

Gender problems as seen
from the oral history of the bereaved families of
the deceased Tsunami in Otsuchi Town,
during the Great East Japan Earthquake

One example of Kirikiri after the Great East Japan Earthquake

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Summerly

- In Otsuchi-cho, Iwate Prefecture, we interviewed the families and friends of the people who died under the leadership of the disaster-stricken area, and found out how the dead people lived and how they died on the day of the earthquake.
- We would like to talk about the “proof of living” in Otsuchi, Iwate Prefecture, which is being analyzed in this research, through a gender lens.

The purpose of this study

- collect community records to prevent future disasters
- analyse the disaster situation of the victims
- find out what happened at the time of the earthquake and use the information for future disaster prevention

Damage from The Great East Japan Earthquake in Japan

Human casualties include 14,508 dead and 11,452 missing people. Since many areas are still left uninvestigated, the number is expected to increase.

The number of completely collapsed and washed-out houses amounts to 76,000, and the number of those with half and partial damage is over 244,000. Following the earthquake, **345** fires occurred in **12** prefectures, including cases where the tsunami triggered the fire.

DISASTER DIGITAL ARCHIVES HAS CREATED JAPANESE GOVERNMENT DECISION

- Principle One:
 - *For us, the surviving, there is no other starting point for the path to recovery than to remember and honour the many lives that have been lost. Accordingly, we shall record the disaster for eternity, including through the creation of memorial forests and monuments, and we shall have the disaster scientifically analysed by a broad range of scholars to draw lessons that will be shared with the world and passed down to posterity.*

Two disaster archive approaches

Main stream structure

- Huge budget
- government –focused
- Requires construction and infrastructure
- Includes museums

Bottom-up structure

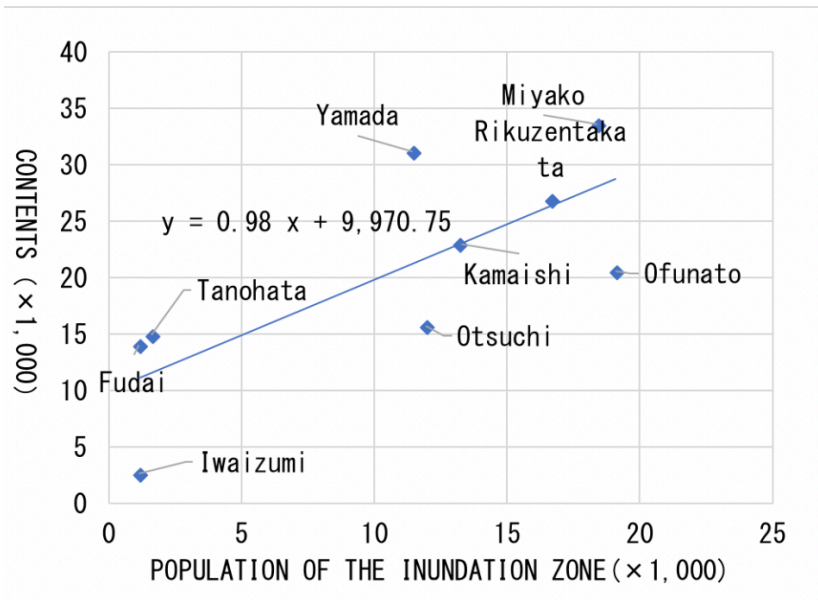
- Low budget
- Human-focused
- Sustainable
- Includes testimonies

Correlation between the amount of content in the disaster archives and the amount of damage



First step to analysing the digital disaster archive (main stream structure)

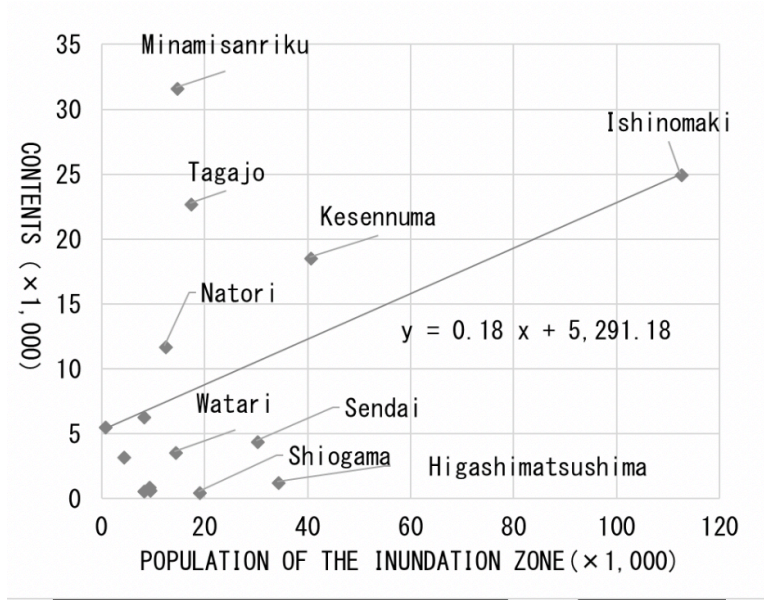
- To do a quantitative analysis, we looked at the correlation between the amount of damage in each region due to the 2011 earthquake and the amount of archived content in the database
- To do a quantitative analysis, we examined the correlation between the magnitude of damage in each region and the amount of archived content in the database for each region.



Contents in Iwate Prefecture

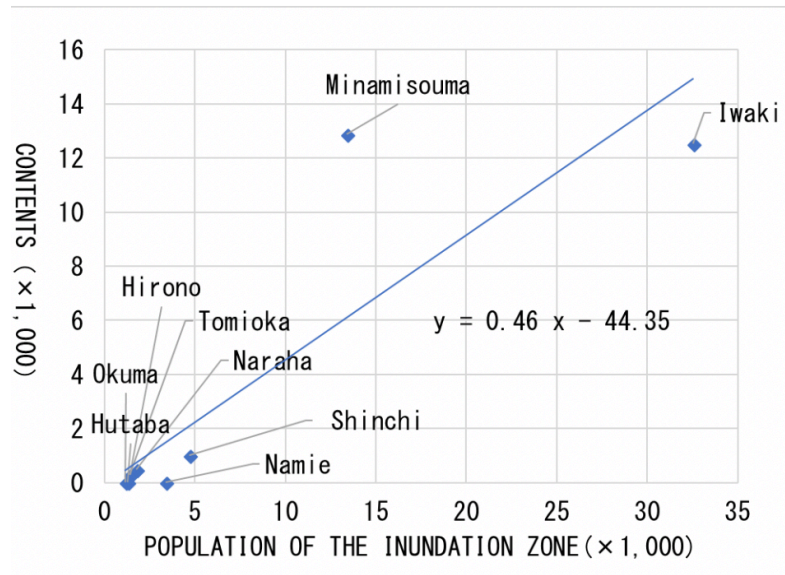
District	the number of people of Inundation Area	the number of DDAs contents
Miyako	18,378	33,617
Ofunato	19,073	20,566
Rikuzentakata	16,640	26,903
Kamaishi	13,164	23,010
Otsuchi	11,915	15,720
Yamada	11,418	31,197
Iwaizumi	1,137	2,646
Tanohata	1,582	14,886
Fudai	1,115	14,014

