resilient game

new approach to urban territory

CONTENT

Aim

State of art

Vision

Resilience *gaming simulation

Planning and design

Innovation in CPP

Dual space

Research application *Learning from Japan/feedback from Italy

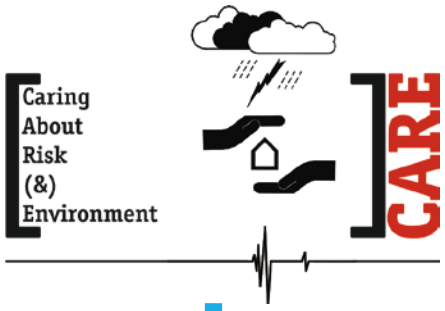
PREVENTION AND MITIGATION

[…] What is investigated must be uderstood simultaneously as a surface for both reflection and projection. A process of identity formation that mutually defines both the one who sees and what is seen.

Marc Angélil and Cary Siress, 2009

Starting from sharing
/Risk information
/Vulnerability <perceived and real>
/Local Wisdom
/Tacit Knowledge of Planners and Designers

→ Awareness & Responsibility →



ISSUES…

Complexity of regulations and overlapping of multiple levels of coexistent planning and mandates

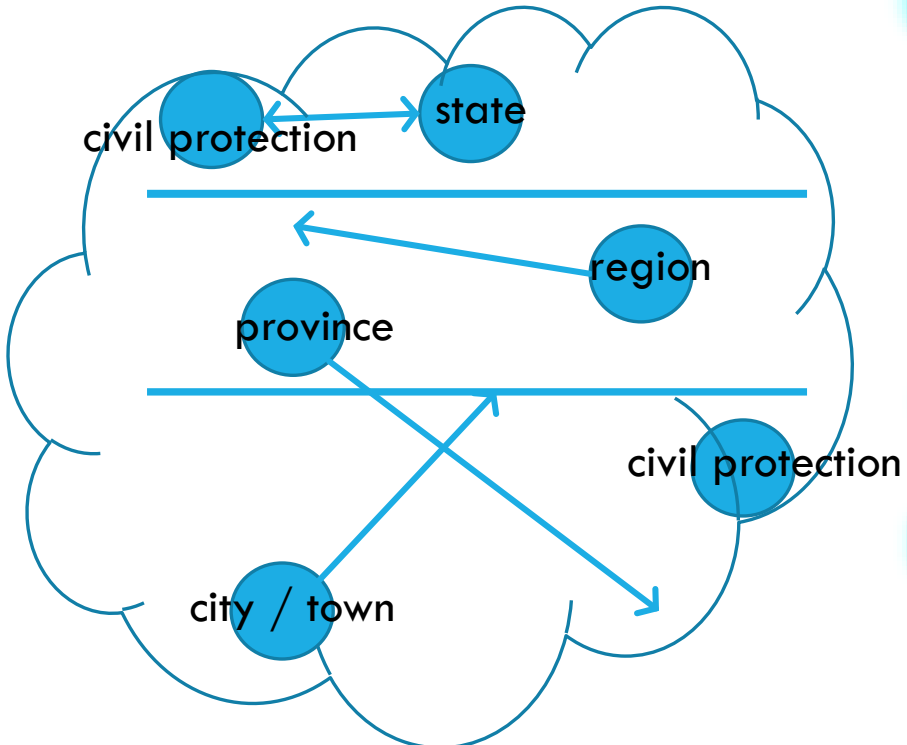
Lack of collaboration and integration:

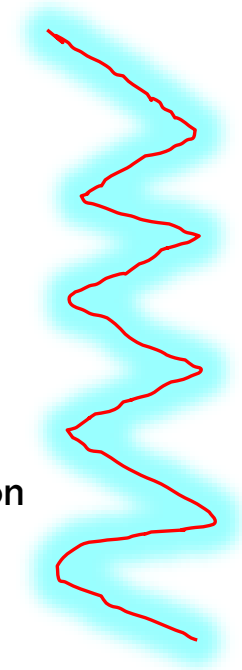
/between sectorial agencies

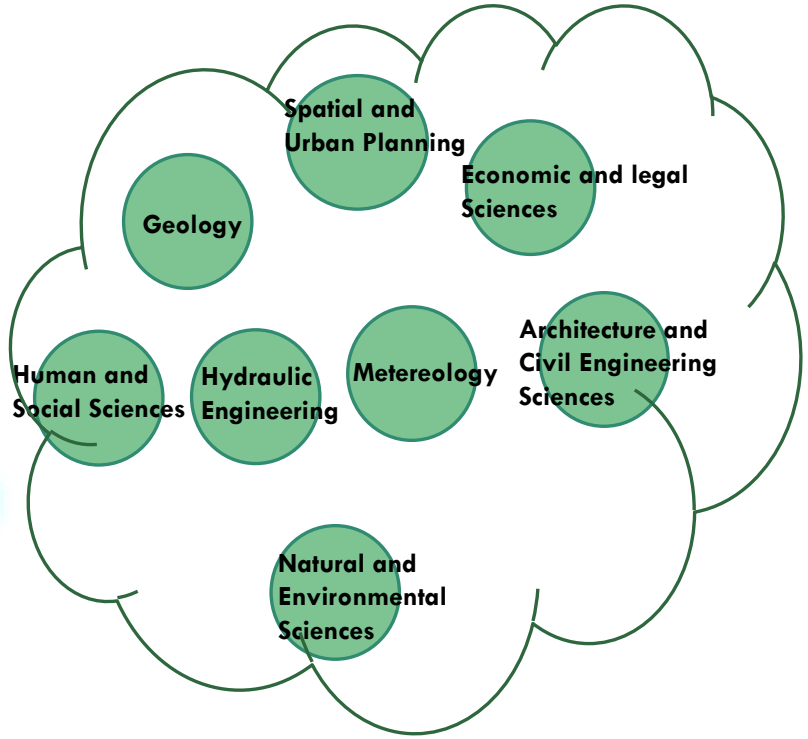
/different disciplines

May lead to underestimation of risk

If the risk assessment are held with a misperception it becomes even more critical. Without the experts of various fields the comprehensive management of the territory subjects to multi-risk could not be possible.



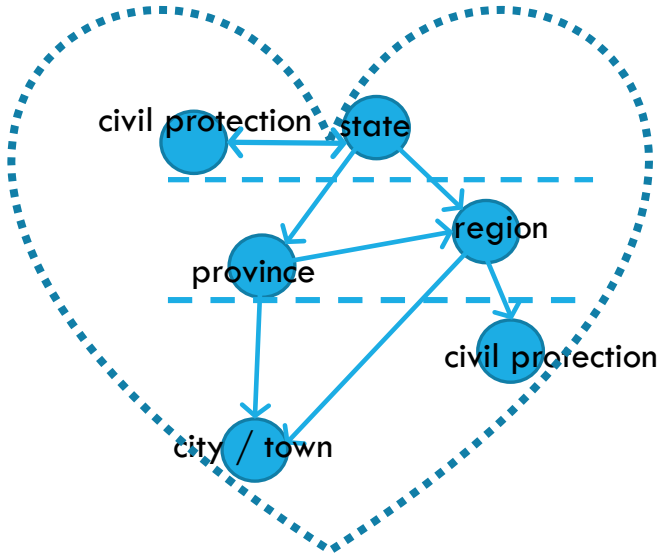




VISION

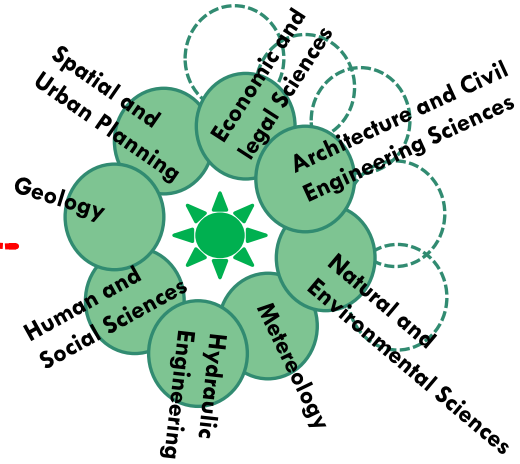
Lack of **collaboration and integration:**

/between sectorial agencies

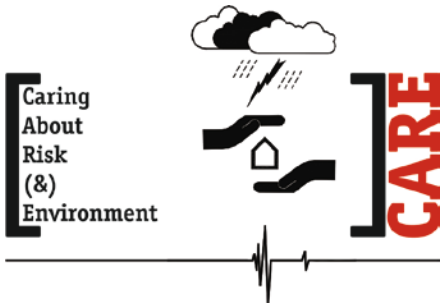


RISK
&
VULNERABILITY

/different disciplines



Agencies collectively work for
/reducing causes of risk regardless wheter those of unticipated risk or resulting less severe hazards
/alleviating vulnerability
/mitigating the consequences of the hazard or multi-hazards



The integration of experts and researchers of various fields make the comprehensive management of the territory subjects to multi-risk possible.

planners & designers

To construct a common practice trough sharing knowledge about risk, multirisk and vulnerability and turning urban physical spaces into learning spaces for disaster-resilient communities.

community

URBAN RESILIENCE: A MODEST PROPOSAL

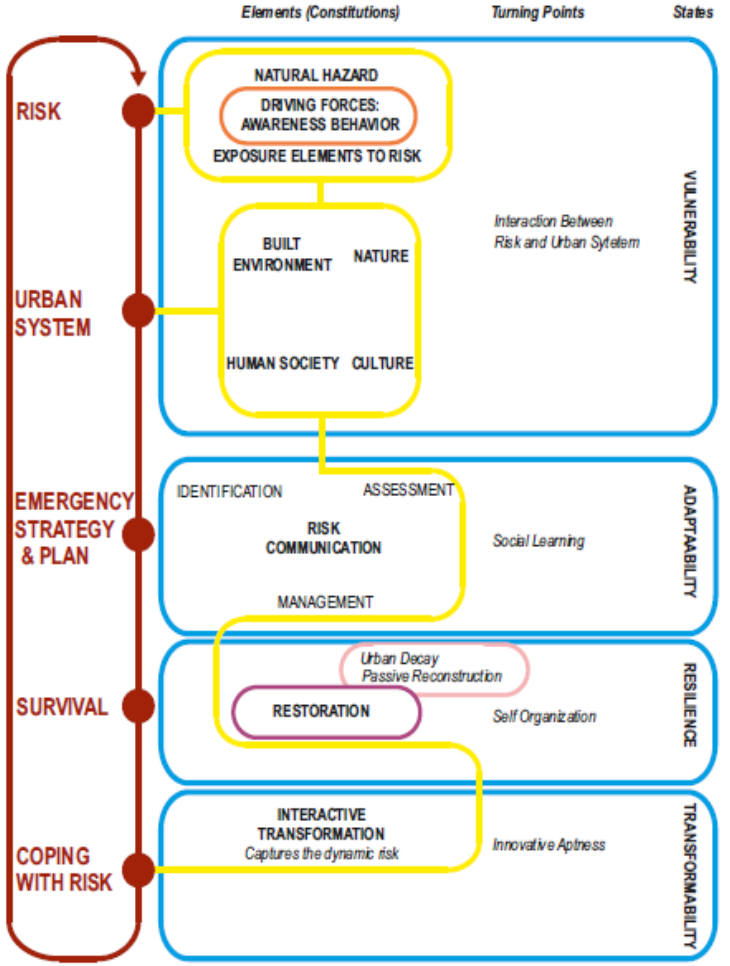
Resilience in this model is interpreted as both an outcome and a process of disaster preparedness and recovery.

This recovery after disaster should be considered as a restoration process rather than a regular reconstruction.

Whereas urban resilience to natural disaster means that components of urban system - built and natural environment, human capital, and socio-economic activities - are able to withstand disaster impacts without qualitatively losing its basic functionalities and physical structures that are necessary to maintain livelihood of their users.

Urban resilience here is the dynamic process that shifts the urban system from vulnerable, to resilient, and then advances to innovative urban transformations.

Nevertheless, this active movement requires sufficient adaptive capacities and a better **social learning process** as a set of catalysts to a resilient urban transformation.



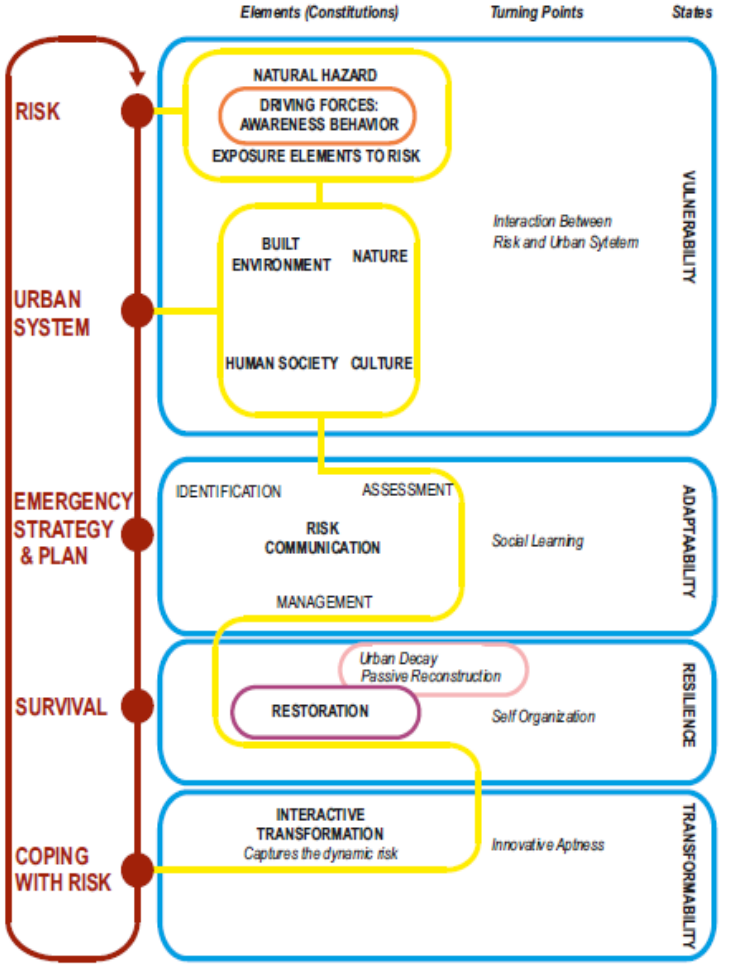
The conceptual model of urban resilience to disaster.
Promsaka Na Sakronnakron S., Rizzi P., (2015)

URBAN RESILIENCE: A MODEST PROPOSAL

This susceptibility is an outcome of the interaction among natural hazards, exposure elements, and exogenous drivers, which contributes to human pressures experienced as vulnerability and *sensitivity* to the disaster impact.

The disaster sensitivity of the system can be mitigated. The structure that is able to absorb impacts of hazard events will enable the urban system to re-generate resources to maintain its infrastructure as well as to reserve standard livelihood of its residents. (Lead to adaptive capacities of each individual system under the changed structure)

After the disaster, the resilience depends on how quick and how well an urban system recovers from hazard events. In this case, social learning processes become a crucial key in strengthening rapid recovery and enabling desirable adaptive capacities that lead to the development of self-organization processes.



