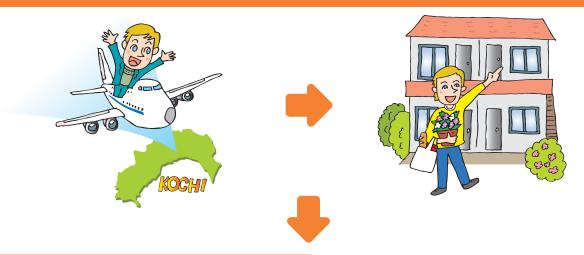
An Information Booklet for the International Residents of Kochi

Revised Edition Full Version

PREPARING FOR THE NANKAI TROUGH EARTHQUAKE (NANKAI TORAFU JISHIN)!



You have arrived in Kochi and have found a place to live.



Do the Following Straight Away!

- 1) Find Out How Dangerous Your Surroundings Are in the Event of an Earthquake or Tsunami \Rightarrow Page 1
- 2) Secure Furniture and Consider Furniture Placement \Rightarrow Page 2
- 3) Prepare "Emergency Supplies" and "Emergency Stockpiles" ⇒ Page 4
- 4) Decide on Where to Meet Up with Family and Friends After an Earthquake \Rightarrow Page 5

Learn the Following Straight Away!

When an Earthquake Occurs ...

- 1) As Soon as You Feel Tremors, You Should do the Following Straight Away! ⇒ Page 6
- 2) What Should I Do if I am in a House or Building When an Earthquake Occurs? \Rightarrow Page 6
- 3) What Should I Do if I am Outside When an Earthquake Occurs? \Rightarrow Page 6
- 4) Get to High Elevation Quickly When a Tsunami is Coming \Rightarrow Page 7
- 5) Protect Yourself from Fires (*Kasai*) \Rightarrow **Page 10**

After Escaping to a Safe Place...

- 1) Don't Go In or Near Buildings that are Unsafe! \Rightarrow Page 11
- 2) Gather Correct Information About the Earthquake and Daily Life \Rightarrow Page 12
- 3) Contact your Office / School, Consulate and Embassy \Rightarrow Page 12
- 4) Triage (The Rules of What to do When Someone is Injured) \Rightarrow Page 12
- 5) Life at the Shelter (*Hinanjo*) \Rightarrow Page 12



Kochi Prefecture Disaster Prevention Characters ©やなせたかし

The purpose of these characters is to generate an interest in disaster prevention amongst children. These were created in 2002 with the extensive support of Mr. Takashi Yanase who passed away on October 13, 2013. We pray for his happiness in the next life.

You are starting to learn about Kochi. You have made friends and are now part of the "Kochi Family"



What to do next

- 1) Make Your House Safe! (Earthquake Resistance for Housing) ⇒ Page 13
- 2) Get Insurance (Health, Earthquake) \Rightarrow Page 15
- 3) Cooperate With Your Neighbors ⇒ Page 16

Read this when required

- 1) Essential Knowledge about Earthquakes \Rightarrow Page 17
- 2) What Kind of Earthquake is the *Nankai Torafu Jishin*? \Rightarrow **Page 17**
- 3) The Reason the *Nankai Torafu Jishin* Occurs \Rightarrow **Page 18**
- 4) Characteristics of a Worst Case Nankai Torafu Jishin \Rightarrow Page 19
- 5) Useful Vocabulary and Phrases \Rightarrow Page 21

*Things to note about this booklet:

This booklet uses the romanization of Japanese words to teach essential phrases in Japanese. Please try to pick them up as you read through this booklet.

Casualties from the Great East Japan Earthquake which occurred on March 11, 2011 (Based on Research from the Fire and Disaster Management Agency, September 1, 2013)

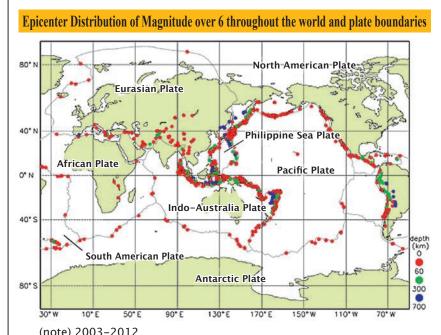
Casualties

Deaths: 18,703 people Missing: 2,674 people Injured: 6,220 people

Damage to Buildings

Completely Destroyed: 126,574 Half-Destroyed: 272,302 Partially Destroyed: 759,831

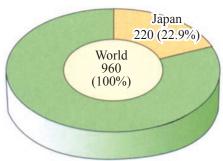
From a Paper Published by the Japanese Government



Published by the Japan Meteorological Agency based off Epicenter Data from the Earthquake Engineering Research Center of America

Japanese disasters compared to those around the world

■ Number of earthquakes over magnitude 6



*Total between 1995 and 2004. Data on Japan prepared by the Japan Meteorological Agency. World data prepared by the Cabinet Office based upon US Geological Survey documents.

Please do the Following Straight Away!

Find Out How Dangerous Your Surroundings Are in the Event of an Earthquake or Tsunami

1) How much will an earthquake affect your office or school? → Please find out the 「Seismic Intensity (shindo)」 and write it here. Shindo → page 17 Your house or office or school's shindo:	
2) Will a tsunami come to your house or office (school)? Tsunami → page 19 → Please find out the height of the tsunami and when it will arrive and write it here. Tsunami height: m Tsunami estimated arrival: minutes	
3) Is there an Evacuation Point (<i>hinanbasho</i>) near your house and office or school? → Please find out the closest <i>hinanbasho</i> and write it here. The closest <i>hinanbasho</i> is: A <i>hinanbasho</i> is a safe place where tsunami will not reach (a tall mountain or building).	
 4) How will you get to the hinanbasho? → Please walk to the nearest hinanbasho. → Please check how long it took to get to the hinanbasho and compare it with the estimated arrival or tsunami. 	f the
How do you find out? You can find out by going to the division in charge of disaster prevention in your municipality. You can find out on the prefectural website 「南海地震に備えて GOOD!!」.	also
Homepage http://www.pref.kochi.lg.jp/~shoubou/sonaetegood/ (Japanese)	
To find out where the <i>hinanbasho</i> is, please ask your neighbors or people from your office or school.	
Please draw a map from your house (office) to the <i>hinanbasho</i> .	

Secure Furniture and Consider Furniture Placement

Furniture in a house will fall over during large tremors. You can also be injured by broken glass and fallen kitchen utensils.

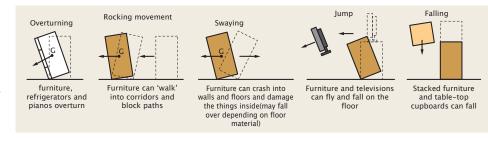
Please secure your furniture. Also, be careful not to block your exits when placing furniture.

Glass windows and kitchen utensils will shatter. Please secure them so they don't fly out.

Securing Furniture

•What will my furniture do in an earthquake?