Correlation Coefficient
0.75



District	the number of people of Inundation Area	the number of DDAs contents
Sendai	29,962	4,479
Ishinomaki	112,276	25,024
Shiogama	18,718	571
Kesennuma	40,331	18,603
Natori	12,155	11,810
Tagajo	17,144	22,790
Iwanuma	8,051	691
Higashimatsushima	34,014	1,337
Watarai	14,080	3,641
Yamamoto	8,990	990
Matsushima	4,053	3,278
Shichigahama	9,149	719
Rifu	542	5,590
Onagawa	8,048	6,407
Minamisanriku	14,389	31,722

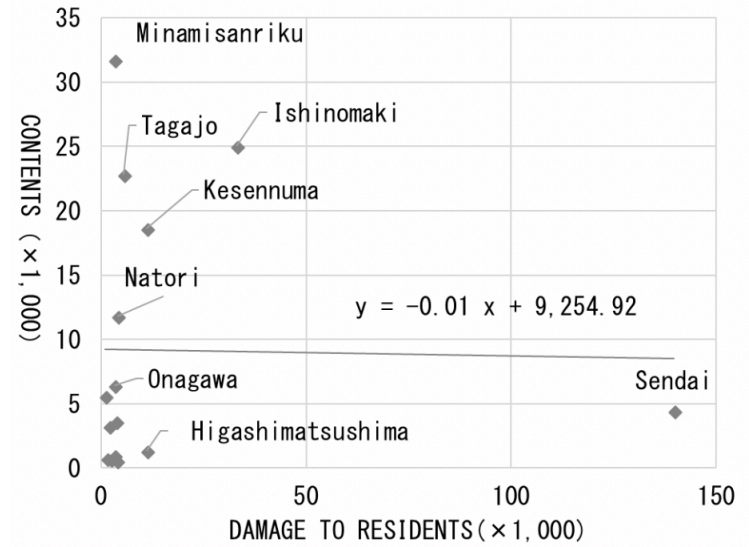
Correlation Coefficient
0.46



Contents in Fukushima Prefecture 福島に変更

District	the number of people of Inundation Area	the number of DDAs contents
Iwaki	32,520	12,523
Minamisouma	13,377	12,889
Hirono	1,385	300
Naraha	1,746	481
Tomioka	1,401	328
Okuma	1,127	31
Hutaba	1,278	10
Namie	3,356	29
Shinchi	4,666	1,028

Correlation Coefficient
0.88



District	the number of destruction housing	the number of DDAs contents
Sendai	139,642	4,479
Ishinomaki	33,071	25,024
Shiogama	3,843	571
Kesenuma	11,054	18,603
Natori	3,930	11,810
Tagajo	5,476	22,790
Iwanuma	2,342	691
Higashimatsushima	11,067	1,337
Watarai	3,539	3,641
Yamamoto	3,302	990
Matsushima	2,006	3,278
Shichigahama	1,323	719
Rifu	957	5,590
Onagawa	3,271	6,407
Minamisanriku	3,321	31,722

Correlation Coefficient
-0.02

Result

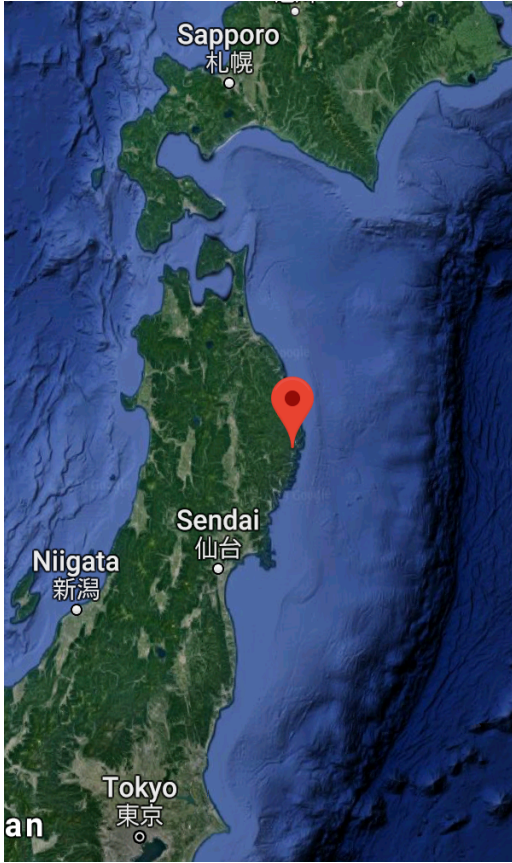
- Summarizing the results obtained from these data, there was a certain degree of correlation between the number of human and building damage and disaster archive data.
- However, Rikuzentakata City and Otsuchi Town have fewer records than Miyako Town and Yamada Town, but the mortality rate and the percentage of missing persons were higher in these towns.

Problems of digital disaster archives in the prefectures

- As a result, even in the case of severe damage, sufficient data were not recorded due to the low budget
- The shortage of personnel in these economically difficult areas.

Regional circumstances

- After the earthquake, many actions were taken in many of the affected areas to learn lessons from the tsunami damage.
- There are municipalities that have constructed large-scale museums with funds from the national government and disaster-stricken areas that allocate a large budget to the digital archives.
- The town of Otsuchi, which was heavily damaged by the Great East Japan Earthquake, released its own archive to launched its own investigation into the damage.



