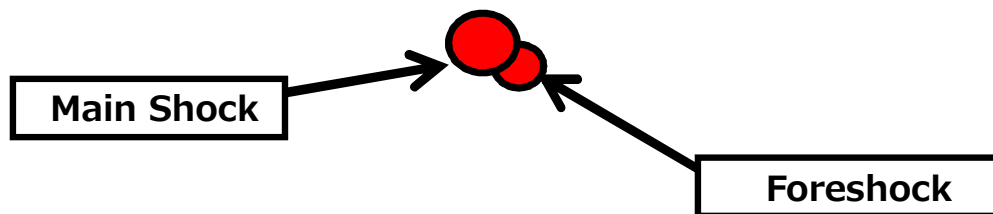


Response to Kumamoto Earthquakes

19 December 2016
Crisis Management Department,
Kumamoto prefecture

Areas where the 2016 Kumamoto Earthquakes occurred

- Two consecutive magnitude 7 earthquakes occurred within 28 hours
(**First time on record**)
- 20 municipalities in Kumamoto observed over seismic intensity 6 lower.
- Aftershocks count over 4,100. (as of 29 Nov. 2016)



Foreshock

Date: Thu. 14 April 2016
Max. Seismic Intensity: 7
Magnitude: 6.5

Main Shock

Date: Sat. 16 April 2016
Max. Seismic Intensity: 7
Magnitude: 7.3

Scale of the Earthquakes and Impact to People in Kumamoto Prefecture

*83% of the population of Kumamoto Pref. were affected by the earthquakes of more than Seismic Intensity 6 lower and more than 10 % of the population evacuated (twice more than the case of the Great Hanshin-Awaji Earthquake)

Earthquake scales & their impacts

*Aftershocks of Kumamoto Earthquakes count more than 4,161 times as of 29 Nov. 2016

	Over Seismic Intensity 6 lower	Aftershocks (15 days after the occurrences)	Affected Populations in municipalities (over Seismic intensity 6 lower)	Max. Number of Evacuees *1
Kumamoto Earthquake (14 & 16 April 2016)	7 times (including two times of Seismic Intensity 7)	2,959 times	Approx. 1.48 million (<u>Approx. 83% of Kumamoto Pref.</u>)	Approx. 184,000 (<u>10.3% of Kumamoto Pref.</u>)
The Great Hanshin-Awaji Earthquake (17 January 1995)	1	230	Approx. 2.32 million (Approx. 42 % of Hyogo Pref.)	Approx. 317,000 (5.7% of Hyogo Pref.)
Niigata-ken Chuetsu Earthquake (23 October 2004)	5	680	Approx. 0.38 million (Approx. 16% of Niigata Pref.)	Approx. 103,000 (4.2% of Niigata Pref.)

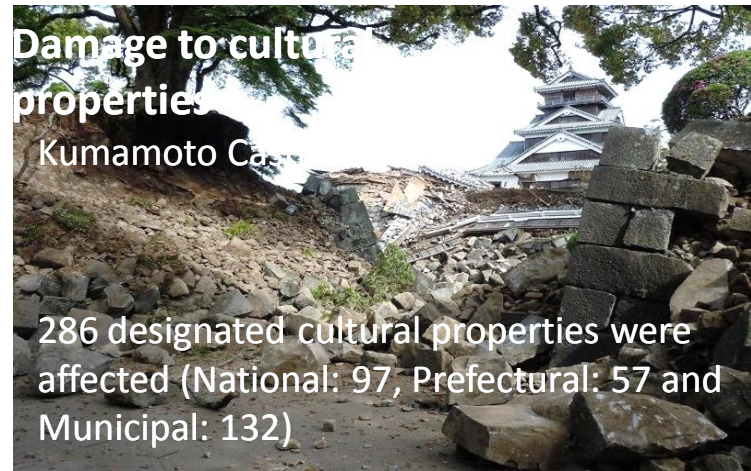
*1 No. of evacuees counts only for those who evacuated to designated evacuation shelters and excludes the others such as those who slept inside of their cars.

