

Final Summary on International Education and Research Center (Overview)

- Aiming at the Reconstruction and Revitalization of the Fukushima Hamadori Area -

June 8, 2020, Expert Meeting on International Educational and Research Center in Fukushima Hamadori Area

I. Awareness of basic problems

1. Current state and challenges of reconstruction in the Fukushima Hamadori area

- Although the **number of residents** in all areas where evacuation orders have been lifted is gradually increasing, that number is still less than 20% of the population that it was at the time of the disaster.
- According to a survey on the intentions of residents, 50% to 60% responded that they would not return to municipalities where there were delays in lifting evacuation orders. **The younger the generation, the higher the percentage of those who responded that they would not return to these areas.**

2. Current state and challenges in the Fukushima Innovation Coast Framework

- **Overall coordination is still insufficient among centers related in the Fukushima Innovation Coast Framework.**
- **Systems are still inadequate for the sustainable development of human resources.**
- In comparison to successful cases overseas,* **the area has no central education and research institution, and coordination functions between local companies, education and research institutions, and local governments are weak.**

*Pacific Northwest National Laboratory (PNNL), the Hanford Site, U.S.

II. Image of the international education and research center

1. Objectives of the international education and research center

(1) Reconstruction and revitalization of the nuclear disaster-stricken Fukushima Hamadori area

- Since the population of the Hamadori area, struck by a grave and unprecedented nuclear disaster, has declined rapidly, it is important for drastic measures to be taken to achieve the reconstruction and revitalization of this region, including increasing the resident population.
- In order to achieve an ideal situation for Japan in the mid-21st century, it is necessary to develop a “core center for creative reconstruction” that will serve as an ignition point for society that transforms disadvantages into advantages, rather than simply returning the area and country to the state it was in before the earthquake.
- Since the area is facing a particularly difficult situation, bold actions that have not been achieved by past regional development policies should be taken with the aim of becoming the “**ultimate model for regional development**” in Japan.

(2) Collaboration between industry, academia and government and creation of new industries through the cross-sectoral integration of knowledge and by securing and developing human resources

- There is a need to create a “**knowledge integration center**” to develop researchers and engineers in various fields; these human resources will become the driving force behind new technologies and industries, leading to the recovery of the Hamadori area as the center of the Fukushima Innovation Coast Framework.

(3) Integration of research on reconstruction efforts in Fukushima and dissemination of information to the global community

- A “**research center on reconstruction in Fukushima**” is needed that can serve as the center for restructuring and promoting research at universities and research institutions, other.
- A “**center to disseminate information to the global community**” about research on reconstruction efforts in Fukushima, such as the restoration of the environment, is needed that can contribute to international measures dealing with unfounded rumors.

2. Functions of the international education and research center

(1) “International” function

- The aim is to create new industries that have the world’s largest market share in at least one industrial sector and to conduct research that can lead to the development of international standards.
- With this function, the center aims to form alliances with top laboratories overseas and cooperation with international research institutes.

(2) “Educational” function

- **First, the educational functions of the center will be showcased through a laboratory system.** The framework for establishing a university/graduate school in the future will be an issue for consideration at a later date.
- Education and training will be offered for graduate students from Japan and abroad, as well as local human resources (high school students and company personnel).

3. Research areas in the international education and research center

- **The following research areas at this center that stem from the nuclear disaster have been identified as essential for the Hamadori region:**

(1) Research that will contribute to reconstruction and revitalization from the nuclear disaster and Great East Japan Earthquake

(2) Research on the developmental use of the severe conditions in the Hamadori area (damaged nuclear power station, radioactive contamination of the environment, areas where returning is difficult, large tracts of farmland with no farmers, other)

(3) Research focusing on practical applications centering on cutting-edge technologies, such as robotics and IoT to bring about breakthroughs in decommissioning efforts

