

Tohoku University Reconstruction Action Vol.2

Seeking to play a leading role in “the reconstruction of Japan”



Message from the President

The Great East Japan Earthquake, which occurred on March 11, 2011, caused high-intensity ground shaking, a massive tsunami and a serious nuclear power plant accident, resulting in a disaster of a scale unprecedented in the history of Japan.

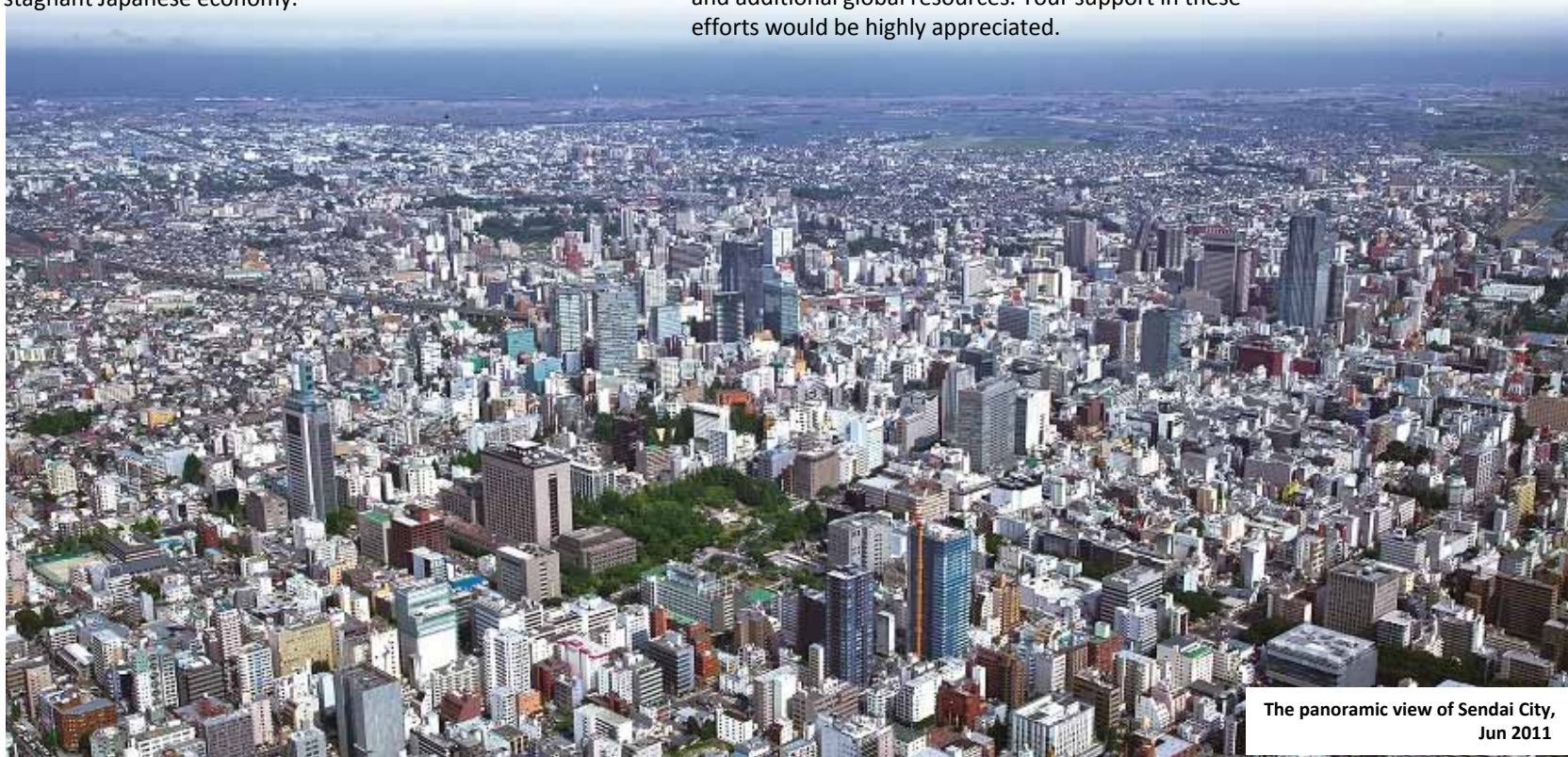
Tohoku University is well aware that its mission as a major university located at the center of the affected area is to fully commit itself to recovery from the disaster. It is our aim to create new wisdom so as in order to strongly support the rebirth of the region. Efforts will be focused on establishing new industries through cooperation with businesses and government agencies to increase employment and revitalize the Tohoku region. The university hopes that these efforts will also serve as a driving force or an engine to stimulate the stagnant Japanese economy.

The “Tohoku University Reconstruction Action” presented in this brochure is the prototype of the engine that we propose. To start this engine, cooperation between universities, businesses and local governments not only in the affected areas but throughout Japan and also abroad is essential. We believe that we can create a sustainable, energetic, affluent society through combining the results of research and education to date, cutting-edge technologies, and the know-how to apply these results and technologies in practical settings, in such a way so as to provide maximum benefit to society.

To overcome this difficult situation, efforts by a single university alone would be insufficient. It is essential to build a cooperative system involving the whole of Japan and additional global resources. Your support in these efforts would be highly appreciated.



Susumu SATOMI
President ,Tohoku University



The panoramic view of Sendai City,
Jun 2011

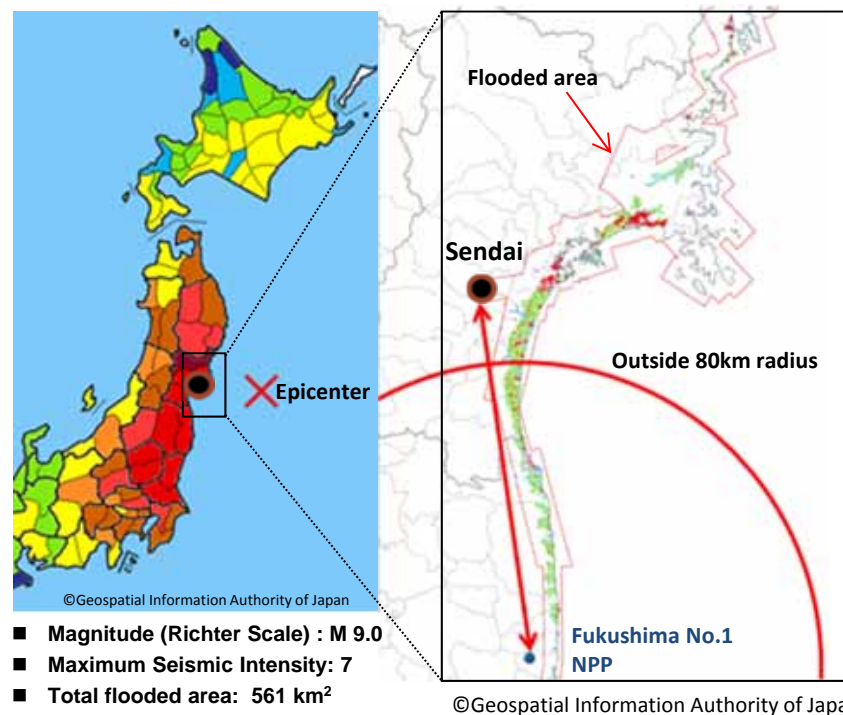
What happened on March 11, 2011?

Multi-hazards - Mega Earthquake, Mega Tsunami and Nuclear Power Plant Accident

On March 11, 2011, at 14:46, an earthquake of magnitude 9.0 occurred and the intense shaking lasted about three minutes. The epicentral area was located off the coast from Iwate to Ibaraki. About 30 to 60 minutes after the earthquake, a massive tsunami hit a wide area along the coast of the Pacific Ocean extending from Aomori to Chiba Prefectures. With the wave run-up height exceeding 40 meters in some places, the tsunami caused devastating damage to coastal areas. In Fukushima, a nuclear power plant was destroyed by the earthquake and tsunami, cutting off the external power source and resulting in the failure of the cooling system. This eventually led to the meltdown of a number of reactors.

