

## 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 Japan Agency for Marine-Earth Science and Technology (Attachment 1 (P. 2)), whose objective period ends this fiscal year, on August 23, the Committee put together their opinions and the like on November 29 (Attachment 2 (P. 6)).

### 2. Future Schedule

February 15	MIC's Committee on the System of Evaluating Incorporated Administrative Agencies* <ul style="list-style-type: none"> <li>determines its opinions about the draft of the mid to long-term objectives</li> </ul>
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Until March 1	Instructs on the mid to long-term objectives
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During March	Approves the mid to long-term plans
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\* 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

Review of Japan Agency for Marine-Earth Science and Technology

August 23, 2018

Ministry of Education, Culture, Sports, Science and Technology

1. Policy requirements and current issues

The Japan Agency for Marine-Earth Science and Technology (“JAMSTEC”) is a national research and development agency aiming to enhance marine science and technology standards and it contributes to the development of academic research by conducting fundamental research and development (R&D) on the oceans and other related tasks, such as extending cooperation in academic research on the oceans in a comprehensive manner based on the principles of peace and welfare.

In the 5th Science and Technology Basic Plan (decided by the Cabinet on January 22, 2016), marine science and technology is considered part of science and technology which will produce great values critical for national strategy. In the 3rd Basic Plan on Ocean Policy (decided by the Cabinet on May 15, 2018), the enhancement of scientific knowledge is always being considered as one of the major initiatives to be implemented, and therefore, efforts for ensuring full maritime security, including the establishment of a Maritime Domain Awareness (MDA) system, and provisions for promoting Japan’s Arctic Policy were newly added to its working agenda. In particular, R&D is essential for achieving the goal of Society5.0 even in the field of oceanographic science, for instance, by creating new values using artificial intelligence (AI) and obtaining the capacity for big data analysis by developing the relevant technology based on an enormous amount of oceanographic information as gathered in oceanographic survey and observation system and utilizing the results for economic development and solutions to social issues.

With regard to international situations, the control, conservation and sustainable use of the oceans and marine resources were included in the Sustainable Development Goals (SDGs) (UN Sustainable Development Summit in September 2015), in the G7 Ise-Shima Leaders’ Declaration (May 2016), and in the communiqué of G7 Science and Technology Ministers’ Meeting in Tsukuba (May 2016). This indicates that the importance of the oceans has become a common understanding both in Japan and abroad.

Under these circumstances, CST’s Subdivision on Maritime Science, Ministry of Education, Culture, Sports, Science and Technology (MEXT) formulated a research and development plan on marine science and technology (in January 2017; hereinafter referred to as the “R&D Plan”) to clarify the fields of marine science and technology to be promoted and policies of promotion by the MEXT.

JAMSTEC has produced distinguished results in a wide range of fields in marine science

and technology sector in the third period for medium-term objectives. In the next period for mid to long-term objectives, it is also expected to play a major role as a core institution of Japan's marine science and technology in light of changes in domestic and international situations and accompanying issues as described above, and contribute to creating, disseminating and deploying high outcome levels through oceanographic observation and various R&D projects by taking advantages of the strength of JAMSTEC which has a number of research vessels and equipment.

For assuming such a role and responding to public expectation, JAMSTEC has to continue its efforts more aggressively to tackle the following issues:

- Maintaining of continued control, conservation and sustainable use of marine environments, responses to ocean originated natural disasters and contribution to resolving economic and social issues.
- Reinforcement of the oceanographic survey and observation system for establishing a Maritime Domain Awareness (MDA) system in collaboration with related ministries and agencies and contributing to maritime safety and security.
- Promotion of R&D on integration, analysis and prediction of an enormous amount of oceanographic information to achieve Society5.0 in the oceanographic science area.
- Improvement of Japan's R&D capabilities and international presence in marine science and technology and creation of innovative ideas.

Because it is essential to further cooperate with other agencies closely to find solutions on these issues, an innovative collaboration system is expected to be established in addition to the optimization of work assignment and joint efforts to strengthen the current collaboration with other agencies.

To promote organizational efforts in an integrated manner while maintaining collaboration between individual scientific areas within the organization, and conducting regular reviews of the organization and efforts for improving governance are required as well as the development and recruitment of human resources and reinforcement of financial ground required for these efforts.

Moreover, incorporated administrative agencies are required to take information security measures according to the Common Standards of Information Security Measures for Government Agencies (decided by the Cyber Security Strategy Headquarters on August 31, 2016, and revised on July 25, 2018) and the Basic Policy for Inspecting the Strengthening of Cyber Security Measures (decided by the Cyber Security Strategy Headquarters on May 25, 2015, revised on October 12, 2016) pursuant to the Basic Act on Cybersecurity (Act No. 104 of 2014).

## 2. Measures to be taken

The following measures should be taken based on the above-mentioned policy requirements for incorporated administrative agencies and current issues:

### (1) Mid to long-term objective period

JAMSTEC is a national research and development agency mainly aiming at maximizing R&D outcomes. It is required to set mid to long-term objectives in the light of the characteristics of the R&D activities including a long-term view. Accordingly, the period for mid to long-term objectives for JAMSTEC is seven years.

