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PACIFIC CONSULTANTS CO.,LTD.



2015 APRU-IRIDeS Summer School

Earthquake Reconstruction Operations in Ofunato



July 21, 2015

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PACIFIC CONSULTANTS CO.,LTD.

Comprehensive Project Planning Dept.

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The purpose of my presentation

CONTENTS

- 01 Self-Introduction**
- 02 Introduction of Ofunato**
- 03 Overview of the Earthquake Reconstruction Work**
- 04 Noted Points on the Project of Relocation to Uplands**
- 05 Proposal based on the Experience in Ofunato**



01. Self-Introduction

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My Background

- Academic History

- 2003: Bachelor (Civil Engineering Section, Faculty of Science and Technology, Waseda University)
- 2005: Master's Degree (Graduate School of Frontier Science Environmental Studies Department, University of Tokyo)

- Career

- 2005: Entered, Pacific Consultants Co., Ltd.
 - 2005~2010: Engaged in domestic development and planning operations in Tokyo
 - **2011~2014: Engaged in the earthquake reconstruction operations in Ofunato**
 - 2014~2015: Assigned to the International Research Institute of Disaster Science ( 災害科学国際研究所), Tohoku University
 - 2015~ : Engaged in domestic development and planning operations in Tokyo

History of the Reconstruction Work (2011–2014)

March 11, 2011: The Great East Japan Earthquake and Tsunami

- ↳ – April to December, 2011: Corresponding project in Sendai
- December, 2011 to September, 2014: Corresponding project in Ofunato
 - **Opened a field office in Ofunato** for the corresponding project for actual reconstruction work





02. Introduction of Ofunato

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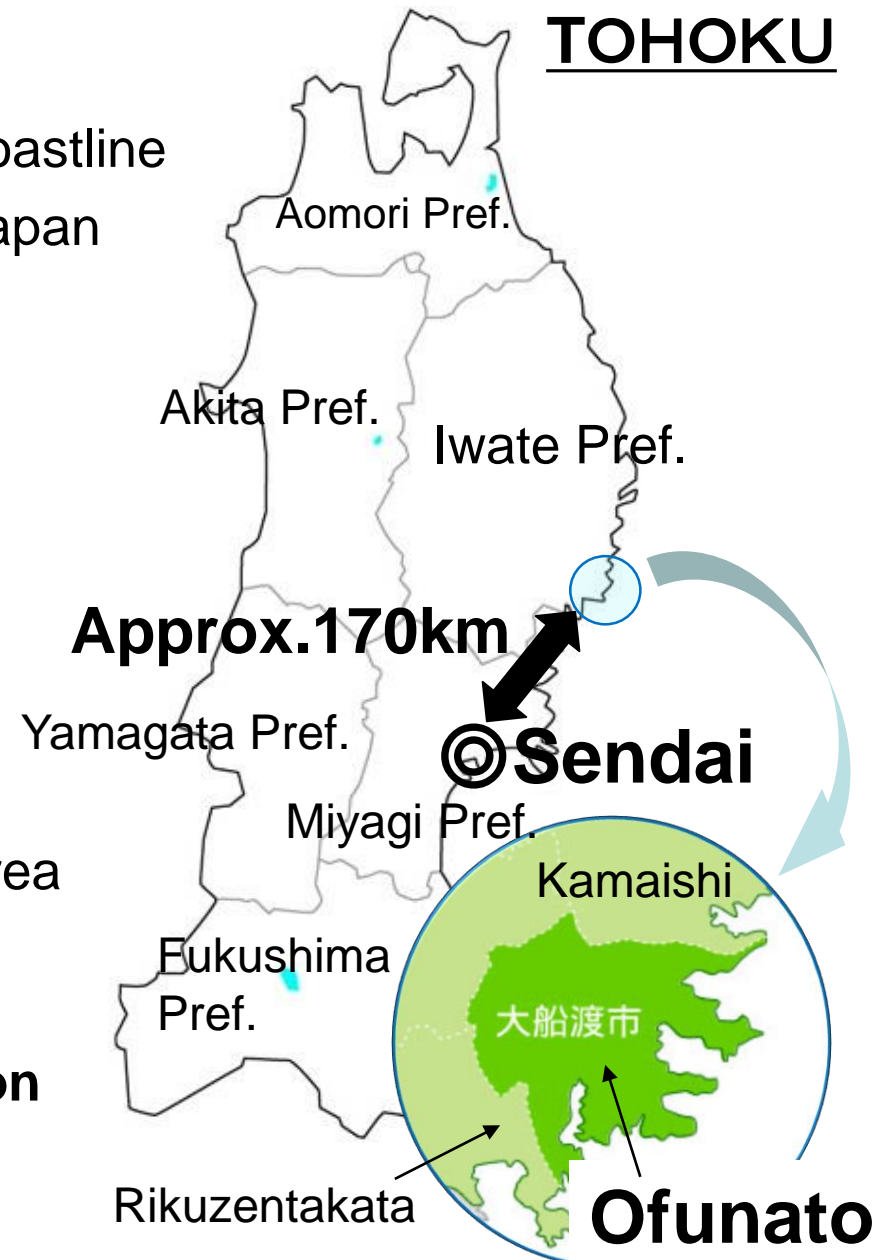
About Ofunato City

