

Chapter 5 Reconstruction of Homes and Cities

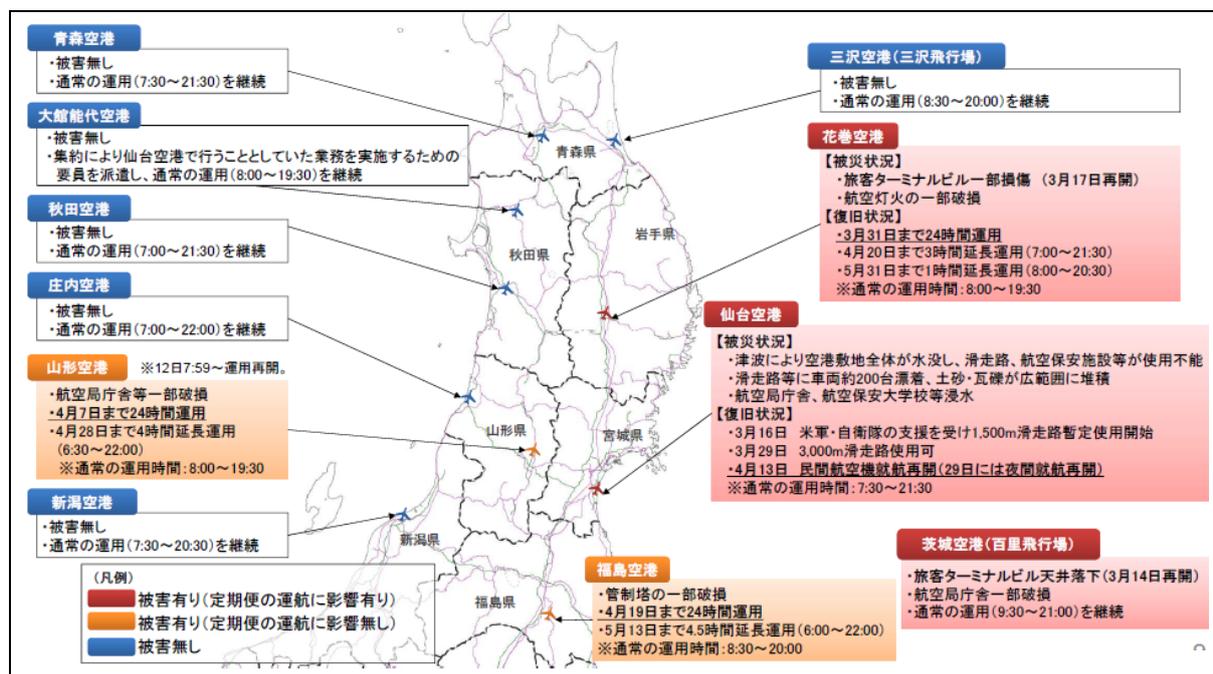
Section 7 Airports

1. Overview of damage

(1) Overview of damage to airports around the disaster-affected areas

Four airports — Sendai, Hanamaki, Fukushima, and Ibaraki — sustained damage. At Hanamaki Airport and Ibaraki Airport, the terminal ceilings fell. At Fukushima Airport, the glass of the control tower was completely destroyed. All airports, however, resumed operations on the same day as the earthquake.

Figure 5-7-1 Damage at airports in the areas affected by the Great East Japan Earthquake and the status of restoration and operation



Source: Ministry of Land, Infrastructure, Transport and Tourism, “Summary of the Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (Related Materials)” (March 2015)

Sendai Airport, on the other hand, was severely damaged by the shaking caused by the massive earthquake and the tsunami that arrived about 70 minutes after the earthquake occurred. Seismic measures had been taken in advance for basic facilities such as runways with the damage being minimal there. However, soil and debris did spread over a wide area due to the tsunami, and more than 2,000 vehicles drifted up onto runways, taxiways, and aprons, blocking facilities. Moreover, facilities such as the airport’s electrical facilities and air navigation radio facilities were damaged as a result of submergence, which meant that the airport stopped functioning.

Furthermore, the Sendai Airport Access Railway, which is the main means by which to access Sendai Airport, was severely damaged as a result of occurrences such as the flooding of the airport tunnel and the inundation of operation control facilities.

Figure 5-7-2 Disaster situation at Sendai Airport



Source: Ministry of Land, Infrastructure, Transport and Tourism, “Summary of the Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (Related Materials)” (March 2015)

(2) Evacuation situation at Sendai Airport

After the tsunami warning (giant tsunami) was announced, 1,422 people, including passengers, staff and evacuees from surrounding areas, evacuated to the passenger terminal building of Sendai Airport. After that, they stayed in the passenger terminal building for two days after the earthquake to ensure safety in a situation where tsunami warnings and other warnings continued to be issued.