### (2) Direction of mid to long-term objective

In the next mid to long-term objectives, the role of JAMSTEC should be mentioned in details and clearly based on the requirements listed below. In view of the objective and accurate evaluation of the achievement level of the objectives, specific indexes should be determined according to the predefined content and achievement level of the objectives.

#### ○ Focused R&D themes

The initiatives set forth in the 3rd Basic Plan on Ocean Policy and other R&D plans should be steadily implemented to maximize the R&D outcomes as required for a national research and development agency. Specifically, the focus should be put on the following R&D themes:

- Contribution to the understanding and prediction of changes in global environment, management and mitigation of disasters relating to sea area earthquakes, tsunamis and sea area volcanoes, and promotion of R&D for enhancing scientific knowledge and resolving issues such as the sustainable use of marine resources including living creatures and minerals.
- Promotion of basic R&D including establishment and enhancement of a system for efficient oceanographic survey and observation.
- Creation of new values by strengthening integration and analysis of data obtained from oceanographic survey and observation, and distributing useful information to the public.
- Gaining of insights to support next-generation marine science and technology by promoting challenging and creative R&D.

#### ○ Closer cooperation with other agencies

In order to take the necessary role as a core institution of marine science and technology to improve R&D capabilities of universities and research institutes in Japan in related scientific fields, and promote social implementation of R&D outcomes, JAMSTEC is required to make

strategic partnership and cooperate more closely with universities, research institutes, private companies and municipalities in Japan and abroad and accelerate collaborative innovation. For this purpose, it should carry out necessary organizational transformation, skill development of officers and exchange human resources with related agencies in Japan and abroad.

○ Improvement of human resources development functions

Efforts to improve the quality and pool of skilled and insightful human resources should be promoted for sustaining R&D of the oceans into the future, and providing marine science and technology to resolve economic and social issues. Efforts should also be made to recruit outstanding researchers from Japan and abroad without any limit to the fields of expertise to produce an atmosphere to create new values and provide a better research environment.

○ Efforts on financial content

Efforts include those for increasing self-generated income by acquiring external funds, such as competitive research funds, strengthening collaboration with private companies and research institutes in Japan and abroad, and using R&D outcomes and intellectual properties strategically to further vitalize R&D activities.

○ Efforts concerning operation and organization

The organizational management function should be further reinforced in consideration of the results of the third period for medium-term objectives. Management and operation of the agency must be reviewed regularly under the leadership of the president to accomplish the mission of a national research and development agency to maximize R&D outcomes. In particular, it is essential to establish a management system suitable for accomplishing the objectives in an integrated manner and change the consciousness of employees as the officers of a national research and development agency, while considering a flexible organizational management for improving the entire Japan's R&D capabilities and international presence as well as creating innovative ideas.

○ Promotion of information security measures

Necessary information security measures should be continuously taken according to the basic policies and criteria on information security measures as decided by JAMSTEC based on the Common Standards of Information Security Measures for Government Agencies, and results of audits carried out by the Cyber Security Strategy Headquarters.

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

November 29, 2018

Determined by Committee on the System of Evaluating Incorporated Administrative Agencies

1. Summary of the committee's activities in the FY2018

In June 2018, the committee continued to work on the research discussions from the last fiscal year on the "Formulation of Mid to (Long-Term) Objectives for Incorporated Administrative Agencies (decided on December 4 2017, by the Committee on the System of Evaluating Incorporated Administrative Agencies; hereinafter referred to as the "2017 committee decisions")."

According to this direction, the committee has held the opinion exchanges not only with the competent ministry and the president of the Agencies but also, since this fiscal year, with stakeholders surrounding the Agencies in order to appropriately understand the environment surrounding the Agencies and the policy tasks which the Agencies, whose mid to (long-term) objective period ends at the end of the FY2018, will face. And the committee held opinion exchanges with the president of National Research and Development Agencies and etc. on the actual status and the challenges of the collaboration with other organizations.

2. Policy tasks which the Agencies, whose mid to (long-term) objective period ends at the end of the FY2018, will face

As a result of the research discussions of this fiscal year, many Agencies, whose mid to (long-term) objective period ends at the end of the FY2018, have many bases in the local regions and they are required to perform the important roles on the activation of the regional economy, creation of the innovation, responses to the disasters and etc. The committee finally reached the recognition that the following ① and ② shall be given significance as the policy tasks commonly faced by these Agencies.

- ① With the explosive popularization of ICT devices and social implementation such as AI, IoT and etc. are being in progress, the digital revolution is taking place in every social scene, and the huge digital data are producing new values in order to respond quickly and accurately to such changing environment, it is an urgent task to promote "Open Innovation," which produces new values by combining technologies, know-how, human resources and etc. across the barriers of organizations and businesses.
- ② Due to the arrival of a declining population society, it has become challenging to ensure the human resources or transfer the know-how in some fields (especially the measures for disasters (prevention, mitigation), support for recovery/rehabilitation from disasters, activation of the regional economy, ICT personnel development and etc.) such problems are becoming increasingly serious.