Approx. 160,000 building damage (more than 8,500 totally collapsed houses)



Damage to cultural properties

Kumamoto Castle



286 designated cultural properties were affected (National: 97, Prefectural: 57 and Municipal: 132)

One of major arcades was affected



Damage to commercial facilities

Damages by Kumamoto Earthquake (as of 28 July 2016)



Depression of roads

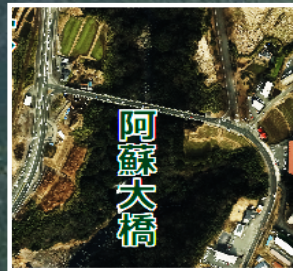
Max. 115 points of prefectural roads were disrupted – routes for logistics were concentrated on Route 3 and it caused a disruption of distribution of goods.

Collapsed roads

The picture before the damage was provided by Geospatial Information Authority of Japan



A main route of Aso-Oita, horizontal axis of Kyushu was completely disrupted together with Tawarayama route. Aso region became isolated.



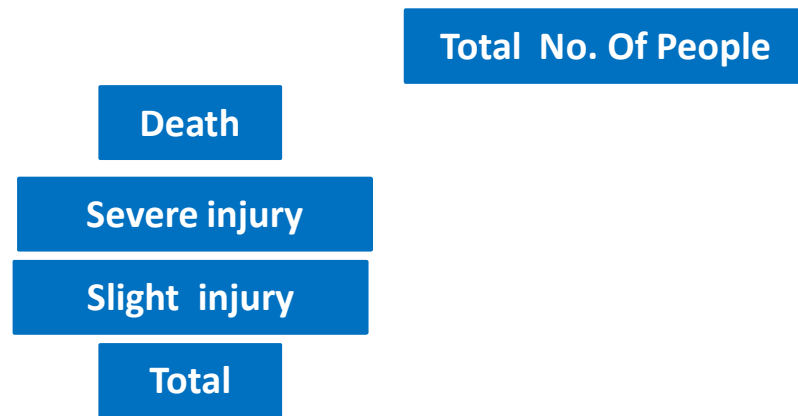
Route 57 disrupted by hillside failure, collapsed Aso Ohashi (Aso Major Bride) (Approx. 200m)

Overview of Damages (29 Nov. 2016)

* Preliminary figures, but not finalized ones

1 Human Damages

Total: 2,717

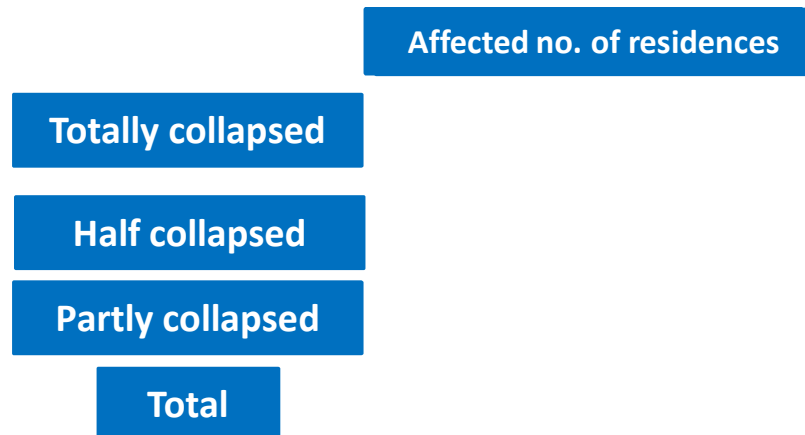


<Breakdown of Death>

- 1) Direct death **50** people
- 2) No of death suspected the related death **95** people
- 3) Including 2), no. of death identified as the related deaths based on the Act for the Payment of Solatia for Disaster **55** people
- 4) No. of deaths identified the relation with the heavy rains between 19-26 June and the Kumamoto Earthquake **5** people

