

Sendai City Earthquake Disaster Reconstruction Plan

Interim Draft

(Digest Version)

The Sendai City Earthquake Disaster Reconstruction Plan identifies systematic measures that the municipal government and citizens should jointly implement in an organized manner for the earliest possible restoration and recovery from the Great East Japan Earthquake.

Position of the plan (relationship with the Sendai City Basic Vision and the Sendai City Basic Plan)

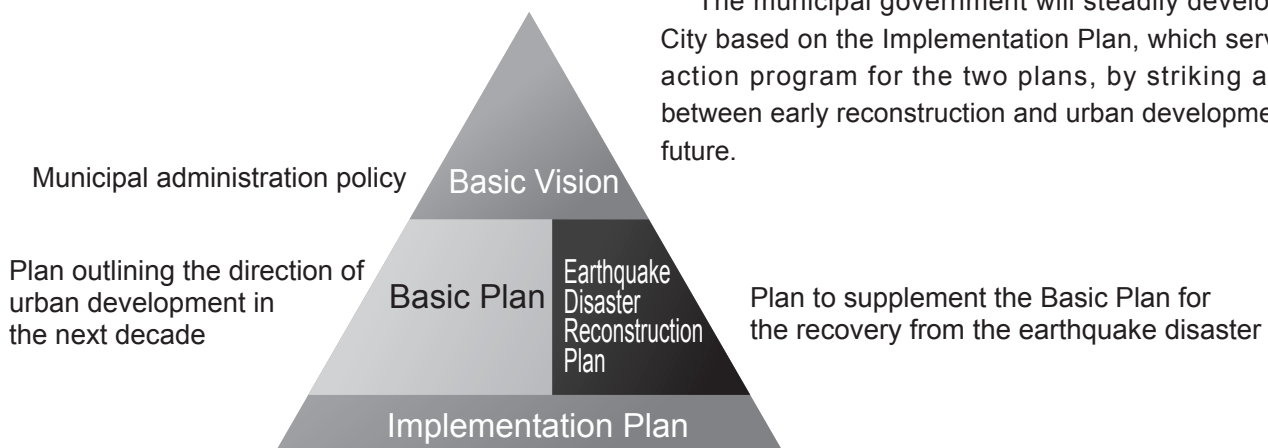
The Sendai City Basic Plan presents the direction of urban development in the next decade to achieve the vision of the city for the mid-21st century, which is described in the Sendai City Basic Vision.

Many citizens recognized the importance of citizens' power, which was referred to in the Basic Vision, as they helped one another after the earthquake and ensuing catastrophe. People also realize that the direction of urban development defined in the Basic Vision is crucial for the future reconstruction effort.

The City of Sendai must continue working to create the city envisaged in the Basic Vision, while rebuilding after the earthquake disaster together with the citizens.

Various initiatives for the restoration and recovery from the devastation caused by the earthquake require systematic actions from a mid- to long-term perspective in light of their scales and impacts on urban development. Therefore, the City has drawn up this Earthquake Disaster Reconstruction Plan to supplement the Basic Plan, and will actively work on this plan.

The municipal government will steadily develop Sendai City based on the Implementation Plan, which serves as an action program for the two plans, by striking a balance between early reconstruction and urban development for the future.



Basic philosophy of reconstruction

The earthquake disaster caused complex and extensive damage, and much remains to be done. It also revealed that citizens' power, including self-help, mutual assistance, and local community ties that have been built, is a great strength to overcome hardships.

Aggregating the valuable experience of the one million citizens and their wisdom that supported them in desperate situations, and taking steps forward together, is the reconstruction approach we will take.

The earthquake disaster completely overwhelmed conventional disaster-prevention measures and the concept of urban energy. In reconstruction, it is crucial to address the issues identified through the disaster by adopting flexible approaches without adhering to past practice.

With these in mind, the municipal government, with diverse and wide-ranging citizens' power, will actively work toward rebuilding Sendai. With the concept of "a disaster-resistant, environmental city of a new level," the City will build multiple defense systems based on disaster reduction and implement new energy measures and other environmental policies in a comprehensive manner in order to develop a resilient and stronger city.