The conceptual model of urban resilience to disaster.
Promsaka Na Sakronnakron S., Rizzi P., (2015)

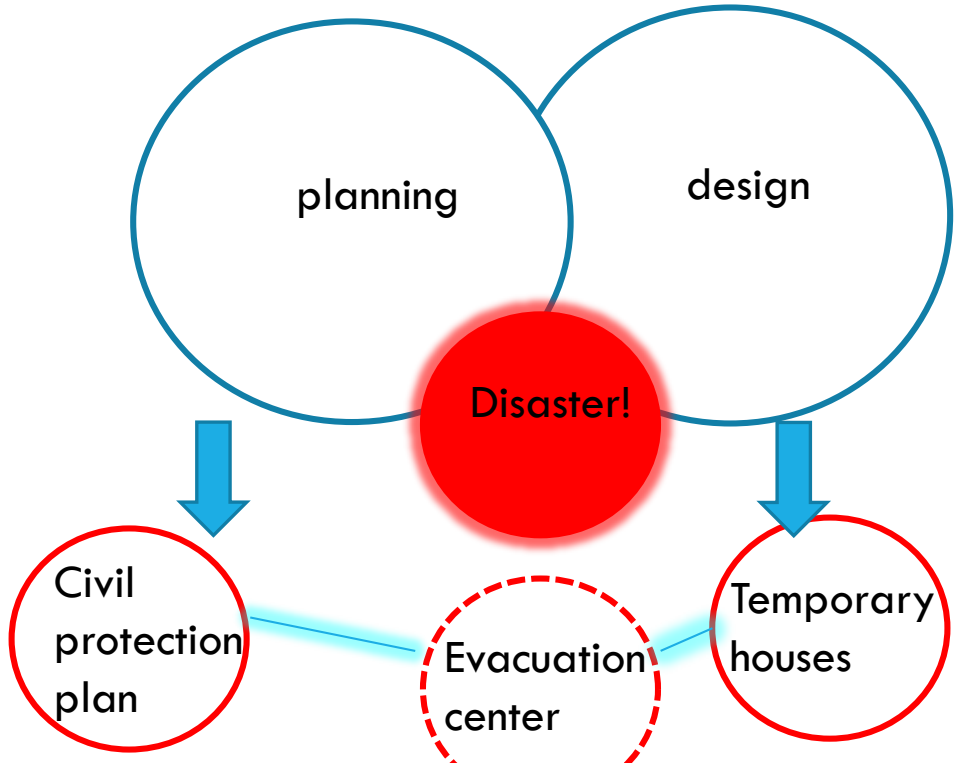
GAMING SIMULATION & PARTICIPATION

A note about use of Urban Gaming Simulations:

the gaming simulation offers representatives of stakeholders the opportunity to meet each other, discuss and exchange their different information and opinions on a specific issue, which enable a fruitful communication avoiding a risky judgment on wrong terms.

The science of urban design and planning deals with analysis and synthesis on the issues related to infrastructural engineering and social construction of the reality, while the science of urban gaming and simulation mainly emphasizes the importance of building metaphor of the reality under a specific purpose to pursue defined goals (Klabbers, 2006).

WHY PLANNING & DESIGN



Poor communication
No or rarely feedback
Top down
…

Shabby?peripheral
Not often used
Difficult to access
Designed for special function
…

community

To construct a common practice trough sharing knowledge about risk, multirisk and vulnerability and turning urban physical spaces into learning spaces for disaster-resilient communities.

planners & designers

DUAL SPACE

TWO WAYS:
CIVIL PROTECTION PLAN AND DUAL SPACE

The adoption of Civil Protection Plan by the communities, therefore, has to go hand in hand with the process of its dissemination and generalisation among the citizens. This is the true force of the Emergency Plan as the knowledge of it makes the community aware of all the possible risks that it subjected to because of the characters of the territory where it lives. It also allows them to adopt, in a proactive way, appropriate preventive measures and correct/responsible behaviours when the risk arises.

Two-way communication, because also the people in their turn are a source for continuous monitoring of the territory and testing the efficiency of the civil protection plan, in other words a source of information needed for continuous updating of the plan.

The knowledge of the plan, promoted through communicative strategies, which reach all people, such as city laboratories and gaming simulation, promotes and facilitates spreading the culture of self-protection among the citizens.

TWO WAYS:
CIVIL PROTECTION PLAN AND DUAL SPACE

Above all else, dealing with urban planning and design in environmentally sensitive areas has to take the present and anticipated risk factors as well as characteristics of the given context into account.

Public spaces of communities need to be designed in such a way that is enable people to recognise elements of territorial risks and vulnerability, and to escape to safe places; namely "the evacuation area".

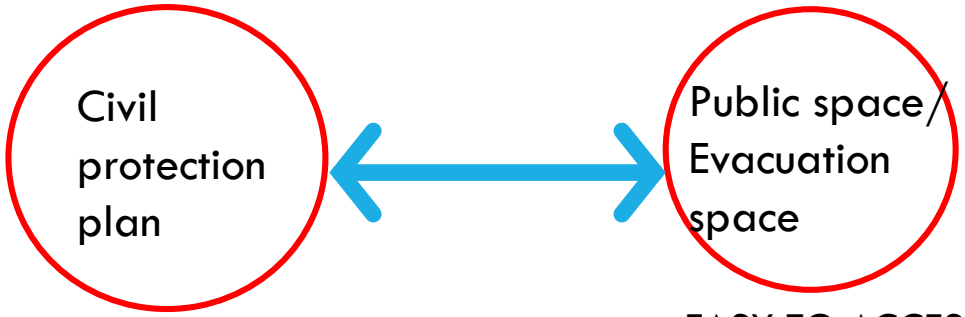
Those territory planning and space design should turn potential public spaces into "**dual spaces**", which offer a double function both in regular days and in emergencies.

Spaces, in which people are familiar with, create a specific identity that substitutes the sense of community as well as warmly welcome people to find their own emergency shelters and safety.

Building the dual space requires the training of the designers and the knowledge of local community.

Besides, the participatory planning for risk mitigation and reduction of vulnerability of people, communities, and cities also play a significant role in fully operating the essential functions of dual space.

DUAL SPACE / PUBLIC PLACE



GOOD COMMUNICATION
PARTICIPATION
MONITORING
FEEDBACK
UPDATED
TOP DOWN &BOTTOM UP
…

EASY TO ACCESS
RECOGNISED
COMFORTABLE
DURABLE
SUSTAINABLE
DAILY USED
DESIGNED WITH
MULTIFUNCTIONAL PURPOSES
REUSE OF DERELICT AREAS
REDESIGN OF ABANDONED SPACES
…

LEARNING FROM JAPAN FEEDBACK FROM ITALY KOCHI & DIVER S CITY LAB

To make a clearer illustration how theoretical point of view can turn into practice, Kochi Prefecture – located on the island of Shikoku Island, Japan – is selected as a case studies. This case study is assumed to have more complexity in terms of disaster risk management, because most of the population resides in the coastal zones that are vulnerable to the earthquake and the consequent tsunami.

We have been working on the subject of environmental risk and public awareness in Kochi Prefecture since 2012. Our studies follow an interdisciplinary approach by integrating the knowledge on architectural design, urban planning, community-based disaster management, gaming simulation in order to seek for alternatives to improve urban resilience and reduce urban vulnerability.

LEARNING FROM JAPAN FEDBACK FROM ITALY
KOCHI & DIVER S CITY LAB

The research carried out by the Diver s City Laboratory in collaboration with Kochi University is to aims to reduce environmental risk through the design of dual spaces in peripheral areas of the city and in the mountainside neighbourhoods.

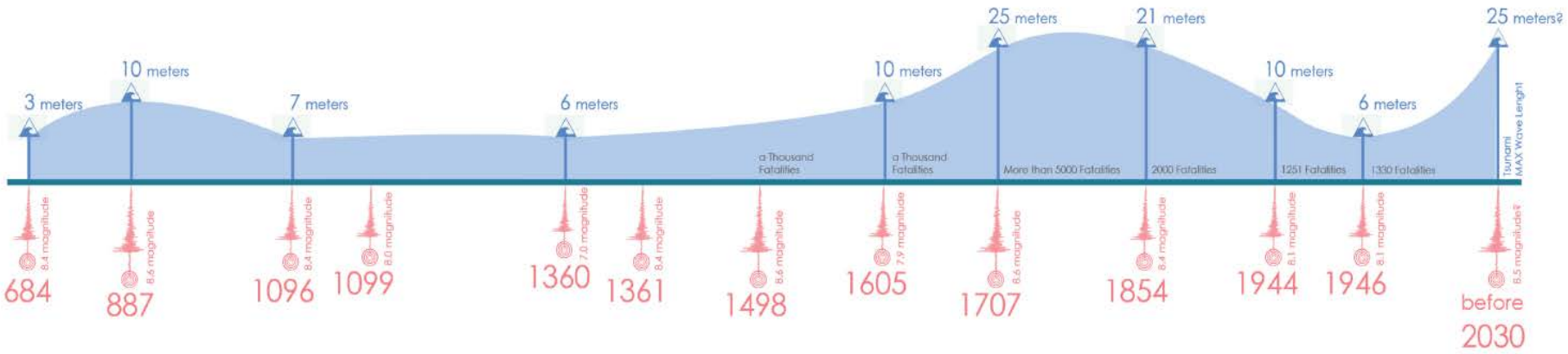
The laboratory work with the potential community to establish the up-to-date comprehensive information and strengthen community cohesion and involvement in order to cope with risk.

Under the depopulation situation of Japan, the raise of dual spaces become places where accommodate intergenerational learning about risk management through sharing risk information and exchanging knowledge across the generation.

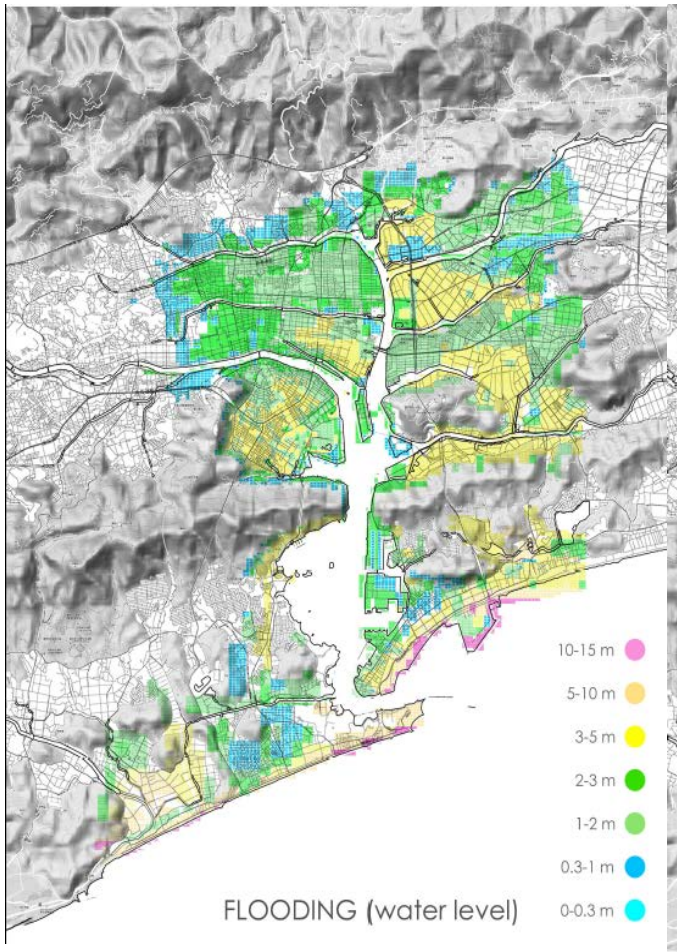
KOCHI AND NANKAI A TIMELINE

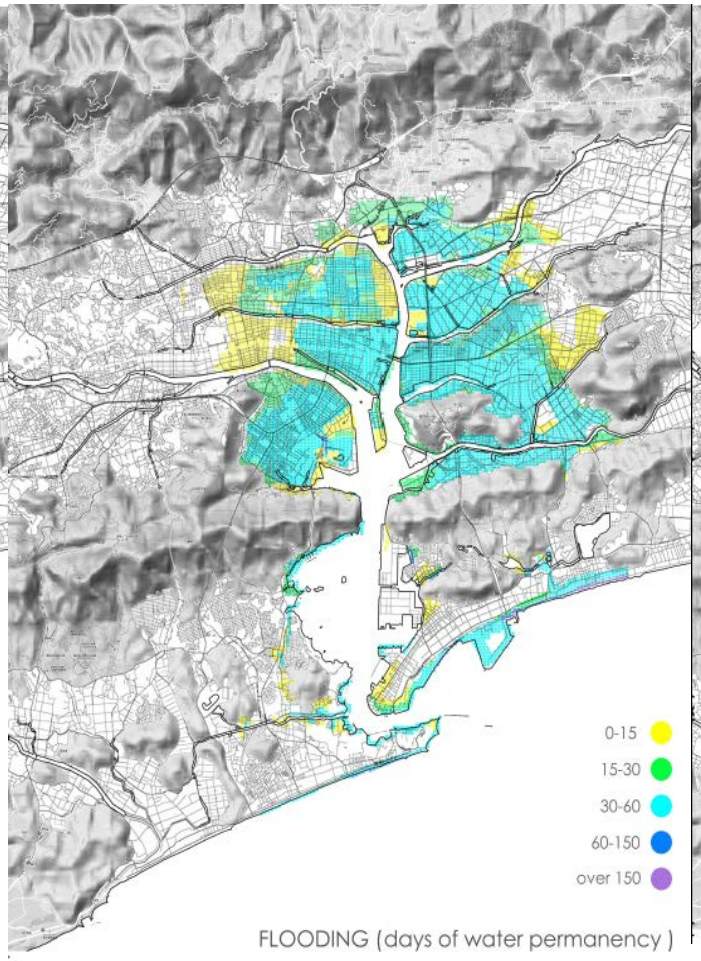
In case of Kochi City, it is expected that “Nankai Earthquake”, a large earthquake with its consequent tsunami, will strike the city every 100-150 years. The latest occurrence was on December 21st, 1946 named “'Showa-Era Nankai Earthquake”. This earthquake was of magnitude 8.0, which had an epicenter at 50 kilometers off the coast of Cape Shiono in Wakayama. It generated 4-6 meter tsunami waves that penetrated Kochi’s coastal areas and far inland, ripping 4,846 buildings off their foundations for several blocks. 679 people were killed or missing, and 1,836 were injured (Kochi International Association, 2008).

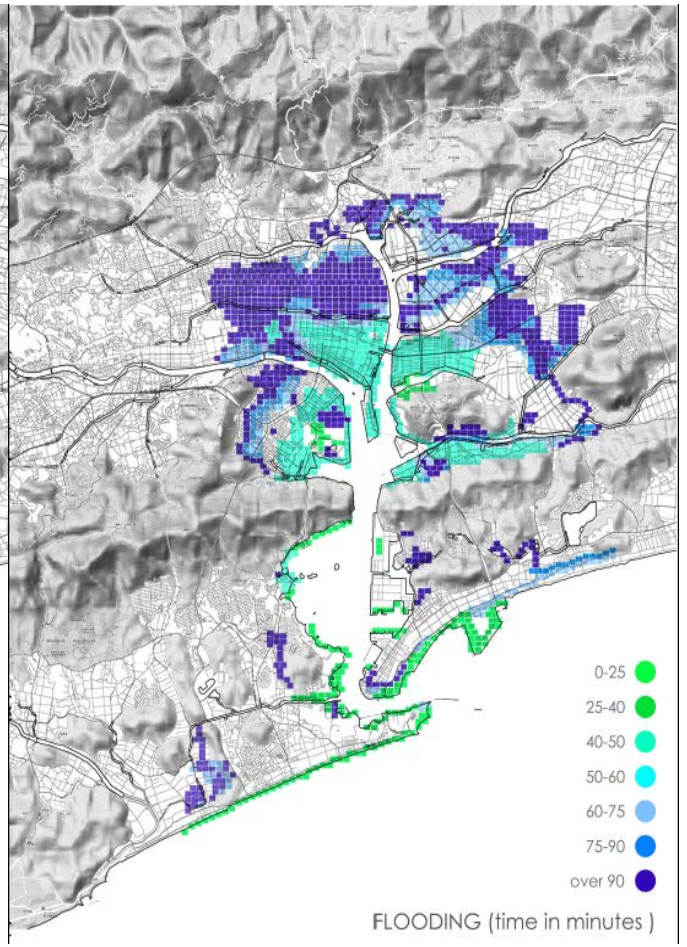
Kochi is still at high risk because there is a 40 % chance that Nankai earthquake will occur within the next three decades, according to the interview with Hiroshi Takagi, a coastal engineer, Associate Professor at the Tokyo Institute of Technology (Solomon, 2012).