2 Building Damages

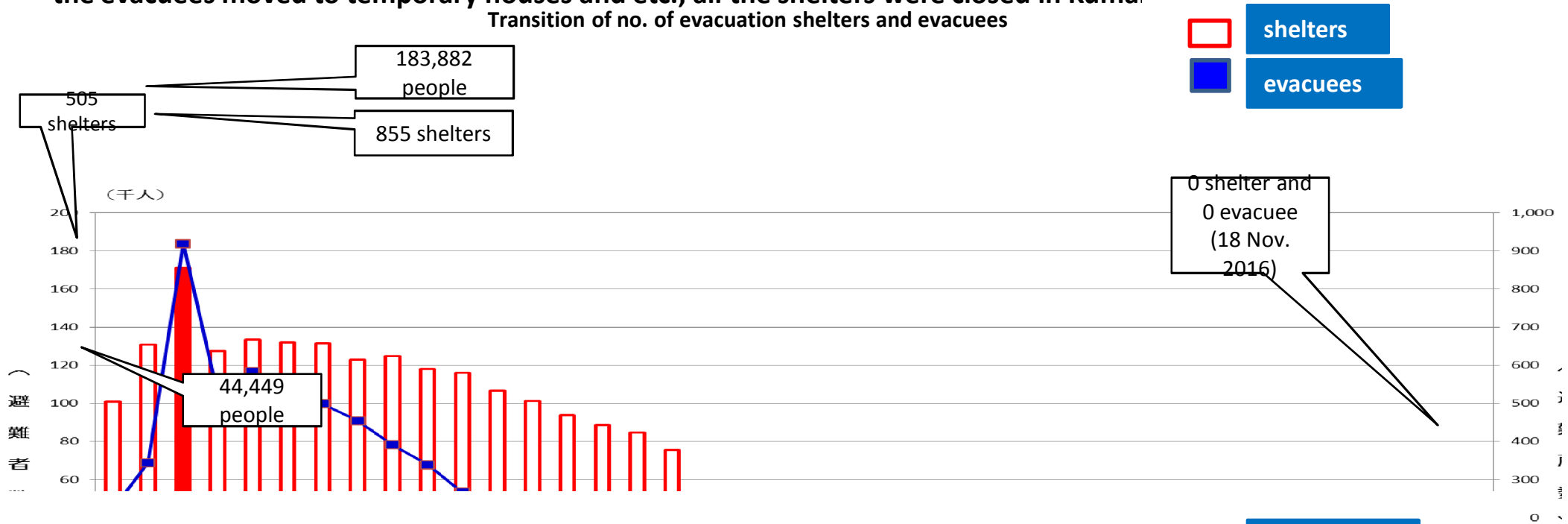
Damaged residences: 175,000



3 No. of evacuation shelters and evacuees, and restoration of lifelines

Right after the earthquakes, more than 180,000 people were evacuated due to the major damage to lifeline. Since all the evacuees moved to temporary houses and etc., all the shelters were closed in Kumamoto Pref.

Transition of no. of evacuation shelters and evacuees



Damages to lifeline and their restoration

(件数)

Electricity
Gas
Water

Restoration of electric outage on 20 Apr.

Restoration of gas supply on 30 Apr.

Restoration of water supply on 19 Jul. except the areas of evacuation order and advisory

Disaster Response (Positive aspects)

1 Rescue activities in collaboration with related organizations

- Rescued approx. 1,700 people due to prompt actions



Rescue activities in Minami-Aso mura



Disaster management aircraft parking helped receive 15C support helicopters



Support by medical teams

- Prompt wide-area medical transport was conducted by disaster medical teams.

2 Support from National government, Association of Kyushu Prefectural Governors and etc.

- Prompt decision-making at National On-Site Headquarters composed of national management officials related to Kumamoto
- Prompt dispatchment of support officers based on counterpart method organized by Association of Kyushu Prefectural Governors
- Collecting information by prefectural management officers at heavily affected municipalities
- Push-type support of goods by national government (2.6 million foods provided)



National and prefectural joint disaster management headquarter meeting



Push-type support

Disaster Response (positive aspects)

3 Support in collaboration with private sectors, rescue by voluntary disaster management organizations and fire corps volunteers

- Material supports from private sectors which have agreements with the prefecture
- Improvement of the environment of shelters in collaboration with NPOs
- Rescue activities by voluntary disaster management organizations and fire corps volunteers before the arrival of public help



partitions



Activities by Fire Corps Volunteers



Material support by private sectors

4 Securement of temporary houses

- Developed temporary houses with comfort and ease utilizing woods from Kumamoto
- Prevented isolation of residents installing small paths between residences and allowing living with pets



Wooden temporary houses



Everybody's house

Disaster Response (Challenges)

1 Damage to Disaster Management Bases

- Municipal halls, schools and a supply accumulation base (Guran Messe Kumamoto) were affected.
- Some damaged to non structural parts of buildings such as walls caused problems to use buildings themselves.



2 Insufficient preparedness of people

- Raising awareness of people for future disasters and preparation for stockpiles at home were insufficient.