In the passenger terminal building, places for people to stay were set up according to their classifications of passengers, Natori citizens, Iwanuma citizens, etc. in order to ascertain information such as the number of evacuees present. Moreover, the evacuees were provided with blankets (approximately 200 blankets) prepared for emergency use by Sendai Airport Building Co., Ltd. and food for free, which included souvenir products from building tenants.

Figure 5-7-3 Evacuation situation at Sendai Airport



Source: Ministry of Land, Infrastructure, Transport and Tourism, “Summary of the Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (Related Materials)” (March 2015)

2. Efforts for recovery and reconstruction

(1) Emergency recovery

1) Partially resuming operations at Sendai Airport (emergency drainage and debris removal)

The restoration of Sendai Airport was carried out in stages, with work including debris removal work undertaken in cooperation with the JSDF and the US military, emergency pavement restoration work, and the delivery and installation of facilities such as temporary power supply facilities and control and communication facilities from other airports. At the same time, with the cooperation of related organizations such as TEC-FORCE (Technical Emergency Control Force) of the Ministry of Land, Infrastructure, Transport and Tourism, drainage work around the airport and the clearing of access roads were carried out.

As a result of this, emergency rotorcraft became available on March 15, four days after the earthquake. Five days later, on March 16, a runway extension of 1,500 meters was secured, which made it possible for fixed-wing aircraft to take off and land for the transport of emergency supplies. A total of 87 transport aircraft loaded with relief supplies arrived at Sendai Airport as part of Operation Tomodachi undertaken by the U.S. military. Subsequently, on March 29, the use of a 3,000-meter runway became possible, including at night. On April 13, the use of private passenger aircraft became possible, although the use of damaged terminal buildings and other facilities was still largely restricted. As a result, special flights such as those flying to Haneda and Osaka became operational, connecting the disaster-affected areas directly with major cities and accelerating the restoration and reconstruction of the Tohoku region.

Figure 5-7-4 State of incremental restoration at Sendai Airport



Source: Ministry of Land, Infrastructure, Transport and Tourism, “Summary of the Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (Related Materials)” (March 2015)

Figure 5-7-5 Comparison of Sendai Airport immediately after the disaster and after partial restoration



Source: Ministry of Land, Infrastructure, Transport and Tourism, “White Paper on Land, Infrastructure, Transport and Tourism in Japan, 2010”

2) Hanamaki, Yamagata, and Fukushima Airports moving to 24-hour operation with temporary flights to the Tohoku region

The Hanamaki, Yamagata, and Fukushima airports, which resumed operations on the day of the earthquake, functioned as bases for disaster response aircraft, including rotorcraft, with organizations such as the JSDF, police, and fire department carrying out operations such as emergency and rescue operations and the transport of emergency supplies and personnel.

At Hanamaki Airport, an SCU (a temporary medical facility for wide-area transport bases) was set up at the fire station garage and wide-area medical transport commenced. DMAT (disaster medical assistance team) activities were conducted from March 12 to 18. Medical workers in 74 teams (about 360 members) from hospitals across the country gathered at Hanamaki Airport to deal with a total of 136 transported patients. For disaster relief in the disaster-affected areas on the coasts of Iwate Prefecture and Miyagi Prefecture, aircraft such as fire and disaster prevention helicopters and Japan Coast Guard rescue aircraft were accepted until May 19, with rescue teams from public organizations landing 1,117 times in total. Furthermore, from March 15 to May 18, activities were conducted such as reshipping of relief supplies transported by JSDF aircraft and US military aircraft from bases in Komaki (Aichi Prefecture), Yokota (Tokyo), Iruma (Saitama Prefecture), Gifu, and Chitose (Hokkaido) for land transportation to the disaster-affected areas in Iwate Prefecture and Miyagi Prefecture.