Map of Otsuchi

Demographic pyramid of Otsuchi

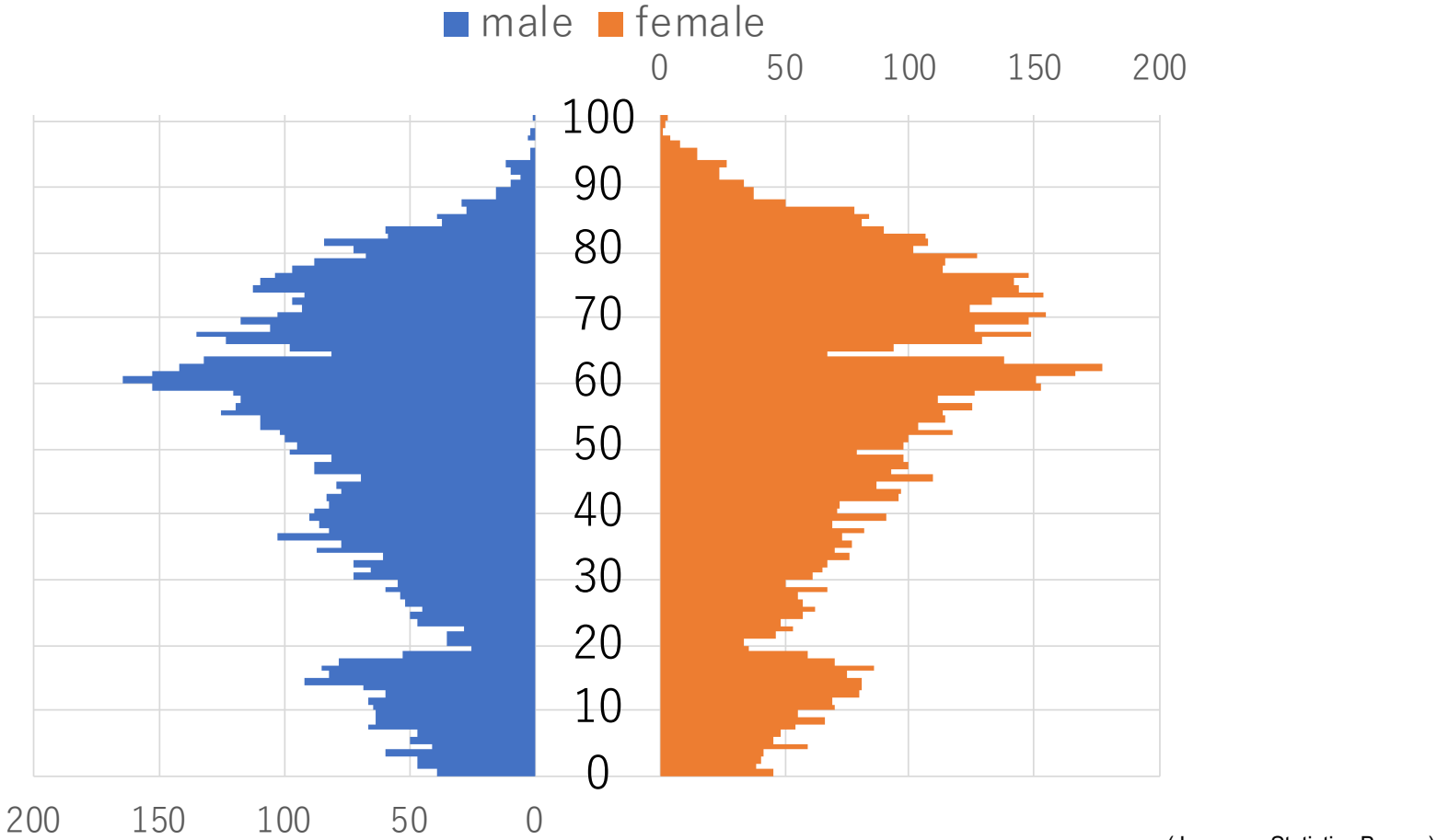
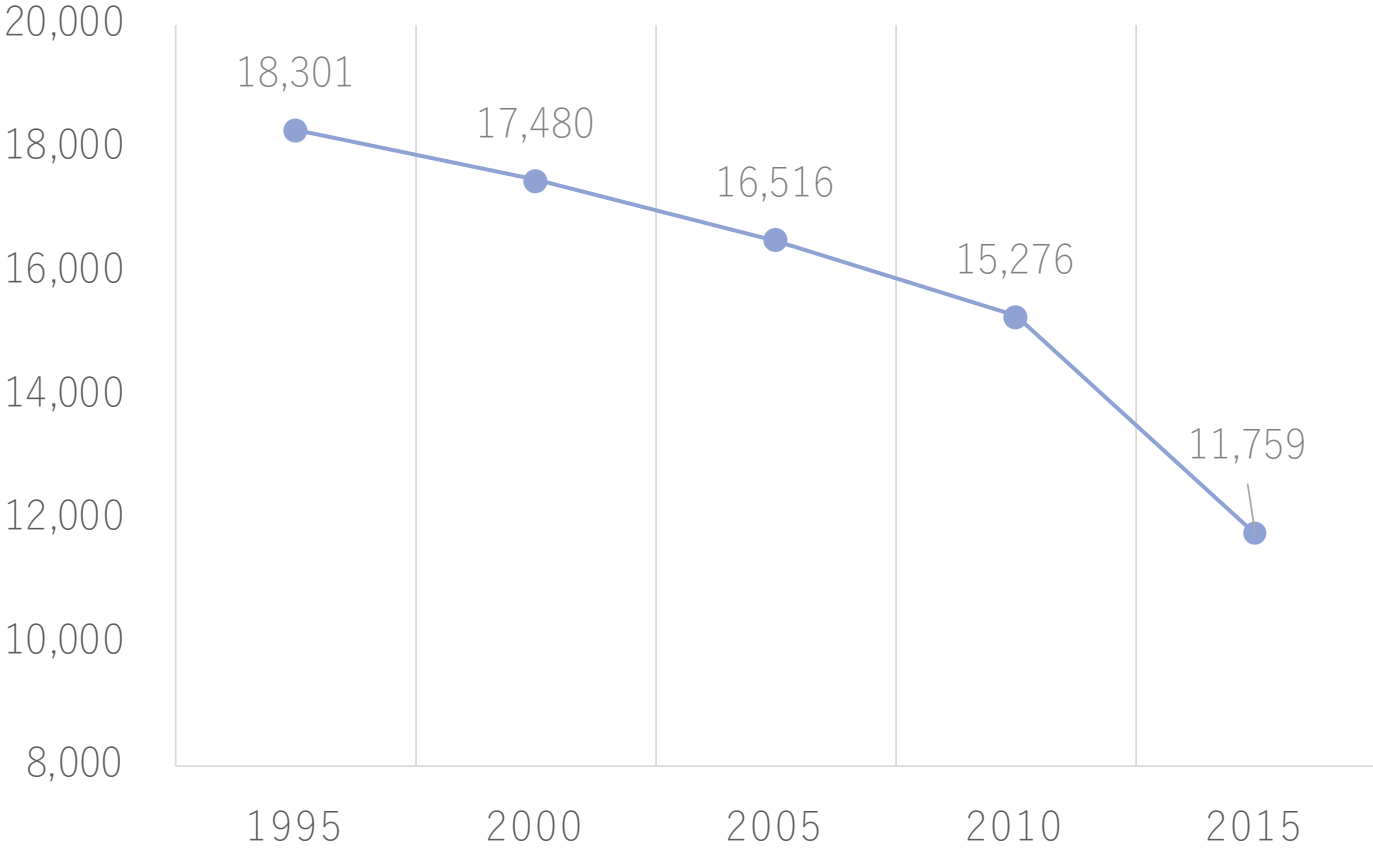


Figure 2: Demographic Pyramid of Otsuchi (2010)