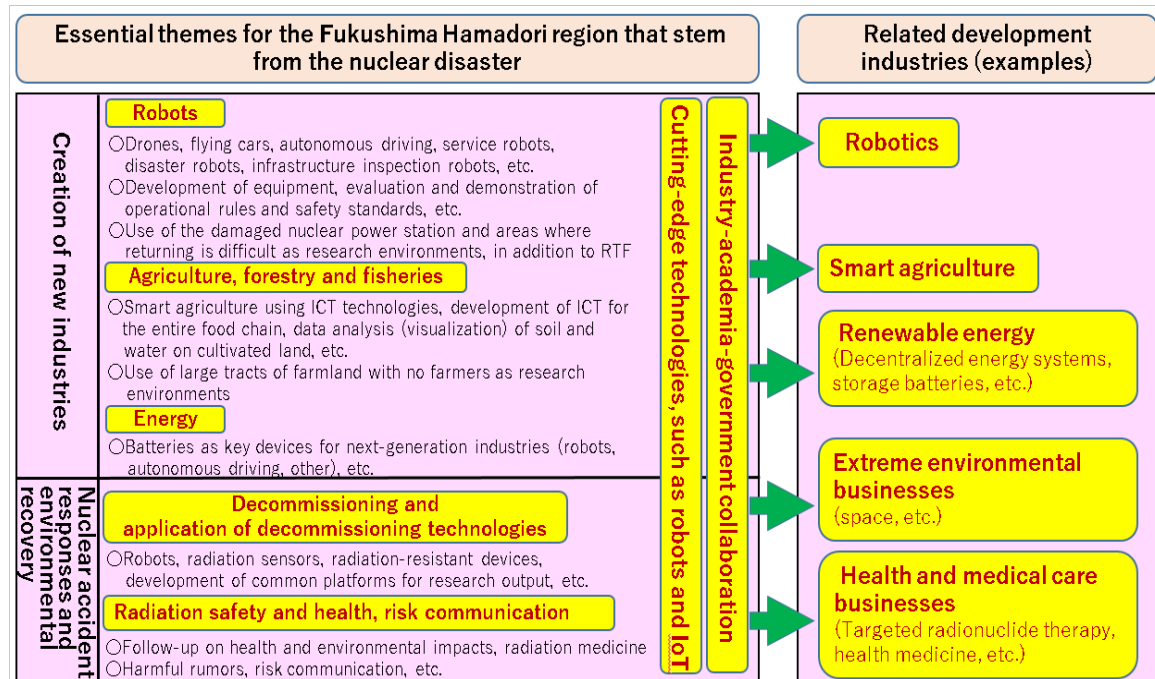
These research activities will also help solve challenges that Japan faces, such as increasing productivity under shrinking populations, improving food self-sufficiency rates, and energy and environmental constraints, etc.

○ Fields related to the creation of new industries

Promoting research on robotics and IoT will lead to the development of a variety of more sophisticated advanced technologies and result in the creation of new industries and solutions to various problems in the areas of agriculture, forestry, fisheries and energy.

○ Fields related to responses to the nuclear accident and environmental recovery

To include topics of global interest, such as decommissioning, application of decommissioning technologies, radiation safety, radiation medicine, reputational damage, and risk communication.



4. Organizational structure of the international education and research center

(1) Organizational structure and management entity

(Necessity of center facilities and organization)

- It is necessary to concentrate research bodies, such as universities, research institutes and companies, in the Hamadori area in order to increase the resident population.
- There is a need for a governance body to oversee all operations, a research organization to serve as the control tower, and physical center facilities.

