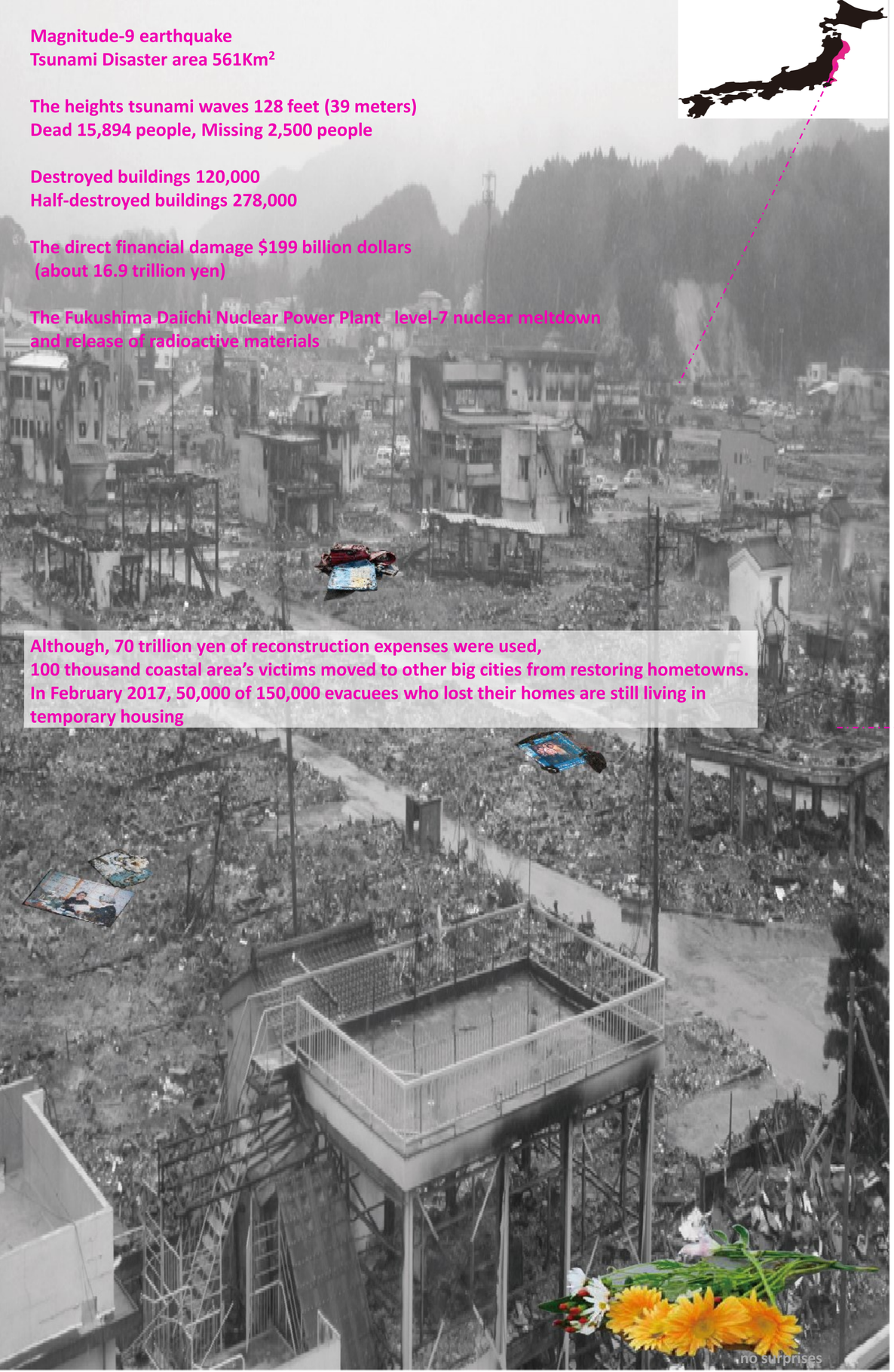
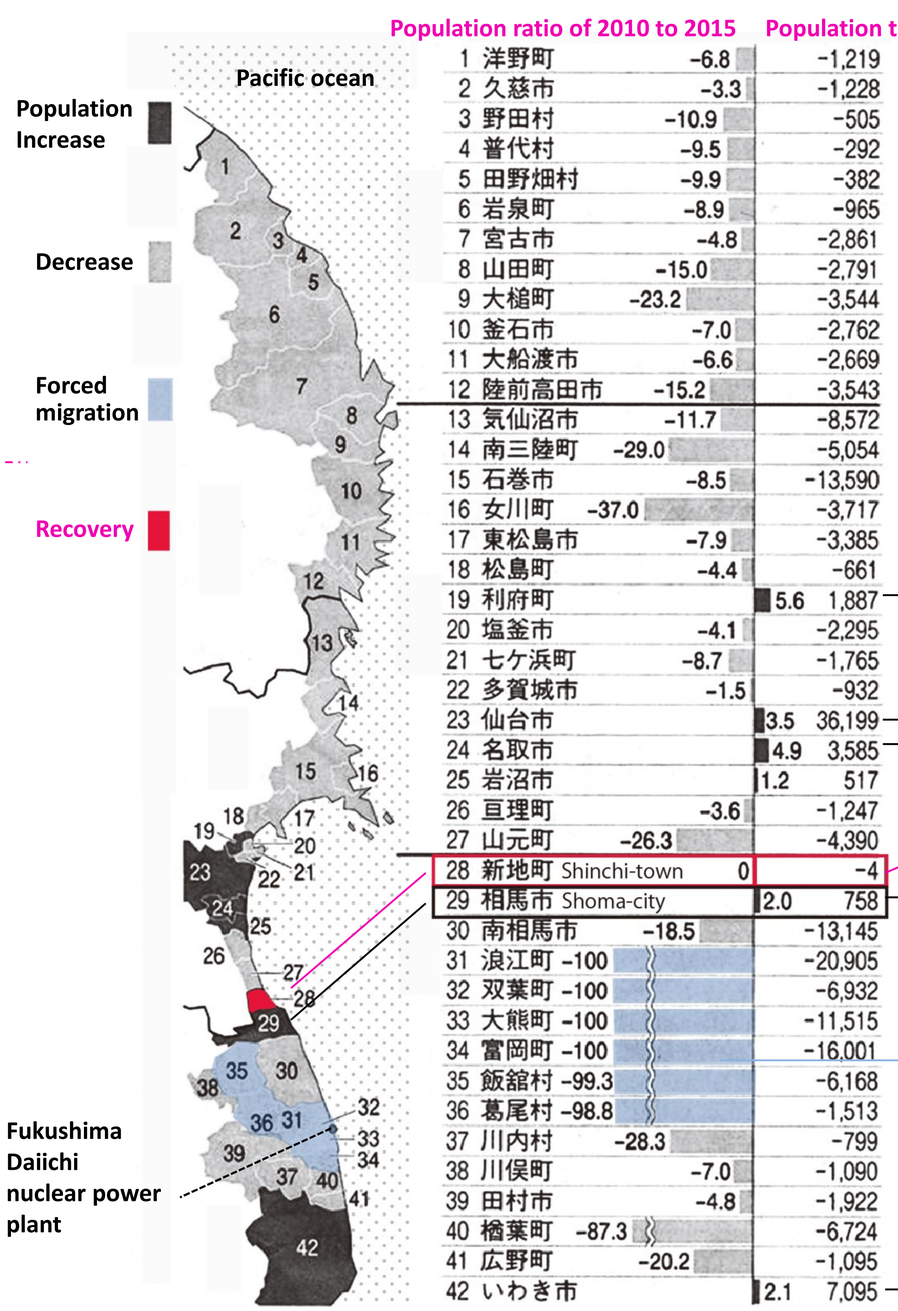
The marriage of holistic and bottom-up in planning process / Japan Earthquake and Tsunami (2011) disaster area