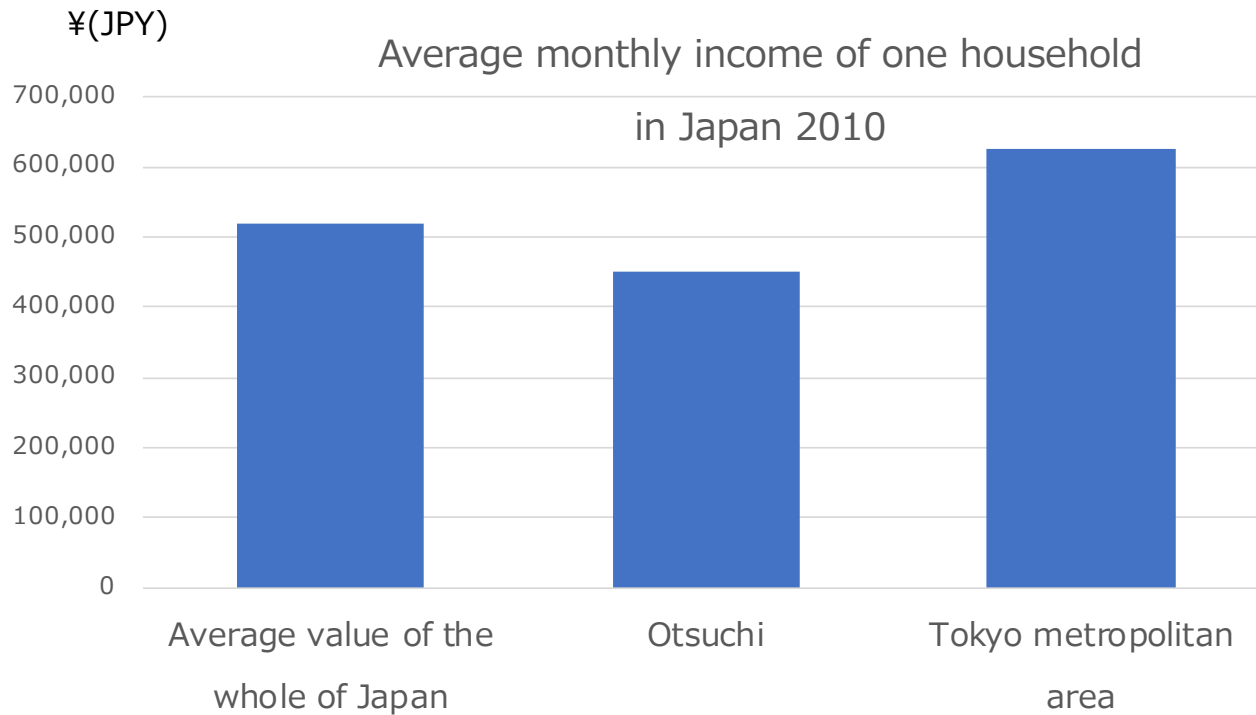
(Japanese Statistics Bureau)

Population of Otsuchi



Japanese Statistics Bureau

Monthly income of Otuchi people

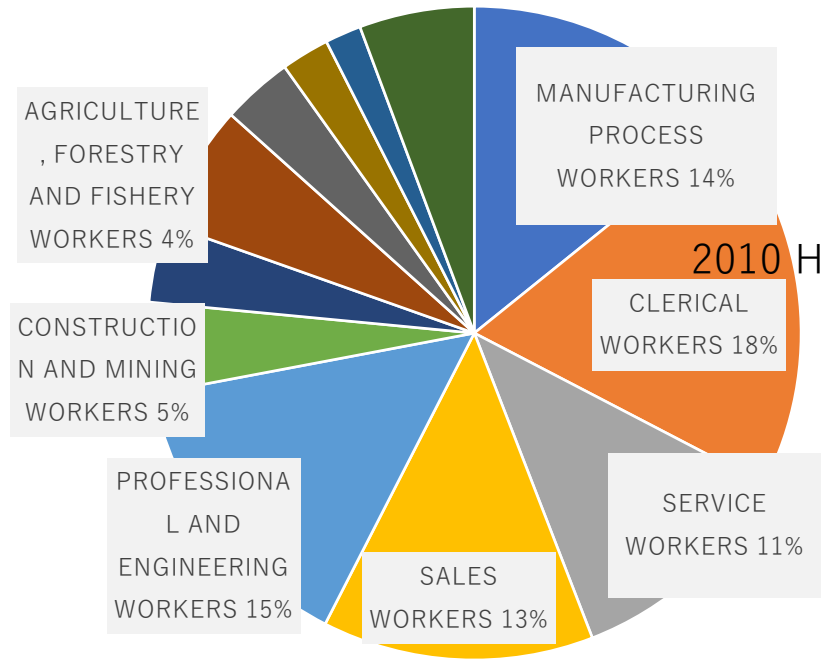


Average value of the whole of Japan	520,692
Otsuchi	451,430
Tokyo metropolitan area	627,326

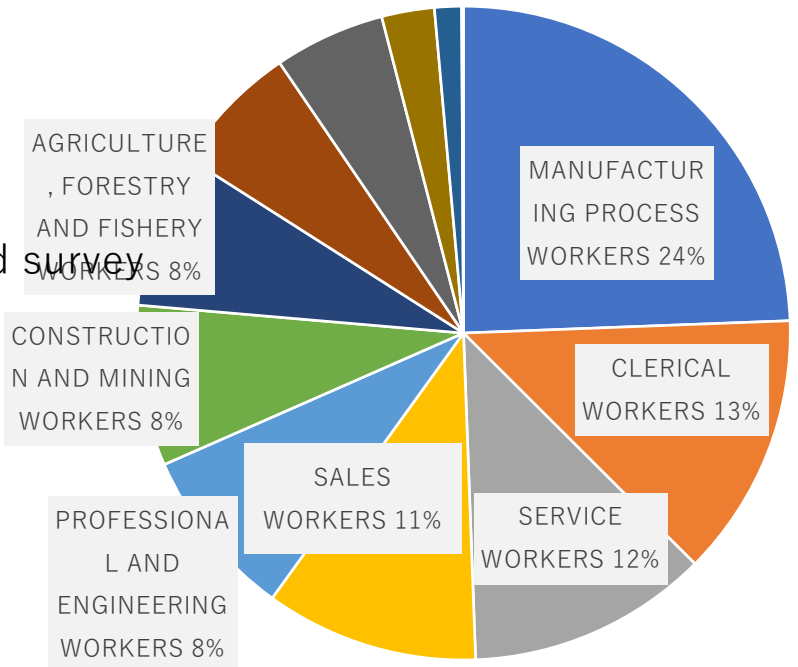
2010 Household survey .Japanese statistic data