I Overview

1 Outline of the plan

(1) Objective of creating this plan: To define systematic measures that the municipal government and the citizens should jointly implement in an organized manner for the earliest possible restoration and recovery from the Great East Japan Earthquake

(2) Position of the plan:

Basic Vision (presenting the ideal vision of Sendai City)

Basic Plan (ten-year plan for the development of the vision)

Earthquake Disaster Reconstruction Plan

(3) Period of the plan:

Fiscal 2011-2015 (5 years)

Long-term issues to be addressed (psychological care for the victims, rebuilding their livelihoods, human resource development, etc.)

2 Review of the Great East Japan Earthquake — 3 Ideal reconstruction for Sendai

- (1) Complex damage and issues
- (2) Warnings about energy supply
- (3) Encouraging self-help, independence and ties, and cooperation
- (4) Starting reconstruction of the Tohoku region



II One million people's reconstruction projects

- 1 Tsunami reduction and housing reconstruction project to "protect lives from tsunami"
- 2 Residential area rebuilding project to "build the foundation for safe homes"
- 3 Life recovery project to "support individual livelihoods"
- 4 Agricultural and food frontier project to "strongly revitalize agriculture"
- 5 Seaside exchange and revitalization project to "restore the beautiful coast"
- 6 Model development project for a disaster-proof Sendai to "learn from the lessons for the future"
- 7 Energy-saving and new energy project to "sustain energy supply"
- 8 Urban vitality creation project that "proactively uses the special reconstruction zone system"
- 9 Exchange promotion project to "promote the features of the city and its reconstruction efforts"
- 10 Earthquake disaster memorial project to "convey the memory of the earthquake disaster to future generations"

III Revitalizing life and local communities

- 1 Supporting disaster victims in rebuilding their life
- 2 Revitalizing agriculture
- 3 Ensuring the safety of residential land and supporting its restoration
- 4 Supporting local businesses
- 5 Responding to the nuclear power plant accident

IV Urban development through reconstruction

- 1 Developing a disaster-resistant city that protects its citizens' lives and livelihoods
- 2 Developing a city powered by energy-saving/new energy
- 3 Developing a city of independence and coexistence where its citizens support each other
- 4 Developing a city of exchange and vitality to drive the restoration of Tohoku

V Implementing the Reconstruction Plan

- (1) Implementing the plan in a creative and flexible manner based on ties and cooperation
- (2) Roles that each entity should play
- (3) Ensuring consistency with sustainable fiscal administration
- (4) Using the special reconstruction zone system
- (5) Systematic implementation based on the implementation plan

1 Tsunami reduction and housing reconstruction project to "protect lives from tsunami"

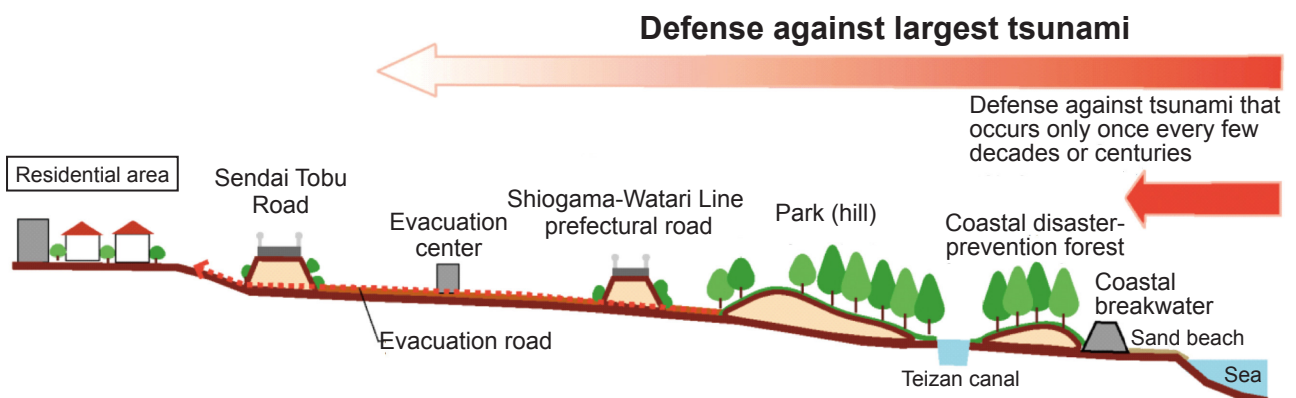
In order to rebuild the east part of Sendai which was seriously damaged by the tsunami, we will take various measures to reduce the damage caused by tsunami, including using rubble to raise the height of the Shiogama-Watari Line prefectural road so that the road can function as a "second breakwater."