The earthquake and tsunami caused 15,870 deaths, with 2,814 people still listed as missing, and 394,356 buildings were completely or partially destroyed. (Source: "Koho Shiryo (Publicity Bulletin)" dated Sep 10, 2012 issued by Emergency Disaster Countermeasures Headquarters, National Police Agency of Japan). The total number of evacuees, including those who had to evacuate or relocated due to the nuclear power plant accident that was triggered by the earthquake and tsunami disaster, reached about 470,000 people on the third day after the disaster. One and a half years have already gone by; even now about 330,000 people still have to evacuate. (Source: Data dated on September 12, 2012 provided by the Reconstruction Headquarters in response to the Great East Japan Earthquake of the Reconstruction Agency).

In the midst of this unprecedented disaster, people in the affected areas acted in a moral, orderly manner, which received high praise from around the world. On the other hand, however, the fragility of the infrastructure for risk management and security maintenance was revealed. The urban functions of the affected areas were paralyzed by the disaster to a far greater extent than expected. Although one and a half years have passed since the disaster, there still remain many issues, works toward recovery and reconstruction from the disaster were really yet to start.



In Fukushima Prefecture, a nuclear power plant was hit by the tsunami, magnifying the disaster. (Source provided by the Fukushima Prefecture Police Department)



The disaster-affected areas have taken steps slowly toward recovery, Sep 15, 2012.

What can the university do? – Efforts by Tohoku University

Under these circumstances, Tohoku University, despite damage to research facilities and laboratories, has made rapid progress along the road to recovery and has initiated the “Brand New Tohoku University” project.

How can the university best serve, with its academic resources, efforts to recover from the disaster, and prevent or mitigate future disasters? As probably the only university in the world that has experienced a disaster of this scale, what can Tohoku University do? We should contribute to the rebirth of Japan by creating new values and also by addressing issues of post-disaster reconstruction, which are common to all mankind. These are the concepts behind our efforts in post-disaster reconstruction.

Major Efforts by Tohoku University toward Recovery and Reconstruction from the Disaster

2011

- March Various post-disaster recovery and reconstruction activities (Reconstruction Action started by individual departments)
- April Tohoku University Institute for Disaster Reconstruction and Regeneration Research established under the concept of major post-disaster reconstruction and regional regeneration research projects
- July Seven projects organized
- October Research Organization of Electrical Communication established

2012

- January Comprehensive Training Center for Community Medicine established
- February Tohoku Medical Megabank Organization established
- March Spirit of Tohoku University 2011 (Various international symposiums organized)
- April International Research Institute of Disaster Science established
- May The seven projects are reorganized into eight projects (Radioactive Decontamination Project added)



The Tohoku University Regional Reconstruction Project “HARU,” a volunteer group mainly consisting of students, is also engaged in the conservation of cultural properties.



Tohoku University Hospital focused all its efforts on receiving patients immediately after the disaster in cooperation with affected municipalities.



Institute for Disaster Reconstruction and Regeneration Research

As an university located at the center of the disaster-affected area ,
Tohoku University will continue to play a leading role in reconstructing Tohoku and in revitalizing Japan.

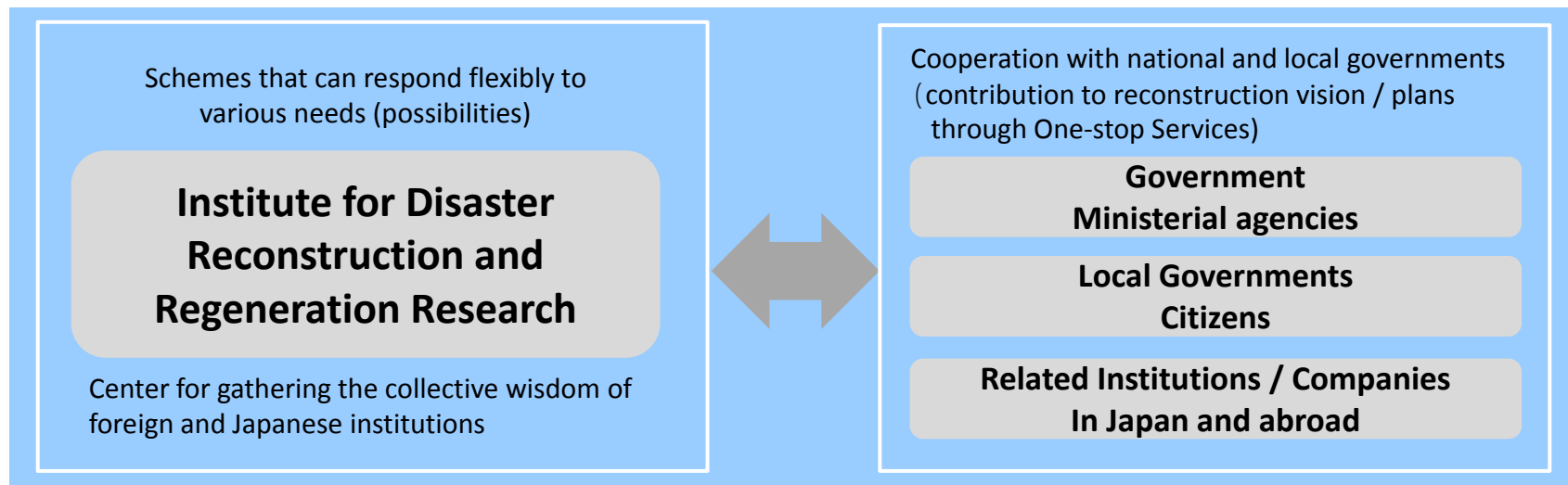
To accomplish the aim, Tohoku University established in April 2011 the Institute for Disaster Reconstruction and Regeneration Research, which was positioned as an organization to be engaged in research, education and societal contribution strategically and systematically and communicate results of its activities to the public and apply them in practical settings. It is our aim to make one-stop services available to implement reconstruction visions and plans in cooperation with the government and ministerial agencies, local governments and citizens, and related institutions and companies in Japan and abroad. We have launched “Eight Projects,” and promoted and supported “Reconstruction Action 100” through flexible operation and participation by the entire university in line with the three missions.

Missions

Mission1 Contributing to post-disaster reconstruction and regional regeneration

Mission2 Creating a multidisciplinary center of excellence for post-disaster reconstruction

Mission3 Establishing a cross-disciplinary research organization to conduct problem-solving projects



Eight Projects/Reconstruction Action 100⁺

Eight Projects

Project1 International Research Projects on Disaster Science P.6-7

Project2 Project for the Reconstruction of Community Health Care P.8-9

Project3 Project for Environmental Energy P.10-11

Project4 ICT Reconstruction Project P.12

Project5 Tohoku Marine Science Project P.13

Project6 Radioactive Decontamination Project P.14

Project7 Regional Industries Restoration Support Project P.15

Project8 Industry-University Collaboration Development
Project for Reconstruction P.16

Reconstruction Action 100⁺

Relief activities for affected people
Survey and understanding extent of damage
Recovery and reconstruction activities
Disaster prevention and mitigation measures
Improvement of infrastructure and other facilities
Industrial reconstruction and research and development

P. 18-19

International Research Projects on Disaster Science (1)

**The International Research Institute of Disaster Science - IRIDeS -
its aim is to become a world center for the study of disasters and disaster mitigation.**

Creation of “the action-oriented Disaster Science”

Disaster mitigation management aims to reduce or avoid the potential losses from natural hazards, to assure prompt assistance to victims, to achieve rapid and effective recovery, and to build disaster-resilient and sustainable societies, by five stages of the disaster management cycle; Mitigation, Preparedness, Response, Recovery and Reconstruction. The action-oriented research of the IRIDeS is a pursue of each point in the cycle and integrating and universalizing the scientific discoveries to be dedicated to the world.

The IRIDeS creates a new academia of disaster mitigation that subsumes the lessons from the 2011 Tohoku earthquake and tsunami disaster and the findings of the world-leading research into our societies with the aim of establishing the social systems responding promptly, sensibly and effectively to natural disasters, withstanding the adversities with resiliency, passing and exploiting the lessons to the forthcoming disaster management cycles.

Logo meaning

The IRIDeS logo means the deformatized image of the Japanese character of disaster (災) turned upside down, based on the idea of Japanese saying “Turn your misfortune to good account.” It represents our mission of learning the lessons from the Great East Japan Earthquake and pursuing effective disaster management to build sustainable and resilient societies. The name of the institute is abbreviated as IRIDeS and pronounced ee-ree-dis based on irides, the plural of iris, which symbolizes “hope and integrity.”

