35) Recovery and reconstruction of railroads, ports, and airports

[emergency response phase, recovery phase, early and late reconstruction phases]

[Issues] (1) Recovery and reconstruction of regional transportation systems, such as railways
(2) Recovery and reconstruction of ports
(3) Recovery and reconstruction of airports

[Situation and issues created by the Great East Japan Earthquake]

Transportation and logistics networks, such as railways, ports, and airports, were heavily damaged in the Great East Japan Earthquake. Emergency responses were required to restore these networks as quickly as possible to save lives and supply aid.

In the full-scale recovery and reconstruction process that followed, local transportation networks were required to reflect changing areas and declining/aging populations, as well as to build new disaster-resilient networks both in and outside regions, and to revitalize the local economy as a result.

[Initiatives in the aftermath of the Great East Japan Earthquake]

・Recovery and reconstruction of railways (Issue 1)

<Emergency response>

Railway and bus operators worked together to operate replacement bus services on the JR Yamada Line, Sendai Municipal Subway Namboku Line, Sendai Airport Access Line, and other lines that were not in service, while railway operators worked hard to restore derailed trains and damaged elevated bridges and tracks. Due in part to seismic reinforcement and other measures, most lines were restored in one to two months, with the exception of damaged routes along the coast. In addition to transporting support personnel, JR Freight's emergency oil train played an active role in transporting fuel that had been depleted in disaster areas, detouring along the JR Uetsu Line, JR Ou Line, Aoimori Railway Line, and Iwate Galaxy Railway Line to enter Morioka.(1)

<Recovery and reconstruction>

The JR Yamada Line's coastal route (Miyako—Kamaishi), which had been out of service, reopened in March 2019 with the transfer of control to Sanriku Railway, which had been operating in the coastal areas of Iwate Prefecture since that time. This move was made in response to the desire of local authorities located along the railway line to restore operations and with the aim of creating a sustainable railway through efficient, community-based management. This will connect 163 km of Iwate Prefecture's coastline into a single line, making Sanriku Railway the longest third-sector railway company in Japan, and is expected to play a role in supporting reconstruction efforts.(2)(3)

In light of advancing motorization and decline in railway passengers before the earthquake, the JR Kesennuma and Ofunato lines resumed operations in December 2012 and March 2013, respectively, through Bus Rapid Transit (BRT) services combining bus routes and general roads, which allowed operations to be restored at lower costs and in shorter times than could be achieved by restoring rail services. These lines are highly convenient, with new stations being built or relocated

and allowing for flexibility in route changes made in line with reconstruction city planning (Case 35-1).

In addition to railways, efforts were also made to provide bicycle parking for electric carts for senior citizens who moved to higher ground at bus stops as a form of local transportation to ensure mobility for disaster victims.(4) Ishinomaki City and the Japan Car Sharing Association also worked together on an initiative to operate a car sharing project,(5) which was instrumental in building communities, as well as improving local mobility issues.

→*Related topic: 50) Restoring tourist facilities and functions*

・Recovery and reconstruction of ports (Issue 2)

<Emergency response>

In the immediate aftermath of the disaster, the national government issued a request to the Japan Dredging and Reclamation Engineering Association and other organizations, with which the Tohoku Regional Development Bureau and other bodies had concluded agreements in advance, to open sea routes. From March 14, the day after the tsunami advisory was lifted, the Regional Development Bureau and port administrators (Iwate, Miyagi, Fukushima, and other prefectures) opened up sea routes at major ports with the use of shipping vessels owned by members of the Japan Dredging and Reclamation Engineering Association and other organizations. With the arrival of the first ships at the ports in Miyako and Kamaishi on March 16, port and land transport companies began to transport emergency relief supplies received at the ports. Systems had been launched and implemented for this type of work to restart operations and the subsequent emergency restoration of port facilities, including the establishment of a liaison and coordination committee by the Tohoku Regional Development Bureau that included the participation of construction companies, submarine operators, and others from the private sector.(6)

<Recovery and restoration>

The Tohoku Regional Development Bureau and administrators at each port affected by the disaster established a council that included representation from local authorities and companies located at ports. Restoration and reconstruction work on port facilities proceeded based on restoration and reconstruction policies and timetables developed by the council after examining how logistics functions could support industrial recovery.(6)

These activities resulted in the restoration or new construction of levees and other structures for disaster prevention, as well as the formulation of port BCPs at key ports and the implementation of disaster drills based on these BCPs. From an economic perspective, some ports that had been affected by the disaster, such as the Port of Sendai-Shiogama, Hachinohe Port, Port of Onahama, and Kamaishi Port, handled more cargo than before the disaster, reaching record highs. This is due to the development of enhanced port functions (e.g., construction of shipping channels, quays, wharves, cargo handling machinery), construction of high-standard roads behind ports, and an increase in the number of related companies locating to these areas as a result. The number of domestic and international cruise ships calling to the Tohoku region has also increased steadily and reached a record high in 2019.(7)

・Recovery and reconstruction of airports (Issue 3)

<Emergency response>

The Ministry of Land, Infrastructure, Transport and Tourism's TEC-FORCE (emergency disaster response team) began emergency drainage using drainage pump vehicles at Sendai Airport on March 13, and the SDF and U.S. military began the process of removing debris from March 14. Partial operations resumed on April 16, with the airport subsequently serving as a base for the U.S. military's TOMODACHI operations. Commercial flights resumed on April 13.(8)(9)

During the period of time Sendai Airport was out of service, support workers from national aviation authorities landed at Hanamaki, Yamagata, and Fukushima airports. For about one month after the disaster, the airports operated 24 hours a day, serving as bases for transporting relief workers and supplies to disaster areas. Medical services were also provided, including the establishment of an airport SCU (Staging Care Unit, temporary medical facility for wide-area transport bases) at Hanamaki Airport, and stays by DMATs (Disaster Medical Assistance Teams) at Fukushima Airport.(2)(10)(11)(12)

<Recovery and restoration>

Restoration and reconstruction efforts at Sendai Airport included the restoration of damaged facilities and equipment, as well as improvements to earthquake resistance.(13) In May 2013, Miyagi Prefecture launched the Sendai Airport Supporter Meeting to Achieve 6 Million Passengers & 50,000 Tons of Freight, a public-private partnership that aimed to double the number of passengers and volume of cargo handled at Sendai Airport from previous peak periods. Five meetings were held to build momentum and disseminate information on outsourcing operations at Sendai Airport to the private sector, which was achieved in July 2016.(14)(15)(16)

[Lessons learned and know-how gained]

(1) Quickly implement emergency responses based on collaborative agreements developed with various organizations in advance.

・ Collaboration with private companies and local authorities is essential for prompt and accurate emergency aid for transportation and logistics networks and emergency restoration of port activities in the immediate days after a disaster. A collaborative system designed for this purpose should be created before a disaster occurs.

(2) Promote the restoration and reconstruction of transportation networks with a view to the future of the region.

・ Reconstruction projects for transportation infrastructure must be implemented in accordance with local characteristics, while also taking sustainability into account. Restoring infrastructure back to its original form may not be the only option available, so it is necessary to consider innovative ideas, such as introducing BRT to restore railway operations, enhancing port functions, and applying the expertise of the private sector.

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