During an earthquake, furniture can overturn, rock, sway, jump, fall (pictured right) or slide around the floor.



• What happens when furniture isn't secured? (Inside buildings during the Great Hanshin Awaji Earthquake)





Left) A home (Provided by Kobe City Media Department)

Right) An office (Provided by Hyogo Prefecture Media Department)

Avoid injury from furniture and electrical appliances

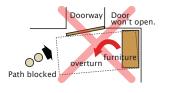
(1) Don't place tall furniture in rooms you use often

Try and place tall furniture in other rooms.



(3) Furniture Placement

Don't place furniture in bedrooms or doorways.



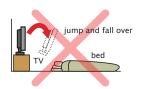


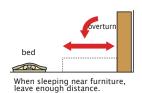
(2) Store heavy things lower, and lighter things higher

Don't place dangerous items such as glass or irons on top of furniture.









(4) How to stop shattered glass from flying





Stick shatterproof film to glass. Place shatterproof film on glass where you sleep, where people gather, places you spend a lot of time and on cupboards. \Rightarrow **Left Photo**

On expensive items such as vases, use hardening putty. \Rightarrow **Right Photo**

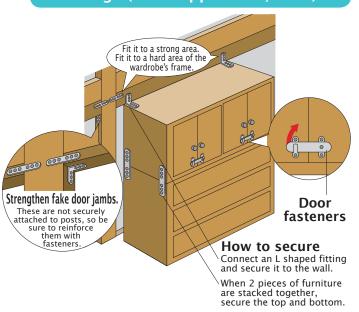
(5) Securing Furniture and Appliances, with Estimated Costs

The costs are an estimate based solely on the item required. Other costs such as labor fees are not included. (If you are renting your place, remember to ask the landlord for permission.)

*Items That Must Be Secured *

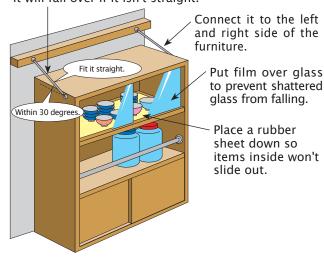
Wardrobes, bookshelves, cupboards, shoe racks, refrigerators, microwaves, televisions, computers, pianos etc.

How to secure a wardrobe with metal fittings (cost: approx. ¥2,500~)



How to strengthen a cupboard using belts, rubber sheet, and shatterproof film (cost : approx. ¥2,500~)

The belt or chain connected to the furniture must be within 30 degrees. It will fall over if it isn't straight.



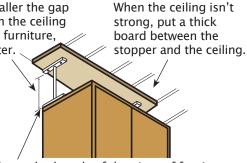
How to secure a wardrobe using a pole or stopper (cost : approx. $\frac{42,500}{}$

Pole Method

Using a stopper and a mat, put it on top and underneath furniture.



The smaller the gap between the ceiling and the furniture, the better.



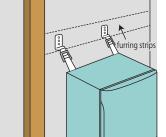
Put on both ends of the piece of furniture, against the wall.

Stopper Method



Place the stopper from one end of the furniture to the other.

Securing a refrigerator with belts (cost : approx. ¥2,000~)



Secure to the furring strips (the large, wide planks of wood inside the walls).

Securing a television and stand using fittings and adhesive tape (cost: approx. ¥1,500~)



Where can these items be bought?

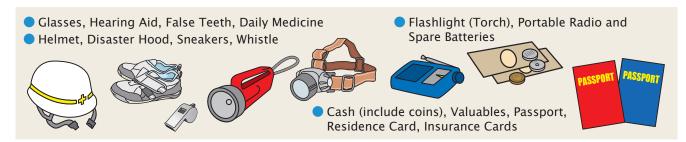
They can be bought at home centers (Brico, Maruni, Hamart etc). As the elderly and disabled cannot secure these themselves, many municipalities offer financial assistance.

Prepare "Emergency Supplies" and "Emergency Stockpiles"

Emergency Supplies for when earthquakes occur and Emergency Stockpiles for life as an evacuee are different!

Emergency Supplies (What to Carry When Evacuating)

When evacuating during an earthquake, avoid carrying lots of items. Take only what is necessary and valuables. Place emergency supplies in a bag and leave it somewhere easily accessible such as near your pillow so that you can grab it and evacuate immediately.



Emergency Stockpiles (Things to Stockpile for Life in a Shelter)

In the aftermath of an earthquake, water, food and daily necessities cannot be bought straight away.

Please store enough food and water in your house to last until help arrives. In areas where a tsunami might occur you will be unable to return home. Please store food at a separate place without danger of tsunamis. **Store enough to last for more than 3 days!**

Drinking Water : 3L per person per day



- Food: Water, electricity and gas will not be available for an extended period, so consider the following when stockpiling
- Hard biscuits and crackers, canned food (items that last a long time without being refrigerated or cooked)
- · Boil-in-bag foods
- · Knife, can opener
- Milk powder, baby bottle (for families with babies)
- Other items that may be required for your household for religious reasons and so on :
- · Soft food which is appropriate for the elderly or small children
- · Vegetarian food, Halal food, foods you aren't allergic to
- · Internal medicine (if you require medical equipment then please find out how to take it with you prior to a natural disaster)
- · Pet products (pet food, cage, litter)



Items Useful for After an Earthquake

Daily Necessities

Cling Wrap, Disposable Heat Packs, Writing Implements (such as an Ink Marker), Plastic Bags (Rubbish Bags), Packing Tape, Required Medicine, Medicine Handbook

(Medicine Information), Glasses, False Teeth, Sleeping Bags and Blankets, Wet Weather Gear, Valuables, Cash (include coins), some form of Identification etc...



Sanitary Items

Towels, Toilet Paper, Tissues, Wet Wipes (a larger size is useful for wiping the hands and body), a change of clothes (underwear, clothes), Sanitary Products, Mask, Mouthwash, Shampoo that doesn't require water etc...

Toilet Supplies

Toilet Paper, Portable Toilet, Plastic Bags, Diapers, Deodorant etc...



• In emergencies your Medicine Handbook can come in handy.

Medicine Handbook Records

- · Name of your prescribed medicine
- · The frequency and amount needed
- · Your Allergy History
- · Side Effect History



At the shelter

If confirmation can be made on the medicine you require it can be prescribed.

During the Great East Japan Earthquake, there were many cases where care could continue as people had their Medicine Handbook or Medicinal Information Documents with them. In preparation for an emergency please carry your Medicine Handbook with you.



Prepare Emergency Supplies and Emergency Stockpiles

- In preparation for an earthquake occurring during the night, place emergency supplies such as a torch, radio, and shoes near your bed.
- Keep emergency supplies of water and groceries that you use daily and replace them when required using the older items first.



Decide on Where to Meet Up with Family and Friends After an Earthquake

An earthquake may occur at a time when you are not with your family (friends). As such, it is important to decide on where (shelter, friend's house) to meet up with your family (friends) when you cannot return home

Also, please talk to family members (friends) to make sure that everyone knows what to do in a disaster.