Natural disaster and extreme weather conditions are unpredictable. It is difficult to predict what will occur next. However, we should achieve resilience by design for disaster area like Japan Earthquake and Tsunami (2011). Improving the quality of resilience is still Landscape architect's key concept; Both Boston Fen by Frederick Law Olmsted and Woodland by Ian L. McHarg are a historical model that combines flood prevention and recreation space construction. If landscape architectures can't create new relaxing home for victims, they'll be forced to leave their hometown after they lost their families. Landscape planning principle is important because it requires collaboration among other professions (Civil engineering, Architecture). After 2011 earthquake and tsunami, Japan spent 70 trillion yen on reconstruction plan, but 100 thousand people left their hometown, moving to the other big cities. We achieved relocation site planning with Japanese government's historical database which was prepared for McHarg's ecological planning by various kind of professionals. Shinchi town's population has recovered by bottom up planning process and our site suitability analysis using the above landscape principle and historic data. We can carry out cost-effective resilience by integrating cross-sector expert's evaluation and civil participation for bottom-up planning process.





		Population ratio of 2010 to 2015	Population transition of 2010 to 2015
1	洋野町	-6.8	-1,219
2	久慈市	-3.3	-1,228
3	野田村	-10.9	-505
4	普代村	-9.5	-292
5	田野畑村	-9.9	-382
6	岩泉町	-8.9	-965
7	宮古市	-4.8	-2,861
8	山田町	-15.0	-2,791
9	大槌町	-23.2	-3,544
10	釜石市	-7.0	-2,762
11	大船渡市	-6.6	-2,669
12	陸前高田市	-15.2	-3,543
13	気仙沼市	-11.7	-8,572
14	南三陸町	-29.0	-5,054
15	石巻市	-8.5	-13,590
16	女川町	-37.0	-3,717
17	東松島市	-7.9	-3,385
18	松島町	-4.4	-661
19	利府町	5.6	1,887
20	塩釜市	-4.1	-2,295
21	七ケ浜町	-8.7	-1,765
22	多賀城市	-1.5	-932
23	仙台市	3.5	36,199
24	名取市	4.9	3,585
25	岩沼市	1.2	517
26	亘理町	-3.6	-1,247
27	山元町	-26.3	-4,390
28	新地町 Shinchi-town	0	-4
29	相馬市 Shoma-city	2.0	758
30	南相馬市	-18.5	-13,145
31	浪江町	-100	-20,905
32	双葉町	-100	-6,932
33	大熊町	-100	-11,515
34	富岡町	-100	-16,001
35	飯舘村	-99.3	-6,168
36	葛尾村	-98.8	-1,513
37	川内村	-28.3	-799
38	川俣町	-7.0	-1,090
39	田村市	-4.8	-1,922
40	楢葉町	-87.3	-6,724
41	広野町	-20.2	-1,095
42	いわき市	2.1	7,095

Population flow into big cities

Why did Shinchi town recover its population in spite of declining the population of 100,000 people in the surrounding disaster areas. How did Landscape architect commit this reconstruction?

Temporary residence of *difficult-to-return zone's* dweller and nuclear power restoration workers

28
Shinchi town

29
Soma city

Hill side

Sea side

Shinchi site A in 2012

Shinchi site A in 2015

Shinchi site B in 2012

Shinchi site C in 2012

Soma site Ain 2012

Soma site A in 2015

Shinchi site C in 2015

Shinchi site B in 2015

Soma site B in 2012

Soma Relocation site B in 2015

Soma site C in 2012

Soma site C in 2015

Shinchi town's relocation sites

Revocation of relocation

Soma city's relocation sites

0 1.25 2.5 5Km

High Low

Holistic-disaster risk