■ Features

- **Steep topography** with spreading typical rias coastline
- Flourishing town of the leading water industry in Japan
- Population: 38,850 (as of Feb. 2015)
- Area: 323.30 km²

■ Damages

- The arrival of the tsunami: maximum **11.8m**
(Japan Meteorological Agency observation)
⇒ Flooded areas: **Approx. 2%** of the total city area
- Human casualties Fatalities: 340
 Missing persons: 79 } **Approx. 1% of population**
- Damaged buildings: 5,565 households



Area Affected by Tsunami in Ofunato (immediately after 3.11)



Area Affected by Tsunami in Ofunato (the Present (2015))





03. Outline of the Reconstruction Project

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Contents of the Earthquake Reconstruction Town Planning Project

- **There are a variety of projects for the earthquake reconstruction work.**
 - Disaster Recovery Project
 - Roads
 - Water supply, sewerage
 - Rivers
 - Coastal conservation facilities
 - Fishing harbors
 - Farmlands
 - Reconstruction Planning and Plan Promotion
 - Disaster Danger Zone Setting
 - Relocation to Uplands
 - Land Readjustment Project
 - Disaster Public Housing Development Project etc.

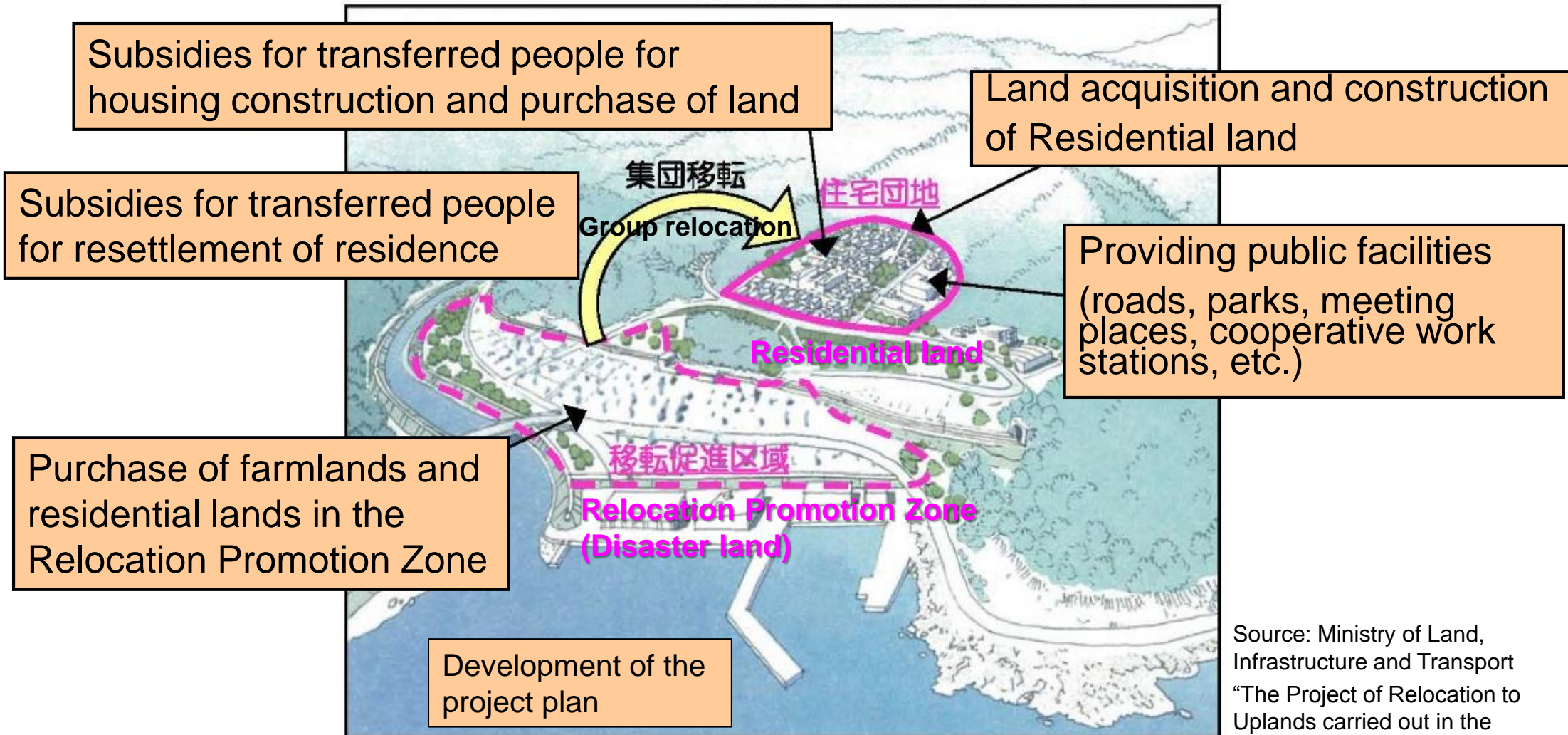


Difference between the Earthquake Reconstruction projects to normal projects

- ① Proceeding verification of **various projects at the same time.**
- ② The enactment of the law, "Great East Japan Earthquake Reconstruction Special Zones Act", was taken 9 months after the earthquake, and special provisions were announced one after another.
Therefore, **the requirements for planning were not confirmed easily.**
- ③ **How to fill the gap between intention of the residents and business on the feasible contents,** we went forward by trial and error because there was no precedent.

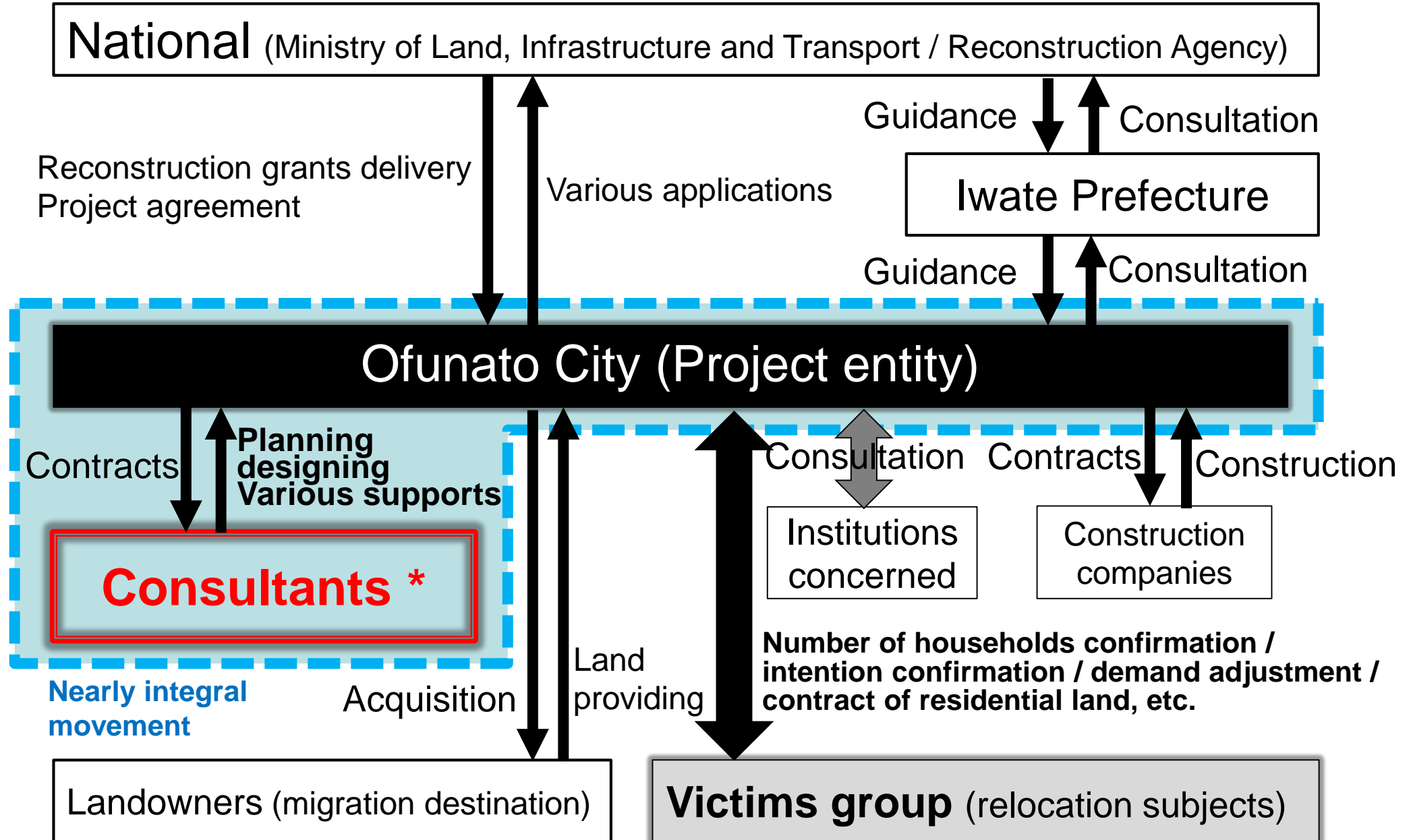
Example of project that I was responsible for: Relocation to Uplands

