

Disaster Risk Reduction Education as  
Legitimate Peripheral Participation  
–A Case Study of Okitsu Elementary School–

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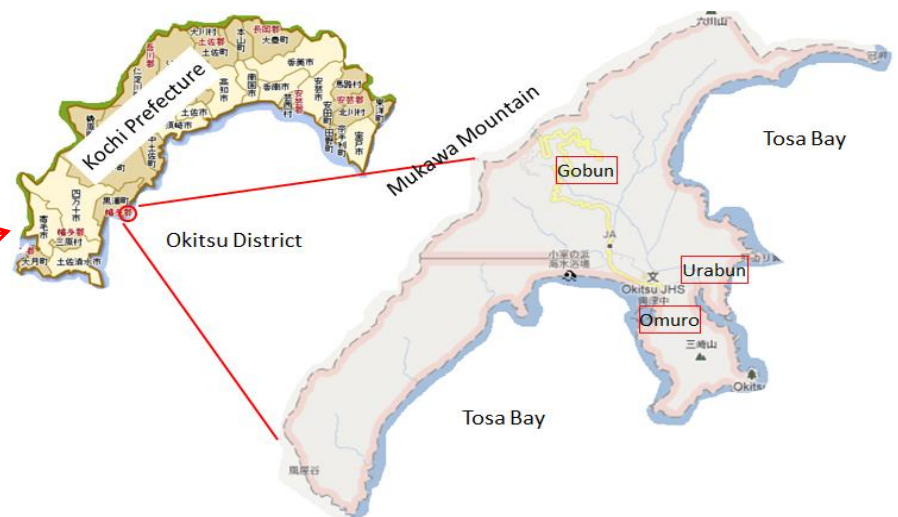
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# Outline

- Case study of disaster risk reduction (DRR) education in a small rural tsunami apprehensive community
  - Before the Great East Japan Earthquake
  - After the Great East Japan Earthquake
- Analysis the DRR education from an analytical perspective of Legitimate Peripheral Participation

# Case Study

- Okitsu, located at the south-eastern coastal area in Kochi prefecture, made up of 3 units called Omuro, Gobun, Urabun, has a total area of 3 km<sup>2</sup>.
- It is completely surrounded by mountains and sea water. The south boundary is connected with the Tosa Bay, where is very famous for the translucent sea water and high quality beach, attracting lots of beach lovers in summer.



Reference1: Google Map(2012)

# Population & Living Condition

- There are 552 households, a total population of 1,014 with a serious aging rate of 48%, much higher than the national level of 23%.
- Along the Tosa Bay line, there isn't any road leading to nearby town. The only life line is the No.52 road, which ensures Okitsu residents to contact with outside world.

	Omuro	Urabun	Gobun
households	159	199	194
population	305	327	382
livelihood	fishery	fishery	agriculture

Reference2: Local Government Archives(2012)



The No.52 Road.

# Disaster Risk

## ➤ Traffic shutdown

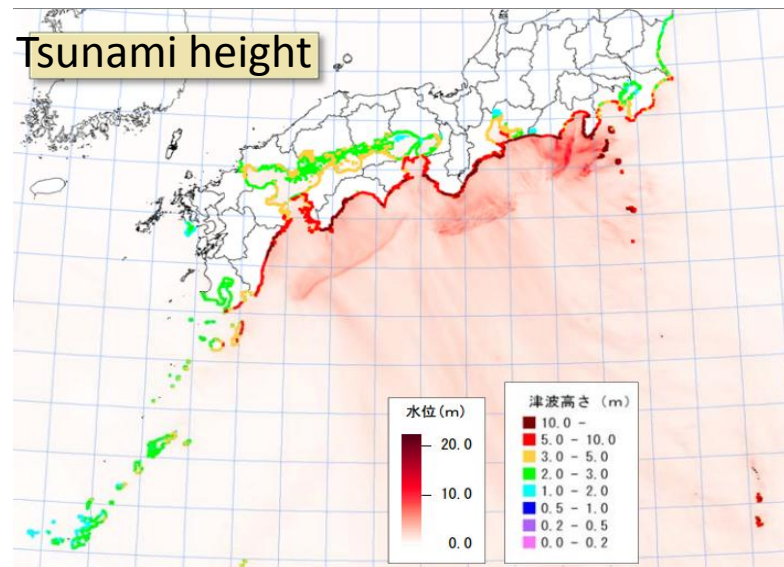
The No.52 road is a classic exemplary narrow, winding mountain one, which has more than 140 curves in its 18 km length, easy to be shut down by landslide or earthquake.