KOCHI AND NANKAI: MODELS





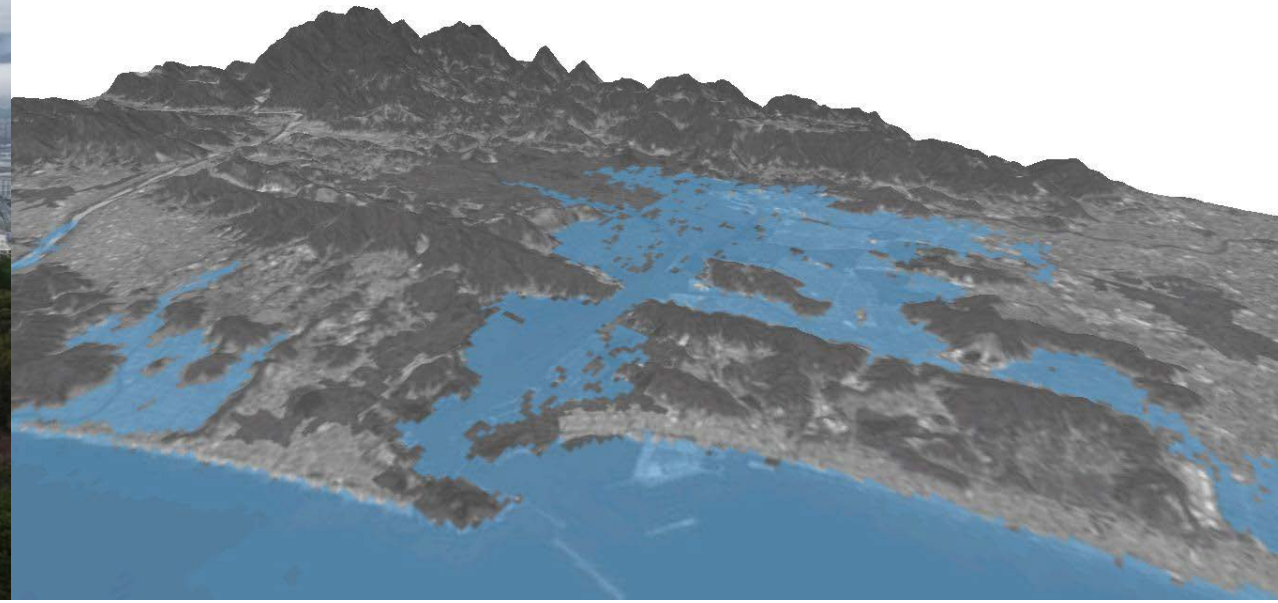


LACK OF MEMORY

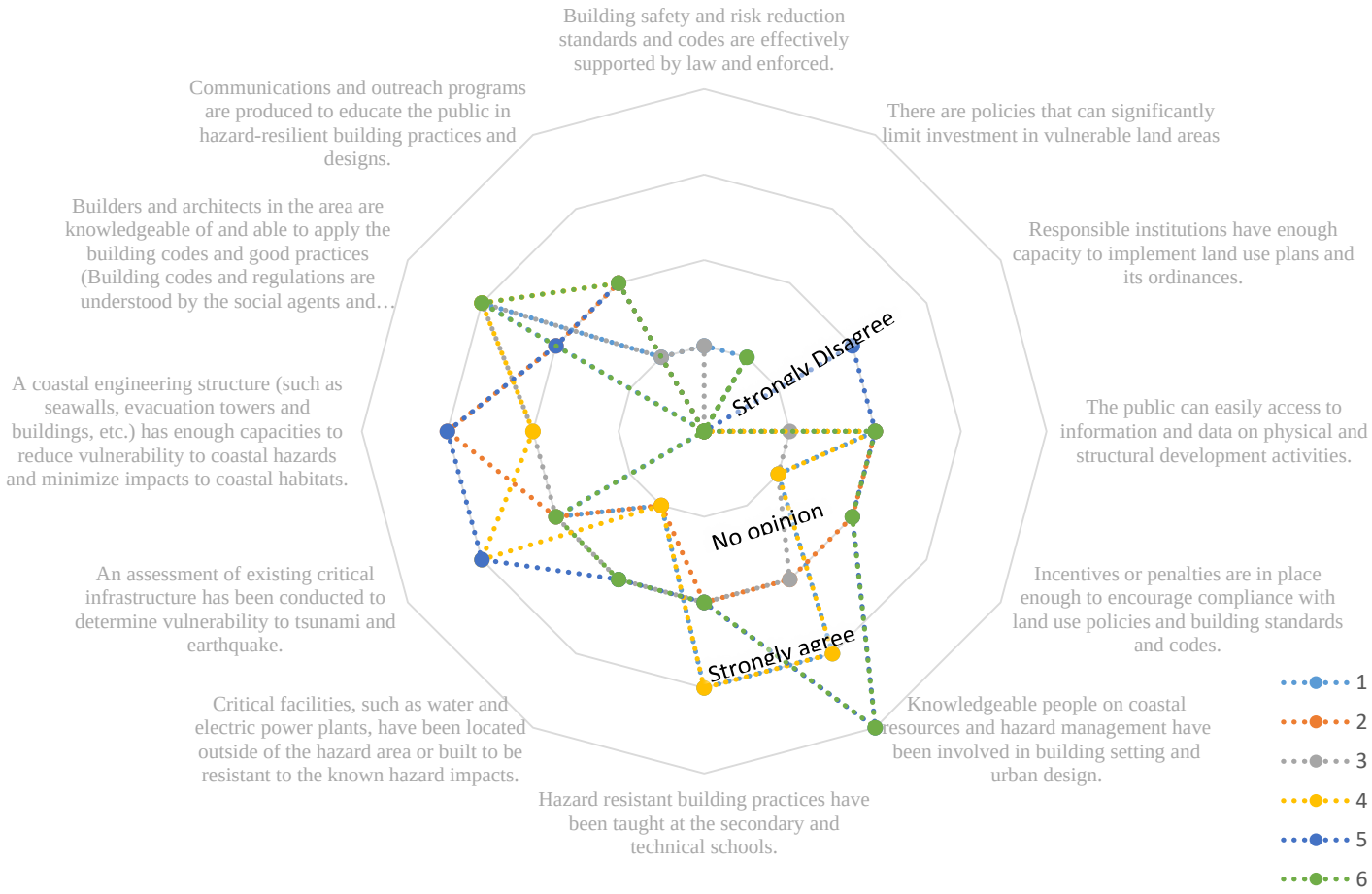
After tsunami
1946

Today
2015

KOCHI AND NANKAI



SOME ISSUES



Interviews to stakeholders and

community leaders / Kochi 2015-16

by Dr. Sarunwit Promsaka Na Sakkonakron

@In printing

PROJECTS SITES IN KOCHI

2011: Yoshino district, MOTOYAMA, Kochi prefecture

2012: Oki district, TOSA SHIMIZU CITY, Kochi prefecture

2013: Asakura campus Kochi university, KOCHI CITY, Kochi prefecture

2014: USA district, TOSA CITY, Kochi prefecture

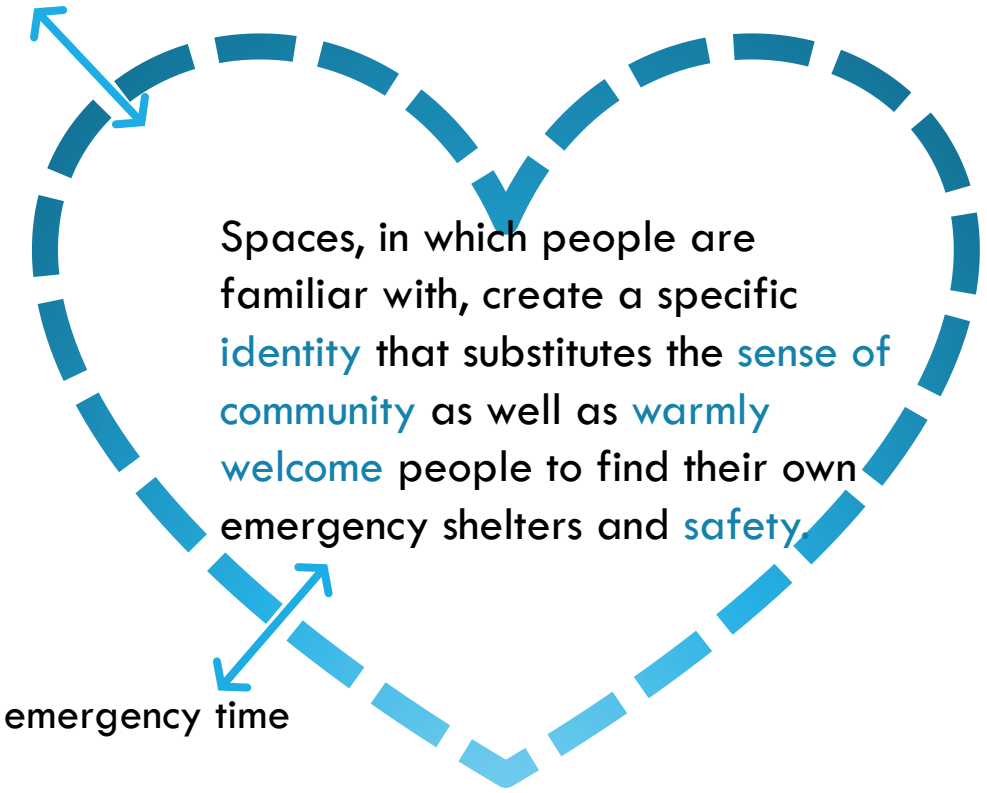
2015: Maruyama district, SHIMANTO TOWN, Kochi prefecture

2016: Art Zone Warakou Soko, Minamikaneda, KOCHI CITY, Kochi prefectur

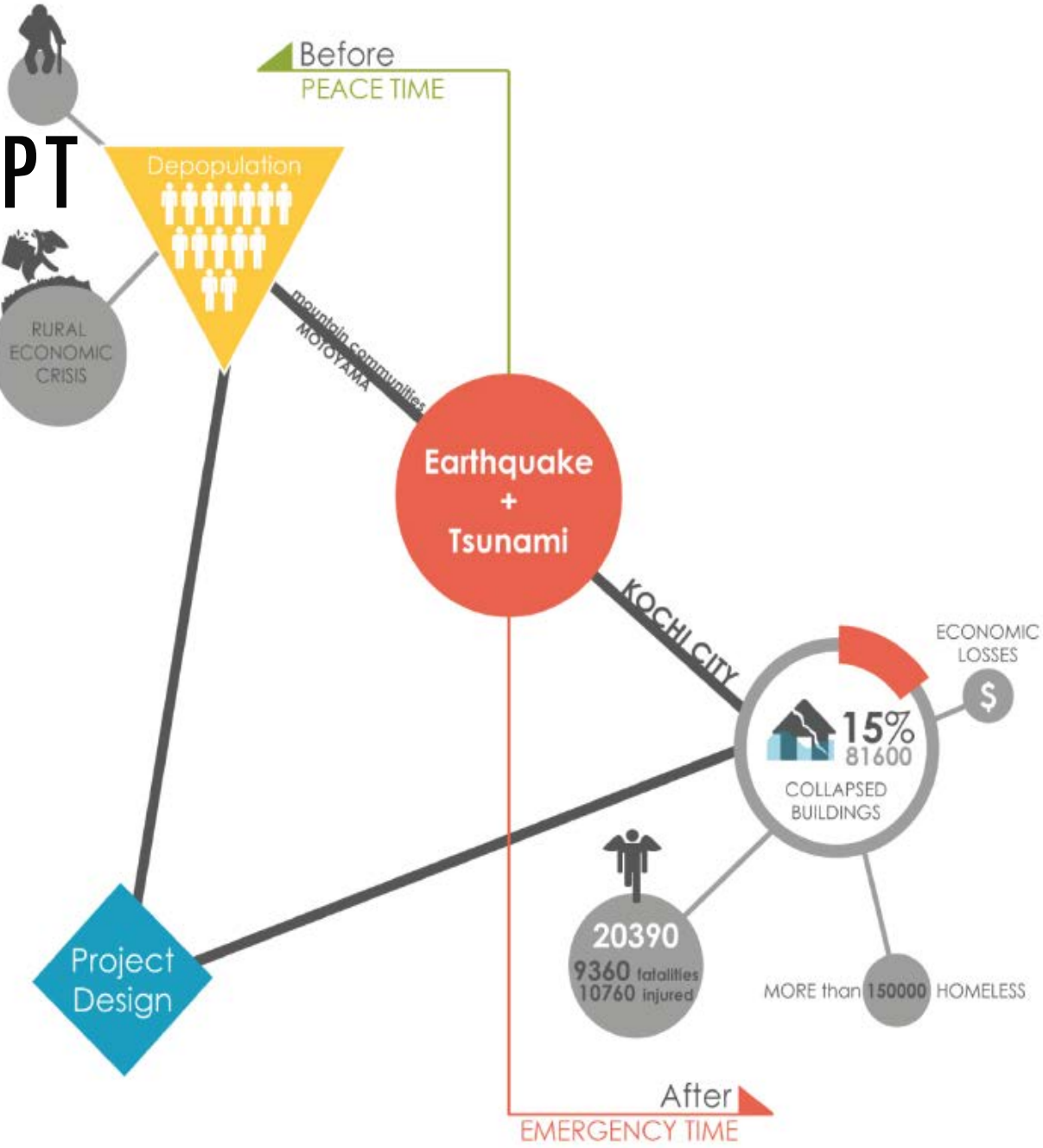
2016: Godaisan district, KOCHI CITY, Kochi prefecture

DUAL SPACE DESIGN CONCEPT

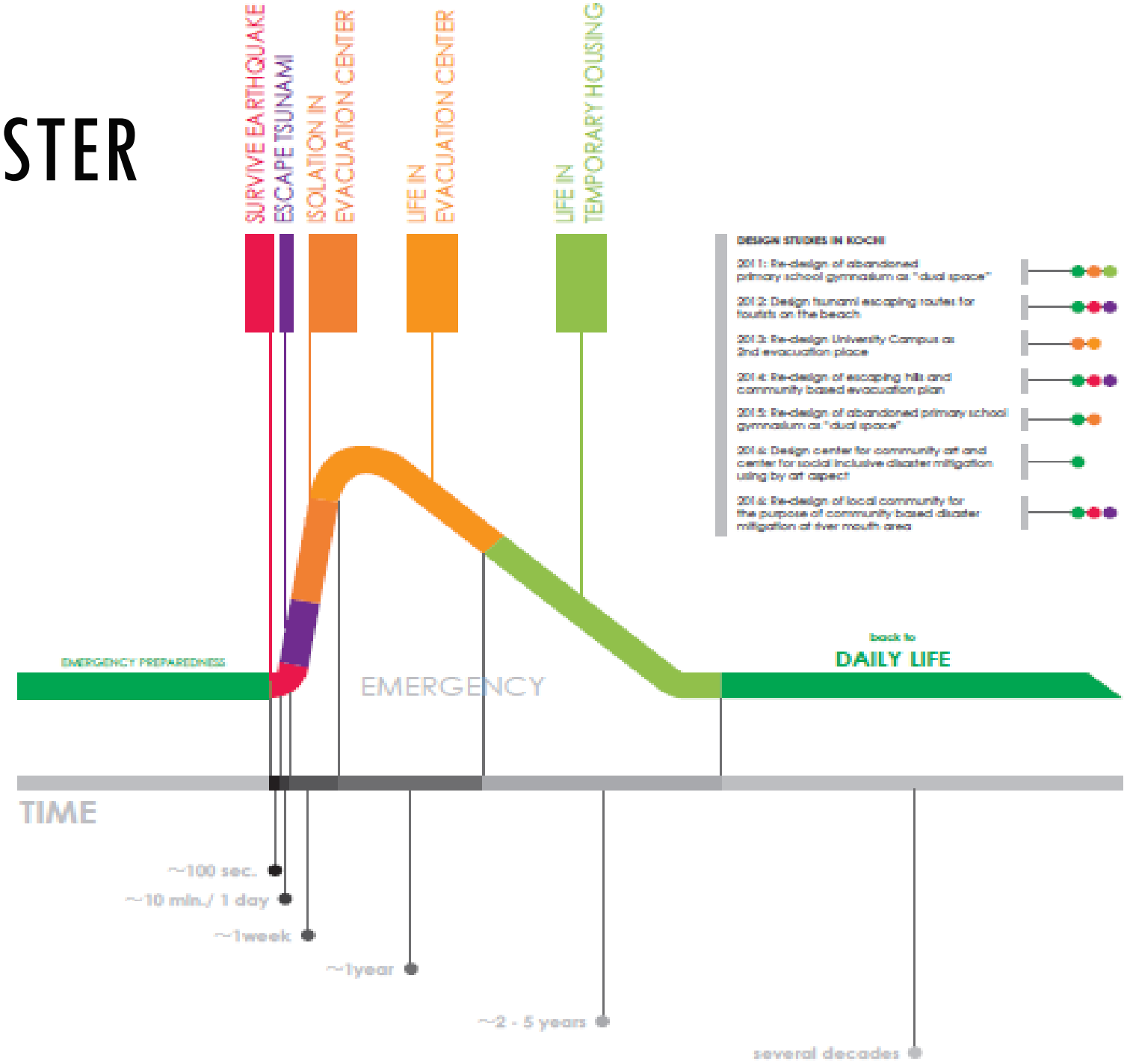
Before/peace time



After / emergency time



TIMELINE OF DISASTER CASE STUDIES



1.CASE STUDY
PARTICIPATORY DESIGN OF COMMUNITY DUAL SPACE
2011_SEPTEMBER @MOTOYAMA TOWN, KOCHI

DESIGN STUDIES IN KOCHI

2011: Re-design of abandoned primary school gymnasium as "dual space"