Image of the Project of Relocation to Uplands



Source: Ministry of Land, Infrastructure and Transport
"The Project of Relocation to Uplands carried out in the Great East Japan Earthquake affected areas."

Framework of the Project of Relocation to Uplands



***Joint Venture**

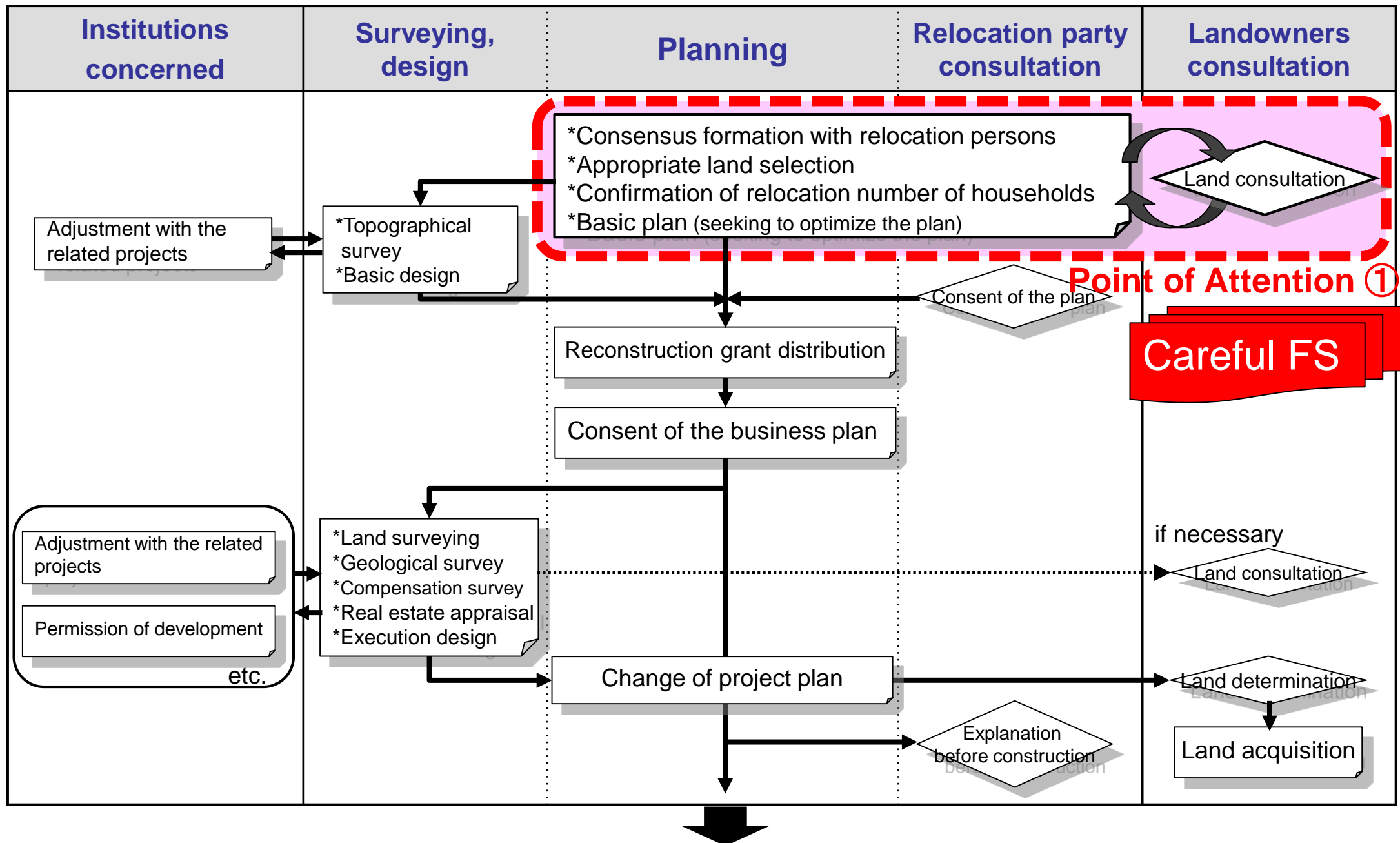
For each district (within city limit: 21 districts, 371 households)