## ➤ Tsunami

Before the Great East Japan Earthquake, it was estimated that **12 meters** high tsunami will come within 18 minutes. Recently, according to the Central Disaster Prevention Council(2012), tsunami height will come up to more than **20 meters**.



Reference3: Okitsu Elementary School(2012)



Reference4: Central Disaster Prevention Council(2012)

# DRR Education

## Before the Great East Japan Earthquake

- In 2005, the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT) instructed Okitsu elementary school to take the DRR education into schooling curriculums.
- The principal and the community top leader set up a Committee of Okitsu DRR education (CO DRR education), pulled in Okitsu secondary school, town councilor, the senior citizen's club, etc.

# Software Strategy

- Lots of DRR activities such as DRR letters, injured rescue drilling, DRR map making, emergency food cooking, nighttime camping, etc. are practiced with the support of CO DRR education.

year	04	05	06	07	08	09	10	11
DRR letter	0	4	2	5	2	4	3	3
drill	0	1	2	3	3	1	2	7
cooking	0	1	0	1	0	2	0	1
camping	0	0	0	1	1	0	1	1
lecture	0	1	3	5	2	6	5	4
fieldwork	0	4	3	11	8	9	3	3
total	0	11	10	26	16	22	14	19



Reference3: Okitsu Elementary School(2012)

Tsunami evacuation drill.



# Communication

➤ Outsiders who visited Okitsu to learn/participate in the DRR education mounted up to a comparatively high number when consider its remote location. On average, there were 2~12 persons each month.

➤ Communication examples:

International: visitors from 7 different countries in Central America.

Domestic: Miko High School, famous for its DRR education in Japan.

year	total	insider	pupils	outsider
05	1078	731	322	25
06	316	134	168	14
07	1621	856	697	68
08	845	338	364	143
09	1930	993	563	134
10	543	211	270	62
11	1550	1048	431	71



Reference3: Okitsu Elementary School(2012)

Reference4: The Mainichi Newspapers  
(Nov.29th, 2008)



# Awards

➤ Since DRR Education started, Okitsu pupils have been awarded 10 times for their efforts, especially their famous “Okitsu DRR Map”.

➤ Representational Awards:

In 2008, the “DRR Minister Award”, the highest level in DRR fields.

In 2009, the “DRR Koshien Praise” , an honorable one.



Reference5: Asahi Shimbun(Jan 25th, 2008)

Nov 1st, 2006	Award of Asian Pupils' DRR Education Summit
Jan 19th, 2008	DRR Minister Award of Disaster Map Contest
Jan 29th, 2008	Award of Kochi DRR Education Committee
Jan 11th, 2009	DRR Koshien Award
Jan 24th, 2009	DRR Minister Special Award of Disaster Map Contest
Feb 23rd, 2009	Special Practice Award of Kochi Education Committee
Nov 10th, 2009	MEXT Award of School Safety Pactice
Jan 23rd, 2010	Special Practice Award of Kochi Education Committee
Jul 1st, 2010	Prime Minister Award of Community Safty
Dec 22nd, 2010	Honorable Award of Disaster Map Contest

Reference3: Okitsu Elementary School(2012)

# Pupils' Suggestion

- Pupils pointed out that the locations of Okitsu kindergarten and senior day care center, both under 1m sea level, should be relocated to a higher place.
- Besides the big relocation project, risk places such as dilapidated bridges, mudslide threatened evacuation roads were discovered by students and got fixed up with local government support.



Dilapidated bridge.

## 保育所とデイサービス 高台へ



## 防災マップ作りが成果

海岸近くの四万十町興津地区

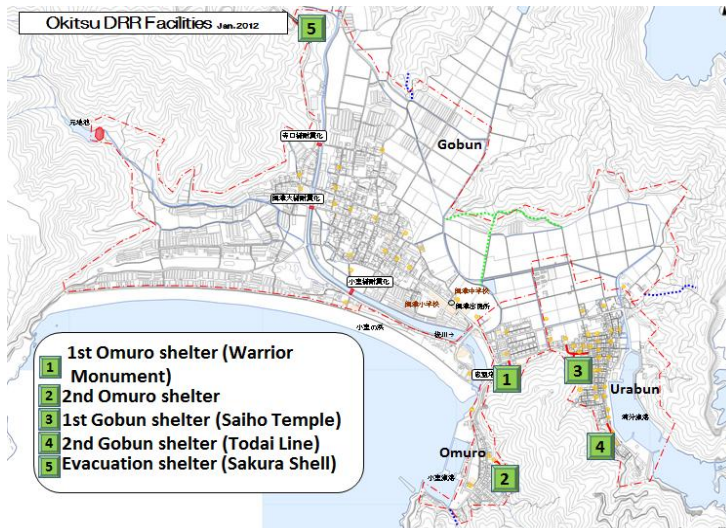
南海地震による津波の危険性を学んでいる小学生の提言が実り、四万十町興津地区の海岸近くにあった保育所と高齢者のデイサービスセンターが高台に移転した。新しい建物は園児と高齢者が入る複合施設で、災害時には住民の避難所にもなる。10歳超の津波が来たら「助かる可能性が低い」という子どもたちの指摘が、住民の政の動きを早めた。  
(釘田寿一)