Occupation percentage of Otuchi people

Japan



Otsuchi



Fatality

The human costs of the 2011 Great East Japan Earthquake in Otsuchi

Population : 15,276

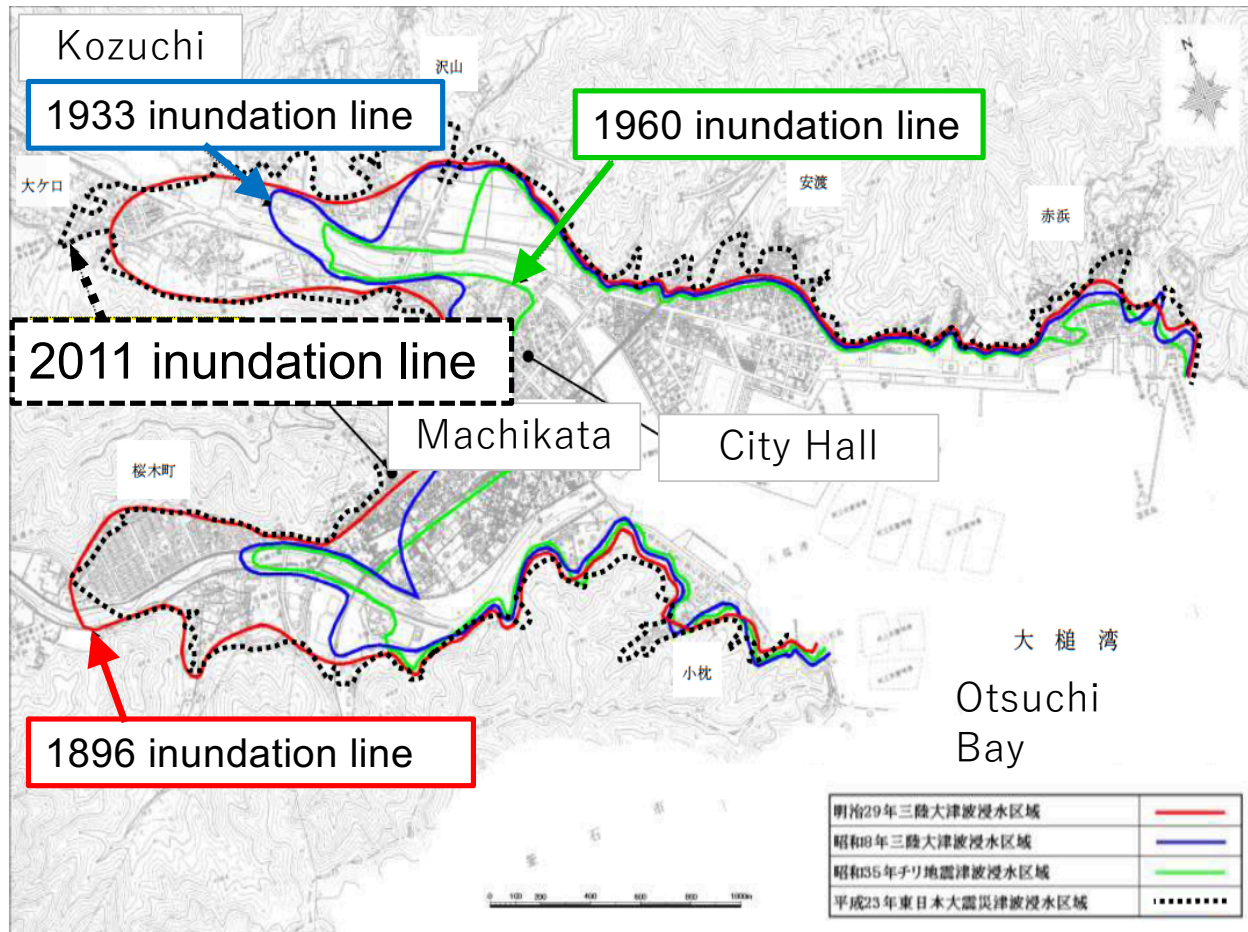
(As of October, 2010)

Fatality : 802

Missing : 484

In total : 1,286 (8.4%)

source :Otsuchi City government office



Tsunami inundation zone in Otsuchi

1896
1933
1960
2011

Outline of the Kirikiri area

Kirikiri has a population of about 12,000 people and is located on the coast of Iwate Prefecture.

The main industries are fishing and fish processing.

it was in an economically harsh situation even before the earthquake because of the harsh climate and the lack of habitable plains.

The “living proof” was organised by a monk from Kirikiri

- In Kirikiri, Buddhist monk Takahashi went to the disaster area, chanted the buddha s teaching and names (practice), walked in memory of those who died in the tsunami, and offered victims who were not relatives.
- Takahashi proposed making a “proof of life” for Otsuchi as a lesson for future generations and as a method of mourning all who died in the disaster.





The significant aspects of the “living proof”

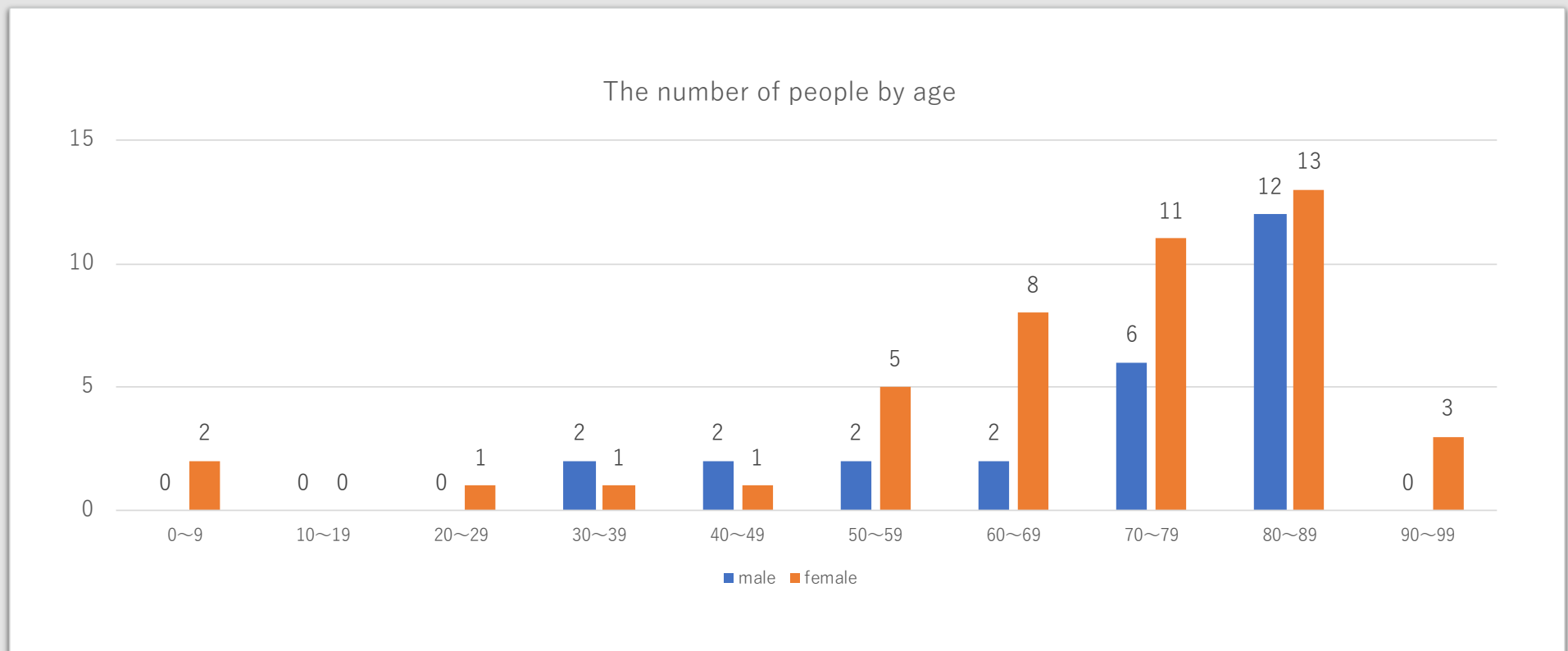
- There are many records of survivors, but there are few records of those who died.
- In Otsuchi, which suffered a lot of damage, many of the victims lost their loved ones and all of their property, and it was considered taboo to talk about the deaths of the victims immediately after the earthquake.
- Records were collected in Otsuchi with the support of 945 survivors to commemorate the 1284 people who died in the Great East Japan Earthquake..
- The “living proof” describes the lives of each victim up until their death in the Great East Japan Earthquake.
- The booklet was written using a careful interview survey conducted by the government offices and local people