04. Noted Points on the Project of Relocation to Uplands

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Outline of the Verification Flow of the Project of Relocation to Uplands and Points of Attention (1/2)

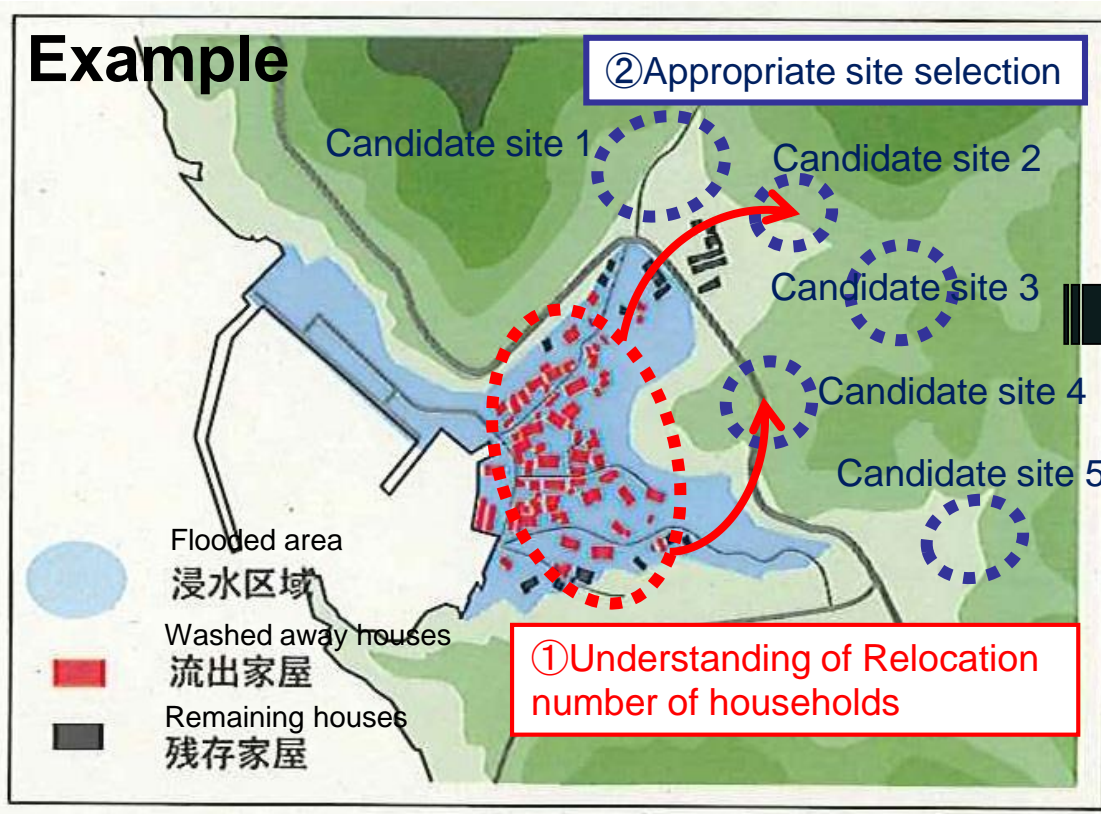


Point of Attention ①: Careful Feasibility Study

Appropriate residential land is less on the hill in the Ofunato City.

- ➡ It took the time to **select the appropriate land** that corresponded to the demands from relocated person and satisfied the required number of residential lots.

Example



Example of evaluation

Candidate site	1	2	3	4	5
Required number of lots	○	△	△	△	×
Land acquisition	×	○	○	○	△
Project cost	×	○	△	○	○
Laws and regulations	×	△	△	○	○
:					
Comprehensive evaluation	×	◎	△	◎	○

If the number of residential lots is not enough in one residential site, 2 sites will be used in combination.