As for areas at high risk for tsunami, we will take measures to secure safe houses primarily by promoting relocation to the safer west part of Sendai.

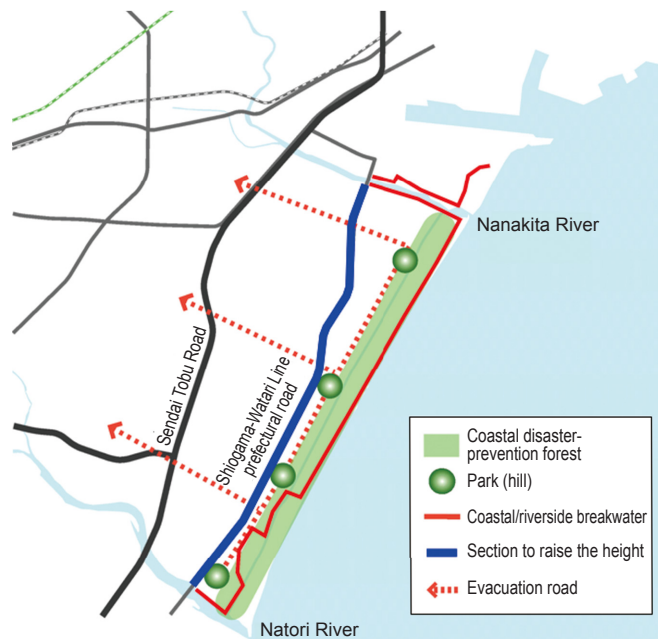
Specific initiatives

- Reducing tsunami damage by raising the height of prefectural roads
 - Raise the height of the Shiogama-Watari Line prefectural road so that the road can function as a "second breakwater." Take measures to reduce tsunami damage, including restoration of disaster-prevention forests that are unlikely to be washed away.
 - In raising the height of the prefectural road and in building hills, use removed rubble and deposited sand where possible.
- Securing evacuation facilities
 - Secure multiple facilities for protecting citizens' lives from tsunami, including constructing buildings and hills for evacuation from tsunami and evacuation roads, and using roads in the eastern part of Sendai as emergency evacuation sites.
- Securing safe housing
 - In areas at high risk of tsunami damage even after the development of disaster-prevention facilities, prohibit construction of new houses and extension of existing houses, and promote relocation to the safer western part of Sendai for housing safety.
 - In areas at certain risk of tsunami damage even after the construction of disaster-prevention facilities, allow rebuilding of houses in these areas, in principle, while somewhat restricting building construction to ensure safety.
 - Secure permanent houses for the disaster victims as early as possible by building public reconstruction housing, to be available by fiscal 2013.

Conceptual image of tsunami-prevention facilities (cross-section view)



Conceptual image of disaster-prevention facilities against tsunami (plan view)



Concept of securing safe housing



● Relationship between depth of inundation and danger

- According to academic research on the relationship between the depth of inundation and danger, the percentage of houses that may be washed away increases when the depth of inundation exceeds two meters. A survey conducted by Sendai City on the recent earthquake disaster revealed similar results.
- In light of these findings, areas where the expected depth of inundation exceeds two meters are considered areas at high risk of tsunami damage.