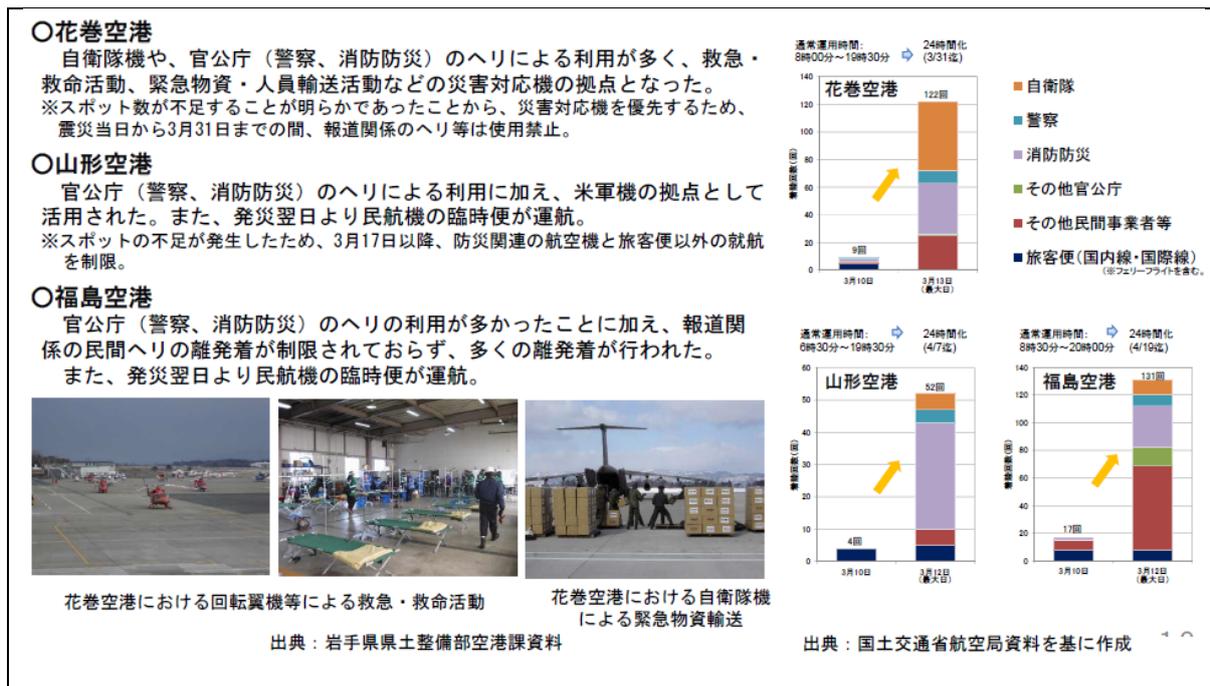
Yamagata Airport accepted emergency fire rescue teams, and from March 12 to May 31, fire and disaster prevention helicopters, helicopter ambulances, and police helicopters took off and landed 738 times in total. The same period also saw occurrences such as usage by the JSDF and the acceptance of US military aircraft, with 168 and 158 takeoffs and landings being undertaken respectively.

At Fukushima Airport, the DMAT operated from the airport’s snow removal depot from March 12 to 14 with the assumption being that the JSDF would be transporting the injured. Rescue operations were also undertaken by organizations arriving from overseas, starting with Singapore on March 12, units from South Korea, New Zealand,

Russia, and other countries traveled via Fukushima Airport to Fukushima Prefecture, Sendai City in Miyagi Prefecture, and to Rifu Town by bus or truck. Moreover, JSDF units summoned from all over the country used Fukushima as a base to transport relief supplies and undertake other such activities. In the initial stage, the items transported consisted mainly of food items such as water, bread and instant ramen, and blankets, and other items required by the evacuees. Later on, the items transported included disposable diapers, towels, toilet paper, sanitary napkins, masks, and medical supplies.

Also, in order to support swift relief operations, the Ministry of Land, Infrastructure, Transport and Tourism was flexible in the notification procedures necessary when dropping relief supplies from aircrafts. Meanwhile, the ministry issued a strong request to the effect that aircraft other than rescue aircraft refrain from flying at 1,500 ft. or below.