2012: Design tsunami escaping routes for tourists on the beach

2013: Re-design University Campus as 2nd evacuation place

2014: Re-design of escaping hills and community based evacuation plan

2015: Re-design of abandoned primary school gymnasium as "dual space"

2016: Design center for community art and center for social inclusive disaster mitigation using by art aspect

2016: Re-design of local community for the purpose of community based disaster mitigation at river mouth area

1.CASE STUDY
PARTICIPATORY DESIGN OF COMMUNITY DUAL SPACE
2011_SEPTEMBER @MOTOYAMA TOWN, KOCHI

The site

A gymnasium of a school

which is

proposed to be used as

“community home”

-workshops

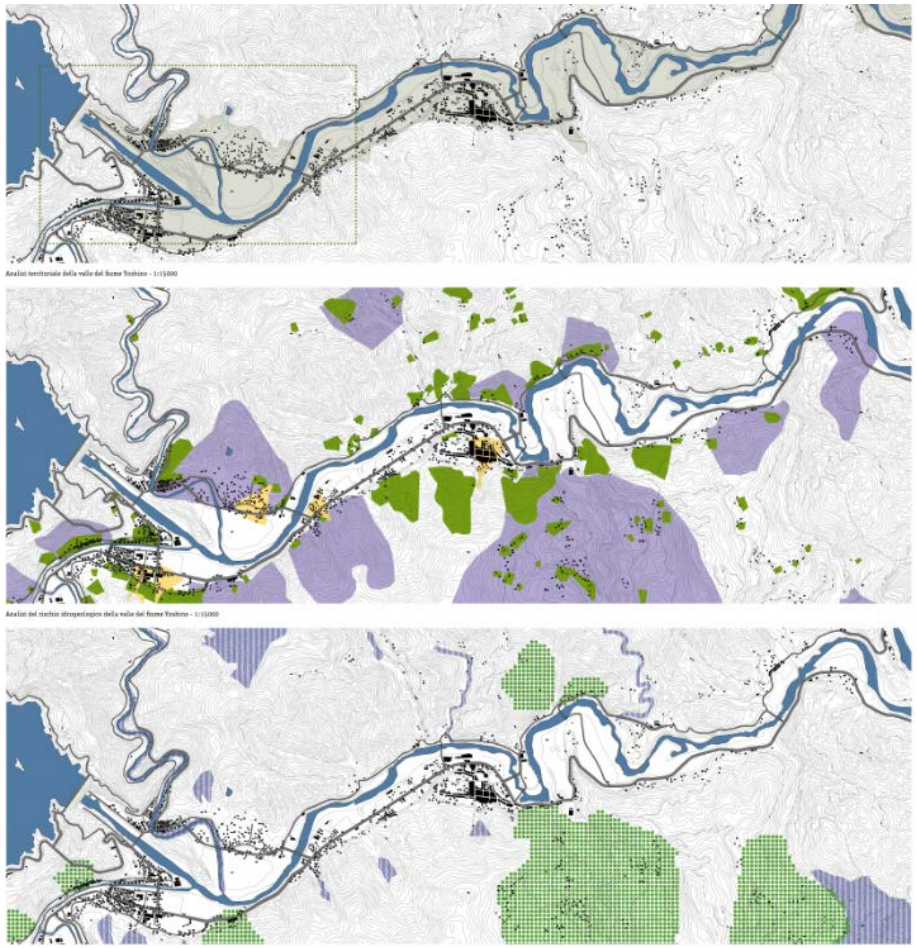
-meetings

-design studio

-submitted proposals

1.CASE STUDY: ISSUES
PARTICIPATORY DESIGN OF COMMUNITY DUAL SPACE
2011_SEPTEMBER @MOTOYAMA TOWN, KOCHI

-safe but possibilities of multi-hazards



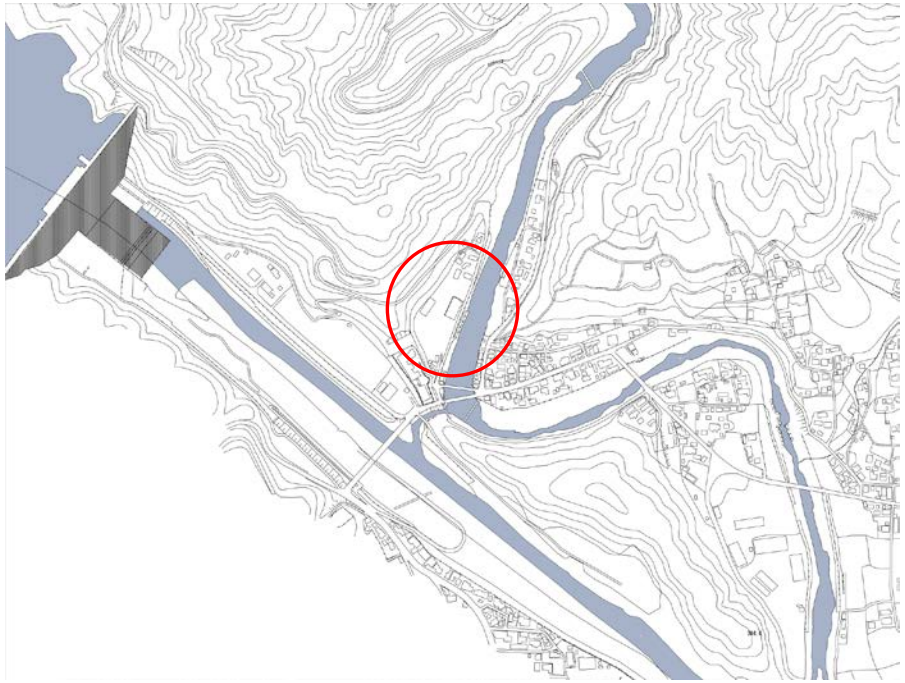
1.CASE STUDY: OPPORTUNITIES AND WEAKNESS PARTICIPATORY DESIGN OF COMMUNITY DUAL SPACE 2011_SEPTEMBER @MOTOYAMA TOWN, KOCHI

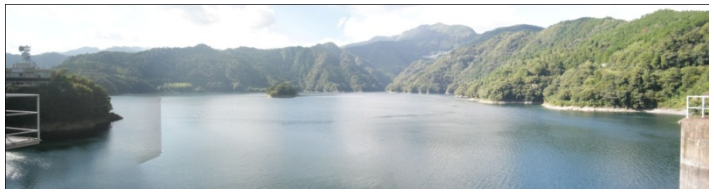
-IN BAD CONDITIONS

-BEATIFUL VIEW

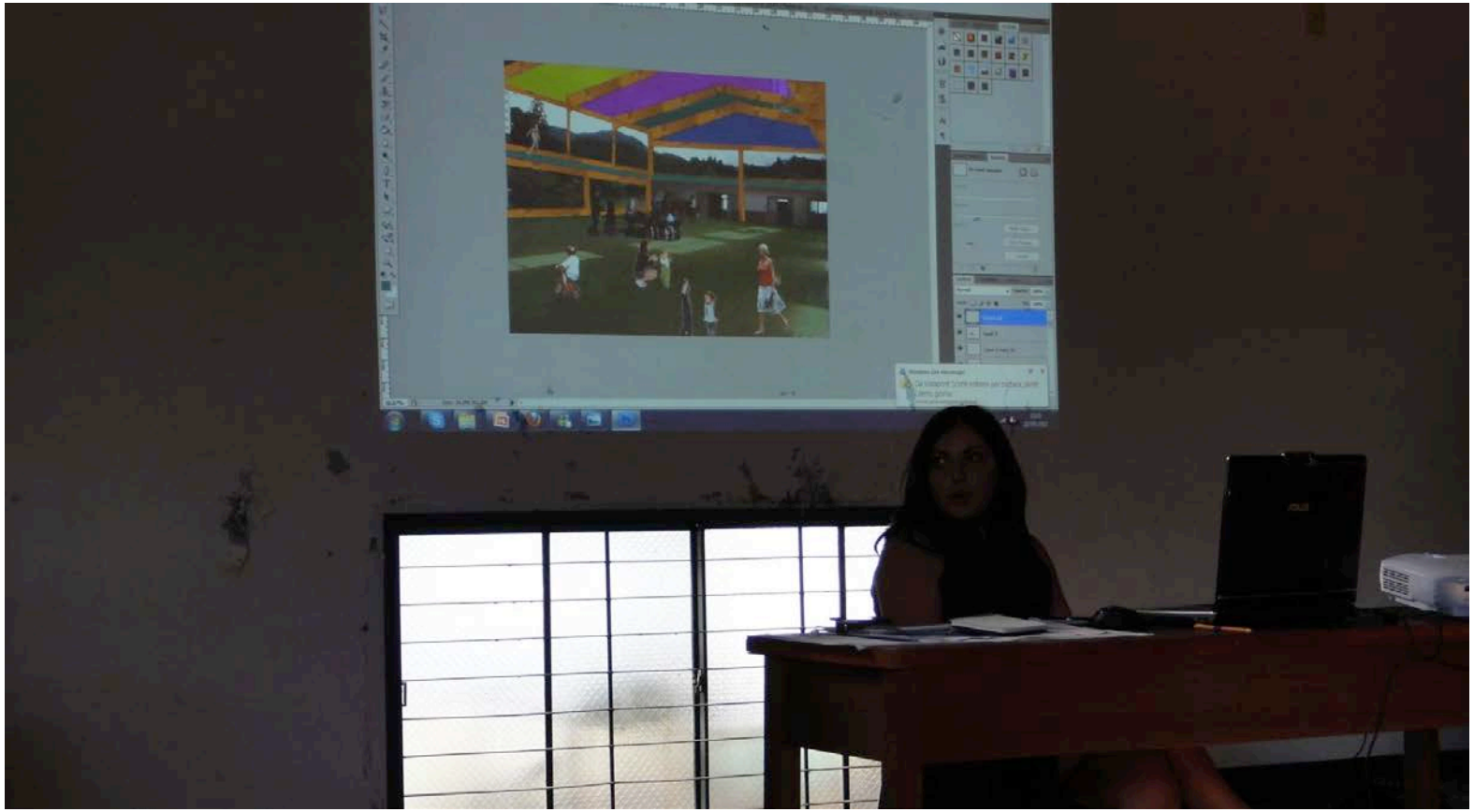
-CLOSE TO A NICE LANDSCAPE

-THERE IS A SAKE FACTORY



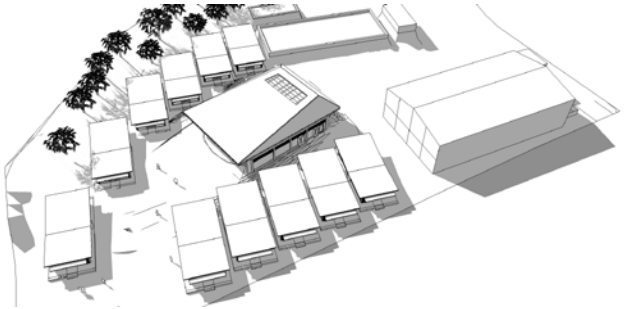


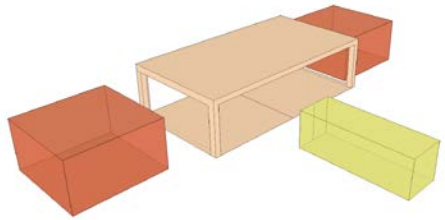
1.CASE STUDY: PROPOSALS
PARTICIPATORY DESIGN OF COMMUNITY DUAL SPACE
2011_SEPTEMBER @MOTOYAMA TOWN, KOCHI

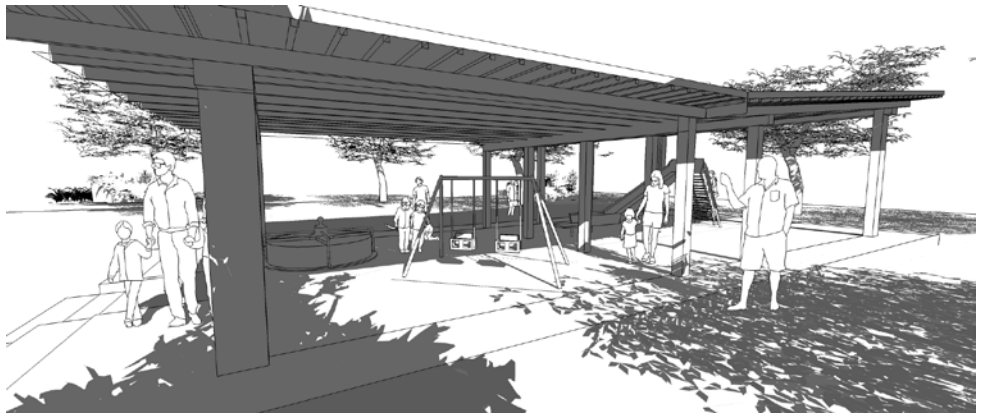


VISUALISATION OF FUTURE RE-USES

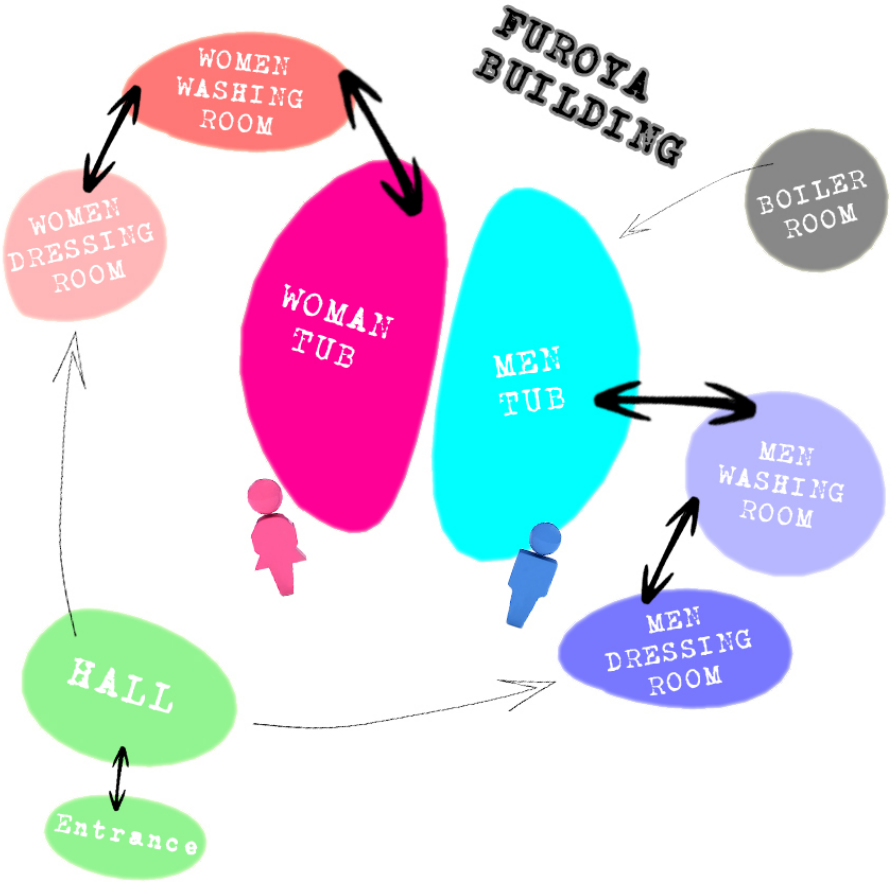
1.CASE STUDY: PROPOSALS
PARTICIPATORY DESIGN OF COMMUNITY DUAL SPACE
2011_SEPTEMBER @MOTOYAMA TOWN, KOCHI