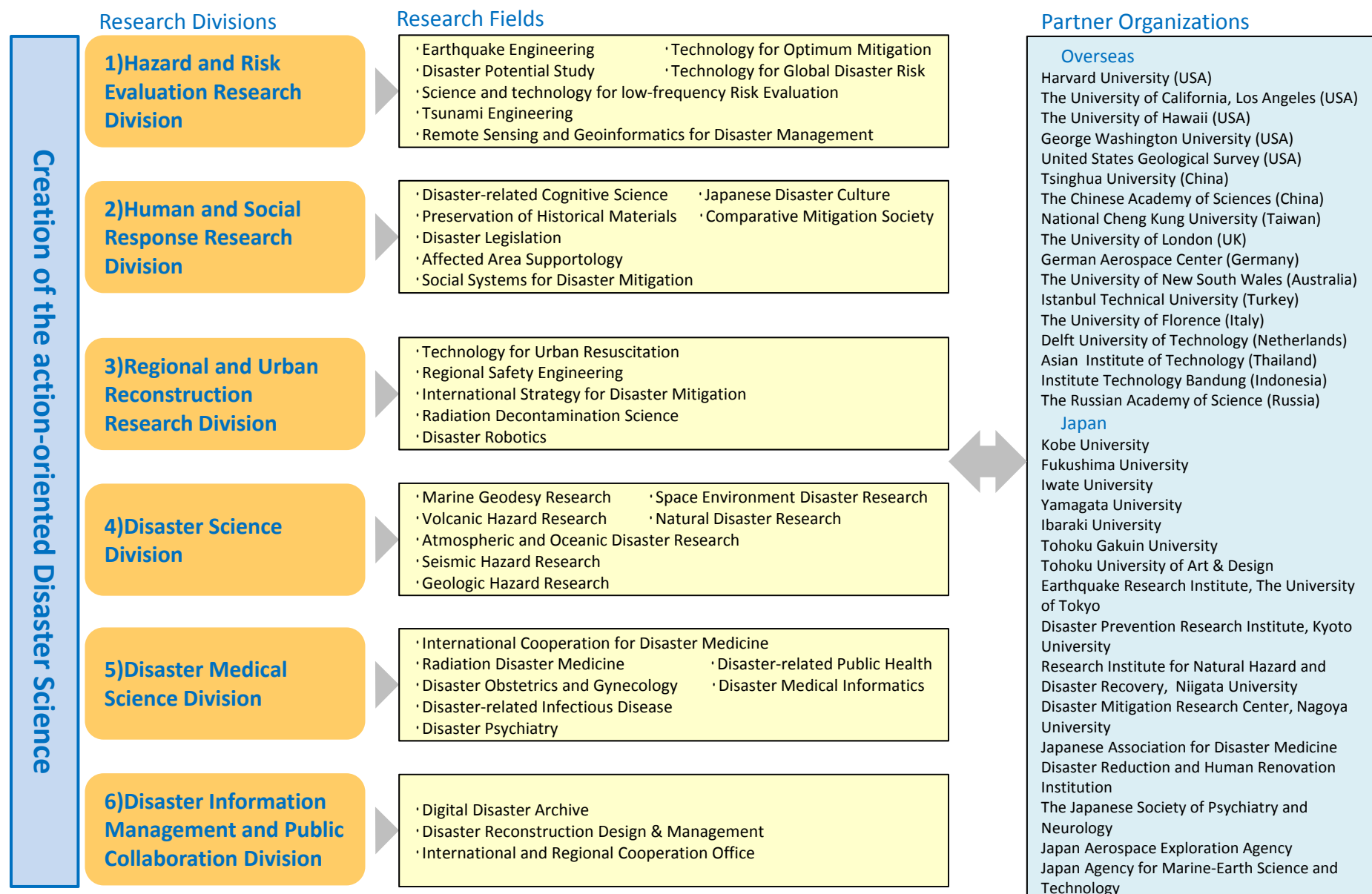


Execution of the joint research agreement between German Aerospace Center and the IRIDes in Jul, 2012.



The IRIDes Opening Ceremony in May, 2012. Guests from domestic and international partner organizations were invited.

International Research Projects on Disaster Science (2)



Project for the Reconstruction of Community Health Care (1)

Two major missions: development of healthcare professionals providing local health care services and establishment of a Biobank

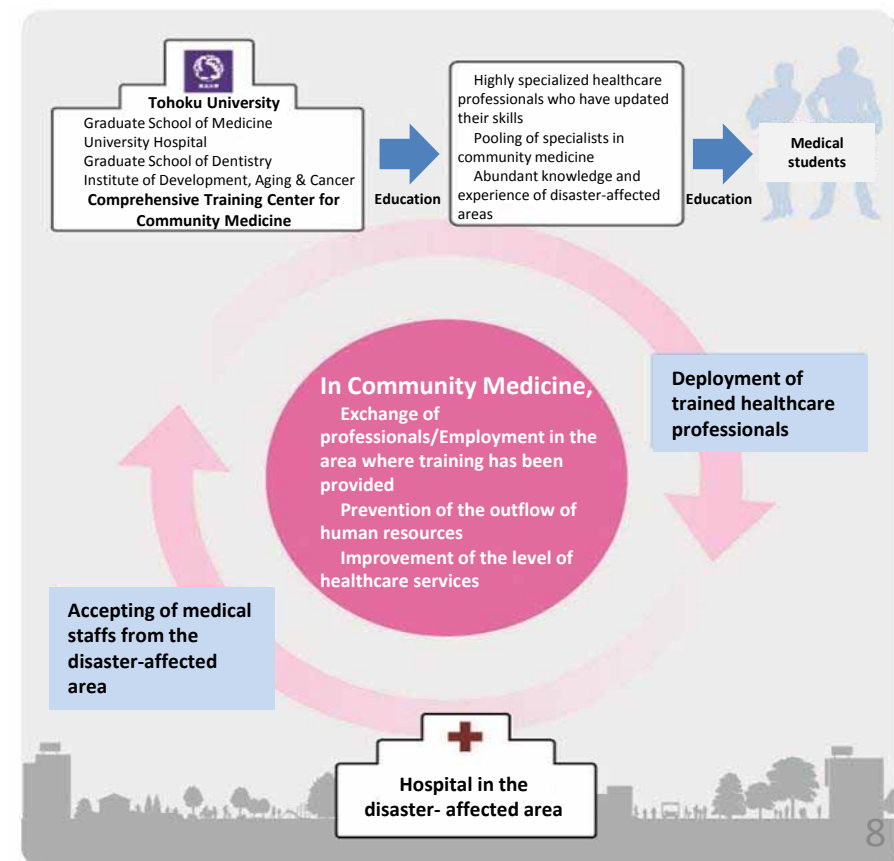
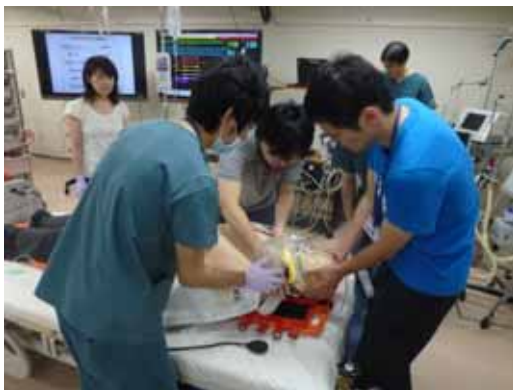
When the Great East Japan Earthquake hit the Tohoku region, many medical facilities in coastal areas were lost due to the tsunami. While many affected people were left untreated, the number of healthcare professionals who lost their jobs increased. In addition, valuable medical information, including patients' medical records, was also lost. Our efforts will be focused on contributing to improve the system of educating healthcare professionals with Tohoku University Hospital as its core. We also aim to contribute to reconstructing local healthcare networks to provide affected people with healthcare services, establishing an advanced medical system, including use of a database of medical information, and creating industries in the Tohoku region.

(1) The Comprehensive Training Center for Community Medicine

The Comprehensive Training Center for Community Medicine

1) employs healthcare providers, who were affected by the Great East Japan Earthquake by offering positions related to advanced medicine at the Tohoku University Hospital and runs a training center equipped with cutting-edge simulators to offer them opportunities for continuous training; and has developed a self-contained system under which healthcare professionals who have improved their knowledge and skills through training are offered an opportunity to work in local health care settings.