\square How to contact others (confirm their safety) during a natural disaster
☐ Confirming Evacuation Point and Evacuation Method
☐ Confirm you have multiple Evacuation Routes
☐ Emergency Stockpiles (Food, Drinking Water etc)
☐ Emergency Supplies (Portable Radio, Batteries, Medicine)
☐ Create a Disaster Prevention Man for around where you live

☐ Prevent furniture and so on from falling over ☐ How to evacuate the elderly, infants and pets

☐ Fundamental Knowledge of Earthquakes

Are My Family and Friends Safe?

It will be difficult to make phone calls in regions which have suffered a large earthquake. Therefore, after a disaster it is difficult to contact family and friends over the phone to confirm their safety. In preparation of this, you can use the NTT disaster messaging service (explained below) and other mobile phone service provider's disaster messaging services to contact your family and friends.

Also, check the phone numbers of your family and friends' offices, and the places their children go to school. When you have to evacuate your home, you can stick a sign on your door that lets your family and friends know where you have evacuated to.

How to use the Emergency Messaging Service (171)

This service can be used when a large earthquake (over a weak 6) occurs. From your home phone or mobile you can use this to check on the safety of your family and friends, as well as let others know that you are safe.

The service is free. In order to use it you need to dial a land line number (in Kochi these begin with 088).

TV and radio programs will announce when this service can be

When you want to let your family and friends know you are safe

Dial 1 7 1

Japanese audio will play

Press 1

Japanese audio will play

Dial a landline number (Mobile phone numbers cannot be used)

(XXX)XXX-XXX

Japanese audio will play

Leave a message (30 seconds)



used. On the first of every month this service can be used to practice, as well as January 1st to 3rd, August 30th to September 5th, and the 15th to 21st of January. Please try it out.

Each mobile phone provider's emergency messaging service as well as the disaster broadband message board have days when you can practice.

Do the Following Straight Away When the Nankai Torafu Jishin Occurs!

When a large earthquake occurs, casualties will also be high so it is difficult to save everyone. The first thing to do is to protect your head from falling items.

It is important to remember that you are responsible for PROTECTING YOUR LIFE!

As Soon as You Feel Tremors, You Should do the Following Straight Away!

■Learn that an earthquake is occurring using the Early Earthquake Warning System (Kinkyuu Jishin Sokuhou)

Just before the heavy tremors begin, TV, radio and mobile phones will give a warning that an earthquake will occur (however, places close to the epicenter may not receive this warning in time). When you see or hear this warning, don't rush, remain calm and evacuate (hinan) to a safe place.

XSome mobile phones need to be set to receive this warning. Please check at a store of your mobile phone provider to see if it is set to receive this warning.

Protect your head

Beware of falling items and protect your head.

Stay away from dangerous places

Stay away from concrete walls and cliffs. They may collapse or fall over.

At the websites below you can hear the sound of the Kinkyuu Jishin Sokuhou. Please have a listen.

Television and Radio (Provided by NHK):

http://www.nhk.or.jp/sonae/bousai/

Mobile Phones (Provided by NTT Docomo):

https://www.nttdocomo.co.jp/service/safety/areamail/ about/index.html

What Should I Do if I am in a House or Building When an Earthquake Occurs?

If you are in a house

Large furniture, bookshelves and picture frames may fall, so you should take cover under a sturdy table or desk.



*If something heavy is capable of crushing the table, please run to somewhere safer.

If you are in an elevator

If you feel shaking, press the buttons for every floor and get off at the first floor it stops at.

Some elevators may detect the shaking and automatically stop at the nearest floor.



If you are in a facility with many people

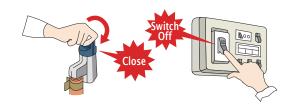
Follow the person in charge.

Remain calm and move accordingly.

Don't rush to the exits.

When the shaking stops

Turn off all flames from gas appliances and shut the valve. Also flip the breaker for your electricity.



What Should I Do if I am Outside When an Earthquake Occurs?

If you are in the street

If you are walking near a building, beware of falling objects like glass and signboards, cover your head with whatever you are carrying, and find a safe place to take refuge.



If you are near a concrete wall or vending machine

Immediately move away as there is a danger that it will collapse.



•If you are in the mountains

Move away from cliffs as there is the possibility of landslides.



Be aware of aftershocks (yoshin)

After a large earthquake, earthquakes may occur several times so please be cautious.

The Meteorological Agency will advise of aftershocks so please listen to the TV and radio carefully.

Do not enter damaged houses as it is dangerous, and stay away from places where rocks and dirt could fall such as mountains and cliff sides.

If you are driving

As soon as you feel a tremor, gradually slow down, pull over to the left and turn off your engine. Turn on your hazard lights to make your car easily noticed by other vehicles.

Avoid parking if you are at the base of a wide slope or at the mouth of a tunnel as there is the danger of landslides.

When you leave the car, leave the doors unlocked and keys in the ignition.

Take your valuables with you.

Get out of your car and evacuate. Beware of passing vehicles.



Get to High Elevation Quickly When a Tsunami is Coming

Understanding Tsunami

■The Characteristics of Tsunami

- When a tsunami arrives, you will not be able to stand even if the water is just above your knees.
- The wavelength (the length of a wave from crest to crest, in the case of the *Nankai Torafu Jishin* will be approximately 50km) of a tsunami is extremely long, and the deeper the ocean the

faster the speed is. The shallower the water, the slower the speed of the tsunami, but the height of the wave may be higher.

- The height and time the tsunami arrives will depend on where the earthquake occurred (its epicenter) and how big it is (Magnitude).
- The first wave is not always the biggest. Tsunami will come several times.
- There are times when the seawater recedes before the tsunami comes, and times when it doesn't.

■The Threat of Tsunami

- Tsunami may surge into rivers and make them overflow.
- Even people living in plains far from the ocean need to be cautious.
 In the Great Eastern Japan Earthquake, tsunami reached plains as far as 5km from the coast.
- In areas where the bay is shaped like a V, the waves may grow taller when they reach the end of the bay.
- The pulling strength of the waves is enormous. Broken houses and boats are washed into the seas.
- Even when tsunami occur in places other than Japan they can cross the pacific ocean and reach Japan. (e.g. Chile earthquake).





Damage caused by the tsunami



A tsunami devastating the coast (From the Kyodo News Service Helicopter over Natori City, Miyagi Prefecture on March 11, 2011 3 : 56pm)



Debris scattered from a large tsunami (April 4, 2011 Kamaishi City, Iwate Prefecture provided by Kochi Newspaper)



A tourist bus left on top of a building by a large tsunami (July 15, 2011 Ishinomaki City, Miyagi Prefecture)

How to Escape from a Tsunami

Please make a tsunami evacuation plan and practice in preparation.