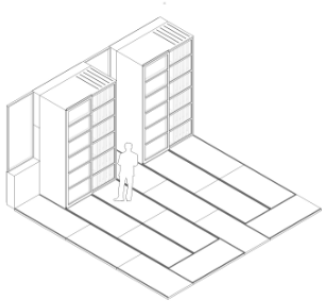


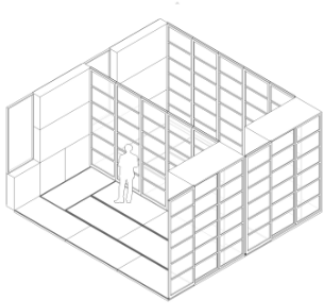


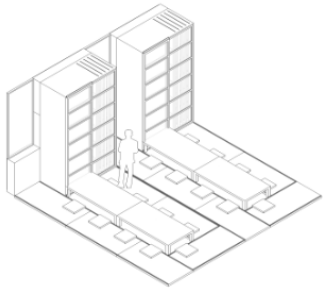
VISUALISATION OF FUTURE RE-USES

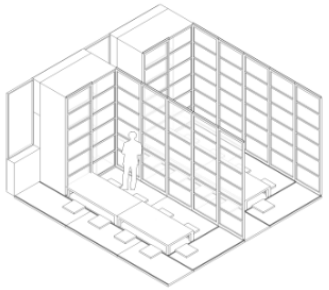


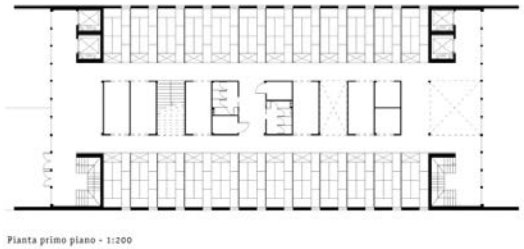
1.CASE STUDY: PROPOSALS
PARTICIPATORY DESIGN OF COMMUNITY DUAL SPACE
2011_SEPTEMBER @MOTOYAMA TOWN, KOCHI

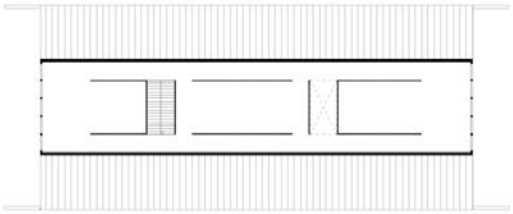


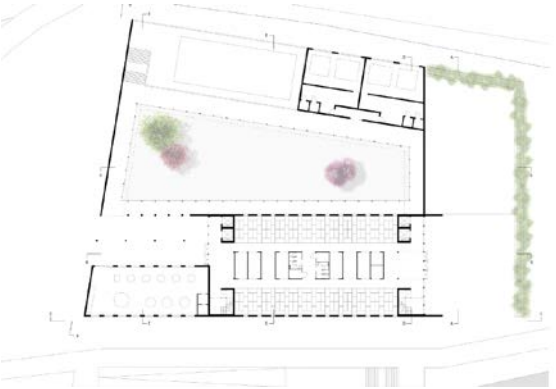












VISUALISATION OF FUTURE RE-USES

1.CASE STUDY: PROPOSALS
PARTICIPATORY DESIGN OF COMMUNITY DUAL SPACE
2011_SEPTEMBER @MOTOYAMA TOWN, KOCHI

3.CASE STUDY RE-DESIGN UNIVERSITY CAMPUS AS 2ND EVACUATION PLACE APRIL_OCTOBER 2013@ UNIVERSITY CAMPUS ASAKURA, KOCHI UNIVERSITY, KOCHI

DESIGN STUDIES IN KOCHI

2011: Re-design of abandoned primary school gymnasium as "dual space"

2012: Design tsunami escaping routes for tourists on the beach

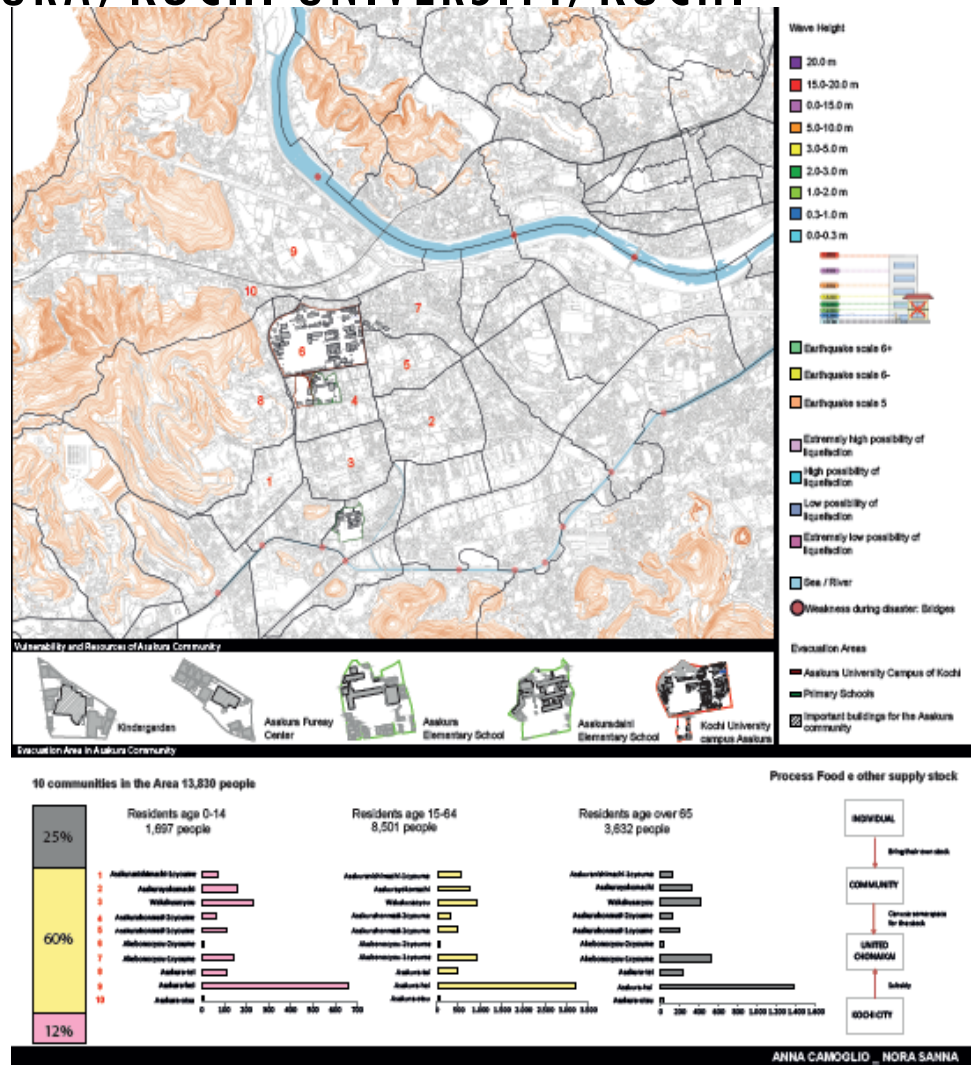
2013: Re-design University Campus as 2nd evacuation place

2014: Re-design of escaping hills and community based evacuation plan

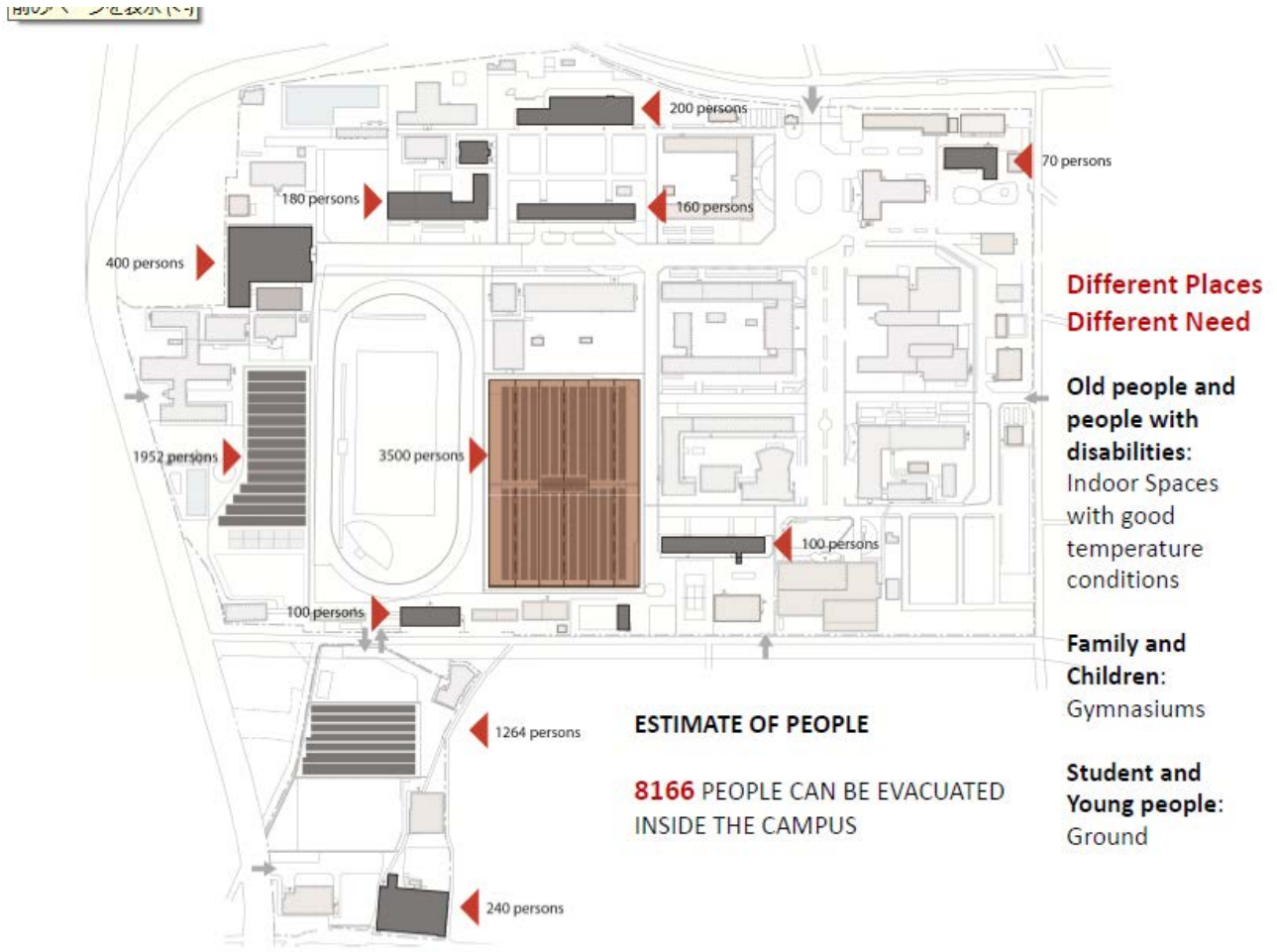
2015: Re-design of abandoned primary school gymnasium as "dual space"

2016: Design center for community art and center for social inclusive disaster mitigation using by art aspect

2016: Re-design of local community for the purpose of community based disaster mitigation at river mouth area



3.CASE STUDY RE-DESIGN UNIVERSITY CAMPUS AS 2ND EVACUATION PLACE APRIL_OCTOBER 2013@ UNIVERSITY CAMPUS ASAKURA, KOCHI UNIVERSITY, KOCHI



7. CASE STUDY
EVACUATION PLAN BASED ON DUAL SPACE: A NEW BRIDGE ON SHIMANTO RIVER
APRIL_OCTOBER 201@SHIMANTO TOWN

DESIGN STUDIES IN KOCHI

2011: Re-design of abandoned primary school gymnasium as "dual space"

2012: Design tsunami escaping routes for tourists on the beach

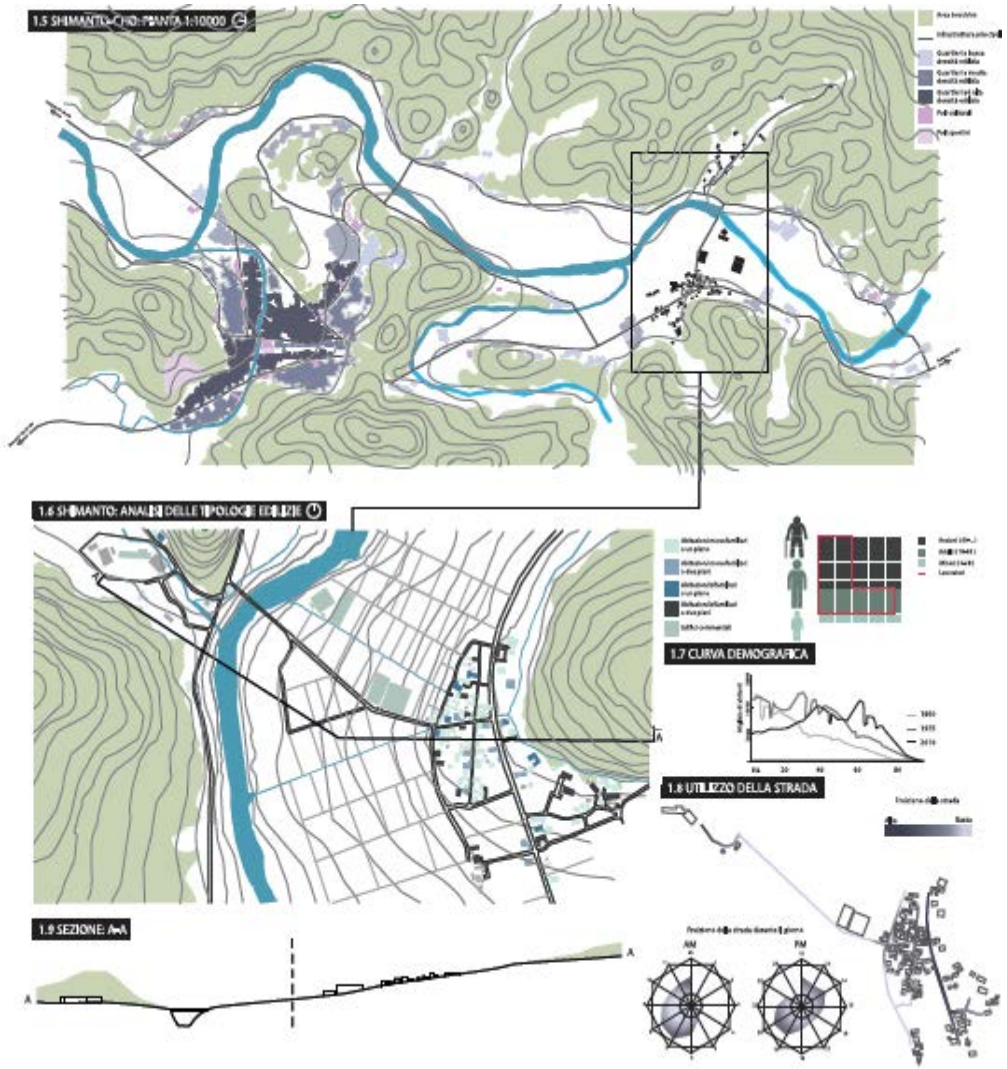
2013: Re-design University Campus as 2nd evacuation place