Disaster Response (Challenges)

3 Significant needs of manpower and time for assessing damage accreditation of residences

- Due to the complexity of national guideline, it required significant time and manpower for the assessment.



Support of many staff members from other prefectures



Explanation to residents

4 Confusion at the time of delivery of relief goods

- Difficulty in grasp of necessary amount of goods and information sharing among national, prefectural and municipal governments
- Difficulty in allocation of staff members at evacuation shelters



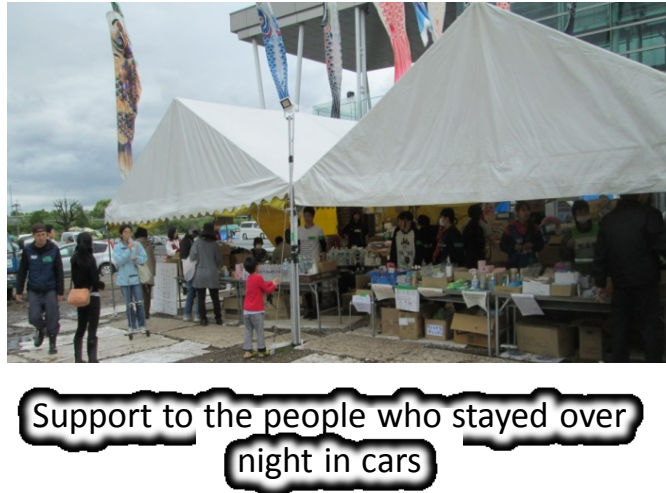
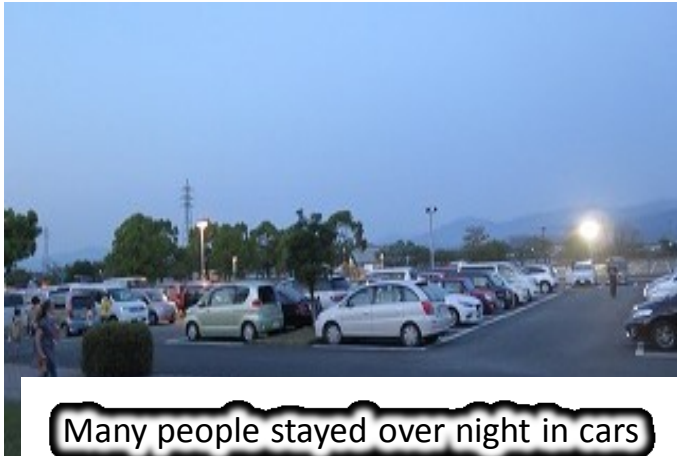
Order, receive and manage goods



Disaster Response (Challenges)

5 Difficulty in grasp of people who evacuate in cars or their own premises

- Difficulty in grasp of overall figure since many people stayed overnight at their cars due to the frequent occurrence of aftershocks



6 Over-dependent on management of evacuation shelters by governments

- Staff members were too occupied with management of evacuation shelters and this caused a problem with conducting original duties.



Disaster Response(Challenges)

7 Lifeline such as major roads were affected

- Difficulty in delivery of goods and human resources



Restoration and Recovery Plan

Goals of Restoration and Recovery

“Three Principles of Restoration and Recovery



- Minimize the pains of affected people
- Aiming at creative recovery, not just building back as same as before
- Connecting restoration and recovery to further development of Kumamoto

Restoration and Recovery Plan from 2016 Kumamoto Earthquakes

Fundamental Principle

Mobilizing collective efforts of people in Kumamoto, maximize the Gross Prefectural Happiness in Kumamoto through the next generations.

Future vision of Kumamoto

New Kumamoto which transmits disaster-resilient and proud assets to next generations and is fulfilled with dreams

Hope (夢)

将来が夢にあふれ、希望に満ちている熊本

Safety (安全・安心)

災害に強く、安全・安心に生活できる熊本

Pride (誇り)

熊本の宝が継承され、誇りに満ちた熊本

Economy (経済的安定)

経済的に安定し、躍動する熊本

Fundamental Direction of Efforts

Minimization of the pains (emergency restoration)

Creative recovery (Build Back Better)

Establishment of future foundation

Restoration and Recovery Plan

“Reconstruction of life and living”

Be with affected people and reconstruct people’s living including housing, healthcare, welfare, and education