Tremors	When tremors begin, protect yourself. After large tremors, or tremors that continue for a long time, assume that a tsunami will come.	
Get Ready ↓	When the tremors stop collect only what you need and run. (Glasses, medicine, portable radio, flashlight, keep them ready so that you can evacuate any time.) (Please see page 4) Do not wait for a Tsunami Alarm Warning (Tsunami Keihou) or Tsunami Advisory Warning (Tsunami Chuuihou) just take yourself and run.	
Quickly ↓	Evacuate quickly to the Evacuation Point (hinanbasho) you looked up on page 1. When you are in an unknown place and are unaware of the location of the hinanbasho go to elevated ground (takadai) or up a building. Depending on the waves, you may want to move even higher. Generally, move quickly and do not use a car. (You may be caught in traffic or unable to find your car keys and unable to escape in time.)	
Until the tsunami keihou is lifted	Tsunami come several times. Please confirm on a radio etc that the tsunami has finished before you return home. Never return home until the tsunami keihou has been lifted.	

What should I do to escape safely from a Tsunami?

- Pick your Evacuation Point (hinanbasho).
- Pick your evacuation route to the *hinanbasho*.
- Using the route, walk to the *hinanbasho*.
- To survive a tsunami, please learn the following signs.

Tsunami Advisory Signs



Tsunami Evacuation Point



Ground





Kochi-specific design for nearby tsunami evacuation point

You can see these signs near the ocean.

When you are at a river or beach, a tsunami may come. When you arrive you should check where the nearest elevated ground (*takadai*) is.



• Evacuation Points (hinanbasho) and Shelters (hinanjo) are different.

Hinanbasho: A place to evacuate to temporarily during a disaster such as a tsunami
Hinanjo: A place for temporary living when your house is completely or partially destroyed in a natural disaster, or when your electricity, water, or gas cannot be used (For more information see page 12.)
Tsunami may come to hinanio in low lying areas. When evacuating from a tsunami, please head to your hinan

Tsunami may come to *hinanjo* in low lying areas. When evacuating from a tsunami, please head to your *hinan basho* that you previously chose. Head to the *hinanjo* when the tsunami has finished.

- What should you do in areas where it is expected that inundation will be just out of reach?
- During the Great East Japan Earthquake, even regions where inundation was not expected to occur on the hazard map had many victims in local homes, schools and offices. You cannot sit in relief based on the predicted inundation of a tsunami. Always evacuate to a higher area.
- How are the Evacuation Advisory (hinan kankoku) and Evacuation Order (hinan shiji) different?
- The *hinan kankoku* is a suggestion to save your life from disaster. The *hinan shiji* is more urgent and dangerous than *hinan kankoku* and orders one to evacuate.

 With tsunami, do not wait for *hinan kankoku* or *hinan shiji*, as soon as the shaking stops please evacuate.
- How long do I have to be at the hinanbasho?
- During a Tsunami Alarm Warning (tsunami keihou) some people make their own decision to leave the hinanbasho. However, tsunami reoccur several times over and the second wave can be bigger than the first, so never go home until the tsunami keihou is lifted.
- What should you do when you are at a port or on the water?
- Passengers on boats in the port should evacuate to the nearest elevated ground (takadai) on land. Boats near the port or coast should evacuate to ocean evacuation areas which have deep oceans if it is quicker.

If you are going offshore in a boat, prepare a wireless transceiver, mobile phone and radio to be prepared and gather earthquake information early.

- Are there other ways to protect yourself from tsunami?
- Kochi Prefecture is giving facilities improvement assistance to nursery schools, kindergartens, etc., as they move to elevated ground (*takadai*). Also, moving your home to *takadai* is a possibility that could be a great asset in saving your life from a tsunami.

Protect Yourself from Fires (Kasai)

When earthquakes and tsunami occur, it can be expected that fire fighting service will not be able to arrive straight away to extinguish fires. As such, it is important to prevent *kasai* from starting. Also, if a *kasai* starts, try to extinguish immediately using a fire extinguisher while flames are still small, and to evacuate (*hinan*) to a safe place as soon as you feel any danger to your life.

Preventing electrical fires

When there are tremors during an earthquake, electrical appliances that produce heat can topple over, and flammable items can fall on them starting fires (*kaji*). Consider purchasing appliances that cut the power when they fall over, and don't leave flammable items near by.

Also, when the electricity comes back on, damaged appliances and electrical wiring within the house can start *kaji* when the current runs through them again. After the tremors have stopped, flip the breaker when you evacuate.

■Electric Shock Breaker

An electric shock breaker automatically cuts the electricity when a large tremor is felt.

There are outlet (socket) types and distribution board types suitable for different needs so place some to prevent electrical fires.



Countermeasures during an earthquake or tsunami for LP Gas

During the Great East Japan Earthquake, LP Gas Cylinders fell over, got washed away from the earthquake and tsunami leading to gas leaks and many accidents. In preparation for the Nankai Trough Earthquake, please check the functions and safety measure of your LP Gas items.





Ishinomaki City, Miyagi Prefecture

■LP Gas Functions (Microcomputer Meter)

A microcomputer meter automatically cuts off LP gas to gas stoves and water-heaters when an earthquake with a seismic intensity about 5 is felt.





B and C indicate that Gas has stopped from an earthquake tremor.

■LP Gas Equipment Safety Measures

LP Gas Cylinder Fall Prevention

Please check often that your LP Gas Cylinder is secured using a fall prevention chain.

If the chain is not secure, please contact your LP Gas provider.

• Relax and be safe!! Undertakings of the Kochi Prefecture LP Gas Association

In addition to renewal of high pressure hoses and LP Gas Cylinders, they are also undertaking the following.



An example of a chain that is dangerous because it is loose

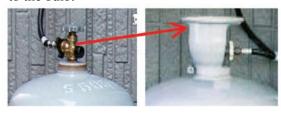
• Gas Leak Prevention High Pressure Hose

In the event that the container falls over during an earthquake, this high pressure hose prevents leaks of LP Gas from the hose and pipes.



•50kg Container Bulb Protector

In the event the container falls over during an earthquake, this protects against damage to the bulb.



For more information please contact your LP Gas provider or the Kochi LP Gas Association. Kochi LP Gas Association ₹780-8031 80-2 Ohara-Cho Kochi City Within the Kochi Petroleum Office TEL 088-805-1622

■LP Gas is used extensively after a disaster to cook rice







Rice Cooker



If an independent disaster prevention organization is seeking to gather items, there is assistance available so please contact your local municipality's division in charge of disaster prevention.



What should I do if I am using fire in a kitchen and an earthquake occurs?



As there is the possibility of being burnt, step away from the stove and move under a table to protect yourself. Extinguish the fire when the tremors stop.

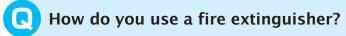
Currently, most homes are equipped with a microcomputer meter which detects earthquakes at a seismic intensity of 5 or so and automatically stops the flow of gas. Please check its characteristics and use.



What should I do if a fire breaks out?



