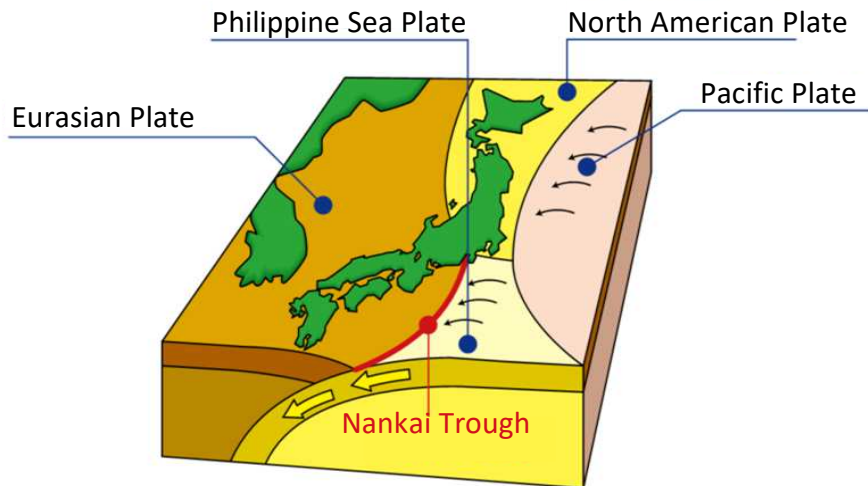


Nankai Trough Earthquake Safety Measures

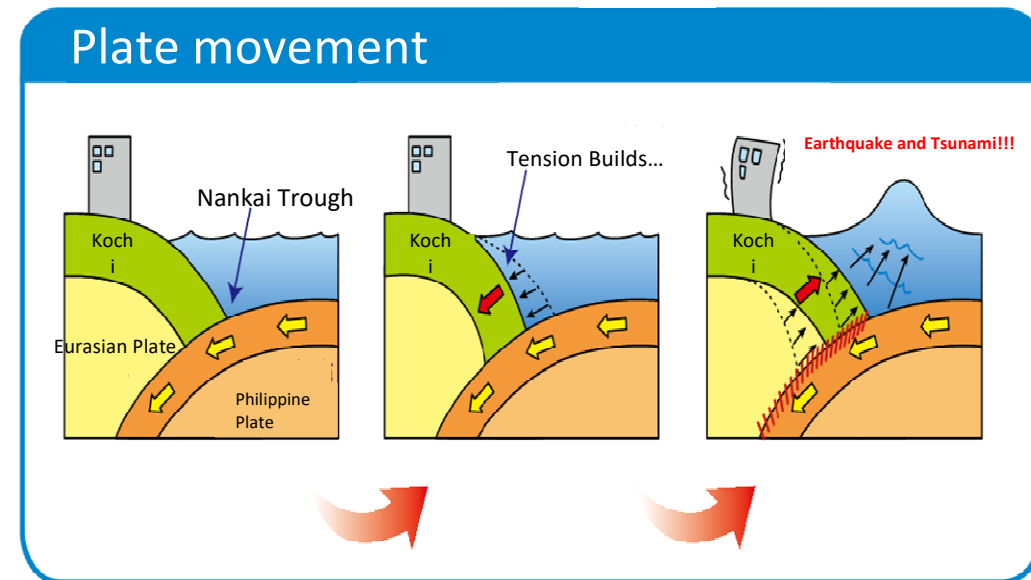
How will the earthquake happen?

Some background information:

- The Earth's surface is covered in large, flat bedrock called plates. They are several dozen kilometres thick.
- These plates **move** slightly every year by a few centimetres, sometimes more.
- Off the coast of Tosa Bay, the Philippine Sea Plate is gradually sinking under the Eurasian Plate.
- Every year, friction gradually builds near the boundary between two plates.
- **When too much friction is created**, the sunken plate tries to return to its original position. This movement causes an **earthquake**.
- During an earthquake, all of Kochi will shake violently, and the **movement of the seafloor will significantly raise the sea's surface**, causing a **tsunami** along the coast.
- **Magnitude (M)** is used to measure the size of an earthquake, while the **Shindo scale** is used to measure its strength.



The plates are moving!



Can we predict the intensity of the Nankai?