Ofunato Bay



Configuration of the land category of the city

Forest: 85%, Residential land 4%

Characteristic estates in Ofunato (Insertion type residential site)

■ Features

- Close to the existing settlements and easy to maintain the community.
- Requires less operating expenses
- Needs shorter construction period



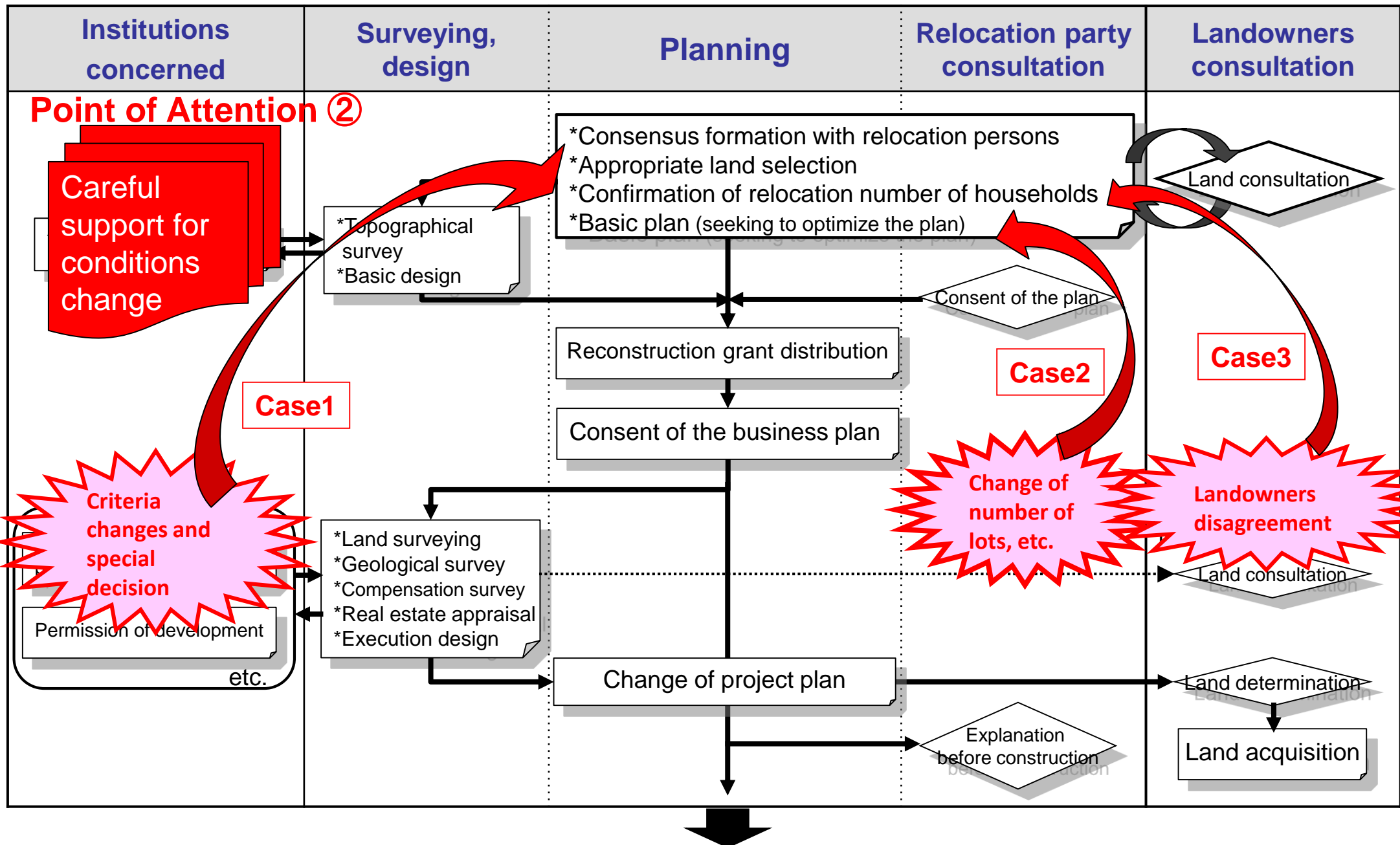
Struggle Point

- *Because the residential lands existed in the neighborhood, various demands had been generated from local people in implementing the design.
- *It has taken a great deal of time to adjust their requests resulting in delays of construction.

Devised Points

- *Adjustment focused on the key person (detailed demand, etc., were coordinated by the local organizations)
- *Conducted community based design that takes into account the opinions of the detailed level.