2014: Re-design of escaping hills and community based evacuation plan

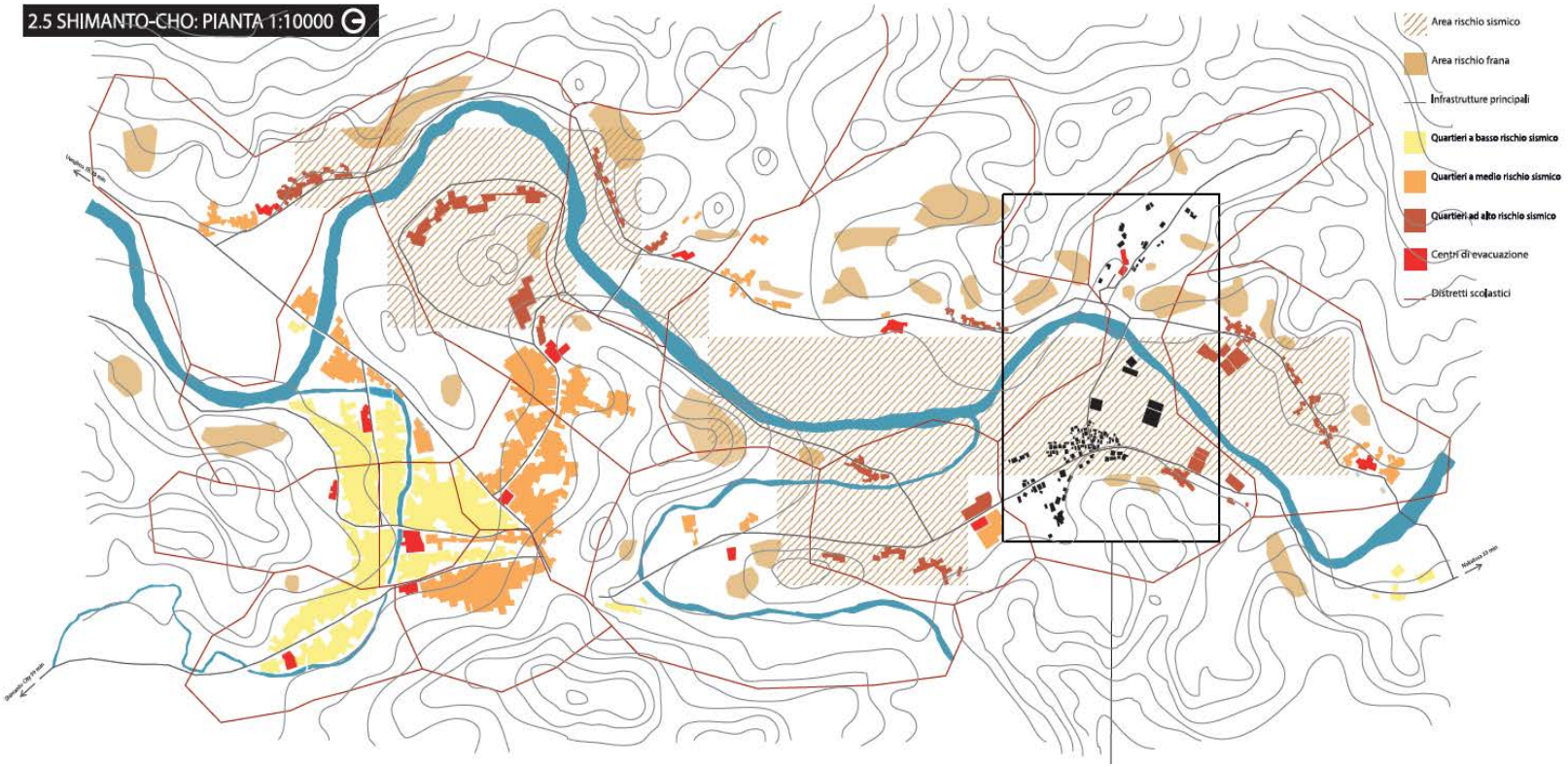
2015: Re-design of abandoned primary school gymnasium as "dual space"

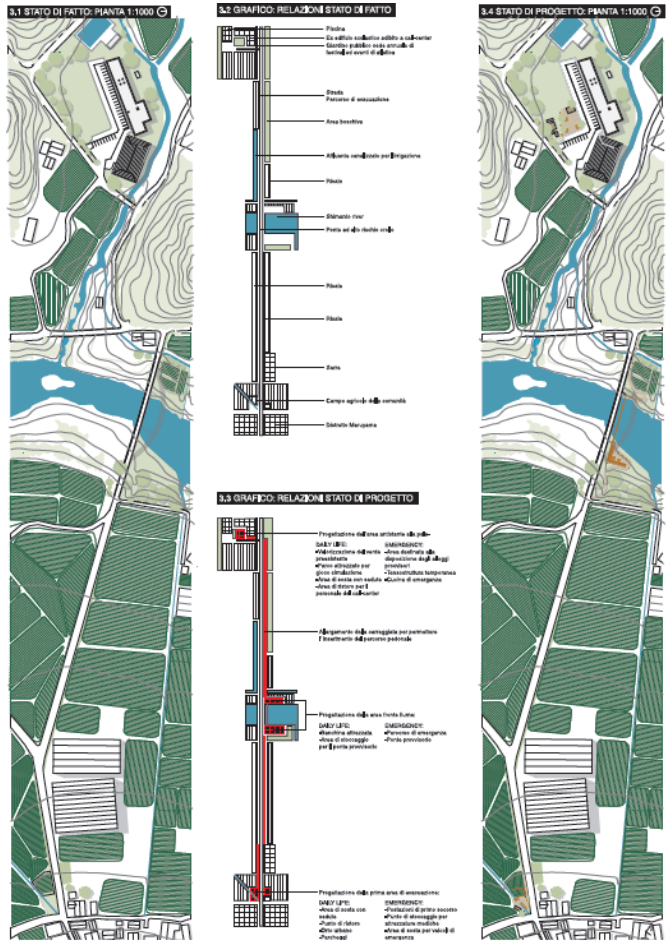
2016: Design center for community art and center for social inclusive disaster mitigation using by art aspect

2016: Re-design of local community for the purpose of community based disaster mitigation at river mouth area



7. CASE STUDY
EVACUATION PLAN BASED ON DUAL SPACE: A NEW BRIDGE ON SHIMANTO RIVER APRIL_OCTOBER 201@SHIMANTO TOWN





ITALY A SEISMIC COUNTRY
FRIULI, 1976
EMILIA, 2012
ABRUZZO, 2009 2016 2017

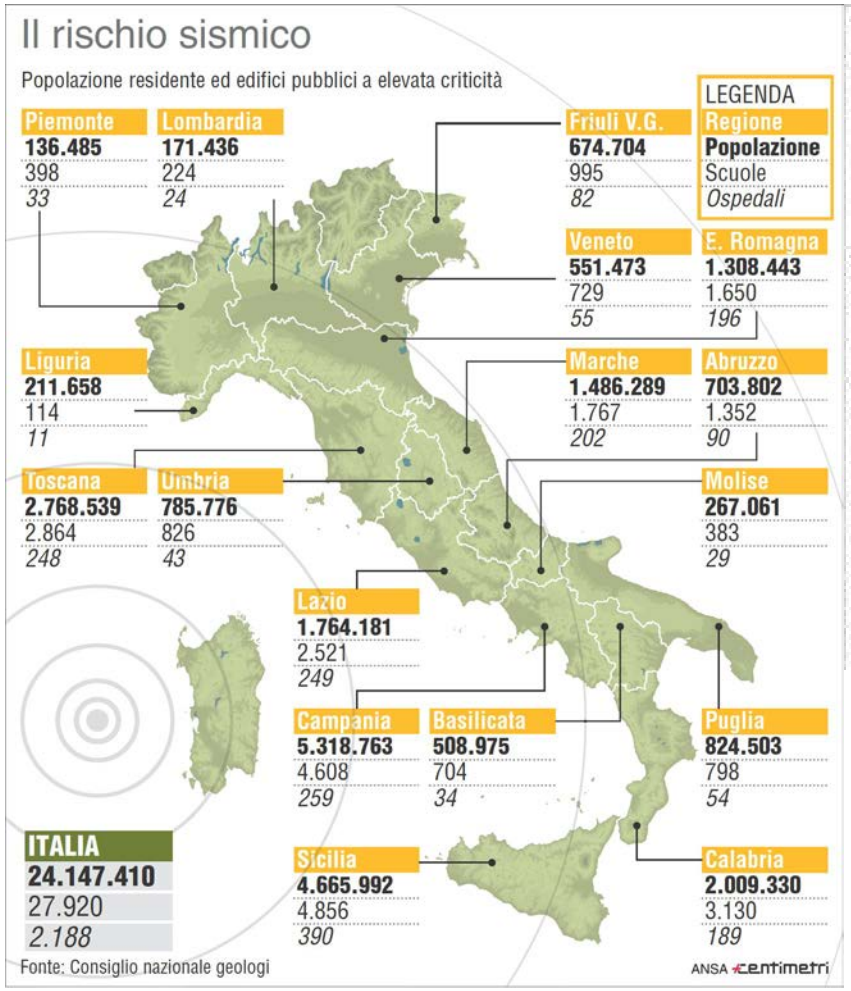
LEARNING FROM JAPAN FEEDBACK FROM ITALY KOCHI & DIVER S CITY LAB

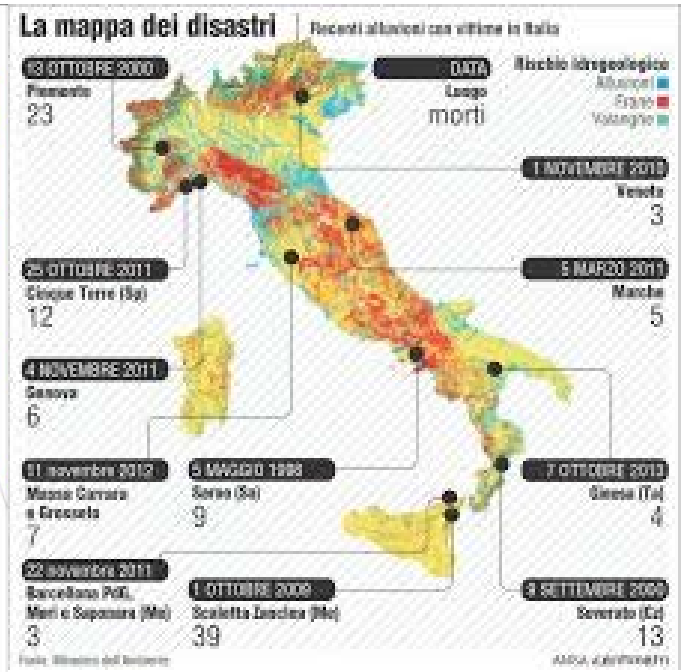
To make a clearer illustration of Italian situation different case studies are selected:

/Friuli, 1976

/Emilia, 2012

/Abruzzo/L'Aquila, 2009 and 2016-2017.





It does not mean no other risks…

SOME EARTHQUAKES IN ITALY

Place	Belice	Friuli	Irpinia	Umbria/Marche	Abruzzo	Kobe, Japan
Date	1968	1976	1980	1997	2009	1995
Magnitude	6.1	6.3	6.9	6	5.9	7.3
Number of People Lost House	56,000	10,000	200,000(Inc. Napoli)	11,000	67,500	236,899
Affected Population		600,000	6,000,000	32,000	31,000	1,520,365
Dead	296	965	2734	11	308	6,434
Affected Area	1,000km2	6,000km2	Inter-regional	Umbria+Marche	L`Aquila Province	5,887km2
Approximate Investment	6 billion Euro	13 billion Euro	49 billion Euro	5 billion Euro	10 billion Euro	1630 billion Yen
Reconstruction Project	On going	Finished	On going	Finished	On going	Finished
Citizen' s Participation	NO	YES	NO	YES	NO	YES

Tab. 1. A comparison of Italy and Japanese cases of earthquake
Source: Civil Protection Website http://www.protezionecivile.gov.it/ - INGV national institute of geology and volcanology http://www.ingv.it/eng/

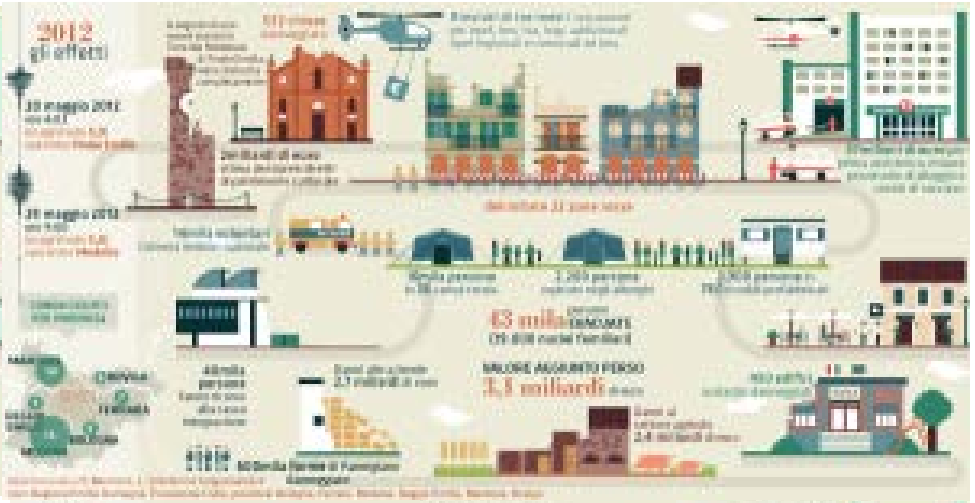
Some are not in the list: Emilia Romagna, 2012; Amatrice, Accumuli, Norcia…, 2016/17;

EMILIA, MAY 2012

The first earthquake, registeringmagnitude 6.1, struck in the Emilia-Romagna region, about 36 kilometres (22 mi) north of the city of Bologna, on 20 May at 04:03 local time (02:03 UTC). The epicentre was between Finale Emilia, Bondeno and Sermide. Two aftershocks of magnitude 5.2 occurred, one approximately an hour after the main event[3] and another approximately eleven hours after the main event.[4] Seven people were killed.

A magnitude 5.8 earthquake struck the same area nine days later, on 29 May, causing an additional twenty deaths and widespread damage, particularly to buildings already weakened by the 20 May earthquake.[5] The epicentre was in Medolla: the quake itself occurred at a depth of about 10 kilometres (6.2 mi)[6]

EMILIA, MAY 2012

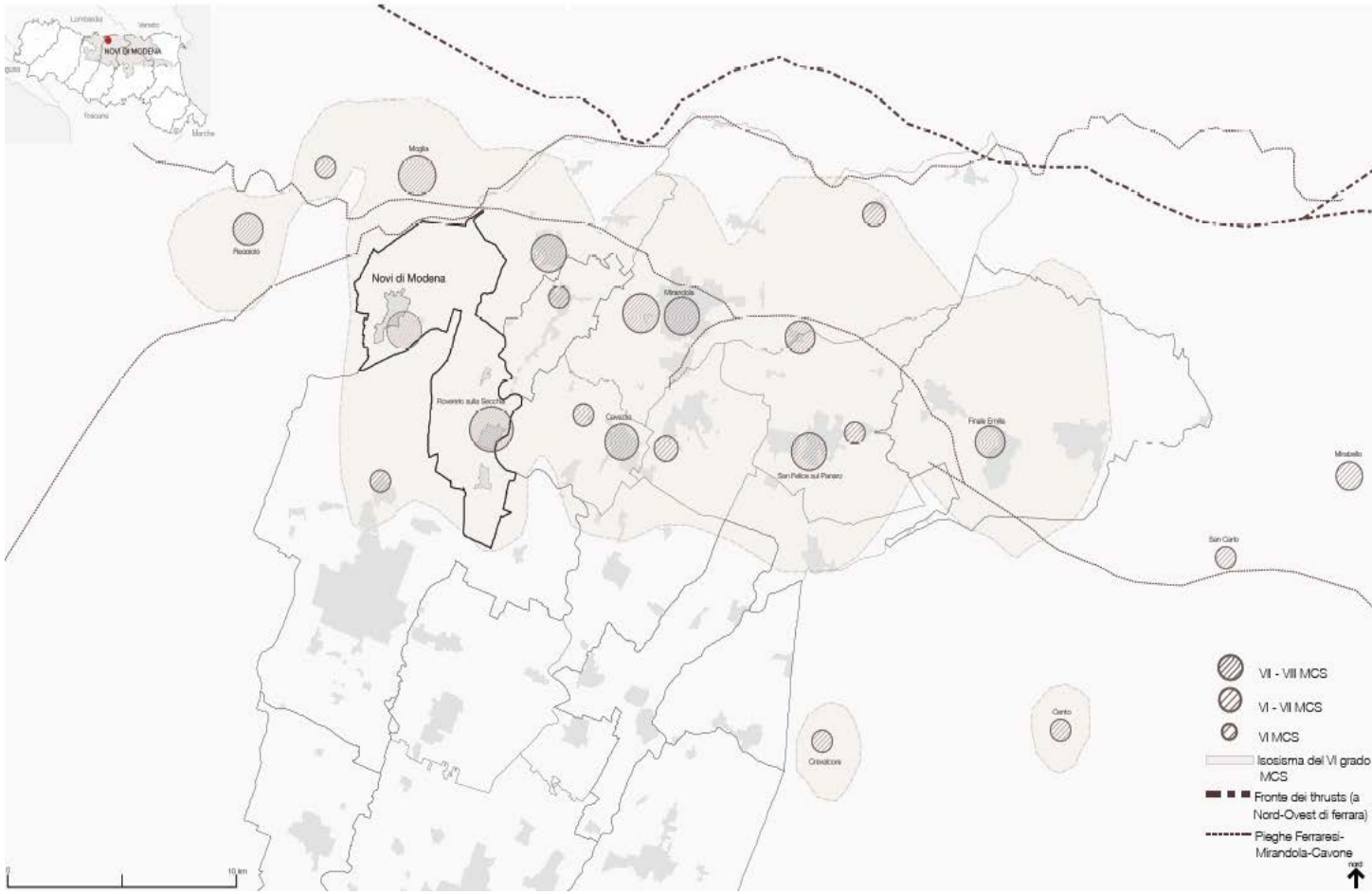


Source
http://tangerinelab.it/

EMILIA, MAY 2012

The map of shakes and damages

By Margherita Chiappe, Master research, 2014



EMILIA, MAY 2012

5.9 gradi Richter
scossa del 20 maggio
h 4.03

5.8 gradi Richter
scossa del 29 maggio
h 9.00

5.1 gradi Richter
scossa del 3 giugno
h 19.20

29
vittime
durante il terremoto

500 ca
vittime
dopo il terremoto
(320 suicidi)