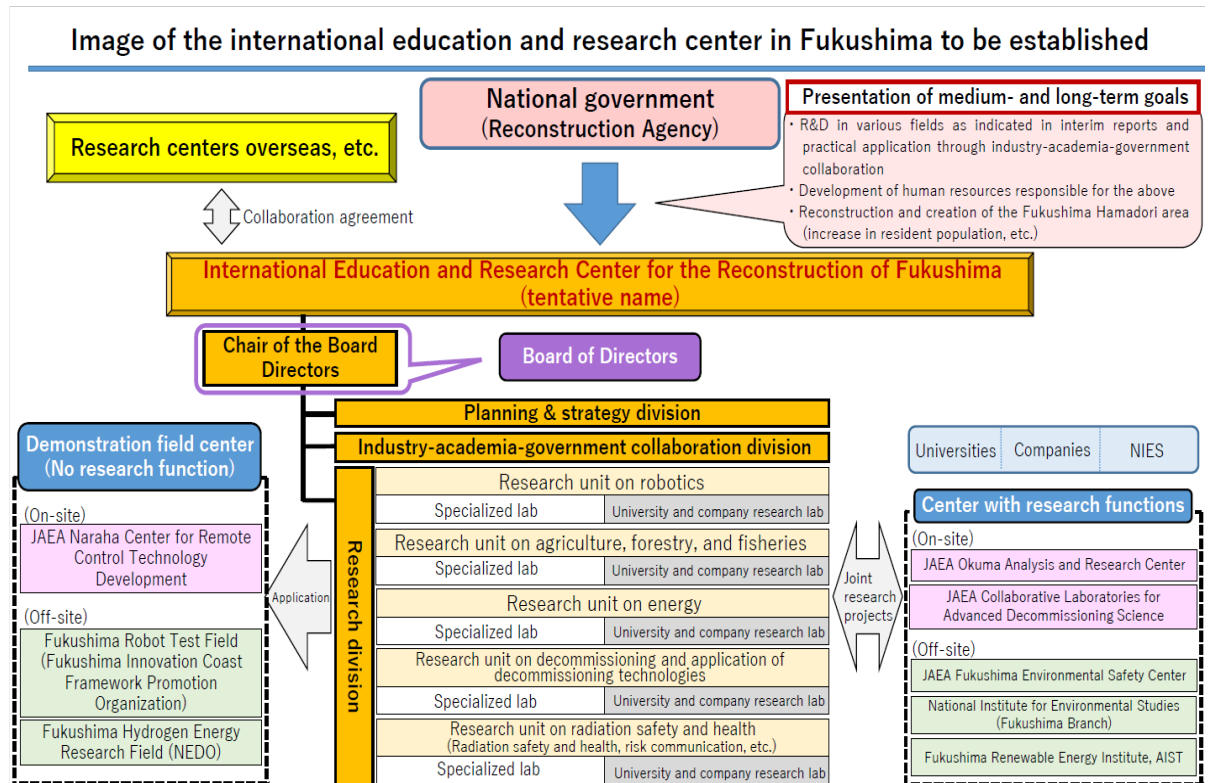
(Concept of management entity)

- The national government is considered to be a **suitable choice as the management entity** for the following reasons.
 - Reconstruction of the nuclear disaster-stricken Hamadori area is the social responsibility of the government.
 - The disaster-stricken country of Japan is responsible for disseminating and contributing the lessons learned from the nuclear accident to the international community.
 - The government is the management entity in similar cases overseas.
- It is advisable to create a comprehensive national research and development agency that cover a diverse selection of research and industrial fields for the purpose of recovery from the nuclear disaster.
- Jurisdiction will be examined based on the nature of reconstruction from the nuclear disaster and comprehensive research and development without vertical divisions.

The Reconstruction Agency must take the lead to secure required budgets and personnel structures together with related ministries and agencies.
- The government will need to discuss the most appropriate organizational structure further in the future.

(Promotional structure)

- It is important to select persons with strong management skills and an advanced level of knowledge of science and technology to head the center.
- Top researchers will be invited to head up each division, and young and mid-career researchers will be recruited.
- In principle, specialized laboratory researchers will be offered full-time, permanent positions.
- **Collaboration with universities willing to move into the Hamadori area will be crucial.** To date, **Fukushima University and Tohoku University have expressed willingness to transfer some functions to the center.** The **University of Tsukuba and Ochanomizu University have also indicated interest in moving to the center.**



(2) Structure of collaboration with industry, academia and the government

- **Determined action will be taken to shape the center as the center of a new innovation ecosystem that can be implemented in society.**

(Development of an attractive research environment)

- It is important for the center **to have a research environment where brilliant researchers and women can play an active role.**
- It will be important to provide **continuous (10+ years) and sufficient funding for research, a level of tenure, salary and other benefits that make people feel like they need to work here, and special research equipment and samples for experiments that cannot be found in other places.**
- In addition to actively utilizing the harsh conditions in the Hamadori area as a uniquely attractive research environment, bold regulatory reform will be taken.

