of Evaluating Incorporated Administrative
Agencies

Formulation of mid (to long)-term objectives of incorporated administrative agencies
(IAAs)

Japan faces challenges such as a decline in the working-age population, an aging of the region and energy/environmental problems, ahead of other countries in the world. It is an urgent task for Japan not only to resolve these problems but also to build a mechanism leading to the realization of a society that can grow even under a declining population through such measures as incorporating innovation of the 4th industrial revolution including IoT, AI and robots into all industries and social life (social implementation).

Against this background, it is more important than ever that an IAA that plays a major role in policy implementation as part of the government's administration should maximize its strengths in terms of expertise and human resources to resolve national policy issues by sharing with and collaborating with each government ministry/agency, other IAAs, local governments and the private sector.

For this reason, the competent minister should not only consider how to create new objectives on the extension of the conventional objectives, but also discuss with the president of IAAs sufficiently to make a proper recognition of changes in the environment surrounding policy issues and objectively analyze the current situation of expertise and human resources of IAAs, and if there is found something missing with them, the competent minister should consider concrete paths toward the resolution of policy issues, including how external vitality can be utilized, such as new technologies and wisdom of the private sector including venture business, and then formulate objectives.

Also, for IAAs that are responsible for resolving these policy issues after objectives are formulated, the management must be made that allows for the mission to be achieved at each level within the organization under the president's leadership of IAAs.

In conducting its deliberations on the mid (to long)-term objectives, the Committee summarized viewpoints considered important as follows: In formulating the objectives of IAAs in the future, the competent minister should consider including objectives from the following perspectives in particular, based on the characteristics of the clerical work

and project and the scale of the IAAs.

(1) Formulation of objectives for clerical work and projects of IAAs

1) It should be considered to positively incorporate into the objectives the role that IAAs play of maximizing their strengths in terms of expertise and human resources in the areas where securing of human resources and the succession of know-how are difficult due to the coming of a population declining society to support local public bodies, non-profit corporations and private enterprises in particular.

2) National policy challenges that all Japan should deal with in close cooperation with stakeholders such as ministries/agencies and other IAAs on a daily basis have increased (e.g. resource diplomacy, export of infrastructure, agricultural exports, increased inbound demand, strengthening of international competitiveness). With regard to establishing and strengthening collaborative system while clarifying the division of roles (tasks) between the national government, IAAs and other stakeholders to resolve the national policy challenges, it should be considered to incorporate concrete contents into objectives.

(2) “Objectives focused on management of IAAs” and “how to evaluate”

3) To support challenging efforts, long-term efforts beyond the objective period, and steady management efforts, it should be considered to appropriately evaluate not just the success or failure of direct results, but also the management itself in the entire process of efforts, such as appropriate ways of management leading to business improvement or utilization in other fields of the knowledge gained during the process of the concerned efforts.

4) It should be considered to set up objective encouraging efforts for top management by the president of IAAs (penetration of missions to executive officers, efforts to improve operations, recommendations submitted to the competent minister, etc.) and motivating the IAAs to aim at an even higher objective after appropriately evaluating the efforts.

Deliberations on mid (to long)-term objectives, etc.

Each competent minister is asked to deliberate on the draft of new objectives of IAAs whose mid (to long)-term objective period ends at the end of FY2017, with due consideration to the past surveys/deliberations by the Committee, especially the

viewpoints in “1) ~ 4)” above. Note that the specific items deemed to be particularly important in connection with the concerned viewpoints in the past surveys/deliberations by the Committee are as shown in the attachment.

Furthermore, the Committee also intends to proceed with surveys/deliberations from the same viewpoint in/after the next fiscal year, and each competent minister is asked to respond in the same way for IAAs whose mid (to long)-term objective period ends in/after the next fiscal year, understanding the content and purpose of the Committee’s decision.

[Attachment]

(2) “Objectives focused on management of IAAs” and “how to evaluate”

3) To support challenging efforts, long-term efforts beyond the objective period, and steady management efforts, it should be considered to appropriately evaluate not just the success or failure of direct results, but also the management itself in the entire process of efforts, such as appropriate ways of management leading to business improvement or utilization in other fields of the knowledge gained during the process of the concerned efforts

[National Research and Development Agency RIKEN] *Related to 2)

(Points to be noted)

It should be considered to form a “place” where talented people, knowledge, funds, etc. of industry, academia and government get together, as a Designated National Research and Development Agency and from the viewpoint of promoting/leading the creation of innovation in the industry, and to incorporate further promoting social returns of 11 innovative research seeds as objectives, while establishing appropriate evaluation axes/indicators to measure the degree of progress and achievement of the efforts toward social returns, such as the state of implementation of joint research with private enterprises and patent implementation rate.

In addition, to be able to properly evaluate the management as an IAA and the progress of research and development, it should be considered to set the status of nurturing research personnel, the status of efforts of intellectual property management, the implementation status of progress evaluation pertaining to research by external experts, etc. as evaluation axes/indicators and the like.

(Background circumstances, etc.)