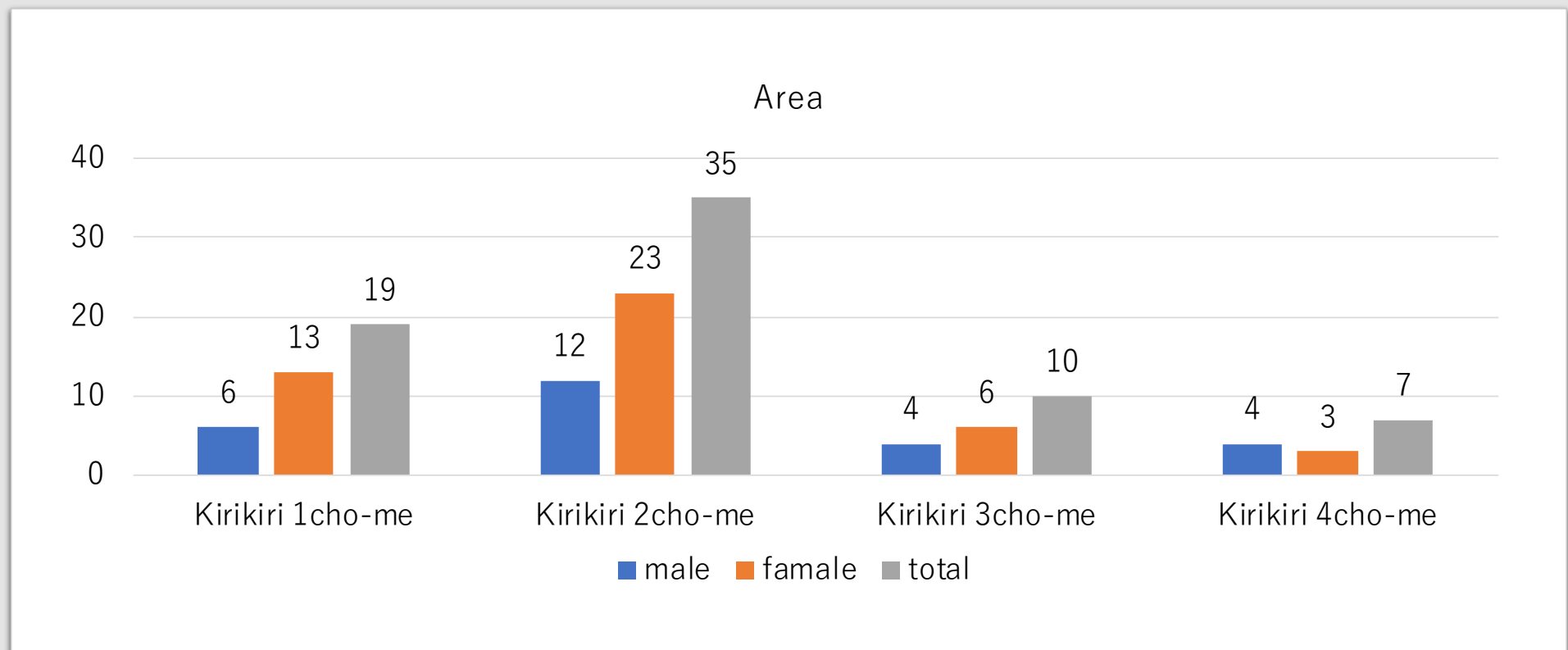




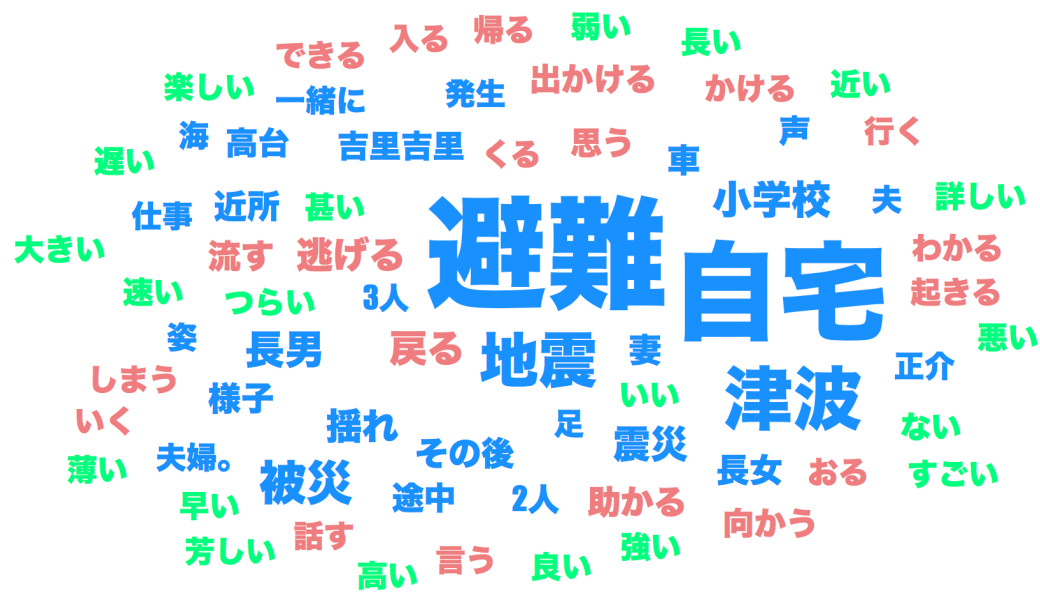
Outline of the FATLITY in the KIRIKIRI district based on the “Living proof” at the time of the Great East Japan Earthquake



The number of people in KIRIKIRI by area from “living proof”