300+
feriti

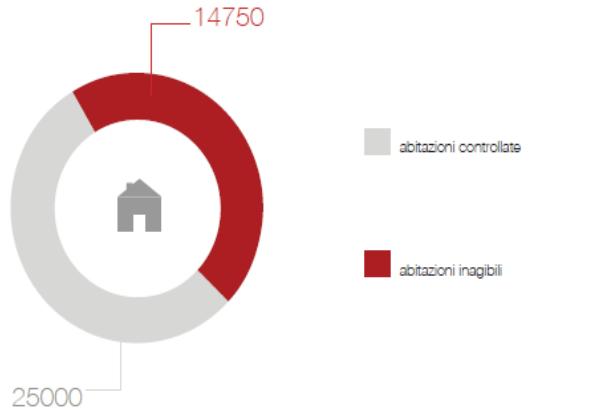
45.000
persone senza casa

656000 t
di macerie (359000 t
rimosse al 2013)

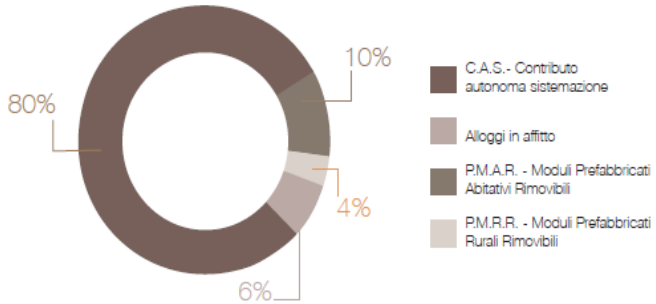
570
edifici scolastici
inagibili

39
sedi municipali
inagibili

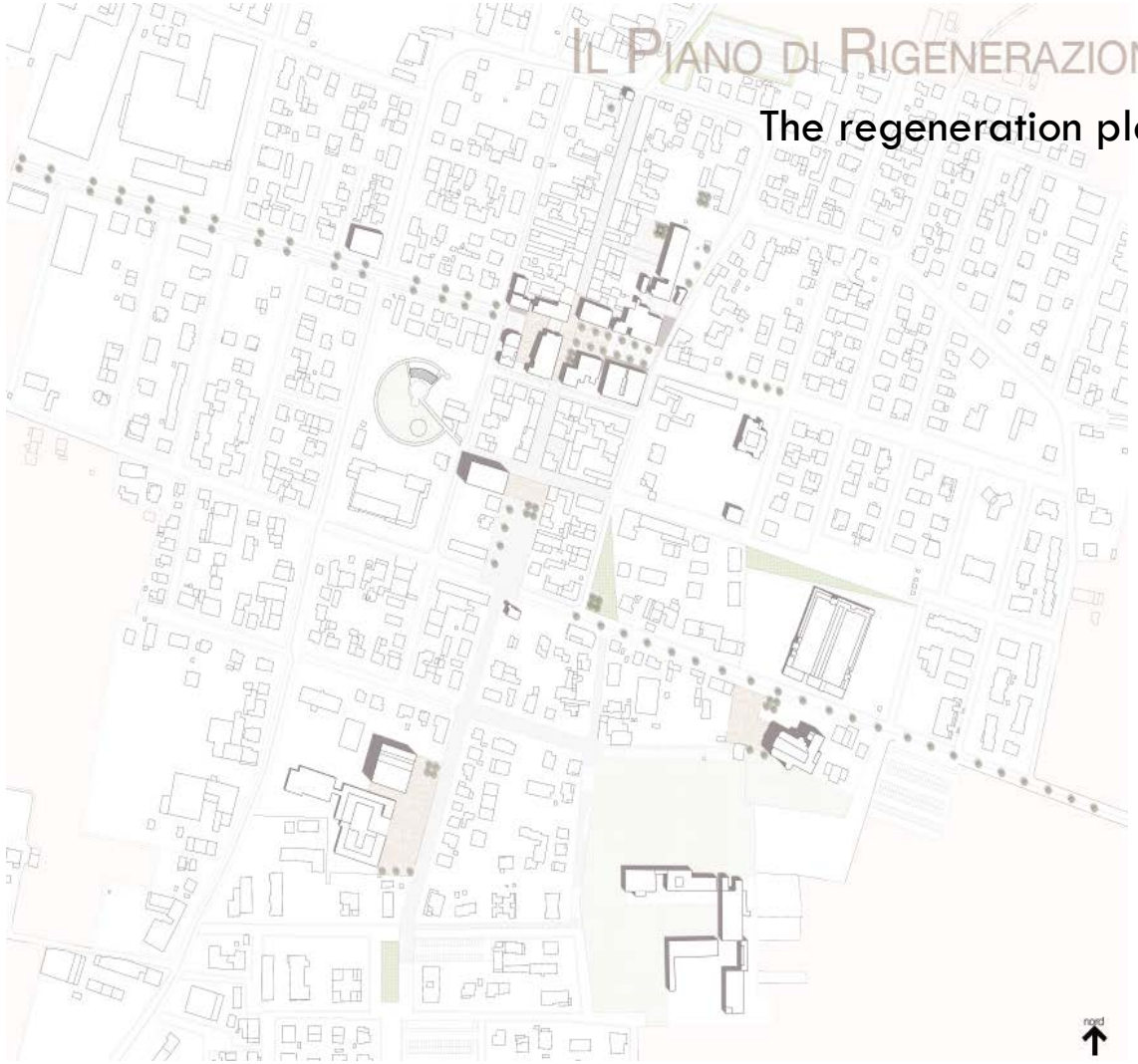
ABITAZIONI CONTROLLATE



RICHIESTE DI ALLOGGIO TEMPORANEO_SINTESI PER TIPOLOGIA

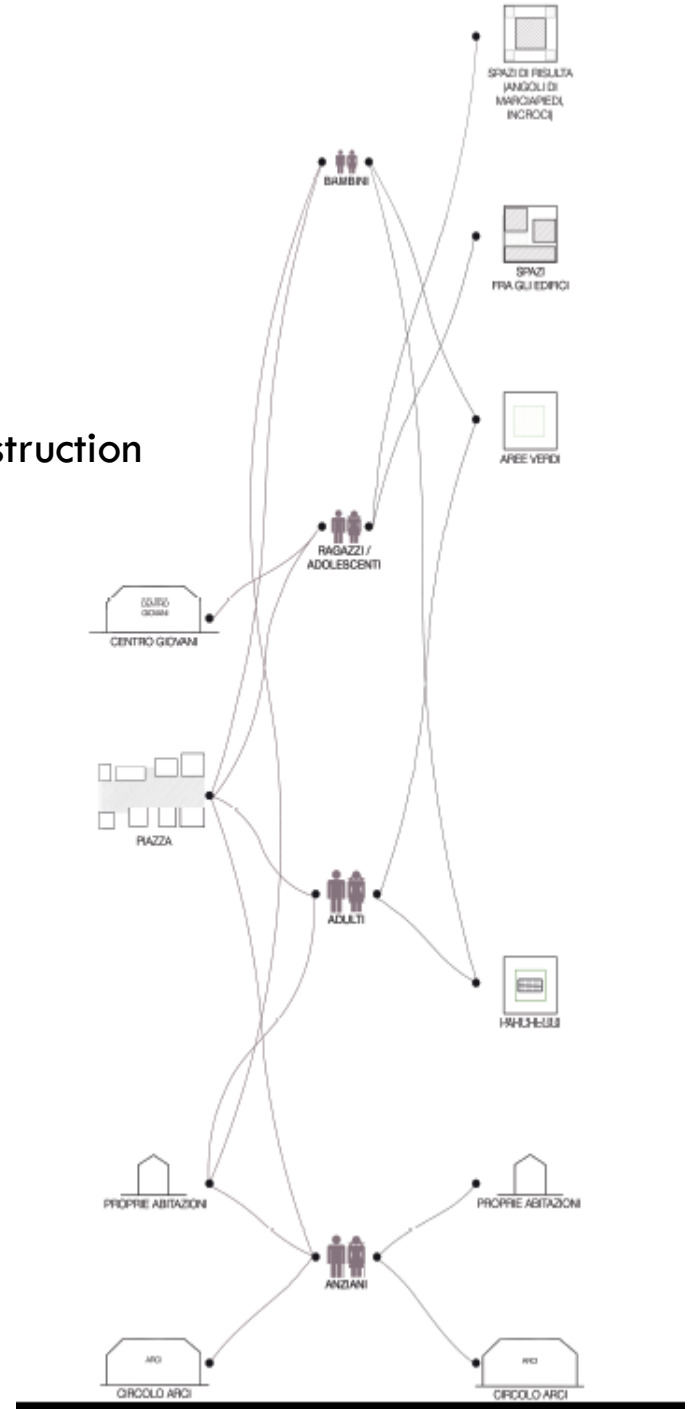


EMILIA, MAY 2012
THE RECONSTRUCTION: NOVI DI MODENA CASE STUDY



The regeneration plan as visioning of reconstruction

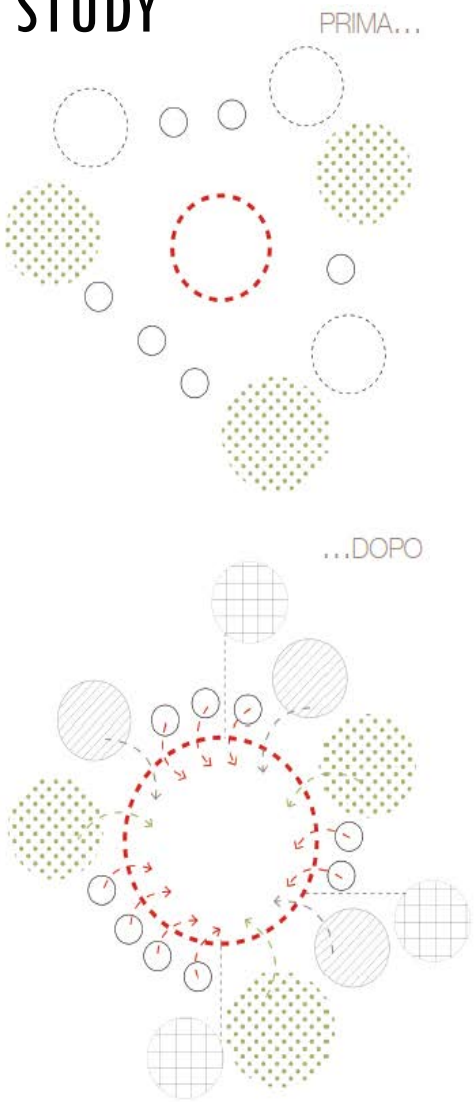
Principles and intervention applied to re-design the main square
Could be a model for all the public open space network of the town.
It is a tool that will increase identity and sense of place

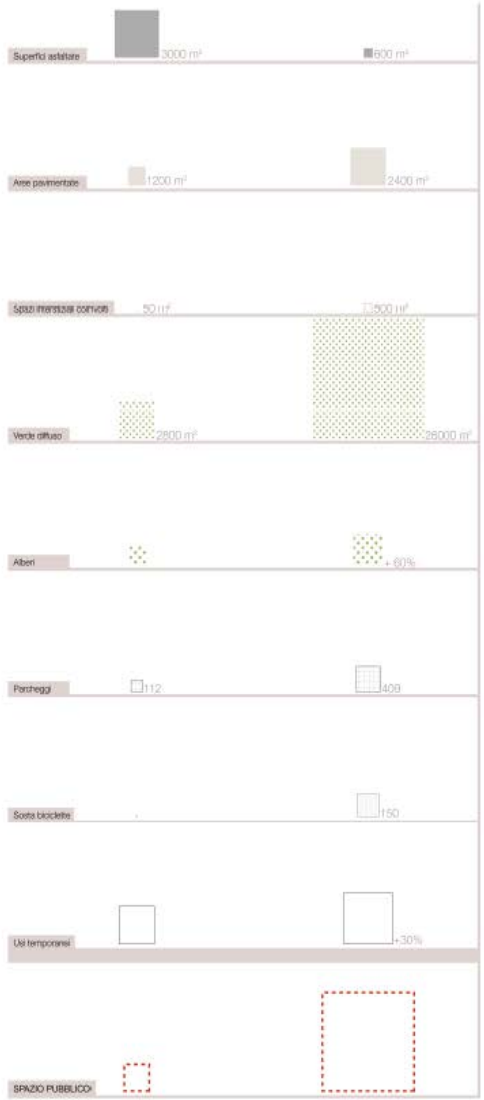


EMILIA, MAY 2012
THE RECONSTRUCTION: NOVI DI MODENA CASE STUDY

First

After





EMILIA, MAY 2012
THE RECONSTRUCTION: NOVI DI MODENA CASE STUDY / CO-DESIGN WITH USERS

2014: the elementary school is rebuilt but the playground is really poor.

The only object seismic resilient was the big tree.

A very unique project started…

PARTICIPATORY DESIGN STARTING FROM GAMING SIMULATION

Novi di Modena, 3 years ago…

THE PARK OF EMOTIONS
MONIA GUARINO & DIVER S CITY LAB

boredom sadness anger scare dread

Based on"the city of emotions" (Rizzi, 2004) the designer started the process of co-design with landscape architects and with the pupils of the school a long journey.

What do you like in the playground?

How you'll use it?

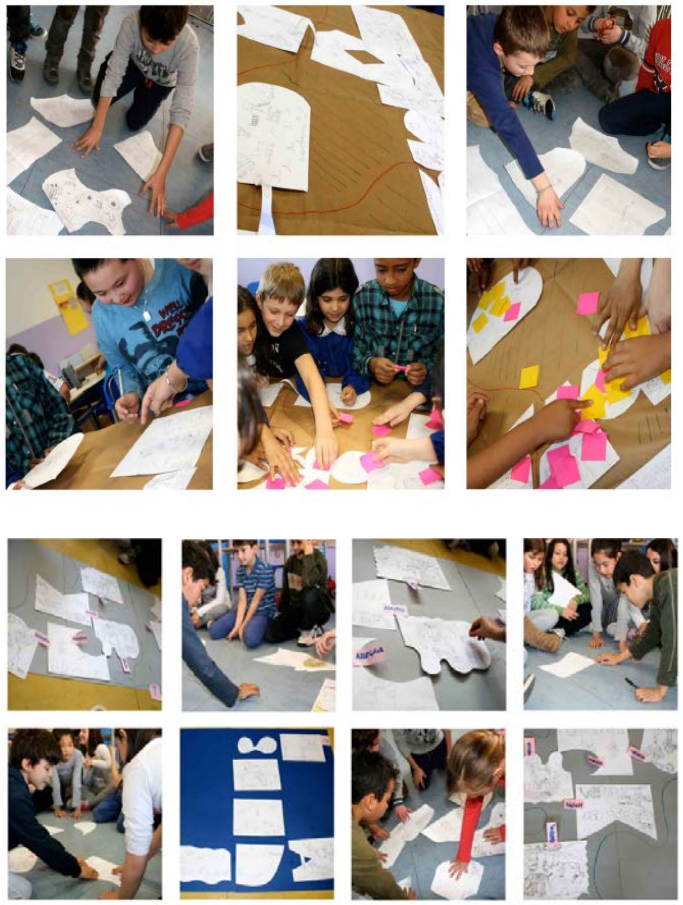
Who is going to care of it?

Which emotions you would like to feel when you are there?