- •Announce it quickly...let your neighbors know in a loud voice "Fire (kajida)!"
- •Extinguish it quickly...before the flames reach the roof.
- •Escape quickly...if the flames hit the roof, escape immediately.







Prepare an extinguisher in every household.

(Old fire extinguishers pose the risk of exploding and are extremely dangerous. Take care of them in a suitable manner and have them exchanged when they pass their use by date.)

What should I do If a fire breaks out nearby?



As fires will break out in many places, there is the chance that fire fighters will not arrive straight away. Contact 119, confirm that you are in a safe place and there is no danger of tsunami, then attempt to extinguish the fire with the assistance of those near by and independent disaster prevention organizations.

After Escaping, Do the Following Immediately and Pay Attention to the Following!

Don't Go In or Near Buildings that are Unsafe!

After a large scale earthquake damaged buildings and houses will be inspected to determine if they will collapse from aftershocks (yoshin). Do not enter buildings or houses that are deemed unsafe.

An inspection sticker will be placed on the building. (Do not enter buildings with a red sticker)







(Red) Entry to this building is unsafe.

[Yellow] Be cautious when entering this building.

[Green] Use of this building is permitted.

Gather Correct Information About the Earthquake and Daily life

Please listen for information about seismic intensity, aftershocks (*yoshin*) and necessary information about traffic, electricity, water and gas from either the TV or radio. Do not believe false rumors.

Contact your Office / School, Consulate or Embassy

When things have calmed down, contact your office or school and embassy or consulate.	
Office or School's Phone Number :	
Embassy or Consulate's Phone Number :	

The Rules of What to do When Someone is Injured (Triage: Origin - French)

During an earthquake many people will be injured. The order of who will be treated is determined by a doctor, beginning with the most life threatening. Those with minor injuries may be left until later to be treated. Please keep to your assigned place in line.

Life at the Shelter (Hinanjo)

Many people will be living in the *hinanjo*. As it is not your house, there are many inconveniences. Everyone should work together.

What is a hinanjo?

A place where people who have lost their homes can go to after an earthquake to live (such as a school, official building or park). *Hinanjo* have useful information for living, and collect food and water necessary for survival.

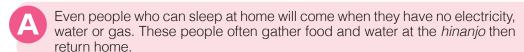
When should I go to a hinanjo?

- · When your house is broken and you have nowhere to live.
 - · When aftershocks could damage your house, and it is dangerous to live there.
 - · When there is the possibility of landslides around your house.
 - · When your furniture is strewn about your house and you cannot live there for the time being.
 - · When there is nobody else living nearby, or when water surrounding your home doesn't retreat etc.

What should I be aware of when living in a hinanjo?

- Please make the most of the daily interactions with your neighbors.
 - · Please obey the rules of the *hinanjo*.
 - · Do not be a guest; help where you can and work with other people in the hinanjo.
 - · Help the sick, disabled, elderly, pregnant and children.

What other types of people come to the hinanjo?





What should I be aware of when living somewhere other than the hinanjo?

Those who are living in their cars or in tents should take care of their health. If you spend a long time in a cramped place it can lead to poor blood flow and result in sickness. Wear clothes a bit larger, drink lots of water and keep active.

Make Your House Safe! (Earthquake Resistance for Housing)

Will your house be able to withstand the Nankai Torafu Jishin?

In the 1995 Great Hanshin Awaji Earthquake, of the 3,875 people who passed away in Kobe City, over 95% was due to buildings collapsing. In particular, old buildings built before 1981 (before earthquake resistant buildings were standard) took many victims.

In an earthquake with large tremors, even if you can avoid suffocation and being crushed to death from a collapsing house, rubble can hinder your escape, and it may be difficult to escape from the tsunami and fires that occur.

It is important to make your home resistant to earthquakes.

Damage caused by the Great Hanshin Awaji Earthquake on January 17, 1995 (Confirmed results from the Fire and Disaster Management Agency as of May 19, 2006)

Casualties

Deaths: 6,434 people Missing: 3 people Injured: 43,792 people

Damage to Residential Buildings
 Completely Destroyed: 104,906 buildings

Half Destroyed : 144,274 buildings Partially Destroyed : 390,506 buildings





Houses unable to withstand the tremors from the earthquake (Niigata Prefecture Chuuetsu Earthquake 2004)

Kochi Prefecture is Assisting in Making Houses Resistant to Earthquakes

Houses built before May of 1981 are eligible to receive assistance from Kochi prefecture in cooperation with its municipalities for Earthquake Resistance Diagnosis, Earthquake Resistance Planning, and Earthquake Resistance Renovation Work.

■Outline of assistance available (wooden and non-wooden structures built before May 31, 1981)

	Earthquake Resistance Diagnosis	Earthquake Resistance Planning	Earthquake Resistance Renovation Work
Wooden Structures	●Inspection Fee(*1) Ones Own Expenses ¥3,000 (grant of ¥30,000 of the ¥33,000 inspection fee)	 Assistance Grants(*1) 2/3rds of Design Fee (Upper Limit of ¥200,000) 	 Assistance Grants A portion of the renovation costs for repairs, or making concrete walls safe with upper limits of ¥600,000
Non-Wooden Structures	Assistance Grants(*1)Upper Limit of ¥30,000		and ¥300,000 (*2)

- *1) There are terms and conditions to receive inspection and design grants.
- *2) As part of the grant, some municipalities are offering further assistance when costs go over ¥900,000 to assist in the earthquake resistance renovation work. For terms and conditions, please contact the municipality of your registered address.

How are Houses Made More Resistant to Earthquakes?



This outlines how houses are made more earthquake resistant.





Your house is deemed to require earthquake resistance









How Much Does It Cost to Make a Wooden House Earthquake Resistant?



While the cost of work will depend on the house structure, based on a house that will not collapse in strong tremors the cost of repair usually falls between ¥7,000 to ¥20,000 per square meter. An example of the cost burden on the home owner is outlined (this will not be the same cost for all homes).

Based off Assistance Received using the Wooden House Outline from the Previous Page

Resistance Inspection	Inspection Fee (Flat Fee) ¥33,000	_	Assistance Grant ¥30,000 =	Personal Expenses	¥3,000
Design Work	Design Fee ¥300,000 (Average Cost)	_	Assistance Grant ¥200,000 =	Personal Expenses	¥100,000
Renovation Work	Building Fee ¥1,780,000 (Average Cost)	_	Assistance Grant ¥900,000	Personal Expenses	¥880,000
Total	Cost ¥2,113,000	_	Assistance Grant +1,130,000	Personal Expenses	¥983,000



What Sort of Renovation Work do they do?



Placing of Metal Fixtures between the pillars and foundations, pillars and beams, placing structural boards to create load bearing walls, repairs and maintenance to the fundamental areas, as well as minor work on roofs and outer walls.

Also, when doing renovation work to kitchens and bathrooms as well, the walls will be reinforced and make for a well balanced, and more earthquake resistant building.

Don't Forget to Make Concrete Block Walls Safer!