「津波が危険」小学生提言

Reference5: Asahi Shimbun(Mar.18,2012)

# Hardware Achievement

- After several years efforts, Okitsu became a well-known advanced DRR education community, especially for its sufficient DRR hardware constructions.
- Before the Great East Japan Earthquake, there were 5 accomplished DRR facilities. Most importantly, the total capability of these facilities to accept evacuees has already exceeded the whole population in Okitsu, that is, 1176 to 1014.



Reference3: Okitsu Elementary School(2012)



Solar panel for electric generation.



# DRR Education

## After the Great East Japan Earthquake

- Although Okitsu is far away from the north-eastern coastal areas, the Great East Japan Earthquake gave a heavy blow to the south-eastern coastal community.
- Schools, residents, local government as well as DRR experts that related to Okitsu DRR education started to consider how to enhance the community's resiliency based on passed achievements.

# Further Software Strategy

- DRR experts strengthened participation by sharing academic knowledge and practical experiences in DRR field.
- For example, by giving lectures, planning new types of evacuation drill, inviting experiencers in the Great East Japan Earthquake to talk about personal experiences, etc.



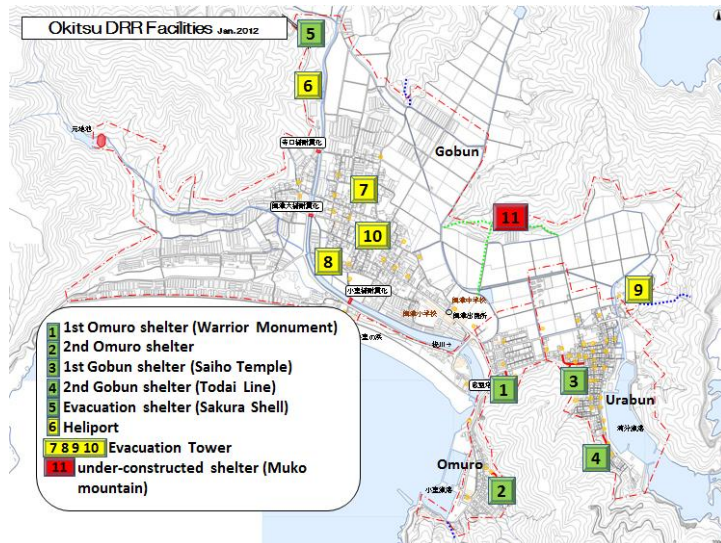
DRR experts are lecturing to pupils and residents.



Experiencers of the Great East Japan Earthquake are sharing experiences with residents.

# Further Hardware Construction

- Even before the latest tsunami evacuation(2012) has been given out, Okitsu residents set out to construct/reinforce evacuation facilities.
- Until now, there are 5 new accomplished DRR facilities marked with yellow color, the red one is under-construction.
- The total capability of these facilities compared to the population is, 1582 to 1014.



Reference3: Okitsu Elementary School(2012)



Shelters in evacuation squares to protect from wind and rain.



Making plans of more shelters with DRR experts and local government staffs.

# Analysis of DRR Education

- DRR education as LPP
- Identity construction in DRR education
- Production of communities of practice in DRR education



# LPP, Identity, Communities of Practice

- LPP views learning as the construction of identities, and the production of communities of practice.
- The relative participants' identities changed a lot during Okitsu DRR education. For example, pupils constructed their identities of DRR practitioners by actually performing activities, which beyond the static image of “being taught, being instructed”.
- From the beginning of DRR education, activities, identities, artifacts, relations that all contributed to the evolvment of a community of practice. Those components are defined by as well as defines the community of practice.

# Further Theoretical Consideration

- We are planning to take the action-research stance to participate and research the Okitsu DRR education.
- We intend to talk about the components of communities of practice in further studies.

Thank you for your attention.