- RIKEN was designated as a Designated National Research and Development Agency in October 2016, which, as a comprehensive research institute on the general natural sciences, carries out strategic and priority research and development extending from the basic stage to the application based on the national strategy and, in “the Basic Principle for Promotion of Research and Development by Designated National Research and Development Agencies” (decided by the Cabinet on June 28, 2016), RIKEN is expected to create the world’s best R&D outcomes as the foundation of innovation and become a core institution that strongly leads the innovation system in Japan.
- RIKEN implements strategic corporate management under the leadership of the president to nurture young researchers trying to challenge ambitious research that is

scientifically and socially impactful, such as human resources development beyond the existing organization/field and flexible budget allocation not immobilized to budget items of individual centers.

Upon evaluation by the competent minister, appropriately evaluating such management as corporate entity and the progress of research and development will lead to further strengthening of the corporate power through the PDCA cycle.

[National Research and Development Agency JAXA] *Related to 2)

(Points to be noted)

It should be considered to incorporate further promotion of efforts for the bridging of JAXA's technology and research outcomes to industry as objectives from the perspective of expanding the base of space utilization by the private sector and facilitating social implementation of R&D outcomes, and to set appropriate indicators to measure the progress and degree of JAXA's efforts, such as the numbers of projects created and licenses handed over to private business operators, due to JAXA's involvement. Furthermore, even if the R&D outcomes are different from those initially planned, to be able to appropriately evaluate the efforts and ingenuity on the way to achieving the objective in addition to the final results, it should be considered to set the implementation status of progress management pertaining to research and development as evaluation axes/indicators, thereby making an appropriate evaluation including the results achieved during the entire process.

(Background circumstances, etc.)

- It is stated in the “Basic Plan on Space Policy” (decided by the Cabinet on April 1, 2016) and the “Vision 2030 for Space Industry” (Committee on National Space Policy, May 29, 2017) that expanding the market size of the entire space industry is a challenge that Japan faces.
- Amid the increasing number of private players surrounding the space aerospace field and growing expectations for social implementation of R&D outcomes, the Ministry of Education, Culture, Sports, Science and Technology asks JAXA to contribute to the creation of new businesses through collaboration with and technical support/assistance to private business operators.
- Moreover, in addition to the success or failure of the project (R&D), the establishment of the PDCA cycle that makes it possible to appropriately evaluate the management efforts and ingenuity in the process of the project ensures the incentives of staff who are trying to positively tackle challenging research subjects while being aware of risks, which will lead to the maximization of R&D outcomes.

December 1, 2017 The Council for Science, Technology and Innovation
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The Minister of Education, Culture, Sports, Science and Technology provided us with a notification on the expected evaluation of the business performance in the mid to long-term objective period at the end of the concerned period, and the results of examination throughout the operations and organization of incorporated administrative agencies and contents of measures to be taken thereupon for Designated National Research and Development Agencies whose mid to long-term objective period ends at the end of FY2017, pursuant to Article 5, Paragraph 2 of the Act on Special Measures concerning the Promotion of Research and Development by Designated National Research and Development Agencies (Act No. 43 of May 18, 2016). Thus we will describe our opinions as follows:

○ Designated National Research and Development Agency RIKEN

[Opinions on notification]

With regard to the above-mentioned agency's "About the expected evaluation of business performance in the mid to long-term objective period at the end of the concerned period" and "Results of examination throughout the operations and organization of incorporated administrative agencies and contents of measures to be taken thereupon" (September 19, 2017, MEXT's notification No. 192), both notified by the Minister of Education, Culture, Sports, Science and Technology, strategic management efforts under the proper leadership of the president of the Designated National Research and Development Agency RIKEN are clarified, being valid.

[Opinions toward the next mid to long-term objectives]

In considering the next mid to long-term objectives, we urge RIKEN to pay particular attention to the following points:

To realize the 5th Science and Technology Basic Plan (decided by the Cabinet on January 22, 2016), we do ask RIKEN to continue to strengthen its comprehensive research capabilities, while making every effort to promote unremitting reform and ensure that "RIKEN Initiative for Scientific Excellence" can be carried out steadily.

In particular, a plan to promote the creation of innovation under cross-cutting networks in different fields and different industries (construction of a science and technology hub, construction of engineering networks, innovation design concept) and a vision of creating/growing venture businesses undertaken by RIKEN from the perspective of all Japan (Innovation Business Agency (tentative name)) are crucial to

strengthening the science and technology innovation power of Japan. Moreover, the newly established Center for Advanced Intelligence Project is one of the bases where Japan realizes Society 5.0 ahead of the world, which is listed in the 5th Science and Technology Basic Plan, and the activities need to be put into full-fledged operation as quickly as possible.

To promote and accelerate these endeavors without fail, we will provide timely and appropriate support and advice to the efforts made on RIKEN's initiative. Furthermore, with regard to the vision and the like difficult to realize in the current system, we would like RIKEN to present proposals including specific measures concerning the revision of the system to the Council for Science, Technology and Innovation.