1 Scale of the Nankai Using Anticipated Damage

■ Largest Possible Nankai Earthquake (L2)

- Based on the current technology and scientific knowledge, this is the largest possible earthquake
- We can't determine when it will strike, but it is incredibly rare

■ More Common Standard Nankai Earthquake (L1)

- This earthquake and tsunami occurs every 100 to 150 years and brings about mass destruction.

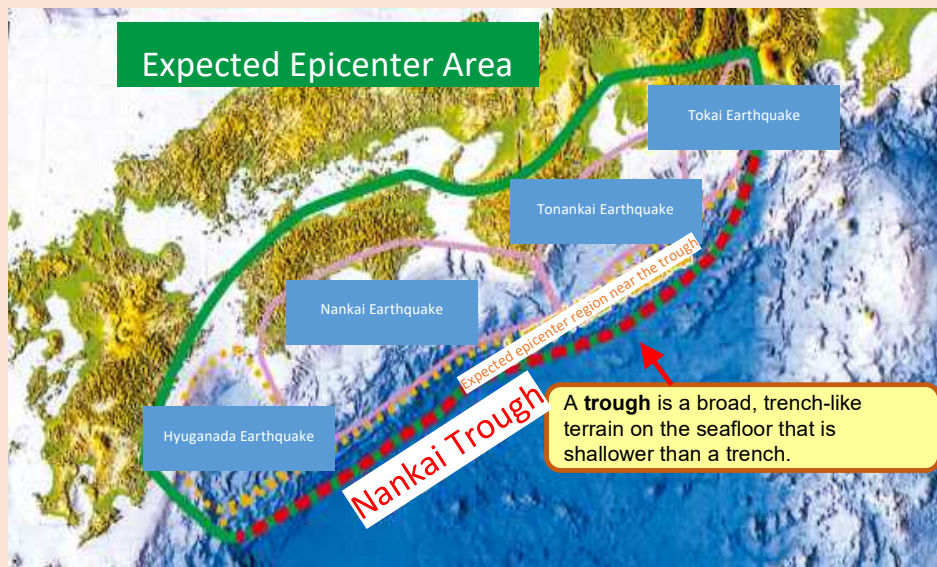
It's hard to predict how intense the next Nankai will be

In order to prepare for whichever comes, we have updated our initiatives to take both possible earthquakes into account.

There's an 80 percent chance of it occurring in the next 30 years!

2 Possible Epicenter Locations

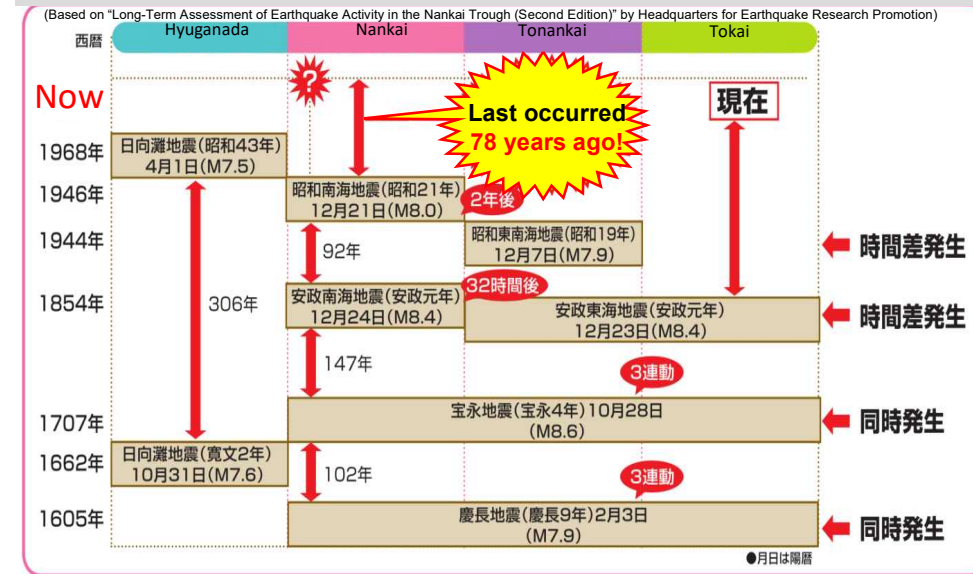
■ Map of where the epicenter could be



[Based on materials from the Japan Coast Guard's Marine Information Department and the Central Disaster Prevention Council, modified by Professor Makoto Okamura, Specially Appointed Professor, Kochi University Research Center]

