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Original article

Legal and constitutional system of very large sea wall construction of recovery affairs from Great East Japan Earthquake disaster and decision making of fishery villages

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Introduction

Very large sea wall construction was executed for recovery from Great East Japan Earthquake (GEJE) disaster in 2011 along the coasts of the Pacific in Tohoku District of Japan. The affairs aimed at to protect the margin of national land and disaster risk reduction of human habitat.

Social and legal systems of these coastal construction recovery affairs were analyzed. Seacoast law, acts related to land use, disaster recovery special law and real estate management social customs were very complicated in usual times. When the disaster recovery, governmental systems were collapsed and degraded, then all sectors could not solve and change these latent problems.

Fishery villages were changed totally by big construction project to move human habitat to the upper hills and covered with concrete protection facilities. Originally fishery people judge their circumstances for fishery activities by various senses. Then, shutting the visual openings of the fishery villages is very serious problem for their personal and professional life.

Reasons of this serious disconnection was analyzed in terms of fishery village and community situation.

Japanese Legal Scheme and Disaster Recovery Construction Affairs

Japanese coastal areas have been divided into sections of administrations which have each legal system based on laws and acts. Shoreline conservation planning are mainly covered by the seacoast act [1]. Hinterland planning has several types of land use as agriculture, conservation forest, industry and residential. Coastal area planning is not based on natural landform but legal static lines. Such plans cannot adapt to dynamic changes of shoreline as erosion and ground sink. Disaster recovery projects have time limit of three years generally. This situation was ordinary before and after GEJE 2011. Great tsunami and earthquake forces could not change legal scheme at that time.

National disaster recovery construction project was planned in 2011. Almost big scale construction should be executed in 5 years. JEGE was the biggest coastal disaster in modern Japan, but basic area plan and management legal scheme were not revised.

To protect seacoasts from outer forces of the sea, Japanese standard methodology has been set hard facilities at the shoreline which registered on the coastal policy map. These administrative lines are essential to estimate land and property tax of local government and individual owners.

Then, big and hard coastal protection facilities were constructed at the sandy beach eroded by tsunami and ground sink (Fig. 1). Long line seawalls which do not adapt the natural geomorphology are output of land use plan (Fig. 2).

Fig. 1. Seawall basement (Sendai, Miyagi).

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Fig. 2. Protection seawall by national recovery project (Sendai, Miyagi).

Situation of fishery community decision making on disaster recovery plan

This time limit of recover affairs was the biggest barrier for community based decision making which needs basic knowledge and understanding.

About 20,000 casualties of GEJE of coastal areas could not allow the survivors to think about future plan of non-residential areas as seacoasts and rivers. Each family and individual should decide life plan after GEJE. Fishery villages lost residents, fishery boats, facilities and infrastructure. National and private fund supported restart of fishery.

But almost infrastructure as ports, roads, seawalls and dikes were under the public works administration. Then sections of construction of prefectural and national government hurried up to finish the project in 5 years. Then, disconnection between community-based usual decision making and administrative construction plan was occurred.

Fig. 3. Window to see the sea in the seawall (Kesen-numa, Miyagi).

Cases of fishery villages and fishery port areas in Miyagi prefecture were analyzed. Especially, comparative studies the process of decision making Kesen-numa City revealed that participatory process in decision making of the villages was critical. Administration stratum and sectionalism were obstacle to make the residential design freely.

Conclusions

Many lessons learned of this GEJE restoration projects are still remained at the sites. Fishery villages and communities are relatively smaller than cities. They are formed along natural conditions as geomorphology and ecosystems. Use of coastal areas are mosaic of ports, houses, roads, agricultural fields and cities. But most land management laws and acts are for cities to apply national land general policies. Integrated social systems for nature-harmonized areas should be formed rapidly.

Community decision making process should be respected. Enough time for education for social and natural systems to decide rationally and build sustainable community by the residents. And after big disaster, communities and individuals are severely damaged. Administrations should think about their mental situation. But GEJE recovery project did not allow to hold enough time and rooms. Complicated situations called "shock doctrine" were occurred by large-scale development. Conflicts among stakeholders in the community were occurred. Such a situation discourage damaged fishery village residents to stay and live damaged area.

Japanese coastal zoning policies were revised after serious great disaster partly [2]. But social systems related to basic land and ecosystem use should be revised and adopted before disasters. In recent years, numbers and scales of natural disaster getting large. These lessons should be analyzed and utilized to prevent next recovery project in the world.

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