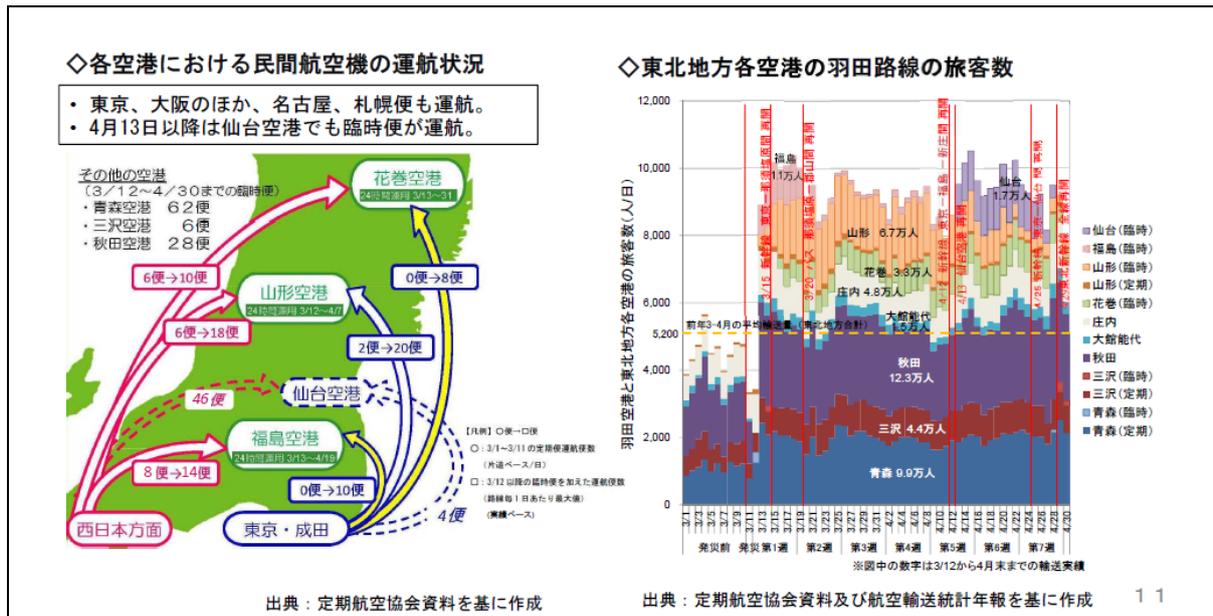
Figure 5-7-6 Usage of each airport at the time of the Great East Japan Earthquake



Source: Ministry of Land, Infrastructure, Transport and Tourism, “Summary of the Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (Related Materials)” (March 2015)

Furthermore, regular and temporary commercial flights were operated between airports in the Tohoku region and areas in Kanto, Tokai, and western Japan. A wide-area travel route was also secured as a result of linkage with temporary access buses connecting airports in the Tohoku region with major cities. These functioned as alternatives to the Tohoku Shinkansen and other train systems that were affected by the disaster.

Figure 5-7-7 Securing of wide-area travel routes by commercial aircrafts



Source: Ministry of Land, Infrastructure, Transport and Tourism, “Summary of the Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (Related Materials)” (March 2015)

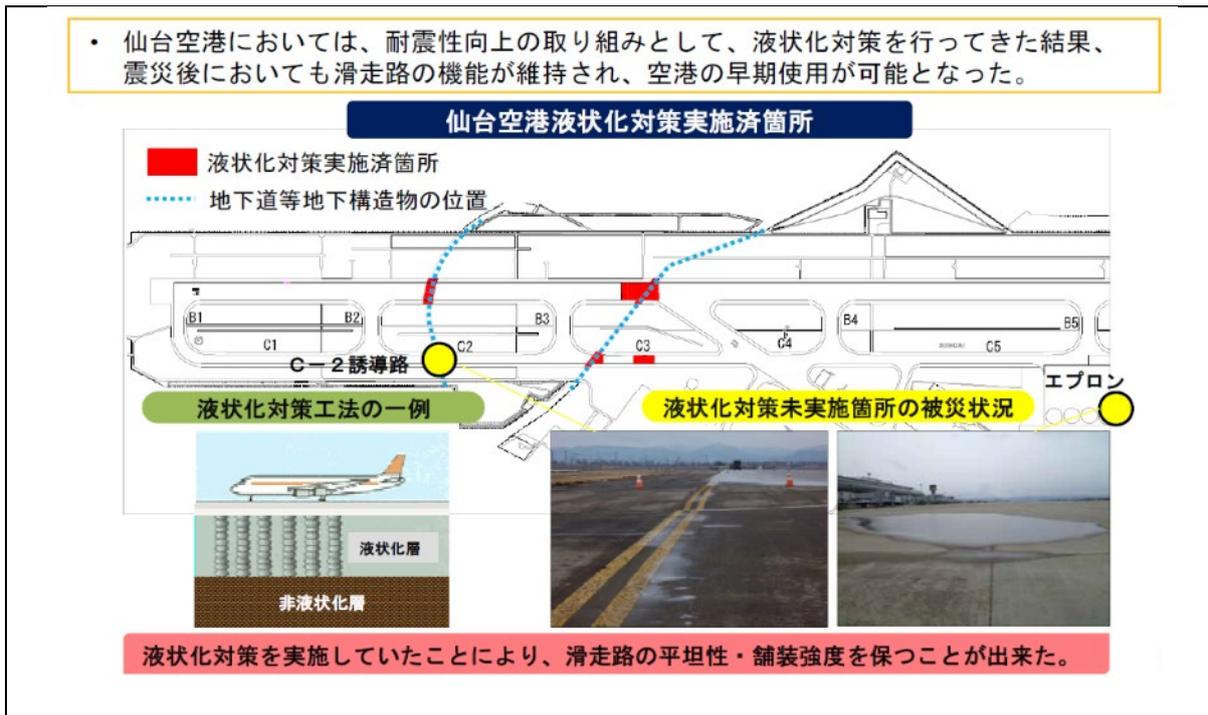
3) Rapid full-scale restoration of Sendai Airport