● Housing security and building restrictions

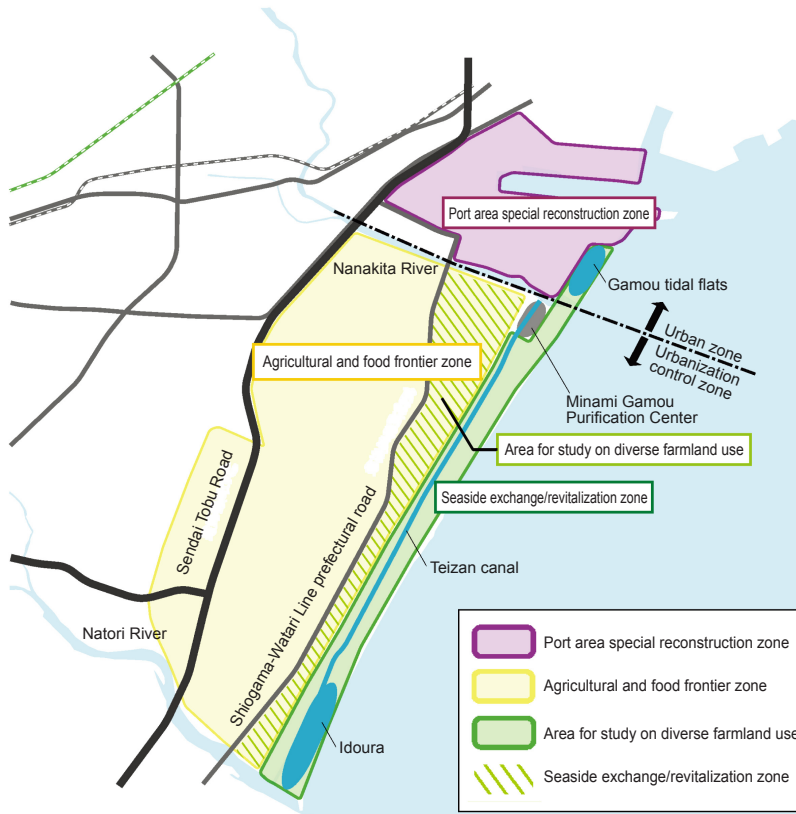
Area subject to relocation:

- As the expected depth of inundation exceeds two meters, the area is at high risk. Construction of new houses and extension of existing houses will be prohibited, and relocation to the safer western part of Sendai will be encouraged for housing safety.
- Candidate destination areas are business sites under land readjustment in the western Tago and eastern Arai areas, planned business sites under land readjustment in the Arai area, and developed land in the vicinity of the Tobu Road where safety has been improved by embankments.

Area where rebuilding is permitted with building restrictions:

- Although the expected depth of inundation in part of this area exceeds two meters, wash-away and other damage is likely to be small in view of the geography and the use of neighboring land. Improvement of the disaster-prevention capabilities of existing buildings will be encouraged, provided that certain restrictions are imposed when constructing new houses and extending existing houses.

Land use in the eastern part of Sendai



● **Port area special reconstruction zone**

- This area will assist the reconstruction efforts of disaster-affected companies in the port area and attract new growth industries by proactively using the special reconstruction zone system.

● **Agricultural and food frontier zone**

- This area will encourage farmers to review their management (e.g., consolidation of farmland, incorporation), convert to competitive crops, and enter into the sixth industry.
- In the area to the east of the Shiogama-Watari Line prefectural road in this zone, there are concerns about farmers' motivation for farming, subsidence, and salt damage, so the diverse use of farmland for rebuilding farmers' livelihoods will be studied in accordance with their intentions.

● **Seaside exchange/revitalization zone**

- With the revitalization of the Gamou tidal flats and Idoura, which are Sendai's precious natural environment, this attractive zone will enable citizens to come in contact with coastal nature.
- The development of hills and roads for evacuation, as well as establishment of memorial facilities to convey the memory of the earthquake disaster to future generations, will be considered.
- * In the northern Gamou area, which is north of Nanakita River, urban infrastructure will be redeveloped in consideration of new uses of the sites left after collective relocation.
- * In the urbanization control zone south of Nanakita River, new uses of the sites left after collective relocation will be studied, and the sites will be reorganized, together with farmland, in a comprehensive manner.

2 Residential area rebuilding project to "build the foundation for safe homes"

This project will promote the restoration of residential land in the hilly urban districts that suffered severe damage, including landslides and collapse of retaining walls, through post-disaster restoration projects. It will also consider establishing a system to provide support from Sendai City for residential land that is ineligible for national support.

Specific initiatives

● **Rebuilding residential land for safe living**

- Promote restoration efforts through post-disaster restoration projects in areas where residential land suffered extensive landslides or collapse and at sites where retaining walls and slopes suffered large-scale damage. Collective relocation and other measures will be considered, where necessary, to rebuild a safe and secure living environment.
- With regard to residential land ineligible for national support, promote early rehabilitation by considering establishing Sendai's unique support system, such as providing subsidies to land owners when they rehabilitate their land.

● **Residential land security for the future**

- Proactively provide information on residential land disaster to the national government. Collect information on the disaster history of residential land in Sendai and on developed land with large-scale embankments. Based on these local data, national trends, and lessons learned from the recent disaster, consider how residential land information should be provided to ensure the safe and secure living of citizens.