…

calm/joy surprise/mistery freedom

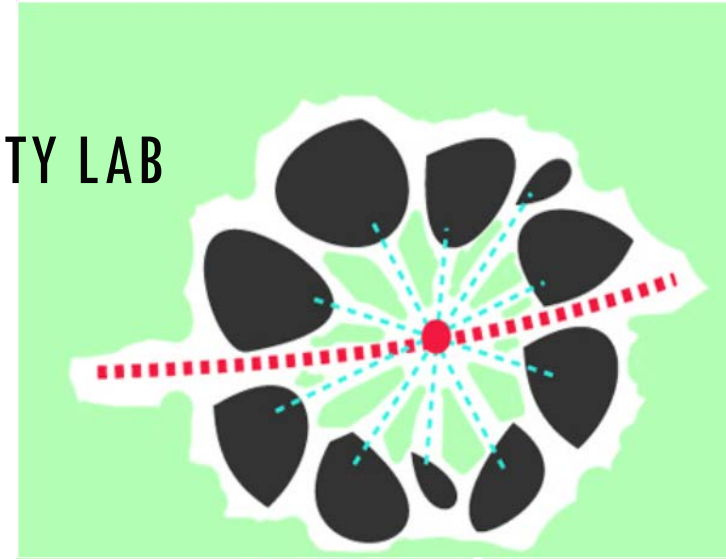
THE PARK OF EMOTIONS
MONIA GUARINO & DIVER S CITY LAB

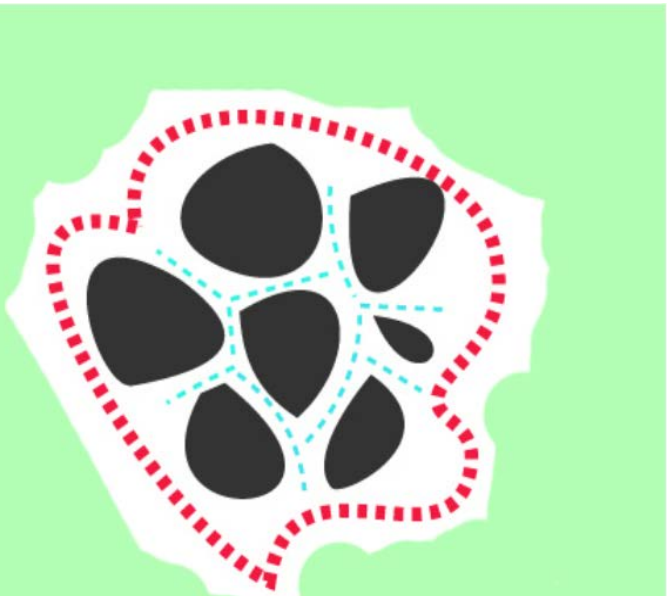


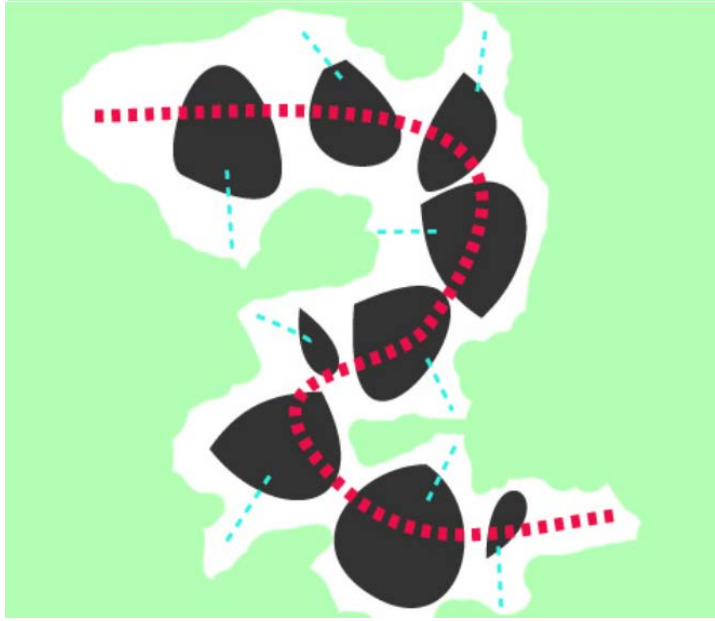
serenità/gioia sorpresa/mistero libertà

THE PARK OF EMOTIONS
MONIA GUARINO & DIVER S CITY LAB

The kids suggested the forms the materials and of course: the tree house!







THE PARK OF EMOTIONS
MONIA GUARINO & DIVER S CITY LAB

The founds were from public and private organizations

The furniture was designed by kids and produced by local artisans

Among the supporters Il sole di Hiroshima that organized an event in Bologna

THE PARK OF EMOTIONS
MONIA GUARINO & DIVER S CITY LAB

PARCOBALENO

Was opened September 2016 and was awarded as best lights project and sustainable design by Green Cities network

. . . BUT ITALY IS VULNERABLE COUNTRY. . .

Abruzzo, 2009 years ago…
2016…2017…

…BUT ITALY IS VULNERABLE COUNTRY… WHAT NEXT?

L' Aquila, 6 april 2009

. . . BUT ITALY IS VULNERABLE COUNTRY . . . WHAT NEXT?

The magnitude-6.3 tremor struck at 3:32 AM local time, extensively damaging the 13th-century city of L'Aquila, located only about 60 miles (100 km) northeast of Roma. The earthquake resulted from normal faulting on the northwest-southeast-trending Paganica Fault. It and several neighbouring faults are related to extensional tectonic forces associated with the opening of the Tyrrhenian Basin to the west.

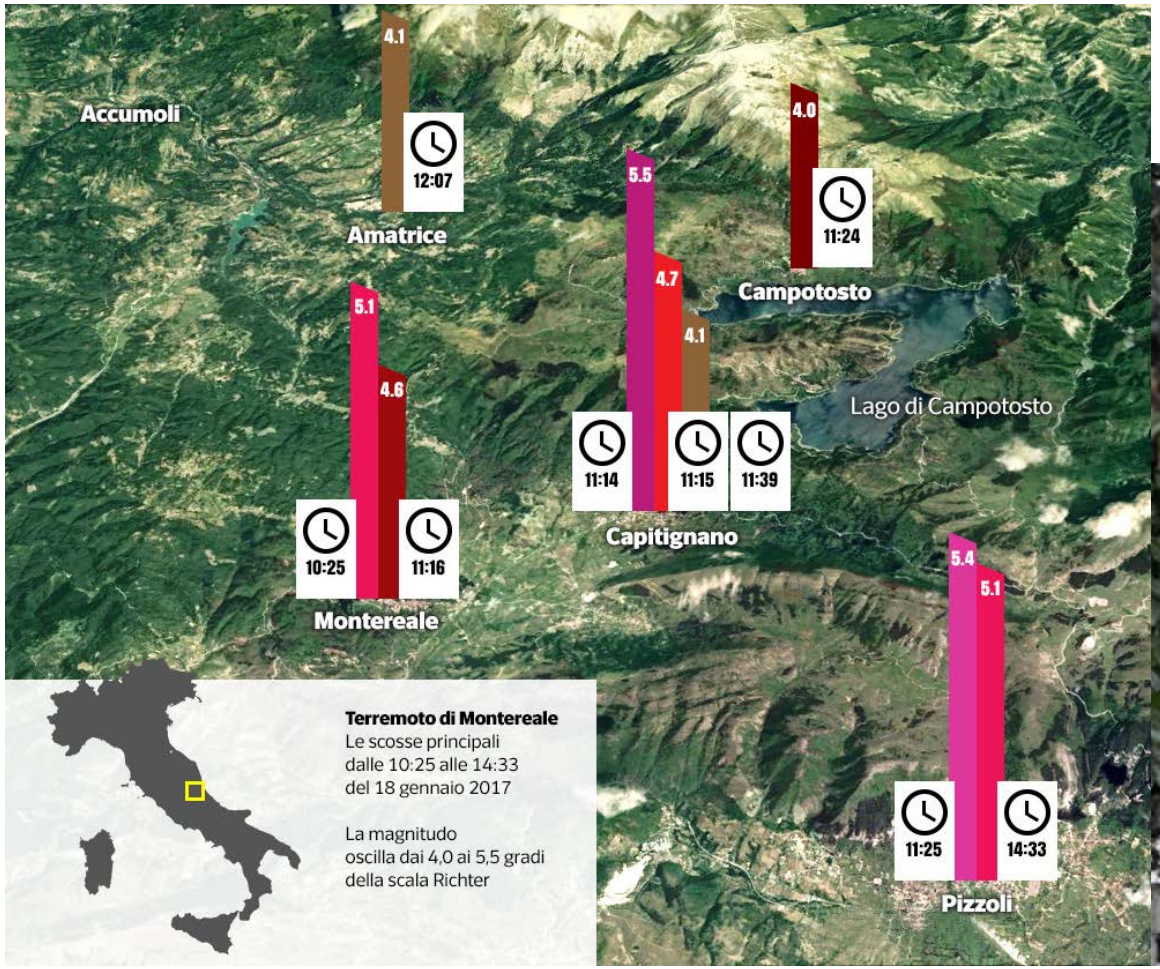
The earthquake was felt throughout central Italy; 308 people are known to have died.

In a subsequent inquiry of the handling of the disaster, seven members of the Italian National Commission for the Forecast and Prevention of Major Risks were accused of giving "inexact, incomplete and contradictory" information about the danger of the tremors prior to the main quake.

On 22 October 2012, six scientists and one ex-government official were convicted of multiple manslaughter for downplaying the likelihood of a major earthquake six days before it took place. On 10 November 2014, the scientists convicted of manslaughter for failing to predict the deadly earthquake have had the verdict overturned.

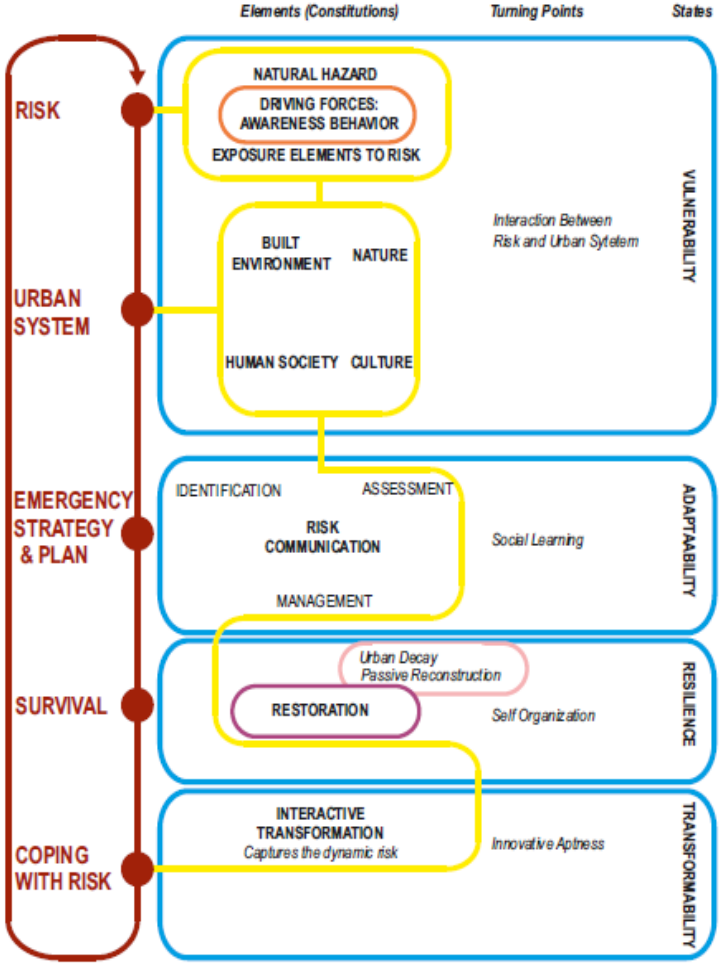
Criticism was also applied to poor building standard that led to the failure of many modern buildings in a known earthquake zone: an official at Italy's Civil protection Agency, Franco Barberi, said that "in California, an earthquake like this one would not have killed a single person".

...BUT ITALY IS VULNERABLE COUNTRY... WHAT NEXT?



...BUT ITALY IS VULNERABLE COUNTRY... WHAT NEXT?

- ☞To think and analyse the capacity of **visioning and building its own future** by community and common people
- ☞the capacity of a **correct perception** of possible phisical and social development
- ☞to **keep and preserve memory** of past hazards and their effects
- ☞To mantain a **proper view and perception** of the hazard's and risk probability

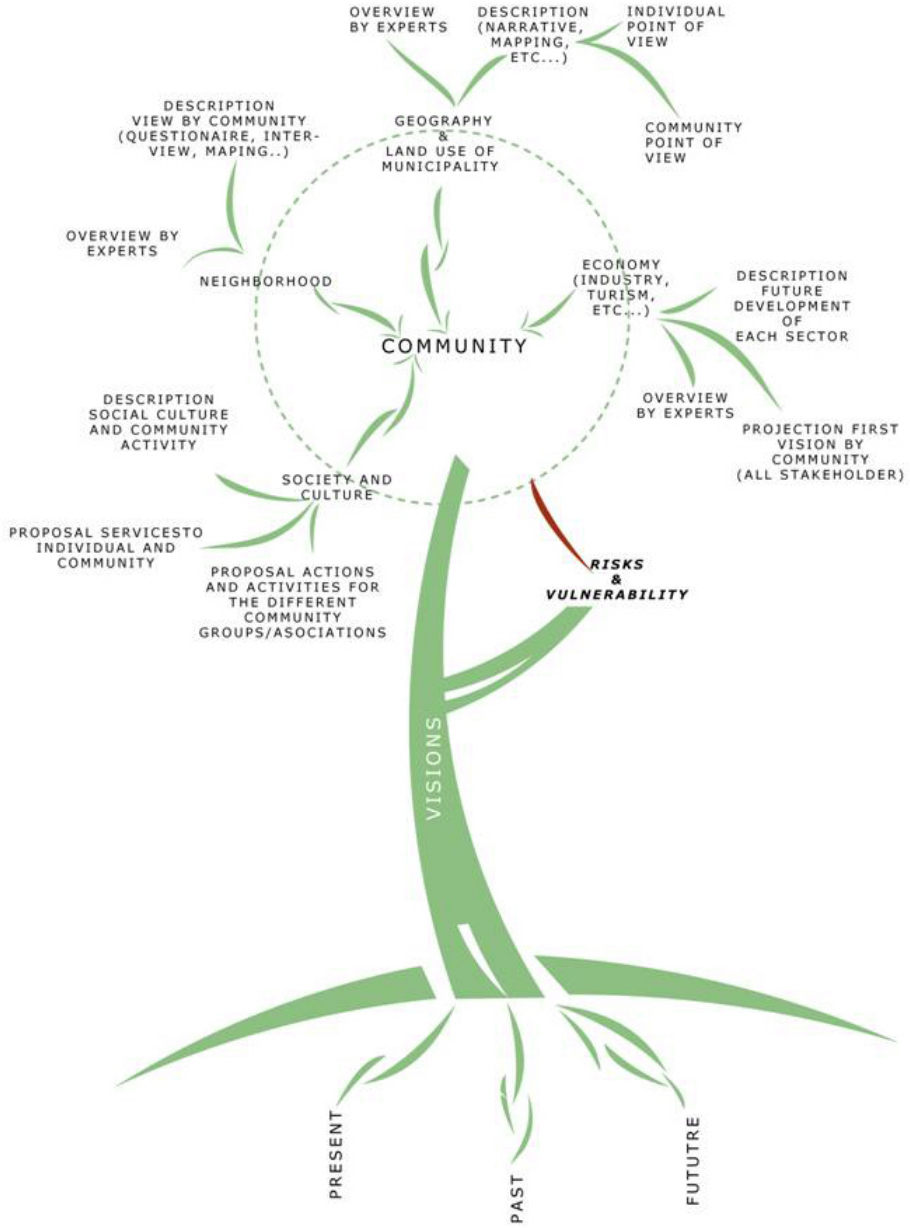


The conceptual model of urban resilience to disaster. Promsaka Na Sakronnakron S., Rizzi P., (2015)

CONCLUSIONS

So the current state of planning presents a special version of that dilemma that George Orwell famously spelt out in his essay on Charles Dickens: how can you improve human nature until you have changed the system? And what is the use of changing the system before you have improved human nature? The fact is that we will need to do both in parallel. We will need to rebuild a better system, and to educate planners and their co-professionals to operate effectively to make it deliver a better world. That should be the starting message for the next century.

Sir Peter Hall, 2014 (1932-2014)



QUESTIONS?

Grazie
Thank you
Ûs ringrazii
Gratzias
Suksma
Domo Arigatou
...