3 Past Earthquakes

■ Earthquakes in the Tokai, Tonankai, Nankai, and Hyuganada Region After 1600

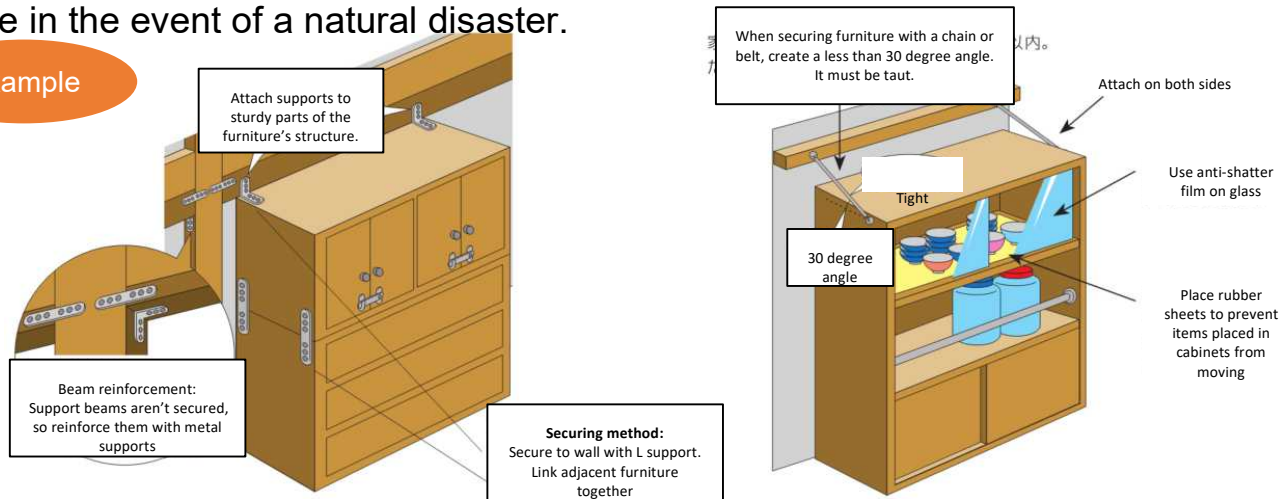


Safety Tip 1: Secure Furniture

Secure large furniture

- During earthquakes furniture can topple over, injuring or killing people. Shards from broken glass or tableware can also hurt people.
- During the Great Hanshin Earthquake, around 80% of those hurt or killed were injured by furniture or collapsing buildings.
- We can minimize casualties from earthquakes by securing furniture and reinforcing buildings to withstand earthquakes.
- When arranging furniture and appliance, be conscious of creating an escape route in the event of a natural disaster.

Example



Furniture and Appliances that Require Securing

Wardrobes, book shelves, cabinets, dishware shelves, shoe racks, refrigerator, microwaves, televisions, personal computers, pianos, etc.

Additional Measures

For disabled or senior citizens who may have difficulty securing furniture themselves, almost all municipalities in Kochi offer subsidies to cover the labor cost of securing furniture. Depending on the circumstances, the cost of mounting brackets and the like may or may not be subsidized.

Is your house prepared for natural disasters?

Shindo Level	What it feels like	What happens to unsecured furniture
Weak 5	You may try and grab onto something	It may move
Strong 5	If you don't grab onto something it's difficult to walk.	It may topple over
Weak 6	It is difficult to stand.	Most furniture will move or topple over
Strong 6	It becomes impossible to stand or move without crawling. You may even be sent flying	Almost all furniture will move or topple over
7		Almost all furniture will move or topple over. Some furniture may even go flying.

Besides securing furniture, it's also important to rearrange large furniture and keep heavy items on lower shelves.

Safety Tip 2: Evacuate ASAP

When the tremors stop, when should you evacuate, and where should you go?