3 Life recovery project to “support individual livelihoods”

This project, through cooperation with related organizations, will provide comprehensive support to disaster victims to help them rebuild their lives, including establishing an economic base such as employment, and securing permanent residence.

The project will tailor its support to ensure individual victims' mental and physical health so they can concentrate on getting their life back in order with a sense of security.

Specific initiatives

● Diverse support for independence

- Secure employment by creating emergency employment and resolving job mismatches, and provide opportunities to work.
- Support disaster victims to secure a permanent residence by building public reconstruction housing.
- Enhance the system to respond to individuals' problems and connect them to specialized bodies.

● Fine-tuned care to reassure everyone

- Provide health support tailored to individual situations, such as health improvement, care prevention, and mental care.
- Promote comprehensive local care systems in conjunction with new urban development in the eastern part of Sendai.



Comprehensive support

Individuals' efforts to rebuild their lives

Improve mental and physical health
(Psychological care/observation)

Establish an economic base
(Job creation/work support)

Secure housing
(Develop public reconstruction housing)

4 Agricultural and food frontier project to “strongly revitalize agriculture”

While accelerating initiatives to resume farming, such as agricultural facility restoration and salt removal, this project will encourage farmers to review their management (e.g., consolidation of farmland, incorporation), convert to competitive crops, and enter into the sixth industry, with the aim of rebuilding the eastern part of Sendai as an agricultural and food frontier.

Specific initiatives

● Restoring and recovering farmland

- Promote the removal of rubble from farmland, restoration of irrigation drainage canals and drainage pumping stations, and salt removal from farmland.

● Supporting farmers in enhancing their management base

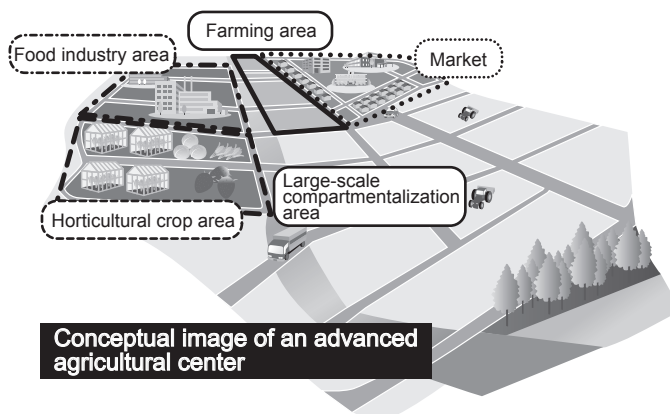
- Enhance the production base, including developing large-scale farmland, and support incorporation and tie-up with private capital.

● Launching suburban agriculture

- Conduct studies on agriculture as a service industry (e.g., provision of guidance on running vegetable gardens by farmers who have outstanding production techniques, tourism-oriented farm operation), and provide support to farmers who enter such businesses.

● Promoting the sixth industry

- Create added value to agriculture, and support farmers who enter the food processing, distribution and sales business to raise the level of agriculture.



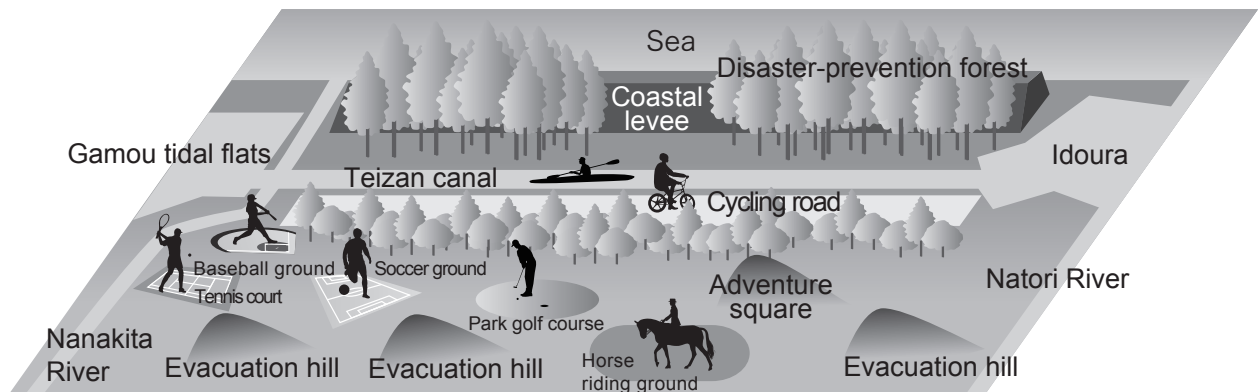
Conceptual image of an advanced agricultural center