The result of text mining Word cloud network

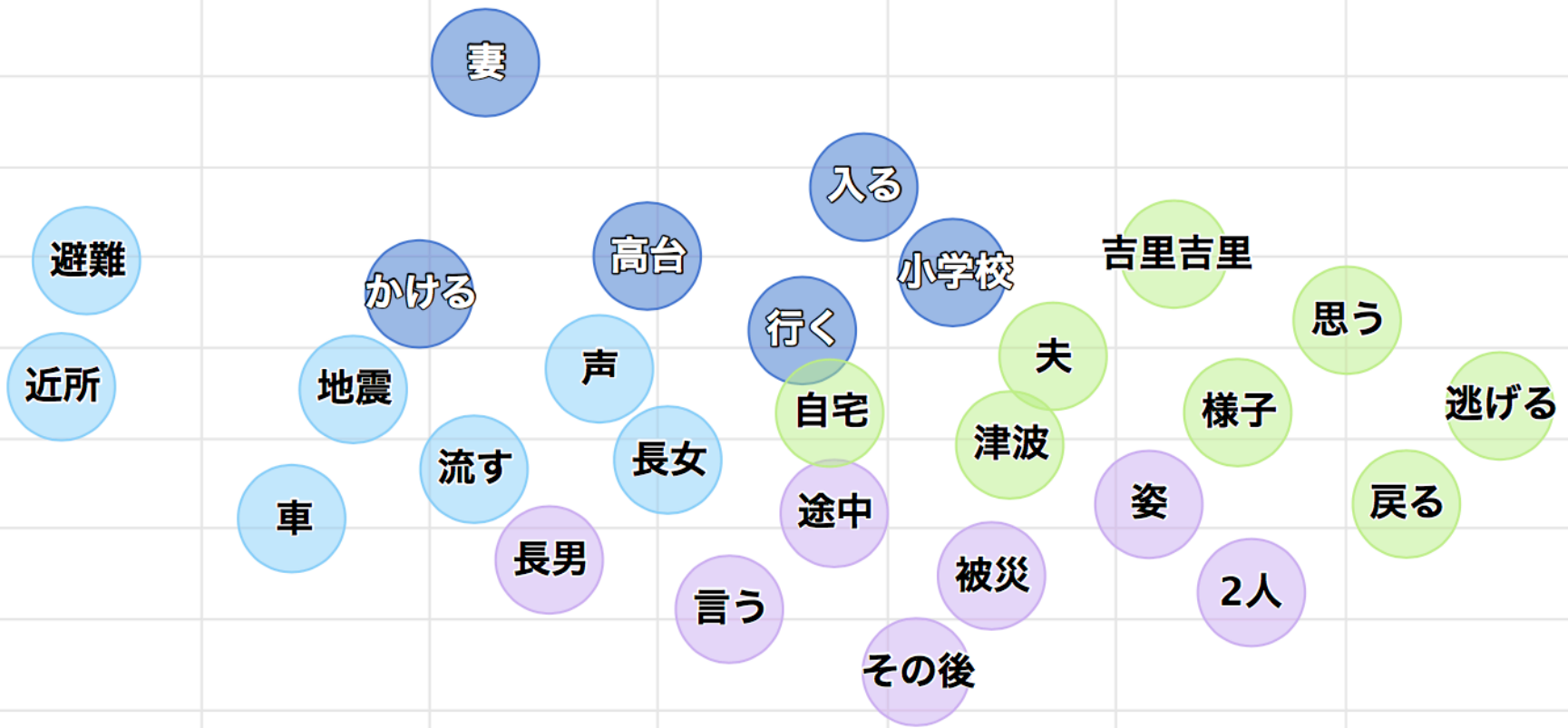


早い	0.08	5
ない	0.01	5
悪い	0.03	3
高い	0.04	3
詳しい	0.04	2
甚い	0.06	2
強い	0.02	2
楽しい	0.00	1
速い	0.03	1
いい	0.00	1
つらい	0.01	1
すごい	0.00	1
薄い	0.05	1
遅い	0.01	1
弱い	0.02	1

自宅	148.76	107
避難	174.46	85
地震	55.69	67
津波	76.99	46
車	8.67	26
小学校	17.69	24
妻	6.31	22
被災	34.28	21
震災	15.29	21
吉里吉里	5.26	20
2人	5.26	20
その後	6.52	16
様子	7.30	16
近所	5.89	16
長男	19.83	15

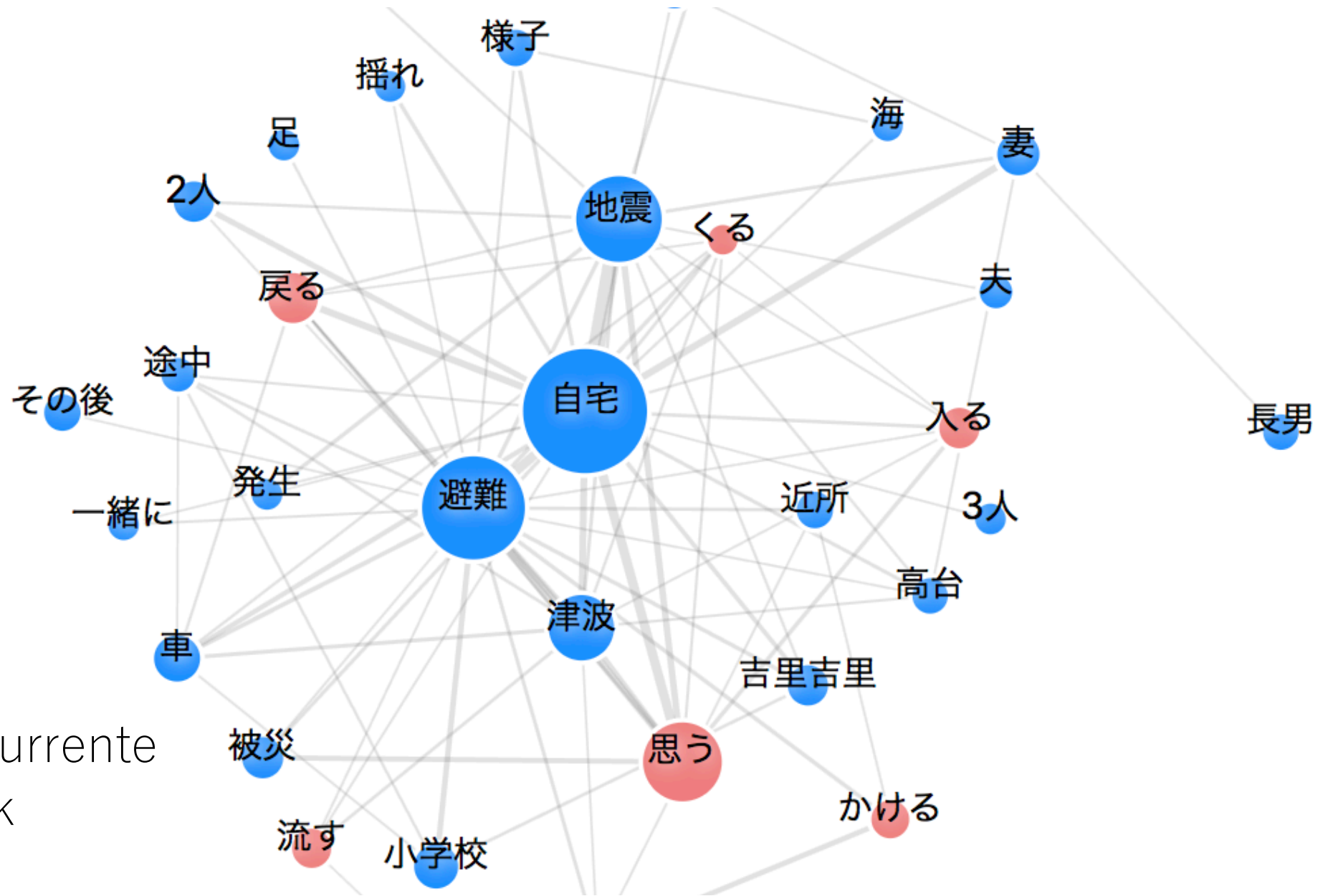
思う	1.31	48
戻る	5.51	24
逃げる	4.41	16
入る	0.49	16
行く	0.21	15
流す	2.97	15
かける	0.91	14
言う	0.11	13
しまう	0.21	11
おる	0.40	11
できる	0.09	10
向かう	1.16	9
わかる	0.89	8
助かる	2.38	8
起きる	0.24	8