In addition to solving such various policy tasks which the Agencies are facing in achieving the results leading to their social implementation, it was re-recognized that the point of view, as shown in the 2017 committee decisions, where the agencies with an important role to take measures as a part of the national administrative affairs taking full advantages in the expertise, human resources, promoting work share and collaboration with the ministries and agencies, other Agencies, local governments and private business operators has become increasingly important.

### 3. Formulation of the mid to (long-term) objective

Based on the above “2.,” the issues to be noted at the formulation of the next mid to (long-term) objective for the Agencies, whose objective period ends at the end of the FY2018, are summarized as follows.

In formulating the next mid to (long-term) objectives, not only the direction is provided by the competent minister, but the Agencies, it is also necessary that the implementation organizations immediately suggest their awareness at each regional circumstance to the competent minister. The competent minister is expected to consider the issue mentioned above and sufficiently exchange opinions with the president of the Agencies to examine the next mid to (long-term) objective based on the following ① and ② in addition to the research discussions at the committee so far including the 2017 committee decisions.

- ① In order to solve the policy tasks faced by the Agencies as shown in the above “2.,” it should be considered that each Agency utilizes its advantage in the expertise and human resources and, especially, actively takes the role to support the local government, non-commercial corporations, private business operators and etc. in the community.
- ② Watching the future changes in the times, the Agencies should analyze their strengths and resources objectively, further develop their own strengths and resources, such as developing the professional human resources like the ICT experts, who are socially required. At the same time, for the Agencies’ capability limitation for items that cannot be implemented solely by them, it is necessary to rely on the external vigor, including venture business companies, etc. and to establish and strengthen an cooperation system with other organizations across the barriers of the ministries and agencies.

In relation to the above ① and ②, the specific items to be considered to be clearly included in the objective of each Agency for which the mid to (long-term) objective period ends at the end of the FY2018 are shown in the attachment.

### 4. Future initiatives

(1) About the research discussions on the mid to (long-term) period objectives and others for the next

and following fiscal years

The committee also intends to proceed the research discussions in the next two fiscal years with the same point of view. The committee expects that the competent minister will also respond to the Agencies, whose objective period ends in the next two fiscal years in light of the contents and purposes of the 2017 committee decisions and will it.

(2) Other efforts by the committee in the future

The committee shall make efforts for the following items other than the items shown in the 3. (2) of the 2017 committee decisions.

- ① The committee has been conducting research discussions with an emphasis on the formulation of objectives under the new system for incorporated administrative agencies started in FY2015. In order to understand how operations of the Agencies have been changed under the formulation of new objectives, the exchanges of the opinions for the intermediate follow-up shall be held on trial basis.
- ② In order to understand the common circumstances surrounding the Agencies, the exchange of opinions among the Agencies and with the stakeholders shall be continuously held.



**【Japan Agency for Marine-Earth Science and Technology, JAMSTEC】**

(Points to note)

Based on the national policies such as the “Basic Plan on Ocean Policy (Cabinet decision on May 15, 2018),” how about including in the objective of the Agency, as a core institution of marine science and technology in Japan, the steady promotion of the efforts such as oceanographic survey, research and development, human resource development and etc. towards solving all-Japan issues while cooperating and collaborating with the relevant organizations, including universities, incorporated administrative agencies, local governments and private companies?

Would it also be included in the goal to strengthen integration and analysis functions for the huge data owned by the Agency and disseminate it to the society as a meaningful information leading to the social implementation, as well as to properly manage the R&D outcomes and intellectual properties?

(Background and etc.)

- In “Basic Plan on Ocean Policy,” the Government is required to implement the measures, in an integrated and planned manner including strengthening the Maritime Domain Awareness (MDA), promote the development of the oceanographic survey, science and technology, maritime personnel development, increase of public understanding and etc. In addition, in this plan, it is mentioned to “promote R&D on the preparation and use of the oceanographic big data, forecast of the climate and oceanic changes and etc. toward the realization of Society 5.0, because the maritime data and information are very huge and the data aggregation, analysis and forecast skill is essential to effectively utilize such a huge oceanographic information collected by researches and observation”.
- Ministry of Education, Culture Sports, Science and Technology expects that the Agency should strengthen the oceanographic survey and observation system that will contribute to the MDA system, and should further strengthen the current collaborations through optimizing the work share and cooperation with other organizations toward solving issues that can contribute to the safety and security of ocean while establishing a new cooperation system.
- In addition, in the “Integrated Innovation Strategy (Cabinet decision on June 15, 2018),” it is mentioned that the goal for the future shall be “based on the national benefit and characteristics of the research field, considering the open and close strategy, making efforts to save and manage the research data on cyberspace in collaboration with the foreign research data base to establish a huge “knowledge source,” and everyone will utilize such research outcomes” and “as a result, the new collaboration will accelerate the creation of knowledge beyond the belonging organization, expertise and national boundary.”