During the 1978 Miyagi Earthquake, 18 people died when they were crushed under concrete walls.

When somebody dies or is injured when passing a concrete wall that collapses, the owner of the wall can be held liable for damages. Collapsed walls can also hinder evacuation attempts and emergency services when they fall on a road. Let's promote safety measures through the whole region for concrete block walls.

Assistance in Establishing Safety Countermeasures for Concrete Block Walls

As of November 2013, 24 municipalities are providing assistance in removing or putting up safety fences around dangerous block walls. If you have any questions regarding this, please contact the division in charge of this in your municipality.

Assistance for Dismantling and Demolishing Dilapidated Buildings is Now Available

In large tremors, dilapidated housing can collapse, hindering evacuation attempts of local citizens and paths of emergency vehicles or even damage neighboring homes.

Since 2013, some municipalities are offering assistance to owners of deteriorated buildings who can ask building companies to demolish or dismantle them. If you have any questions regarding this, please contact the division in charge of this in your municipality.

To Find Architects and Construction Firms Registered in Kochi...

Registered businesses are available online at the Prefectural Homepage

So that citizens can undertake earthquake resistance projects, the prefecture has gathered the information of architects and building companies who can design plans and do renovation works. To find registered businesses either contact the division in charge at your local municipality, or visit the Kochi Prefecture website page "Mokuzo jyuutaku no taishin taisaku" (http://www.pref.kochi.lg.jp/~jyuutaku/index.html) (Japanese Only) and search through the listing.

For inquiries relating to making homes earthquake resistant

There are facilities which provide free consulting on making homes earthquake resistant. From questions such as assistance in making homes earthquake resistant, Earthquake Resistance Inspections, Renovation Planning, Renovation Projects and other technical information please feel free to consult with any of the following housing earthquake resistance consulting centers.

List of Contact Details

Name	Contact Information	Consultation Info	Notes
Housing Earthquake Resistance Center (Within the Kochi Architectural and Building Association)	Tue·Fri (13:30 - 16:30) Tel.088-825-1240 Fax.088-822-1170	Consultations about earthquake reinforcement grants and assistance and technical questions about inspections, designs and construction work	info@ksjk.or.jp URL:http://www.ksjk.or.jp
The Kochi Architectural and Building Association	Weekdays except public holidays (9:00 - 17:00) Tel.088-825-1231 Fax.088-822-1170		Please inform us of what you need to discuss in advance and we will get back to you with a time to come in. info@ksjk.or.jp
Japan Architectural Association Shikoku Branch - Kochi Region Office	Everyday except Wednesday (10:00 - 18:00) Tel.088-880-1812 Fax.088-880-1815	resistance inspections, designs, and	Consultation Location: Ecoasu Umaji-mura (16-23 Minami-goza, Kochi City) Consultation Times:14:00-17:00 weekends. Please contact us in advance.
Kochi Authorized Architecture and Builders Association	Weekdays except public holidays (9:00 - 17:00) Tel.088-822-0255 Fax.088-822-0612		Please FAX or email your questions in advance. sikai780@mb.inforyoma.or.jp
Kochi Construction Industry Association, Construction Department	Weekdays except public holidays (9:00 - 17:00) Tel.088-824-6171 Fax.088-824-6173	Referrals to construction firms (businesses) that can do earthquake resistance reinforcement	The best opportunity to make your house
Kochi Small to Medium Sized Construction Association	Weekdays except public holidays (9:00 - 17:00) Tel.088-822-0303 Fax.088-822-0304	Free advice on housing earthquake resistance inspections, designs, and construction Referrals to construction firms (businesses) that can do earthquake resistance reinforcement	earthquake resistant is when renovating.
Housing Renovations Dispute Claim Center	Weekdays except public holidays (10:00 - 17:00) Tel.0570-016-100	Free advice on anything to do with housing	Costs the same as a city call. When calling from a PHS or IP Phone please call 03-3556-5147.

Get Insurance (Health, Earthquake)

Take out Health Insurance

If you don't take out health insurance, costs for treating any injuries sustained in an earthquake must be borne entirely by you (however, depending on the disaster relief awarded these costs may be exempt). First, check if you and your family have health insurance and if not then apply.

Take out Earthquake Insurance

Even if your house is destroyed by a fire during an earthquake, if you have earthquake insurance then you will be able to rebuild your house with the insurance money. Earthquake insurance and Fire insurance are combined. You cannot take out Earthquake Insurance by itself.

In a disaster, the payout will depend on the extent of the damage. In the instance a house is completely destroyed (over 70%) you will receive 100% of the insured amount, if it is half-destroyed (20%-70%) you will receive 50% and if it is partially destroyed (3%-20%) you will receive 5% of the insured amount. For further information, please contact Sonpo Japan (0570-022808, http://www.sonpo.or.jp (English Available)) or its Shikoku branch (087-851-3344).

Cooperate With Your Neighbors

— Participate in a Disaster Prevention Group (*Jishu Bousai Soshiki*) -

What is a Jishu Bousai Soshiki?

A *jishu bousai soshiki* is a group that conducts various activities in order to protect the region they live in together during a natural disaster. Often, the Neighborhood Council (*jichikai*) or Neighborhood Association (*chounaikai*) undertakes disaster prevention activities.

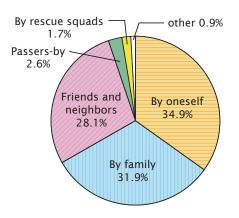
Why are Jishu Bousai Soshiki needed?

When the *Nankai Torafu Jishin* occurs, many fires will break out and many will be injured. Firefighters will be unable to respond to everyone. Therefore, when a fire breaks out or somebody is injured it is important that people work together.

What do Jishu Bousai Soshiki do?

- ①Research what types of disasters might affect their region
- ②Know their local area
- ③Drill to save lives during disasters

Rescues during the Hanshin Awaji Earthquake



Daily Disaster Prevention

Disaster prevention occurs at your schools and offices so please participate and make friends with your neighbors and colleagues so that you can help each other in a natural disaster.

Do not worry if you cannot speak Japanese. Just smile and greet people with "Ohayo, Konnichiwa, Konbanwa, and Oyasuminasai".

- (1) I want to drill putting out fires.
- → Ask your local fire station.
- ② I want to experience a simulated earthquake in an earthquake experience car.
- → Ask the division in your municipality which is in charge of this.
- 3 I want to take a first aid class.
- → Please ask your local fire station.

(Class length: 3 hours, cost is free)

Translated versions of the text used in the first aid course is available online at our website at

http://www.kochi-kia.or.jp/event/index.html#quake



Fire Extinguishing Drills in Nankoku City

Disaster Prevention Week (August 30 to September 5) etc

During the dates below, various disaster prevention events are held.

Please participate in the events and learn about Japanese natural disasters and disaster prevention.