5 Seaside exchange and revitalization project to “restore the beautiful coast”

This project will improve coastal disaster-prevention forests, which may reduce tsunami damage, and restore the beautiful coastal landscape. It will also work to restore the Gamou tidal flats and Idoura, which are Sendai's precious natural environment, as part of the effort to restore Sendai's east coast as an attractive zone that allows citizens to come in contact with coastal nature.

Specific initiatives

- Restore disaster-prevention forests, Gamou tidal flats, etc.
- Rehabilitate sports/recreation facilities
- Secure the safety of citizens visiting the coast



6 Model development project for a disaster-proof Sendai to “learn from the lessons for the future”

As a city that experienced an unprecedented disaster, Sendai will develop a “Sendai model” for disaster prevention based on the lessons learned, and publicize the model, both in Japan and abroad.

This project will review the operations and functions of evacuation centers by considering the issues faced in the event of a disaster, raise awareness of self-help and cooperation, develop local disaster-prevention leaders, and promote new disaster-prevention education at schools.

Specific initiatives

- **Reviewing the operations and functions of evacuation centers**
 - Review the operations and functions of evacuation centers to establish a Sendai model that can be conveyed to other municipalities.
- **Educating people on disaster prevention**
 - Enhance awareness-raising activities based on the lessons learned from the earthquake disaster and promote individual self-help of Sendai citizens.
 - Develop local disaster-prevention leaders to promote disaster-prevention activities in local communities and improve the ability to independently prevent disasters.
 - Promote the Sendai model of disaster-prevention education at schools, through cooperation with local communities, so that school children can acquire disaster-prevention skills that they will need throughout their life.
- **Developing ties beyond community borders**
 - In light of the tremendous national and foreign support received after the disaster, promote cooperation with diverse entities beyond community borders.



7 Energy-saving and new energy project to “sustain energy supply”

An eco model town project will be launched in areas where new urban development is planned, with the aim of developing a disaster-proof city that does not excessively depend on a specific type of energy.

This energy project will also develop a next-generation energy center by attracting large-scale solar power generation projects, biomass power generation projects, etc., to secure diverse energy sources.

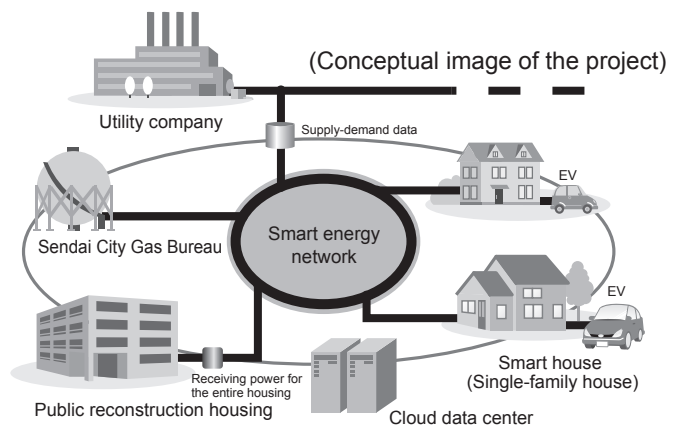
Specific initiatives

● Eco model town

- Optimize the energy portfolio to include renewable energy and natural gas.
- Promote model initiatives that strike a balance between high energy efficiency and economy.
- Promote the use of smart power meters and development of services using ICT.

● Developing next-generation energy R&D center

- Develop an R&D center by attracting large-scale solar power generation projects, biomass power generation projects, etc., and supporting R&D on algal biomass.



8 Urban vitality creation project that “proactively uses the special reconstruction zone system”

This project will proactively use the special reconstruction zone system to support the restoration efforts of disaster-affected companies in the port area and to attract new growth industries to the area.