2) invites healthcare professionals who are engaged in disaster medicine in the disaster-affected area to provide students with lectures on practical disaster medicine covering an extensive range of fields to develop professionals who will be engaged in community/disaster medicine.



Project for the Reconstruction of Community Health Care (2)

(2) Tohoku Medical Megabank Organization

Tohoku Medical Megabank Organization promotes the Tohoku Medical Megabank project that consists of reconstruction of community medical institutions, establishment of information infrastructure for collaboration in community health care, and Biobank Project.

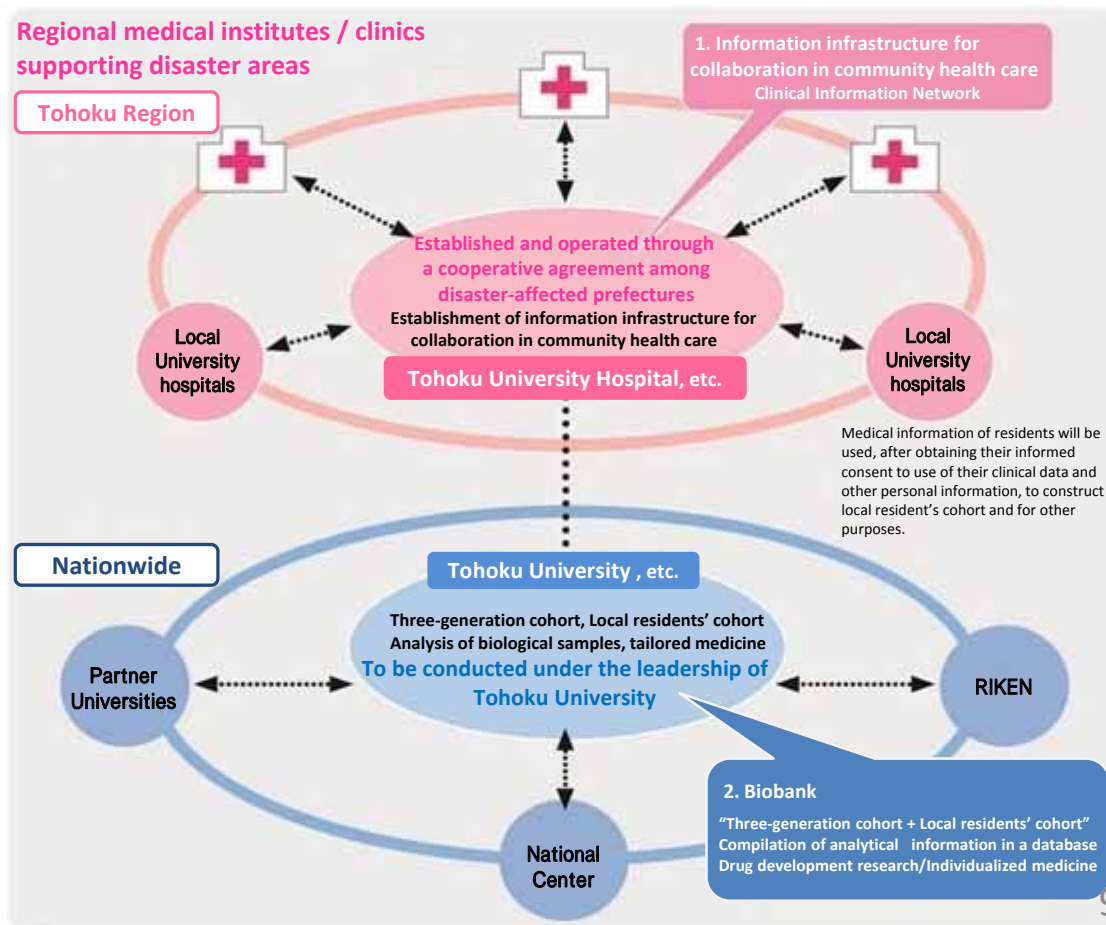
In the Biobank Project, a long-term health survey on residents in the disaster-affected area is conducted. Data obtained from the cohort studies will be used, in cooperation with leading research institutions in Japan, to form a global research center for genomic medical care, genomic preventive medicine, drug development, and translational research.



Signed a cooperation agreement between Miyagi Prefecture and Tohoku Medical Megabank Organization in Sep, 2012.



Tohoku Medical Megabank Organization Logo
ToMMO(pronounced toe-mow) means “friends” and “together” in Japanese
Tohoku Medical Megabank Organization will continue to work closely with regional communities.



Project for Environmental Energy (1)

Building of advanced disaster-resistant communities and transformation into next-generation energy sources, as part of the reconstruction of the Tohoku region

The energy supply systems in the Tohoku region, and indeed in the whole of Japan, were significantly damaged due to accidents at nuclear power plants, disruption of operation at thermal power plants, and other problems caused by the tsunami. This has focused attention on energy security in the event of disasters, particularly from the perspectives of planning reconstruction and promoting industry. Several local governments in the disaster affected area have included an eco-town plan using clean energy sources in their reconstruction plans.

In this context, Tohoku University believes that it is necessary developing a new clean energy and establishing an energy management system to ensure a steady power supply. We have been working in research and development on clean energy technology in order to fulfill our aim which is to help promote the reconstruction of the Tohoku region and the solution of Japan's energy problems.

Tohoku University plays a central role as the core institution of a consortium which includes universities and local governments stricken by the Great East Japan Earthquake. The consortium members tackle the following three tasks.

Research Tasks

1. Research and development on wave power and other ocean renewable energies applicable to the Sanriku coast
2. Research and development on using algae biofuels
3. With a focus on renewable energy, research and development on integrated community energy control systems enabling human and vehicle mobility