“Creation of life with full of safety and hope
-Realization of Safety and Hope”

“Restoration of social infrastructure”

Restore Kumamoto’s “bases” including road, railway, Aso, Kumamoto Castle and disaster management bases

“Creation of Assets for Future
- Building the base for future”

“Revitalization of local industries”

Implement measures against a reputational damage, and revitalize tourism industry, agriculture, forestry and fishery industry and industrial and commercial industry

“Creation of Resilient Local Industries for Future Generations – Revitalization of local power and work”

“Restoration of communication hubs”

Restore Kumamoto Port, Yatsushiro Port, Aso Kumamoto Airport and enhance their functions

“Creation of New Kumamoto Linked to the World
- Challenge to the world and opening up to the world”

Except above mentioned, items to be tackled in 4 years

- Minamata disease, Kawabe Rv. Dam, TPP, enhancement of financial structure of the prefecture
- Empowerment of women, human rights, etc.

Future Kumamoto

New Kumamoto which transmits disaster-resilient and sound assets to next generations and is fulfilled with dreams

Next four year Strategies

(まち・ひと・しごと創生総合戦略を一本化)

Examples of Efforts

“Reconstruction of life and living”

Support to living and securement of houses

Wooden temporary houses



Devised a creative layout of residences and 1.5 times bigger space than the normal one
 Utilized Kumamoto made woods and tatami and created “warmth”
 Taken into consideration of real life of people such as allowing pets in temporary housings

Everybody’s house



“Everybody’s house” (meeting and communication room) which was constructed with Kumamoto-made woods and tatami, was developed in order to prevent isolation of affected people and create an easy-to-communicate environment among residents and local communities. In addition, advisors have been sent to meetings that people who are involved with support for affected people such as members of neighborhood associations and social workers get together.

Status of building temporary houses (as of 14 Nov.)

No. of houses to be constructed	No. of completed houses	No. of houses which have allocated for people (as of 15 Nov.)
4,303	4,303	4,167

To begin with Nishihara mura and Kousa cho on 29 Apr., the construction was started in 16 municipalities.

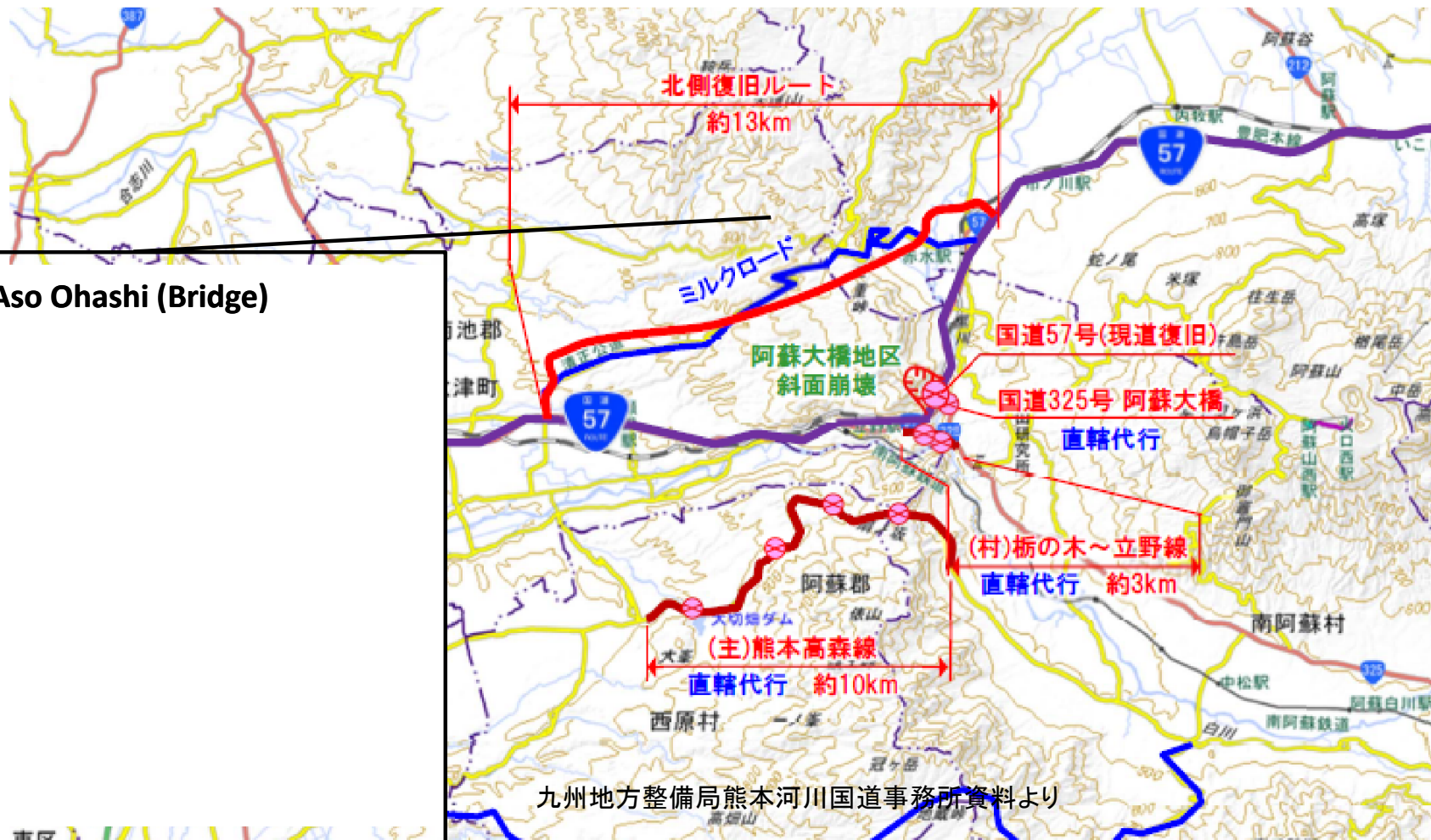
No. of constructive temporary houses which have been allocated for people (as of 28 Nov.)