It will also attract institutions that conduct research on disaster prevention and the environment in relation to the recent disaster, and promote cooperation between the research institutions and intellectual resources in Sendai, the “Study Capital,” to revitalize the city.

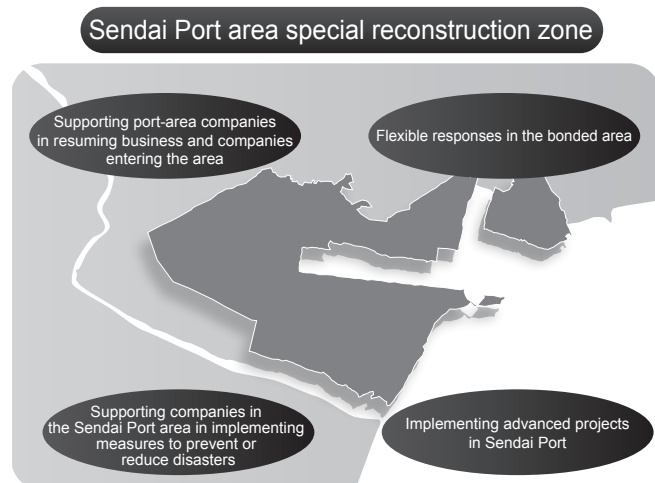
Specific initiatives

● Special reconstruction zone in the port area

- Not only to support disaster-hit companies located around Sendai Port but also to attract new growth industries around the port, use the special zone system and other systems to ease various regulations and provide tax breaks or financial support.

● Attracting research institutions focusing on disaster-prevention and the environment

- Attract various research institutions that focus on earthquake disasters and promote cooperation between them and intellectual resources of the Study Capital, because progress in research on the mechanism of the recent earthquake and tsunami would enhance the ability to withstand earthquake disasters around the world.



9 Exchange promotion project to “promote the features of the city and its reconstruction efforts”

This project will attract conventions and international conferences, such as the United Nations World Conference on Disaster Reduction, to actively publicize the progress of reconstruction in Sendai and the Tohoku region, both domestically and internationally. It will also launch a large-scale tourism campaign to attract many visitors to the Tohoku region.

The project will also actively attract the private sector by offering as much support as possible, including deregulation and preferential treatment, to develop large-scale cultural facilities.

Specific initiatives

● Attracting international conferences and conventions

- Attract various international conferences and conventions with the expectation of economic ripple effects on tourism and other local industries, and take these opportunities to publicize the progress of reconstruction in Sendai and the Tohoku region, both domestically and internationally.

● Conducting a large-scale tourism campaign, etc.

- Attract visitors to Sendai and the entire Tohoku region by carrying out a large-scale tourism campaign, and promoting extensive cooperation and various promotion activities.

● Inviting facilities to make Sendai more attractive and vital

- Invite large-scale cultural facilities and convention facilities in conjunction with urban development along the Subway Tozai Line.
- Improve the environment for private investment by effectively using unused land and providing support measures, including deregulation with the special zone system and preferential tax or financial treatment.



10 Earthquake disaster memorial project to “convey the memory of the earthquake disaster to future generations”

This project will develop memorial facilities that archive the threats of earthquake disasters and subsequent reconstruction efforts to pass them on to future generations.

This project will also create a symbol of reconstruction, which will be used in publicizing the progress of reconstruction of Sendai and the Tohoku region, through cooperation with a wide range of citizens, and a mechanism of using intellectual resources of Sendai, the Study Capital, as well as private-sector expertise and funding, for reconstruction projects.

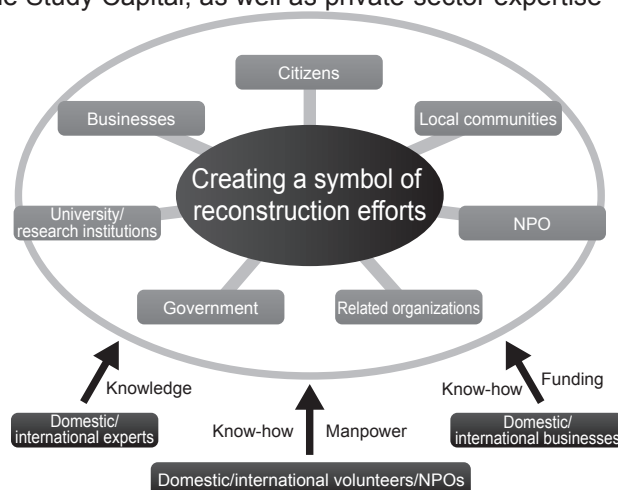
Specific initiatives

● Developing memorial facilities

- Develop a center to archive and disseminate the earthquake disaster and reconstruction efforts and pass them on to future generations.
- Build monuments in honor of the earthquake victims in the eastern part of Sendai.