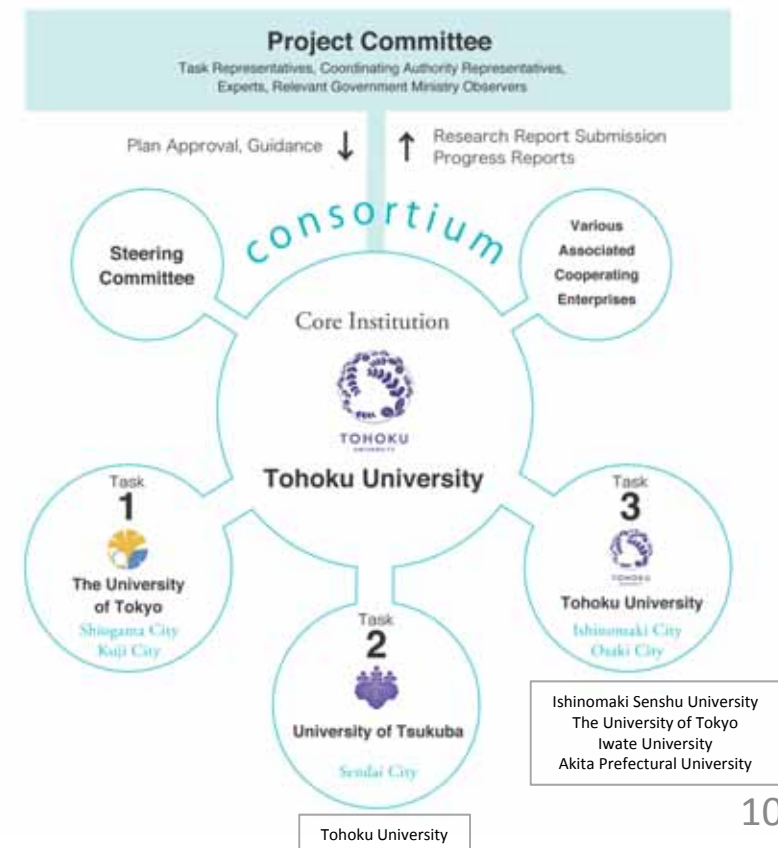


Research Representative



Sendai Mayor

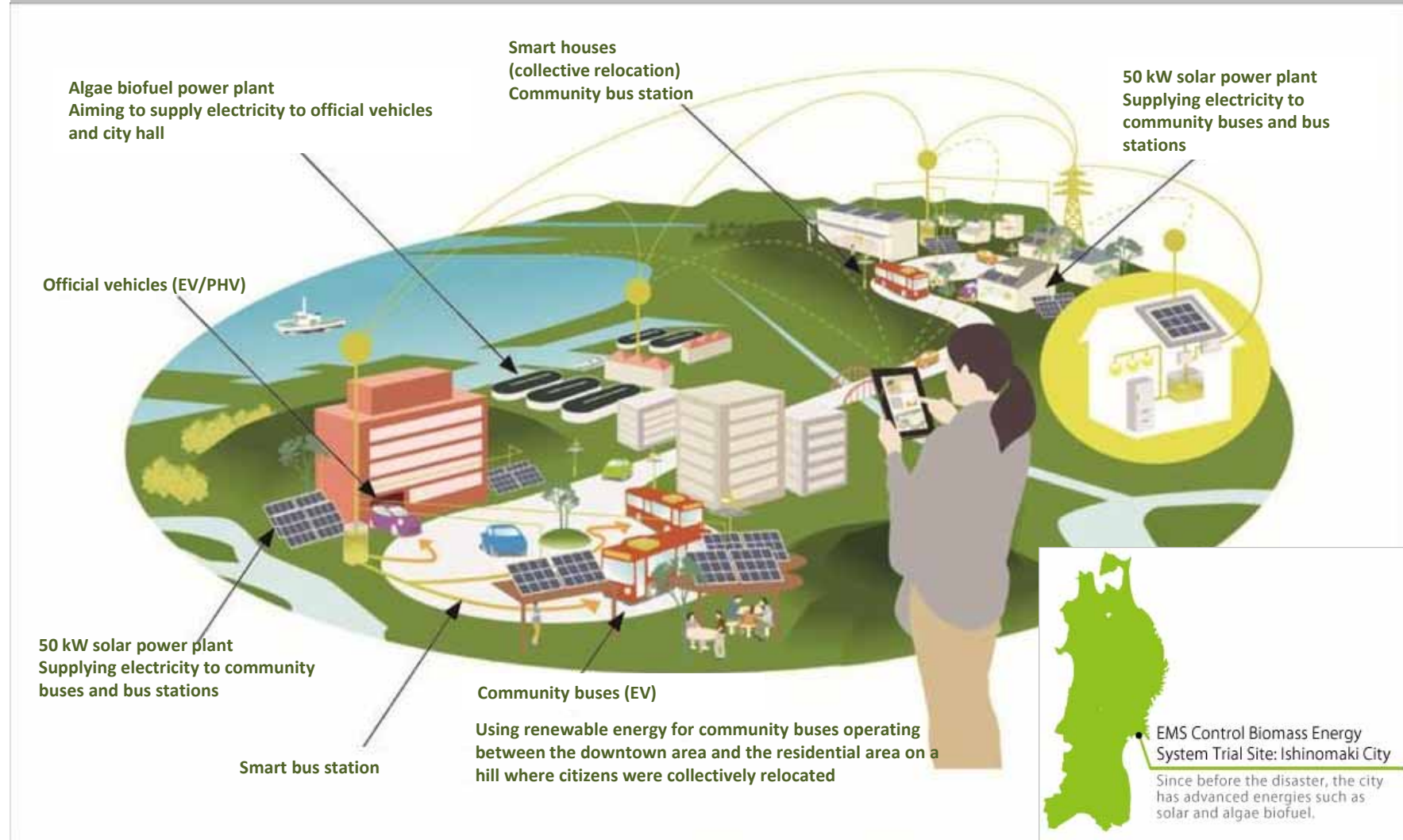
The consortium members gathered at the kickoff symposium in Sep, 2012. The mayors from the five cities shared their thoughts and hopes for this project.



Project for Environmental Energy (2)

Building integrated community energy management systems enabling human and vehicle mobility with a focus on renewable energy (conceptual drawing)

Ishinomaki City (coastal) : Application to Disaster-Stricken Locality

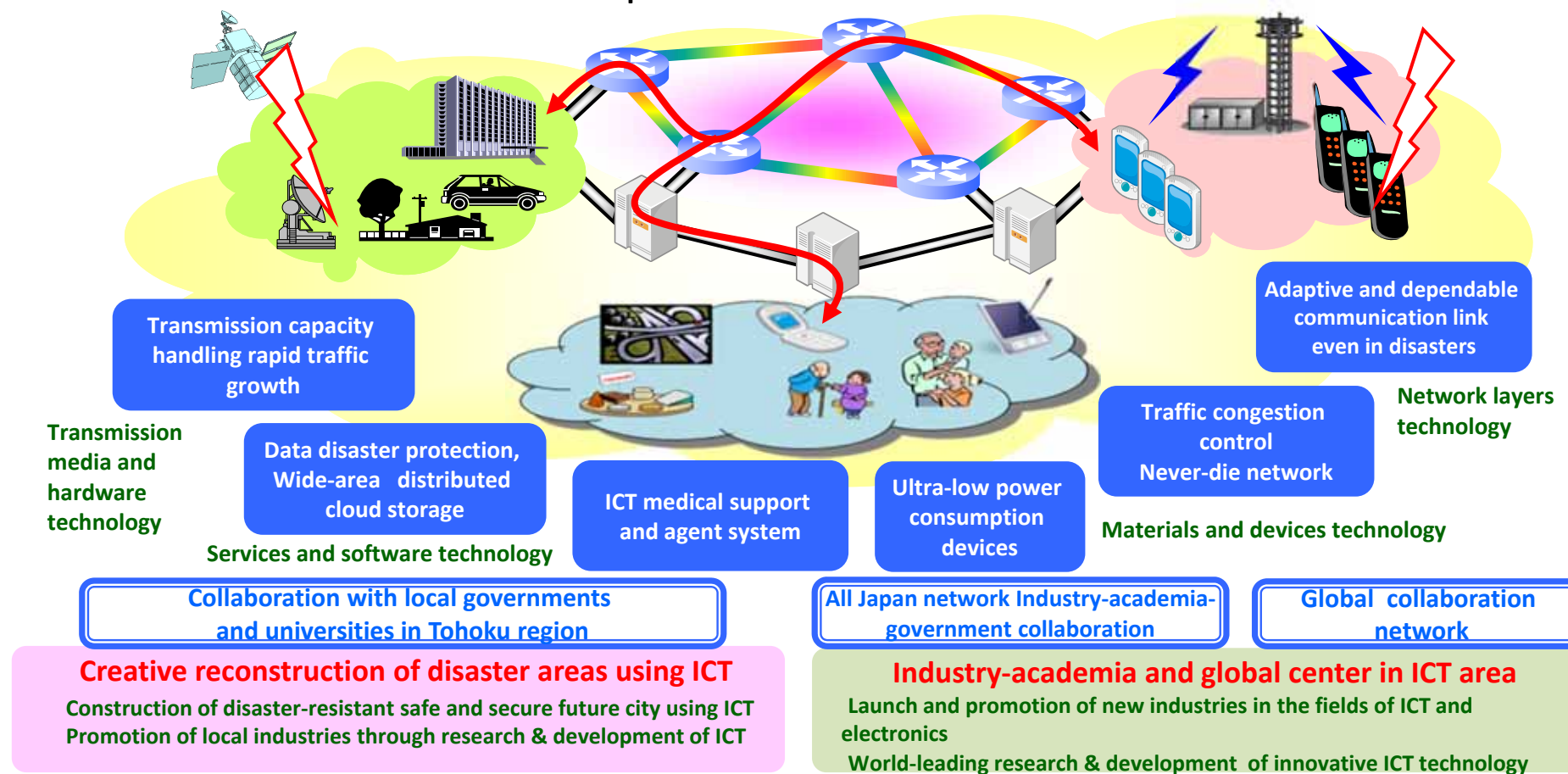


ICT Reconstruction Project

Resolving issues and concerns associated with ICT infrastructure that have been revealed following the Great East Japan Earthquake

Following the Great East Japan Earthquake, the vulnerability of our information communication technology (ICT), which could be seen in the disruption of communication lines, the failure of information gathering, and the insufficiency of information, was revealed, exposing issues that need to be addressed. In response to these issues, Tohoku University established in October 2011 the Research Organization of Electrical Communication (ROEC) which is a cross-cutting organization. In January 2012, the comprehensive collaboration arrangement between Tohoku University and the National Institute of Information and Communications Technology (NICT) was entered, and the world-leading research center named Resilient ICT Research Center was established in April 2012. These organizations have been making steady progress in addressing the issues with aims to develop disaster-resistant information communication infrastructure and to form the center to demonstrate research results.