Word Score



2D map

震災

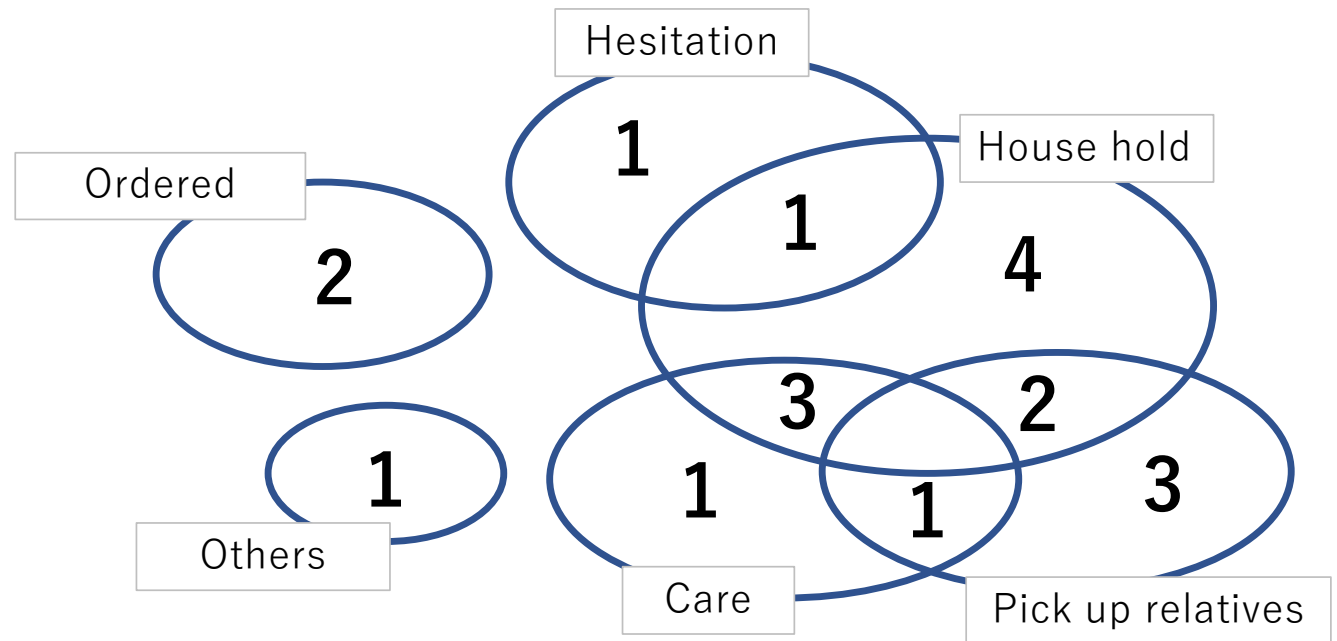


Co-occurrence
network

Gender issue findings from “Living Proof”

Gender issues related to the tsunami victims include home care and caring for relatives.

House hold	10
Pick up relatives	6
Care	5
Hesitation	2
Ordered	2
Others	1



The youngest victims of Kirikiri

- The youngest victim in the Otuchi area was only 9 months old.
- The next was 4 years old, and the next after that was 28 years old.
- Three generations were evacuating together: A grandmother, mother, daughter and son were in the same vehicle.
- The wife of a family plays an important role in caring for other families. In particular, young women are at the bottom of the hierarchy.

What happened during the disaster?

- Immediately after the earthquake, the 28-year-old woman drove to a nursery school in Kirikiri and picked up her children.
- She was responsible for helping her family, and she continued to drive to pick up her (her husband)grandmother .
- She was involved in a traffic jam because of the complex evacuation routes (many people tried to escape the tsunami by evacuating by car).
- Her car was destroyed by the tsunami in front of many families just a few minutes away from a safe haven on a hill.

Reason why the evacuation were delayed



" HER HUSBAND
TOLD HER TO
WAIT AT HOME"



"THERE WAS A
FAMILY IN NEED
OF CARE



"SHE WAS
DISABLED
PERSON, AND HER
WHEELCHAIR WAS
IN THE
WAREHOUSE"



"SHE WENT TO
THE NURSERY
SCHOOL TO PICK
UP HER CHILD"

What we should learn from the stories

Build back better

- Why the evacuations happened
- How to safely evacuate people with strong social vulnerabilities
- Learn about existing vulnerabilities and better execute disaster mitigation by using traditional community records for disaster prevention



蓬萊島







- The tsunami killed many people, but the sea of Kirisiri is very beautiful. It is an area where people have lived in the fishery for a long time and lived together with the sea.
- Everyone in the area knew that there were many tsunamis in the past and should have understood the need for evacuation.
- We noticed that many people were hesitant to evacuate.
- The clear record of the fatalities of the disaster at the time of the earthquake is a record that can only be told by the victim's family or someone who has a close relationship.
- The purpose of my research is to analyze the details of each of these records to clarify the social background of those who hesitated to evacuate and lead to the next disaster prevention.

Direction of future STUDY

- We established a relationship of trust with Otsuchi, and the Otsuchi City Hall provided me with a detailed list of addresses of the deceased for use in my research.
- Going forward, with mapping work, we plan to visualise how far the tsunami came with the cooperation of the IRIDeS Tsunami Research Institute.
- We will also share the research results with the world so that the tragedy that occurred in Kirikiri will not be repeated.

Thank you