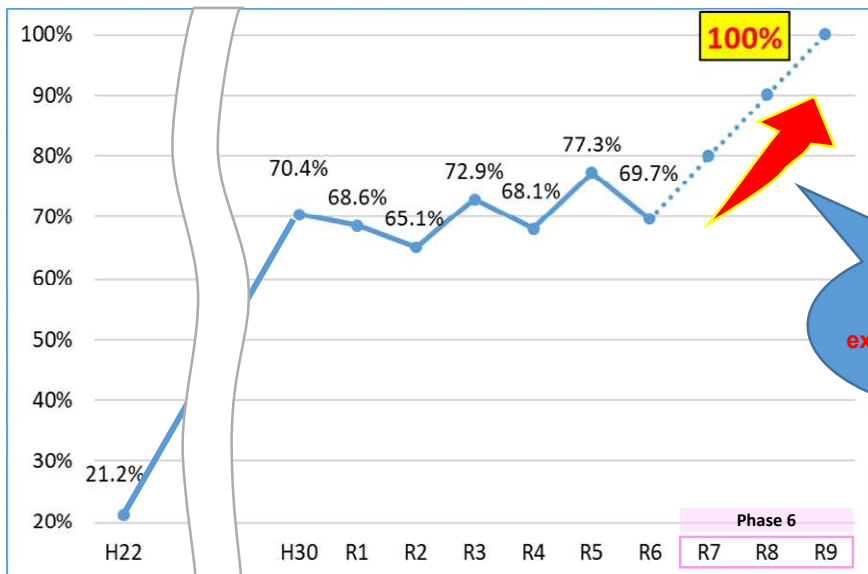
Be prepared to quickly evacuate from a tsunami

- After the Nankai Trough Earthquake strikes, it is anticipated that a tsunami will reach the coast of Kochi within 3 minutes at the earliest.
- Remember to **always evacuate immediately after a strong earthquake stops, even if there is no tsunami warning.**

What the tsunami is expected to be like:

- In coastal areas, a tsunami of over 1 meter in height will strike coastal areas in 3 minutes at the earliest
- At 30 cm of inundation it is impossible to move
- Most people can not survive 1 meter of inundation
- The first wave may not be the largest

Percentage of residents who know to evacuate immediately after an earthquake occurs



Since 2018, the percentage has been hovering around 70 percent

Making it 100%

Spread awareness for evacuation immediately after tremors stop!

If 100% of people are aware, the number of expected casualties drops significantly

Confirm the closest evacuation point to your home and other places you often visit.



You can check evacuation locations on the Kochi Bousai App
Download here!



Safety Tip 3: Stock Up

Do you have at least 3 days of provisions stored?

Stockpile essential items.

■It is expected to take 4 days before emergency relief can arrive from outside of the prefecture. Because of this, it is recommended to have at least 3 days of provisions stockpiled (one week is ideal). Particularly, if you live in an area that could be isolated to flooding or road closures prepare at least one week of supplies.

Percentage of Residents with 3 or more days of provisions stockpiled

Drinking Water

36% (2021) ▶ 73% (2024)

Food

36% (2021) ▶ 74% (2024)

(Results of the Earthquake and Tsunami Awareness Survey held in 2021 and 2024)

Rolling Stock

■Many households already stockpile food, canned goods, and vegetables for regular consumption. This is part of a stockpiling strategy called **Rolling Stock**.

■With the **Rolling Stock** strategy, after you eat something you buy a replacement. It doesn't have to be dried bread or other emergency food. You can use whatever foods you normally eat.

■Be sure to buy, eat, and replace!



What should I stockpile with rolling stock?

Example

2 Adults for 3 Days

Necessities

Water: 18 Liters
3L per person per day
(for drinking and cooking)

Stock whatever beverages you like!



Protein

Instant Meals

Beef bowl, curry, etc. (8)
Pasta Sauce (2-3)



Canned fish/meat

8-9 cans



Carbs

450g of rice (75g per person)

Instant Ramen (3)



Dried noodles (udon, pasta, etc.)

Somen 300g
Pasta 600g
(150g per person)

Instant rice

Other
Cereal
Mochi
Etc.



Outline of Kochi Pref.'s Nankai Trough Earthquake Countermeasures Plan (Phase 6: FY 2025-2027)

April 2025

1. What is the Nankai Trough Earthquake Countermeasures Plan?

- All-encompassing plan that list measures to be taken by local governments, workers, and residents to minimize harm, implement a swift response, facilitate a quick recovery.
- Promoting measures to **protect lives** from earthquakes and tsunamis, to **sustain lives** for survivors, and to **rebuild livelihoods** during recovery and reconstruction.
- Action plan for the **Kochi Pref. Regional Disaster Prevention Plan (Earthquake and Tsunami Disaster Countermeasures Edition)**, which establishes fundamental disaster prevention concepts, and the **Kochi Pref. Resilience Plan**, which sets promotion policies.