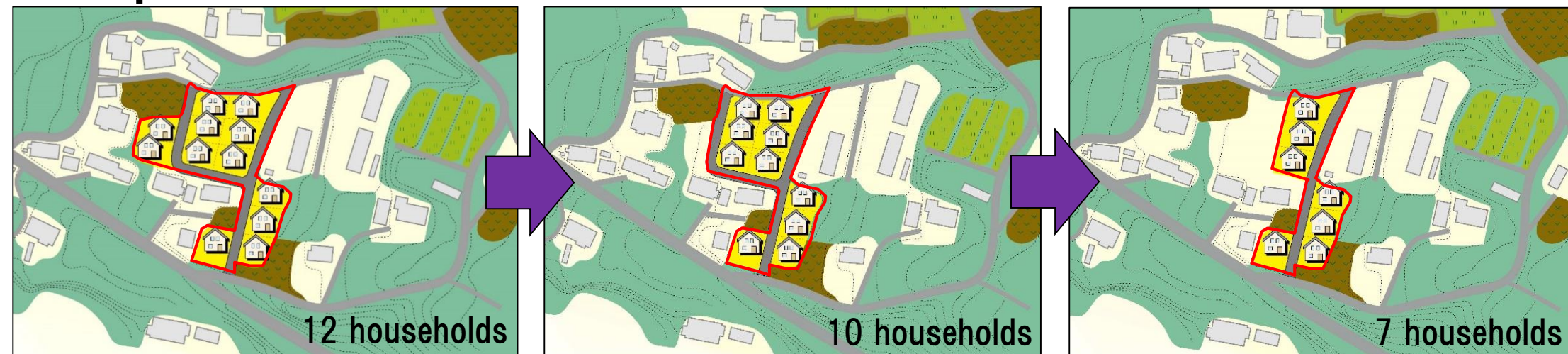
Outline of the Verification Flow of the Project of Relocation to Uplands and Points of Attention (2/2)



Point of Attention ②: Careful support for the change in requirements

- While it took time to verify the town planning, the thought of relocated person began to change (requirements such as the number of lots changed).
 - A **land** is a prerequisite for normal residential land development.
 - However, **Relocated Persons** becomes a prerequisite for the reconstruction project.
 - In Ofunato, the plan was changed each time a relocated person changed.
(Redesigning / landowners renegotiation)
- ➡ **Therefore, there was very little difference between those who transferred and the number of lots available.**

Example



Situation of current Ofunato

Photographed November 2014

**Normal type
residential site**



**Insertion type
residential site**



❌ The land forming has been sequentially completed and housing construction started.
Relocation to the new houses has been completed in some locations.



05. Proposal Based on the Experience in Ofunato

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Contents of the proposal

- 1. Commitment to the affected areas caused by the Great East Japan Earthquake**
- 2. Preparations for future disasters**

Proposal 1: Commitment to the affected areas must be continued

- The disaster areas will require more academic involvement in the future.

After the disaster - until now

Large amount of national funding

Officials and private sectors from nationwide

Manpower

Resources

Disaster affected local governments

Emergency hardware provision became centered.

In future

Reduced National funding

Manpower and resources disappear.

Various challenges remain in various locations.

*Living environment improvement
*Aging / depopulation problem
*Regional activation etc...

Hardware provision was completed.

Disaster affected local governments

Expect active involvement

Study results

Support

Proposal 2: Preparations for future disaster

Part1: Planning of the framework on Reconstruction **Town Planning in the Event of a Disaster**