Establishment of a center for development and demonstration of disaster-resistant ICT infrastructure



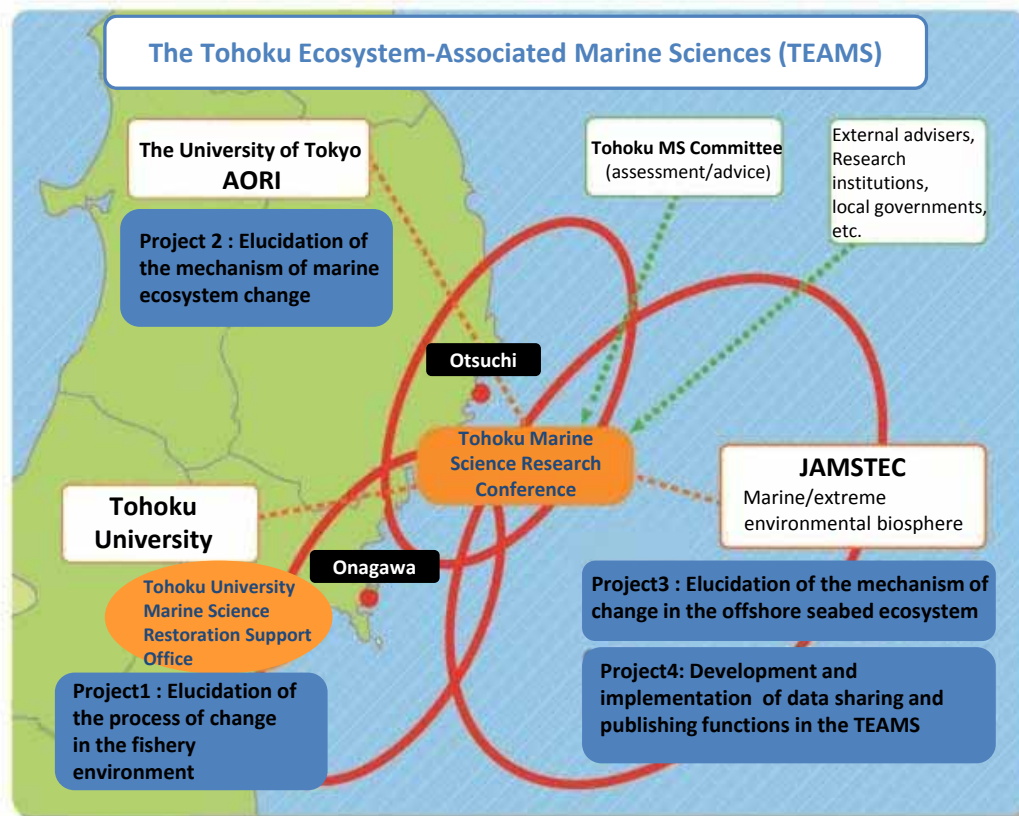
Tohoku Marine Science Project

Launch of the Tohoku Ecosystem-Associated Marine Sciences(TEAMS)

The great earthquake and massive tsunami that occurred on March 11 affected and significantly damaged the marine environment, which provides us with the ocean's bounty. At present it is totally unknown how seriously the marine ecosystem and environment have been affected by the pile-up of a large amount of debris, loss of seaweed beds and tidelands, which serve as habitats for organisms, sand and mud deposited on reefs, destruction of transitional zones between land and sea due to ground subsidence, and spread of heavy oil and radioactive substances.

To achieve recovery of the fishing industry and reconstruction of the affected areas, it is essential to conduct surveys to identify the damage and to launch new industries.

The TEAMS is conducted with Tohoku University as its representative and the University of Tokyo's Atmosphere and Ocean Research Institute (AORI) and the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) as deputy representatives, with the collaboration of Kitasato University, Tokyo University of Marine Science and Technology, Iwate University, and Tokai University. Under the collaboration of these research institutes, the "Tohoku Marine Science Research Conference" was established to conduct four research projects to survey the impacts of the disaster on the marine environment and ecosystem. Of these four projects, Tohoku University has been assigned to Project1.



Project1 : Elucidation of the process of change in the fishery environment

1) Surveys on the fishery environment (Examining the impacts of the disaster and building an observing system)



Environmental research on a regular basis using a Tohoku University research vessel



Building a real-time observing system for marine environment

2) Surveys on the fishery environment (Elucidation of the recovery process of coastal ecosystem destroyed by tsunami)

3) Surveys on the propagation and aquaculture environment (Supplying seeds and studying a sustainable production management system)

4) Current situation surveys on the marine environment (in cooperation with Kitasato University)

Radioactive Decontamination Project

Recovery of the living environment from contamination by radioactive substances

The spread of radioactive substances caused by the accident at TEPCO's Fukushima No.1 nuclear power plant resulted in a far-reaching serious radioactive contamination stretching from Fukushima Prefecture. In addition to the effect on local residents' health, it has caused contamination of agricultural and marine products, that in turn had a massive impact on both consumers and producers' livelihoods. Unresolved issues such as effects on ecosystems and health problems of human bodies caused by exposure to radioactive substances still remain.

What we basically need to remove radioactive substances, restore living conditions, and dispel unfounded rumors are to elucidate the mechanism of radioactive contamination and develop a decontamination technology, to investigate the impact of radioactive substances on living creatures and/or human bodies, and to provide the public with accurate and useful findings and data based on science.

(1) Development of technology to restore the living environment contaminated by radioactive substances

The Research Center for Remediation Engineering of Living Environments Contaminated with Radioisotopes was established to initiate in fiscal year 2012 the three technologies shown below. Detailed methods for these technologies will be determined in the latter half of the project period. A branch office was established in Fukushima City, too, in cooperation with Fukushima University and Fukushima Medical University to identify technologies needed by municipalities. The results will be reflected in technology development.

Three objectives of technology development

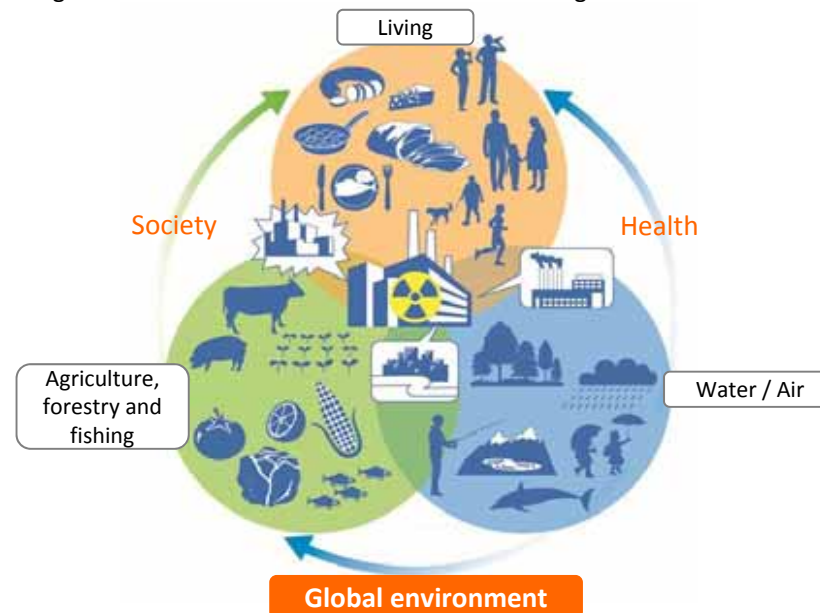
- 1) Development of new technologies to extract and concentrate radioactive cesium contained in contaminated soil and to use collected radioactive substances effectively
- 2) Development of cultivation methods to grow radiation-free agricultural products
- 3) Development of large-aperture gamma ray detection technology for rapid contamination detection



Decontamination of the playground of a primary school in Miyagi Prefecture

(2) Establishment of animal archives contaminated by radioactive substances

There are concerns about the influence of the spread of radioactive substances on ecosystems. The objective of the project is to set up an organ bank with data on radionuclides and radioactivity deposited in the internal organs of farm and wild animals together with the water and the soil in the evacuation area surrounding the power plant. Organs are collected from disposed animals that were exposed to radiation due to the nuclear power plant accidents. Based on the results, researchers will assess how much radioactivity has been deposited via environmental media and in which organs of the body, with the aim of providing basic information for further research on biological influence.