- Disaster Prevention Week (Kochi Prefecture Nankai Earthquake Countermeasure Promotion Week) –
 August 30 September 5
- Disaster Prevention Day **September 1** (The day the Great Kanto Earthquake occurred)
- Disaster Prevention and Volunteer Week January 15 21
- Disaster Prevention and Volunteer Day **January 17** (The day of the Great Hanshin Awaji Earthquake)
- Flood Prevention Month (Disaster Prevention for Floods and Typhoons) May

Essential Knowledge about Earthquakes

Learn the difference between Magnitude and Seismic Intensity (shindo)

Magnitude refers to the scale of an earthquake. A larger number refers to a larger scale earthquake.

Shindo refers to how much the ground moves. Even during the same earthquake the number will vary depending on the place. Even if the earthquake has a large magnitude, places further from the epicenter or where the terrain is sturdy will experience a smaller seismic intensity.

Shindo and Damage

In Japan, *shindo* is separated into 10 categories, the larger the number the bigger the damage.

Shindo	Damag	je	Shindo	Damage
0 (zero)	Not felt by humans but will be recorded by seismographs.		Weak 5 (go jyaku)	Many people will feel scared and try to take cover. Unstable items may fall over. Some glass windows may crack or break.
1 (ichi)	Felt by some people who are indoors.		Strong 5 (go kyou)	Many people will find it difficult to move normally. Televisions will fall. Weak concrete walls may fall over.
2 (ni)	Felt by many people who are indoors. Some sleeping people will wake up. Hanging lights sway a little.		Weak 6 (roku jyaku)	It is difficult to stand. Walls, tiles and glass windows will break and drop from some buildings. Weak wooden houses might collapse.
3 (san)	Felt by many people indoors. Some people walking will feel it. Many sleeping people will wake up. Plates in cupboards will rattle.		Strong 6 (roku kyou)	You will be unable to stand. Many walls, tiles and glass will break and fall. Concrete some buildings may also collapse. The ground cracks open and landslides occur.
4 (yon)	Most people will notice. Most people walking will feel it. Most people sleeping will wake up. Hanging lights will sway more. Plates in cupboards will rattle. Unstable items may fall over.		7 (nana)	You will be unable to stand. Even buildings with high earthquake resistance will sway and break. Large ground cracks and landslides will occur, changing the terrain.

What Kind of Earthquake is the Nankai Torafu Jishin?

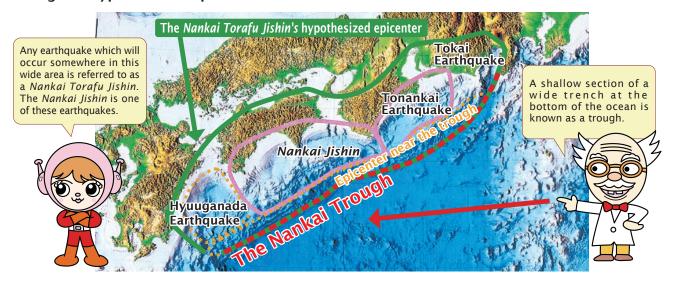
The Nankai Jishin and Nankai Torafu Jishin

The *Nankai Jishin* has generally occurred every 100 to 150 years at around the same time as the Tonankai Earthquake and the Tokai Earthquake, often separated by a time frame of hours to a few years. In 1605, the Keicho Earthquake occurred, and while there isn't much documentation of people dying from the tremors, there are many reports about the large amount of victims from the tsunami. It is expected that this earthquake's epicenter was near the trough, outlined in the following picture.

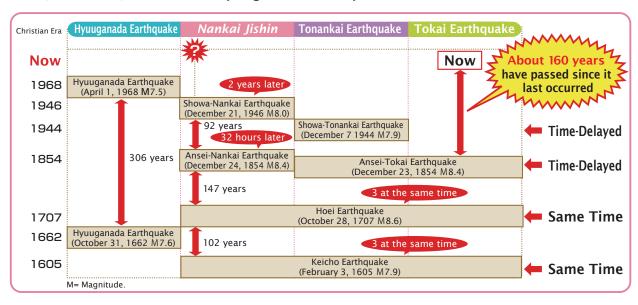
Nankai Torafu Jishin refers to a large-scale earthquake whose epicenter will be located in the earth's crust at the Nankai Trough and/or its surrounding areas. This area includes the Nankai Jishin, the Tonankai Earthquake and the Tokai Earthquake. While these earthquakes can occur separately, they can also occur at the same time, or just a few hours apart.

According to the latest scientific information, although the likelihood of such an occurrence is low, the potential exists for a massive earthquake which would encompass the entire Nankai Trough area, from the Tokai region (just south of Tokyo) all the way down to Kyushu, causing immense damage. See the following picture.

■Image of Hypothesized Epicenter



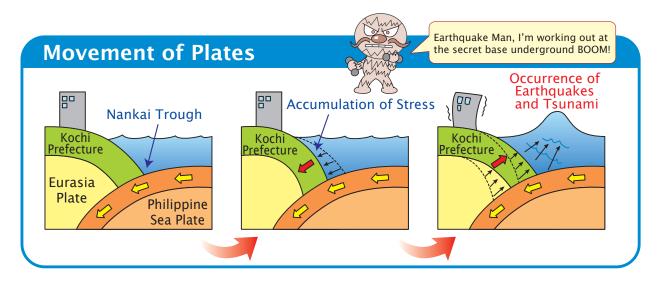
■Tokai, Tonankai, Nankai and Hyuuganada Earthquakes after 1600



The Reason the Nankai Torafu Jishin Occurs

Along the surface of the earth there are several plates. These plates are large pieces of bedrock that are tens of kilometers thick and move extremely slowly.

Underneath the ocean of Kochi the Philippine Sea Plate is being pushed beneath the Eurasian Plate. When the plate slips back an earthquake occurs. When the water above it moves a tsunami will also occur.



Characteristics of a Worst Case Nankai Torafu Jishin

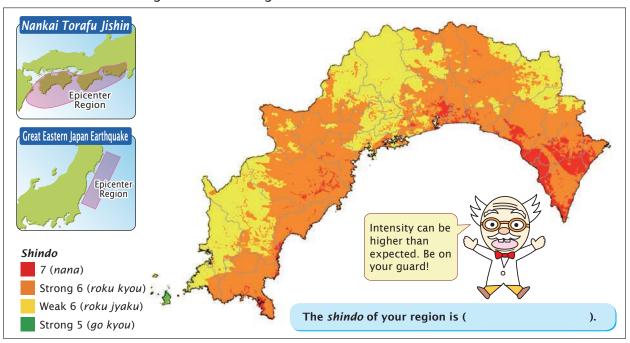
When a worst case earthquake and tsunami occur, damage will occur on a massive scale from the sea west of Tokyo to Kyushu, so help cannot be expected to arrive from outside the prefecture.

The ground will shake hard and for a long time

In the event of a large earthquake, 26 municipalities will experience severe shaking at an intensity of 7, and the remaining 8 municipalities will experience a strong 6.