● Developing a symbol of reconstruction through cooperation

- Create a symbol of reconstruction through cooperation with a wide range of citizens, including children who will support Sendai in the future.
- Develop a mechanism of using intellectual resources of Sendai, the Study Capital, as well as knowledge, know-how and funding of domestic and international experts and businesses for reconstruction projects.



III

Revitalizing life and local communities

- 1 Supporting disaster victims in rebuilding their life** _____
 - (1) Establishing a healthy and safe life
 - (2) Establishing economic independence
 - (3) Securing permanent housing
- 2 Revitalizing agriculture** _____
 - (1) Restoring farmland
 - (2) Study on highly productive agriculture
 - (3) Supporting disaster-affected farmers to resume farming
 - (4) Cooperating with universities and research institutions
- 3 Ensuring the safety of residential land and supporting its restoration** _____
 - (1) Preventing secondary damage
 - (2) Supporting restoration efforts
- 4 Supporting local businesses** _____
 - (1) Providing financial support to local businesses
 - (2) Supporting the resumption of business activities
 - (3) Providing support for the expansion of transactions and sales channels
- 5 Responding to the nuclear power plant accident** _____
 - (1) Approach to the national government
 - (2) Monitoring radiation and providing information
 - (3) Preventing malicious rumors

IV

Urban development through reconstruction

- 1 Developing a disaster-resistant city that protects its citizens' lives and livelihoods** _____
 - (1) Comprehensive measures against tsunami with multiple defense functions
 - (2) Creating disaster-proof urban infrastructure
 - (3) Enhancing the ability to respond to disasters
 - (4) Enhancing extensive cooperation and a hub role
- 2 Developing a city powered by energy-saving/new energy** _____
 - (1) Developing an eco model town
 - (2) Taking initiatives for reducing environmental impacts
 - (3) Promoting the use of public transportation
 - (4) Promoting cooperation to promote energy-saving efforts
- 3 Developing a city of independence and coexistence where its citizens support each other** _____
 - (1) Promoting local mutual support activities
 - (2) Developing leaders who support reconstruction efforts
 - (3) Promoting new forms of civic cooperation
- 4 Developing a city of exchange and vitality to drive the restoration of Tohoku** _____
 - (1) Agricultural and food frontier
 - (2) Attracting new energy-related industries
 - (3) Developing a disaster-prevention industrial city
 - (4) Supporting diverse local businesses, shopping streets, etc.
 - (5) Developing a new tourism strategy to attract visitors

V

Implementing the Reconstruction Plan

- (1) Implementing the plan in a creative and flexible manner based on ties and cooperation
- (2) Roles that each entity should play
- (3) Ensuring consistency with sustainable fiscal administration
- (4) Using the special reconstruction zone system
- (5) Systematic implementation based on the implementation plan

Sendai City welcomes your comments.

We invite comments from our citizens on this Sendai City Earthquake Disaster Reconstruction Plan (interim draft) to improve the plan. We appreciate your cooperation.

How to send your comments:

Write your opinion on this interim draft, as well as your name and address (in the case of an organization, the name of the organization, its representative, and address), in any format, and send it to the Office of Disaster Reconstruction, Sendai City Hall, via fax, mail, or e-mail, by Monday, October 17, 2011. You may also submit the completed form in person to your ward office or general information counter at a general branch office (in the case of Akiu General Branch Office, the General Affairs section). Or, you can submit your comments online by using the electronic application system on the Sendai City website.

Please note that we cannot reply to each comment received.

We will use your personal information only for the purpose of this solicitation for comments, and not for other reasons.

Fax

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Mail

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Website (electronic application service)

**[http://www.city.sendai.jp/
fukko/iken.html](http://www.city.sendai.jp/fukko/iken.html)**

* For details of the interim draft, please visit the Sendai City website mentioned above.

* An outline of comments received and the status of response will be announced on the website.

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