2. Aims of Nankai Trough Earthquake Countermeasures

- Create and execute countermeasures in anticipation of a large-scale earthquake
- Advancing self-help, mutual support, and public assistance initiatives through both physical and non-physical means.
- Reinforce and expedite preparations through additional education

3. Earthquakes Addressed by the Countermeasures

To ensure preparedness for any situation, the countermeasures were developed based on the following two scenarios:

- Largest Possible Nankai Earthquake (L2): In the event of this rare but devastating earthquake, our priority is to minimize casualties and damage.
- More Common Standard Nankai Earthquake (L1): In the event of this more likely scenario, our priority is to ensure a swift response and recovery.

5. Phase 6 Action Plan Outline

◆ Policy Plan

- Fully utilize the PDCA cycle by setting clear goals and conducting quantitative progress evaluations.
- Advance initiatives pertaining to the final objectives of protecting lives, sustaining lives, and rebuilding livelihoods.
- **Using past lessons from the Noto Peninsula Earthquake and disaster announcements, reinforce and expedite the following four aspects of disaster preparation:**
 1. Self and Communal Help, 2. Evacuation Shelter Maintenance, 3. Preparation for Recovery Efforts, 4. Construction of Disaster-Resistant Infrastructure
- Ensure the effectiveness of initiatives through training and inspections
- In the first fiscal year of Phase 6 we will update the action plan after reassessing the damage estimates

4. Effects of Current Countermeasures and Phase 6 Goals

	May 2013 (2005 Census)	Phase 2 Phase 3 Phase 4 Phase 5	March 2025 (2020 Census)	Phase 6	March 2028 (2020 Census)
Expected Casualties	About 42,000		About 7,800		About 3,500
[Rate of earthquake resistant housing]	74%	81% Reduction	91%	55% Reduction	94%
[Awareness rate for tsunami evacuation]	20%		70%		100%
[Tsunami Shelter Availability Rate]	26%		100%		100%

6. Critical Objectives

Among our current countermeasures, we have reexamined the major issues we are addressing and reorganized them into "10 Critical Objectives" to better achieve our disaster mitigation objectives.

Protect Lives

Measures to mitigate damage from earthquakes and tsunamis

Objective 1

Ensure the safety of housing

Objective 2

Effective regional tsunami response measures

Objective 3 (New)

Improved communication of Nankai Trough earthquake information

Sustain Lives

Measures to maintain support for survivors

Objective 4

Medical response and supporting vulnerable people

Objective 5 (New)

Maintaining evacuation infrastructure and improving support structures to prevent additional loss of life

Objective 6

Swift evacuation and rescue in inundation zones

Rebuild Livelihoods

Preventing delays in recovery efforts to stop people from leaving

Objective 7

Improving early recovery initiatives



Taisaku-kun



Herupa-chan

Kochi Pref. Bousai Mascots
©Yanase Takashi

Other Objectives

Other Objectives like raising awareness, infrastructure maintenance, and digitalization

Objective 8

Raising awareness of the importance of helping yourself and others

Objective 9 (New)

Faster development of disaster resistant infrastructure

Objective 10 (New)

Increased efficiency of disaster response and mitigation via digitalization

Past Achievements & Our Goals for Phase 6

Measures to Protect Lives:

Anticipated as of March 2025

Anti-Earthquake Measures

■Support for Earthquake-Proofing of Residential Buildings

➢Earthquake-Proofing Rates

[Current] 18,305/~23,000 Buildings(80%)

Phase 6 Goal: 23,005/~23,000 Buildings(100%)※Goal rates will be carefully investigated

■Promotion of Household Earthquake Safety Measures

➢Earthquake Safety Measure Implementation Rates

[Current]40/60%(67%)

Phase 6 Goal: 60/100%

Anti-Tsunami Measures

■Tsunami Evacuation Tower Construction

[Current] 126/126 Towers (100 Percent)

Phase 6 Goal: Needs-based construction and maintenance

■Policy to ensure evacuation of facilities that promote evacuation (Schools, hospitals, community centers, etc.)