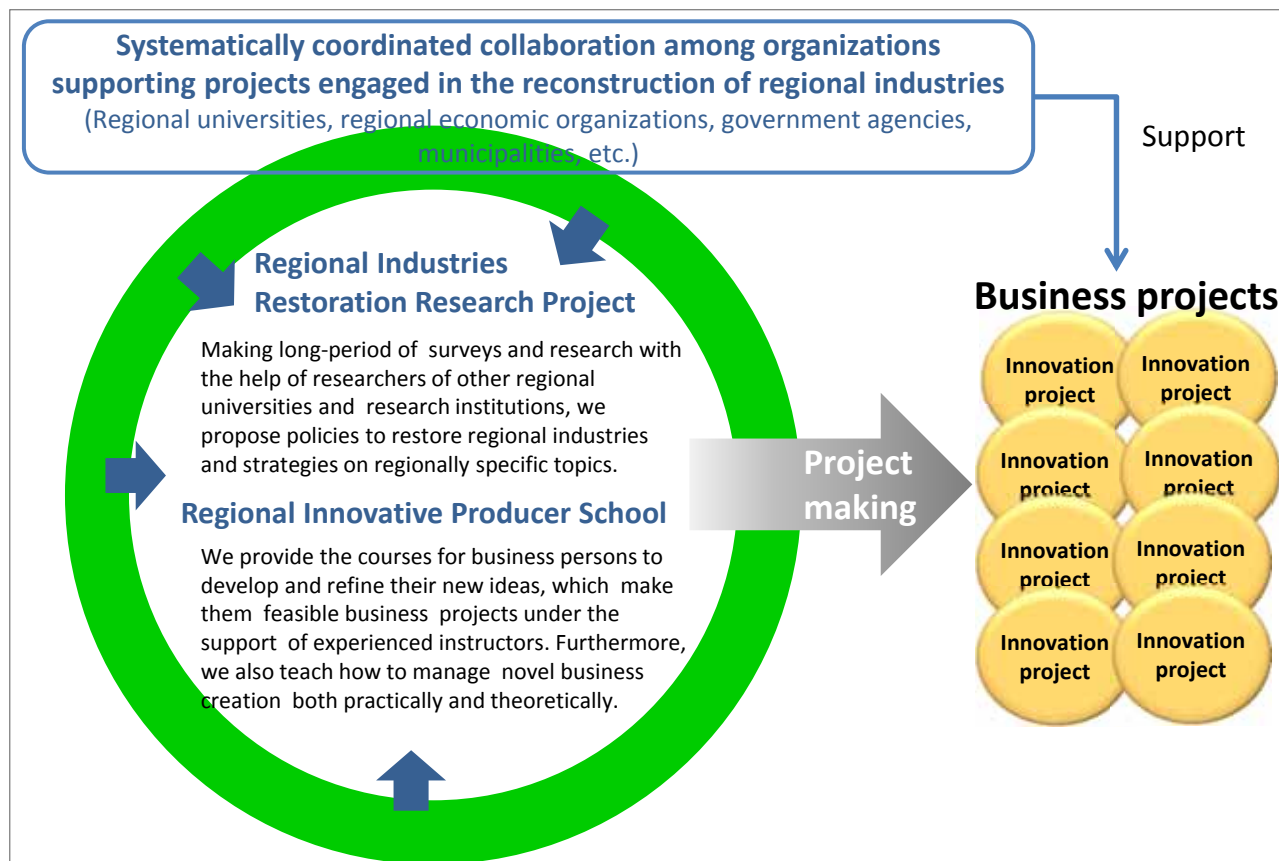


Regional Industries Restoration Support Project

To provide continuous supports to the restoration of industries and communities in the Tohoku region

In order not only to restore the stricken areas to pre-disaster situation, but also to enable these to flourish more than before, it is insufficient to reconstruct only buildings and infrastructures. There are lots of social problems which cannot be solved by buildings. What must be necessary for the reconstruction of regional industries and communities are clarifying issues and finding solutions through the continuing research study of regional industries and communities, and developing human resources capable of making innovation happen.

Our project consists of two parts: the first is the Regional Industry Restoration Research Project, in which researchers continuously investigate the progress of reconstruction and contemplate what kind of industries and communities should be desired in the new Tohoku region. Based on the research, the policy proposals and information will be published from the perspective of the disaster-affected areas. The second is the Regional Innovative Producer School. It provides training programs designed for executives, successors of local companies and next-generation of business persons in order to develop their abilities of making innovation happen. Through this school we support the creation of new value and activities leading toward an increase of new job opportunities in the Tohoku Region through developing human resources that can contribute to the revitalization of the regional industries. The school started experimentally with 12 students in fiscal 2012, and we are planning to accept 30 students from the fiscal 2013.



Publications of research results in March, 2012



The initiation ceremony of the Regional Innovative Producer School in May, 2012



Industry-University Collaboration Development Project for Reconstruction

To achieve practical application of science and technology innovations developed in the Tohoku region

Many companies in the Tohoku region have been facing financial, technological, human resource-related and various other kinds of difficulties since the Great East Japan Earthquake. With the aim of fostering innovation and strengthening the industrial infrastructure, which serves as the basis for the economic revitalization of the disaster-affected areas, our efforts in this project are focused on contributing to the revitalization of the regional economy through effective use of technological intellectual property ("IP") owned by Tohoku University, promotion and strengthening of cooperation between industry and the university to support the regional economy, and commercialization of products jointly developed through cooperation between companies and university researchers.

To achieve the above objectives, Tohoku University will further strengthen the cooperative relationships with industrial organizations (Tohoku Economic Federation, Miyagi Industrial Association, etc.) and municipalities in Miyagi Prefecture and make full use of the reconstruction policies of the Ministry of Education, Culture, Sports, Science and Technology, the Ministry of Economy, Trade and Industry, and other government agencies so that the university can devote more effort to producing technological IP and promoting the transfer of its technology to companies in the disaster-affected areas. It is our final goal to commercialize our innovative technological IP in companies in the disaster-affected areas in such a way as to contribute to the revitalization of these areas.

Example of reconstruction efforts (JST)

Supporting innovative concepts for the reconstruction of the region to help create innovative technology that can play a leading role in achieving the rebirth of Japan

Supporting a model of regional development implemented under the leadership of the region using science and technology as an engine for the reconstruction of the disaster areas

Achievement of practical applications of science and technology innovations developed in the Tohoku region

Reconstruction Promotion Programs

Industry-university cooperative support using matching planners (Promotion of matching)

Development of technological IP of universities and other institutions in response to the needs of the disaster areas (A-STEP)

Resolution of technological issues in Tohoku Industrial circles (Industry-academia collaboration)

Contribution to building a model of regional development by supporting the commercialization of innovative technology

Step-by-step achievement of what Tohoku University can do

One of the specific efforts by Tohoku University is a project where intellectual resources are used effectively to support the clustering of automobile-related industries and the advanced electronic machine industry to create globally competitive industrial areas. One of the most noteworthy projects is the "Tohoku University Technological Seeds & Needs Matching Project," where, since September 2011, "Matching Conferences" for "food and agricultural fields," "IT field" and "manufacturing and medical engineering fields" and "Mono-zukuri (product manufacturing) Individual Counseling Meetings" in cooperation with financial institutions, support organizations, and large manufacturers of automobiles and advanced electronic machinery have been organized.