11,769

Examples of Efforts

“Restoration of social infrastructure” Restoration of a road connecting Kumamoto and Aso (Route 57, Aso Ohashi, Tawarayama route)

Rebuilt of Aso Ohashi (Bridge)



Example of Efforts

“Revitalization of local industries” Revitalization of industries and innovative recovery

***Utilizing group subsidies, supported facility improvement of SMEs and restoration of join facilities of SME’s unions and arcades** <2nd year engagement at the time of the Great East Japan Earthquake>

Flow of the project

<1st Application>
Approx. 4,000
people of 240
groups applied
in the project.

***Strengthening of financial support**

Added new commitment line

At the beginning of
Fiscal Year 2016
JPY 30 billion

+

Addition

Special funds for financial facilitation **130 billion Yen**
Small business support funds

Support for total amount of credit
guarantee fee

Generally
0.5%~1.35%



0%

Example of Efforts

“Revitalization of local industries” Prompt restoration and large parcellation of farmland and agricultural facilities and infrastructure development along with agricultural integration

***Implementation of not just restoration, but infrastructure development for futures**

- Promotion of large parcellation through infrastructure development of wide areas including affected farmland
- Accumulated farmland to main providers (local agricultural organizations) helps reduce the burden of farmers
- Generalization (drainage measures) creates the increase of income through rice field + field (wheat, soybeans, out-door grown vegetables)



地域内の分散・錯綜



Example of Efforts

“Revitalization of local industries”

Prompt recovery of tourism industry and development of new tourism strategies

“Kyushu Recovery Discount”



Restoration of Kumamoto Castle



National Park



“Aso Kuju National Park” was designated as a model of the national park Japan scheme.

Organization of international sports festivals



24th IHF
WOMEN'S HANDBALL
WORLD CHAMPIONSHIP
KUMAMOTO / JAPAN 2019

IHF Women's World
Championship

Rugby World Cup



Discover and polish tourist resources in Kumamoto

Example of Efforts

“Restoration of communication hubs” Restoration of Aso Kumamoto Airport and Yatsushiro Port and enhancement of their functions

Aso Kumamoto Airport

*Development of wide-area disaster management base
For the enhancement of the function of a large wide-area disaster management base, Comprehensive Disaster Management Aviation Center (provisional) will be developed.



【Takao, Taiwan – Kumamoto Line】 Reopen from 3 June

Port calls of cruise ships

*Aiming at receiving 70 cruise ships at Yashiro Port, environment of the quay will be improved.



In 2017, more than 70 times of port calls have been requested.