[Current] 616/941 Locations(65.5%)(As of September 2024)

Phase 6 Goal: 100% of 19 coastal municipalities tsunami risk zones (yellow zones)



[Tsunami Evac. Tower]

Anti-Fire Measures

■Support for anti-leak heavy oil tank maintenance in agriculture

[Current]1,612/8,041 Heavy oil tanks(20%)

Phase 6 Goal: 2,212/8,041 Heavy oil tanks(28%)

※Maintenance on 600 additional heavy oil tanks

■City Planning in Kochi City

[Current] Nakasuka Area 5.2/8.1ha (64%)

Phase 6 Goals:Nakasuka Area 7.7/8.1ha(95%)

※An additional 2.5ha

■Measures for Large-scale Fires in Urban Areas

➢ Advancement of countermeasures in areas of concern

- Distribute anti-electrical fire breakers with earthquake sensors to high risk areas (eg. high concentration of wooden houses).

[Current]525個

Phase 6 Goals:20個



Past Achievements & Our Goals for Phase 6

Measures to Sustain Lives:

Anticipated as of March 2025

Emergency Response Initiatives

■Plan for ensuring road accessibility during disasters

[Current] Plan moves to the next version (ver.3.1 ⇒ ver.3.2)

Phase 6 Goals: Recalculate the time needed to open roads using small heavy machinery at all disaster prevention centers.

Evacuation Shelter and Victim Initiatives

■Securing Evacuation Shelters

➢Designation of shelters location (For shelter over a week after a disaster has occurred)

[Current] Enough for approx. 233,000 of 217,000 people (107%)

Phase 6 Goal: Enough space for 19,000 people to take shelter that is consistent with Sphere Standards (3.5m² per person)

■Climate Control System Maintenance at Prefectural School Gymnasiums

[Current] 9/45 Schools (8/42 schools are designated evacuation shelters)

Phase 6 Goals: 21/45 Schools (20/42 schools are planned to be designated evacuation shelters)

Example of an evacuation shelter



Medical Treatment Initiatives

■Supporting Hospitals' Disaster Countermeasure Initiatives

➢Anti-Earthquake Reinforcement Rate

[Current] 94/118 Hospitals (80%)

Phase 6 Goals: 100/118 Hospitals(85%)

➢Generator Ownership Rate

[Current]116/118 Hospitals (98%)

Phase 6 Goals:118/118 Hospitals (100%)

➢Rate of Multiple Communication Method Adoption

[Current] 95/118 Hospitals(81%)

Phase 6 Goals:Satelite transmission at 57/57 disaster relief hospitals (100%)

➢BCP(Business Continuity Plan) Policy Rate

[Current]99/118 Hospitals (87%) (57/57 Disaster relief hospitals (100%)

Phase 6 Goals:118/118 Hospitals(100%)

※BCP (Business Continuity Plan):

A plan designed to enable the prompt resumption of operations following a disaster. It involves preparing measures to ensure the safety of customers and staff, prioritizing essential tasks, and maintaining business continuity.

Past Achievements & Our Goals for Phase 6

Measures to Rebuild Livelihoods:

Estimation as of March 2025

Restoration

■Support for Formulation of BCPs

➢BCP Rate

[Current] 73.2% (Of businesses with over 50 employees)

Phase 6 Goals: ※Each plan is managed individually

- Hospital BCP Rate: 100%
- BCP Rate and Continuity Capabilities in Commercial and Industrial Sectors: (95)%
- Hospitality Industry BCP Rate: 26%

■Increase in Land Area for Temporary Emergency Shelters

[Current] Information on 590ha/460ha of private land (128%)

Phase 6 Goals: Continued research into private land (lifelines and disaster risk) and additional data collection

Reconstruction

■Establishment of a Disaster Case Management System

[Current] Creation of Kochi Pref. Version Manual

Publication of Disaster Victim Support Measures

Phase 6 Goals: Disaster Case Management Implementation Plan (34 municipalities)

Publication of Disaster Victim Support Measures 34 municipalities

■Establishment of Body for Provision of Disaster Condolence Grants

[Current] Establishment of the Review Board Regulations as Municipal Ordinances (7/34 municipalities)

Phase 6 Goals: Establishment of the Review Board Regulations as Municipal Ordinances (34/34 municipalities)

Revitalization

■Assistance for Proactive, Recovery-Oriented Municipal Planning

➢Plans for municipalities in coastal areas

[Current] Underway (16/19 municipalities)

Phase 6 Goals: Complete (19/19 municipalities)

➢Plans for municipalities in mountainous areas

Phase 6 Goals: Underway (15/34 municipalities)

■ Support for land surveys conducted by municipalities

➢Progress Rate

[Current] 60.7%

Phase 6 Goals: 62.8%