Specific examples of major Tohoku University business projects

- Tohoku University Technological Seeds & Needs Matching Project
- Establishment of the industry-university-government cooperative Open Innovation Center in the material field (METI)
- Tohoku-Originated Material Technology Project (MEXT)
- Reconstruction Promotion Program (JST)
- Cluster Formation Project for next-generation car industries
- Cluster Formation Project for medical device industries

Contact Information

<p>1. International Research Projects on Disaster Science</p> <ul style="list-style-type: none"> ● IRIDeS - International Research Institute for Disaster Science <p>Tel: +81-22-795-4893 Email: contact@irides.tohoku.ac.jp Web: http://irides.tohoku.ac.jp/eng/</p>	<p>5. Tohoku Marine Science Project</p> <ul style="list-style-type: none"> ● Marine Science Restoration Support Office, Tohoku University <p>Tel: :+81-22-717-8827 Email: agr-marin@bureau.tohoku.ac.jp Web: http://www.agri.tohoku.ac.jp/teams/index.html (in Japanese)</p>
<p>2. Project for the Reconstruction of Community Health Care</p> <ul style="list-style-type: none"> ● Comprehensive Training Center for Community Medicine <p>Tel: +81-22-717-8010 Email: ctc@med.tohoku.ac.jp Web: http://www.ctc.med.tohoku.ac.jp/ (in Japanese)</p> <ul style="list-style-type: none"> ● Tohoku Medical Megabank Organization <p>Tel: +81-22-717-8078 Email: megabank-shomu@bureau.tohoku.ac.jp Web: http://www.megabank.tohoku.ac.jp/english/</p>	<p>6. Radioactive Decontamination Project</p> <ul style="list-style-type: none"> ● Research Center for Remediation Engineering of Living Environments Contaminated with Radioisotopes <p>Tel: +81-22-795-7943</p> <ul style="list-style-type: none"> ● Establishment of animal archives contaminated by radioactive substances (Fukumoto Laboratory, Institute of Development, Aging and Cancer) <p>Tel: +81-22-717-8507 Web: http://www2.idac.tohoku.ac.jp/hisaidoubutsu/ (in Japanese)</p>
<p>3. Project for Environmental Energy</p> <ul style="list-style-type: none"> ● Tohoku Recovery Next-Generation Energy Research and Development Organization <p>Tel: :+81-22-795-7408 Email: net@mail.kankyo.tohoku.ac.jp Web: http://www.kankyo.tohoku.ac.jp/net/english/</p>	<p>7. Regional Industries Restoration Support Project</p> <ul style="list-style-type: none"> ● Regional Innovation Research Center <p>Tel: :+81-22-217-6265 Email: rirc@econ.tohoku.ac.jp Web: http://www.econ.tohoku.ac.jp/econ/english/rirc/</p>
<p>4. ICT Reconstruction Project</p> <ul style="list-style-type: none"> ● ROEC - Research Organization of Electrical Communication, Tohoku University <p>Tel: :+81-22-217-5566 Email: roec-web@riec.tohoku.ac.jp Web: http://www.roec.tohoku.ac.jp/en/</p>	<p>8. Industry-University Collaboration Development Project for Reconstruction</p> <ul style="list-style-type: none"> ● Industry-University Cooperation Division, Research Cooperation Department, Tohoku University <p>Tel: :+81-22-217-5907 Email: sangaku@bureau.tohoku.ac.jp</p>

Reconstruction Action 100⁺

Tohoku University faculty members have engaged in “Reconstruction Action 100⁺”, which consists of more than 100 various voluntary projects to support the reconstruction and revitalization process since the Great East Japan Earthquake. While taking advantage of our own knowledge and specialty, we are promoting those activities based on six categories as follows.

Relief activities for affected people

- Support for disaster-affected children
- Mental care for disaster-affected people
- Donation of school supplies and more...

Survey and understanding extent of damage

- Identification of victims' bodies
- Monitoring of radiation and radioactivity
- Assessment of the biological environment impacts of the tsunami and radiation leakage and more...

Recovery and reconstruction activities

- Removal of toxic substances from tsunami sediment
- Relief and recovery by architects
- Technological support in relation to the Fukushima Nuclear Power Plant and more...

Disaster prevention and mitigation measures

- Study on the mechanism of the Great East Japan Earthquake and application of study results in practical settings
- Development of disaster prevention technology and more...

Improvement of infrastructure and other facilities

- Re-evaluation of disaster laws and regulations
- Survey of the needs for oral care in disaster-affected residents and establishment of a system to provide oral care services and more...

Industrial reconstruction and research and development

- Development of alternative energy sources
- Development and deployment of disaster-resistant medical instruments and more...

* The activities listed above include projects that have already been completed.

Reconstruction Action 100⁺

Center for Community Health



The Center for Community Health provides support to the local communities in Miyagi Prefecture that were affected by the Great East Japan Earthquake.

Green Restoration Project in the Sea and Rice Fields



Biological monitoring studies of tsunami-hit tidelands and rice fields have been promoted to restore the coastal areas.

Rescue activities for disaster-affected museums



Precious specimens and archaeological documents were rescued from disaster-affected museums in Miyagi Prefecture.

Development of rescue robot technology



Rescue robots and related technologies for victim search and information gathering in piles of rubble are developed. A rescue robot named "Quince" that Tohoku University co-developed with Chiba Institute of Technology was used for the investigation in the heavily damaged buildings of Fukushima No.1 Nuclear Power Plant.

Agricultural Reconstruction Project

Rape Blossoms Project



Jul, 2011



Sep, 2011



May, 2012

Vast areas of farmland were devastated by seawater. Soils were too saline to sustain crops. Citizen volunteers helped to get rid of the tsunami sediments covering the farmland.

The seeds of salt-tolerant rape blossoms were sowed in the farmland.

The rape blossoms were in full bloom. They were sold at grocery stores, and the disaster-affected farmers got income. This project also provides the study on the recovery process of farmlands.

Agricultural Reconstruction Project consisting of more than 30 activities assists in restoration of the agriculture, forestry and fisheries industry, such as planting rape blossoms in farmlands damaged by seawater, supporting reconstruction of oyster farms, and saving the farm animals in the evacuation zone surrounding the Fukushima No.1 Nuclear Power Plant.

Overview of Tohoku University

Organization (as of May 1, 2012)

Faculties /Schools	10
Graduate Schools	16
Professional Graduate Schools	3
Research Institutes	6

Number of Faculty and Staff Members (as of May 1, 2012)

Board of Directors	10
Faculty Members	2,992
Administrative/Technical Staff/ Others	3,016
Total	6,018

Number of Students (as of May 1, 2012)

	School Enrollment	International Students
Undergraduate Students	10,970	138
Graduate Students	7,033	1,064
Students at Affiliated Schools	42	0
Research Students/ Others	403	229
Total	18,448	1,431

Agreements on Academic Exchange (as of May 1, 2012)

University Level Agreements	31 countries/regions	172 institutions
Development Level Agreements	43 countries/regions	335 institutions

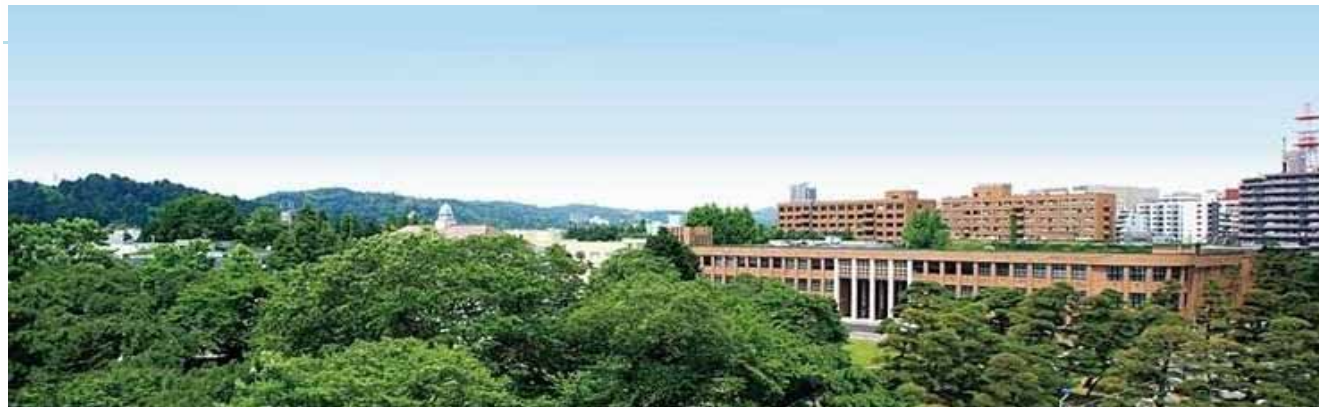
University Consortia (as of May 1, 2012)

Association of Pacific Rim Universities (APRU)

The Association of East Asian Research Universities (AEARU)

Top Industrial Managers for Europe (T.I.M.E)





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