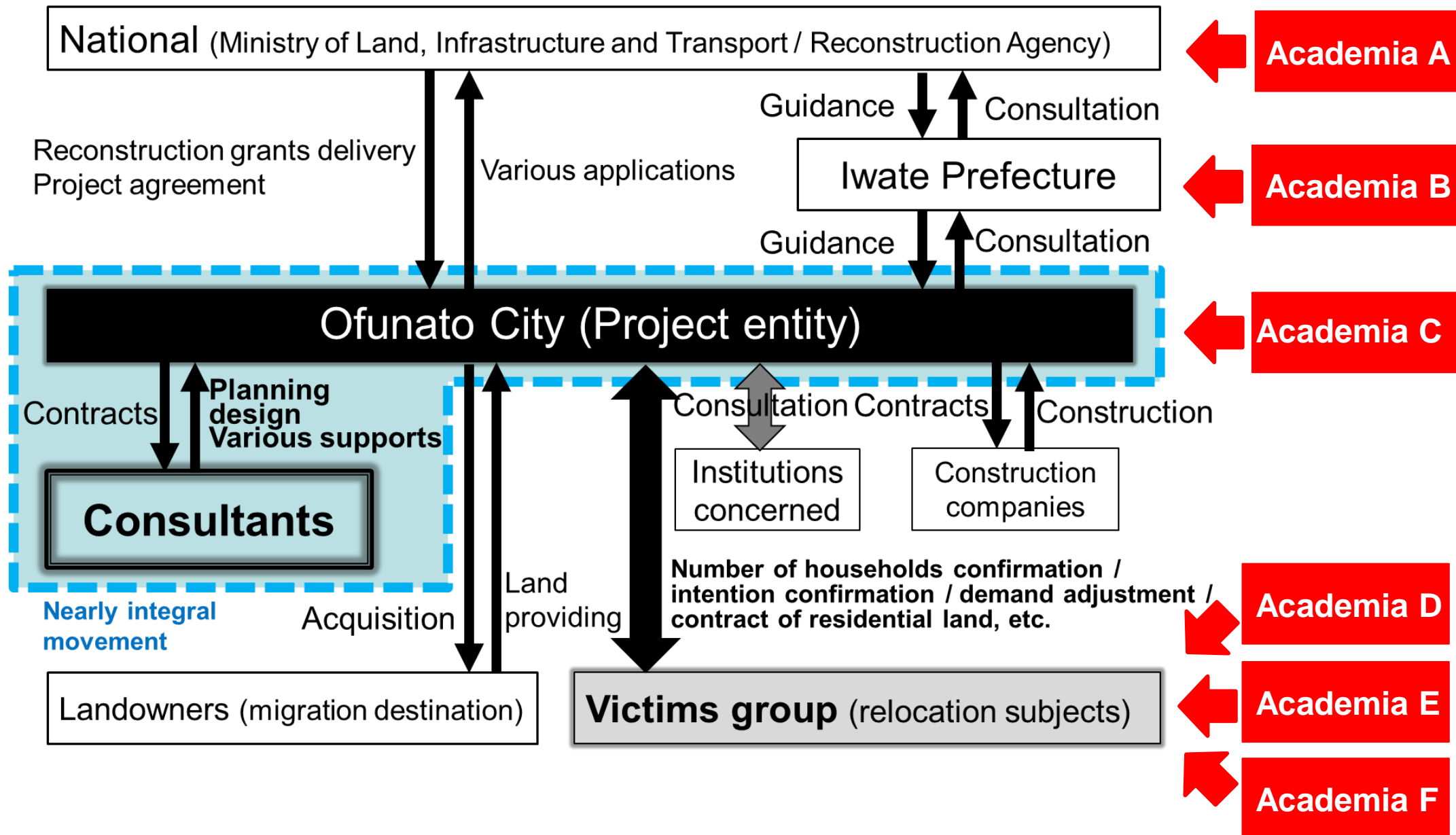
<Background>

- Disaster municipality must take action toward the victims immediately after the disaster. The municipality ran about in confusion while not knowing how to take advantage of external support (Universities/Academia, Consultants, etc.).
- On the other hand, disaster residents increased the distrust and dissatisfaction against the government that do not announce reconstruction policies.
We experienced residents, who at first, were cooperative becoming uncooperative as time elapsed.

<Proposal>

- **We need the framework of the initial system mechanism on reconstruction town planning when the disaster occurred.**
- We should hand down the framework before the acquired experience is forgotten.

e.g. Academia in Ofunato



Proposal 2: Preparations for future disaster

Part2 : Communication Gap Improvement Between Academia and Consultants

<Background>

- Because each party did not know "what is possible / what is not possible", each party requested excessive expectation to the other and it produced excessive disappointment.
(It was particularly evident with the verification speed required reconstruction projects.)
- Academia and consultants must understand that their position and work are different. Academia are not almighty. Consultants cannot solve by themselves.
 - The purpose of academia ■■■the pursuit of ideals and universalization and generalization of academic knowledge
 - The purpose of consultants ■■■Realization of contents requested by site (customer)

<Proposal>

- A platform where academia and consultants can discuss equally on a daily basis is desired.



Conclusion: Things I felt when I worked in the disaster areas

- The actual good points, issues and problems of the disaster area cannot be found / understood unless we stay long in the field. **(Specialty of Consultants)**
- If we stay longer on the site, we will certainly understand the circumstances of the site, but thereby difficult to take an objective judgment.
Furthermore, since we are close to the customers, we will be strongly influenced by the intention of the customer. **(Weak Point of Consultants)**

<Conclusion>

- For building back better, cooperation of academia and consultants is essential.
- To be able to cooperate in the event of a disaster, Prior Preparation is important.





Thank you!

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