(Promoting the creation of venture companies and supporting/developing local industries)

- Increase the number of young people employed and the resident population through the creation of venture companies and collaboration with local industries, as the community-based research center.

(Securing funding)

- The national government should be responsible for securing long-term budgets and staffing structures and actively utilizing investments from industries for joint research with a focus on business development.

(3) Human resources development system

- **Enhance and shape the development of human resources in higher education based on collaboration with a large number of universities.**
- In addition to graduate students, **students in technical colleges, high schools, middle schools and primary schools should be involved in seamless human resources development programs.**
- **Cooperative graduate school systems should be actively used** to provide human resources development programs to graduate students and others. Research associate systems should also be introduced.
- Human resources development opportunities should be presented to primary, middle and high school students through summer school, contests, on-demand lectures and on-site classes.
- Human resources development opportunities should be presented to staff at local companies through joint research and on-the-job training.

(4) Size of the workforce at the international education and research center

The scale of the center is envisioned as follows:

- (1) Approximately 600 staff at the center, including researchers, graduate students, and administrative staff involved in collaboration and management between industries, academia and the government
- (2) Approximately 1,000 staff in all organizations related to the Innovation Coast Framework in the Fukushima Hamadori area, **including about 400 employees in existing organizations**
- (3) Approximately 5,000 people due to the ripple effect of related employment in the region as a result of collaboration between industries, academia and the government

5. Collaboration between the international education and research center , local governments and existing centers

(1) Expected role of local governments

- It is important for local governments to play an active role in the development of the living environment and cities, selection of site areas, participation in the governance of the center , provision of an attractive research environment, participation in joint research, and dissemination of information to local residents. Fukushima Prefecture will play a central role in coordination with municipalities.

(2) Systems for collaboration between the international education and research center and existing centers, other

- **Consideration of the use of existing facilities* that are characterized as demonstration field centers as spaces for research and demonstration**
* JAEA Naraha Center for Remote Control Technology Development, Fukushima Robot Test Field, Fukushima Hydrogen Energy Research Field, other
- **Consideration of collaboration on joint research with existing facilities* that are characterized as centers with research functions**
* JAEA Okuma Analysis and Research Center & Collaborative Laboratories for Advanced Decommissioning Science (CLADS), Fukushima Research Laboratory of the Center for Advanced Radiation Emergency Medicine (The National Institute for Quantum and Radiological Science and Technology/QST), Fukushima Renewable Energy Institute (The National Institute of Advanced Industrial Science and Technology/AIST), National Institute for Environmental Studies (Fukushima Branch), other

III. Living environment, urban development and location

1. Living environment and urban development

- In order to concentrate human resources from universities, research institutes and companies from Japan and around the world in the Hamadori area, **it will be particularly important to improve the living environment and develop the local area, such as shopping, education, medical and nursing care, welfare and transportation.**
- First, **compact “research towns” should be developed with living environments and infrastructure that can accommodate researchers and their families with Fukushima Prefecture taking a central role in collaboration with municipalities.**

2. Location

- Fukushima Prefecture should play a central role in considering the location of the center in collaboration with municipalities. The Hamadori area should be viewed as a “large R&D belt” and **decisions made based on locating the center in an area where evacuation orders had been issued, while also taking into account the living environment, transportation access, and the intentions of local governments, universities and companies, with emphasis on cooperation with the research facilities of the Fukushima Innovation Coast Framework and TEPCO’s Fukushima Daiichi Nuclear Power Station.**
- It is important for the center to be consolidated, not scattered.

IV. Future timeline

- **The center should aim to be partially opened in the middle of the next five years (spring of 2023) after the end of the “Reconstruction and Revitalization Period” and be fully opened in fiscal 2024.**
- The location of the center will be decided in line with the government’s draft plan from the perspective of facilitating the development of the living environment and urban planning in order to open the **center** as soon as possible.