All of the epicenters of the Great Eastern Japan Earthquake were underwater, however the hypothesized epicenter of the *Nankai Torafu Jishin* also includes landmass, of which Kochi is included. This is why the shaking will be large.

Seismic Intensity Distribution Map (Strongest *Shindo* Superimposed) (Published by Kochi Prefecture, December 2012)
This shows the strength of the shaking.

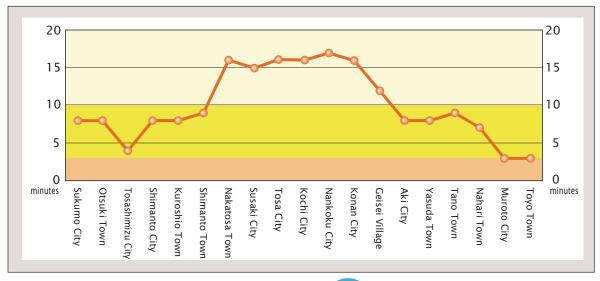


High Tsunami Will Arrive Quickly

In Kochi a 1 meter tsunami will arrive at the coast within 3 minutes after the earthquake. Ports along the shore and bays and most areas along the case except the Uranouchi Bay and the Urado Bay are expected to receive tsunami with a maximum of over 10 meters high.

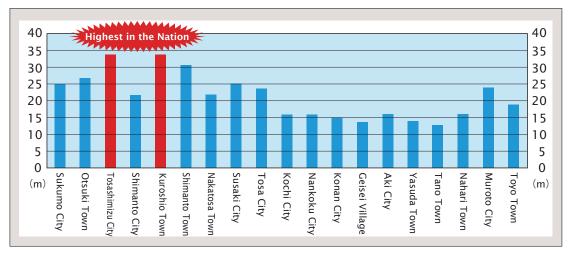
The arrival time of a 1 meter tsunami along the coast (published by the Cabinet Office, August 2012)

You can see when a 1 meter tsunami will arrive at the municipalities along the coast.



■The height of tsunami along the coast (published by the Cabinet Office, August 2012)

You can see the height of tsunami that will arrive at the municipalities along the coast.



Long Term Inundation

When an earthquake occurs, 13 municipalities within the prefecture are expected to drop in elevation and be inundated for long periods of time.

Because the ground level in Kochi City will sink by about 1.5 meters when the earthquake occurs, about 2800 hectares of the city center will be flooded for long periods of time, possibly making various municipal services unavailable. In the same way, Sukumo City is expected to sink about 2.4 meters, which would cause long term flooding over about 559 hectares of the city center.



After the Nankai Earthquake in 1946 (Land Subsidence at 1.15m)



Current (as of September 2011)

The city center 3 days after the Nankai Earthquake in 1946, taken from Mt. Godai in Kochi City. You can see that a large area of the city is flooded from the land sinking.(After the Earthquake, Provided by Kochi City)

Predicted Casualties

In a worst-case-scenario earthquake and tsunami, huge casualties and damage are expected with the death toll in Kochi Prefecture to reach 42,000 people, and over 153,000 houses destroyed or burnt down. However, if everyone prepares as outlined in this booklet, the casualties will be greatly reduced.

■ Predicted loss of life and assets (published by Kochi Prefecture, May 2013) Casualties (deaths) are based on the worst case scenario

	■ Expected Damage				
	Buildings Totally Destroyed, Burnt Down	Approx. 153,000			
	Injured	Approx. 36,000 people (of these, 20,000 seriously)			
	Deaths	Approx. 42,000 people			
	Water Supply Disruption	Approx. 575,000 people (82% of water users)			
	Loss of Power	Approx. 521,000 houses (99% blackout)			
	Evacuees	Approx. 438,000 people			

■Breakdown of Destroyed Houses and Burnt Buildings			
Liquefaction Damage	Approx. 1,100		
Shaking	Approx. 80,000		
Landslide	Approx. 710		
Tsunami	Approx. 66,000		
Fire	Approx. 5,500		
Total	Approx. 153,000		

ed	■Breakdowr	n of Casualtie	S
lings		Injured	Dead
0	Building Collapse	Approx. 33,000 people	Approx. 5,200 people
00	Landslide	Approx. 140 people	Approx. 110 people
000	Tsunami	Approx. 2,900 people	Approx. 36,000 people
0	Fires	Approx. 300 people	Approx. 500 people
,000	Total	Approx. 36,000 people	Approx. 42,000 people
ctions			

O Data Based on the Following Projections
Shaking: When a large area of land directly underneath Kochi
Prefecture shakes strongly
Tsunami: In the instance of a large tsunami forming in the Shikoku Ocean

36,000 people
42,000 people

Data Based on the Following Projections
Time: Midnight in winter
Houses Earthquake Resistant: 74%
Tsunami Early Evacuation Percentage: 200

Time : Midnight in winter Houses Earthquake Resistant : 74% Tsunami Early Evacuation Percentage : 20%

Useful Vocabulary and Phrases

Vocabulary

1.	地震 (jishin) : Earthquake	13. 高台 (takadai) : Elevation / High Ground
2.	震源 (shingen) : Epicenter	14. 揺れ (yure) : Sway / Shake
3.	津波 (tsunami): Tsunami	15. 安否 (anpi): One's Safety
4.	避難 (hinan): Evacuate / Escape / Take Shelter	16. 救助 (kyuujo): Relief / Aid
5.	避難勧告 (hinan kankoku): Evacuation Advisory	17. 救援物資 (kyuuen busshi): Emergency Provisions
6.	避難指示 (hinan shiji) : Evacuation Order	18. 消火 (shouka): Extinguish a Fire
7.	避難所 (hinanjo) : Shelter	19. 断水 (dansui): Water Supply Disruption
8.	震度 (shindo): Seismic Intensity	20. 停電 (teiden): Power Outage
9.	余震 (yoshin): Aftershocks	21. 警報 (keihou) : Alarm Warning
10.	. 危険 (kiken) : Danger / Dangerous	22. 注意報 (chuuihou) : Advisory Warning
11.	火事 (kaji)・火災 (kasai) : Fire	23. 行方不明 (yukue fumei): Missing
12.	. 逃げる (nigeru) : Escape / Run Away	24. 死者 (shisha): Deceased

Phrases

①○○に連れて行ってください。	(OO ni tsurete itte kudasai.)
Please take me to $\bigcirc\bigcirc$.	

- ②○○が欲しいです。(○○ ga hoshii desu.) I want ○○.
- ③ ○○が痛いです。(○○ ga itai desu.) My ○○ hurts.
- ④ 家族が家の中にいます。(kazoku ga ie no naka ni imasu.) My family is in the house.
- ⑤ 語を話すことができる人を見つけてください。
 (○ go o hanasu koto ga dekiru hito o mitsukete kudasai.)

 Can you please find me a person who speaks ?
- ⑥ ○○に電話をしてください。(○○ ni denwa o shite kudasai.) Please call ○○.

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