Sendai Airport was severely inundated by the tsunami, but the existing measures against the liquefaction of runways and other facilities resulted in the avoidance of serious damage to basic facilities. As such, early restoration work was carried out with the aim of securing runways for rescue aircraft immediately after the earthquake.

In order to establish the restricted area necessary for the early resumption of commercial aircraft operations, the minimum necessary area was secured using temporary fencing comprised of materials such as pine logs. Together with that, actions such as the removal of debris at the passenger terminal building and temporary restoration to facilitate temporary usage of the building were implemented immediately.

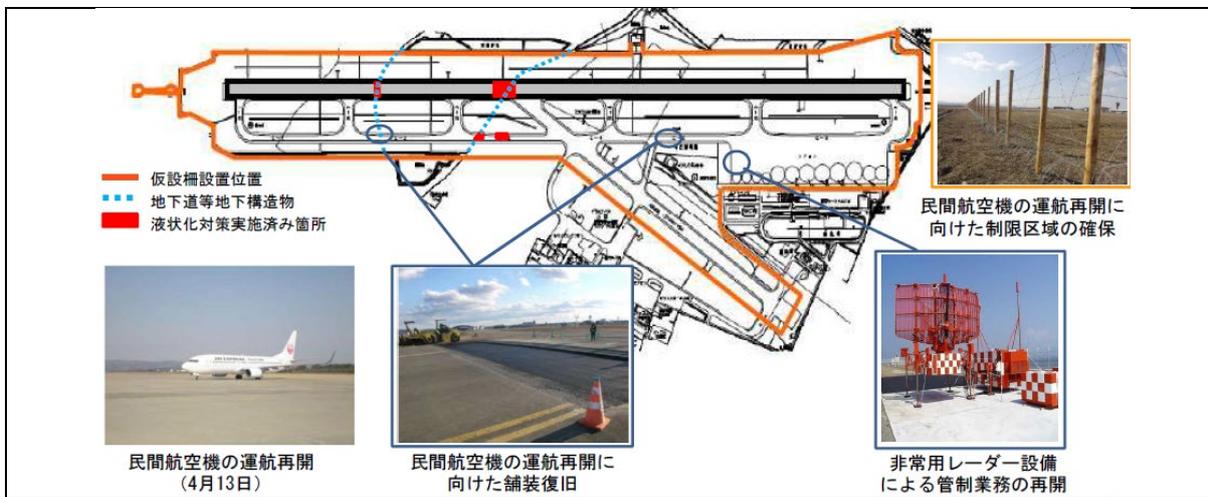
With respect to the Sendai Airport Access Line, which was severely damaged, restoration work was carried out by replacing facilities such as overhead wires and wire poles. As a result of that, operation was resumed between Natori Station and Mitazono Station on July 23, with all lines resuming operation on October 1 thereafter.

Figure 5-7-8 Liquefaction countermeasures at Sendai Airport



Source: Ministry of Land, Infrastructure, Transport and Tourism, “Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (First Meeting), Material 2” (November 13, 2014)

Figure 5-7-9 Restoring towards resumption of commercial aircraft operation at Sendai Airport



Source: Ministry of Land, Infrastructure, Transport and Tourism, “Summary of the Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (Related Materials)” (March 2015)

(2) Restoring and reconstructing

1) Development policy based on the Great East Japan Earthquake

Presented in the report titled “Ideal in Terms of Earthquake-Resistant Airports (Report by the Investigation Committee on the Ideal in Terms of Earthquake-Resistant Airports)” (Civil Aviation Bureau, Ministry of Land, Infrastructure, Transport and Tourism, April 2007), was a basic approach for improving the earthquake resistance of

airport facilities in order to maintain the aviation network as a base for the transport of emergency supplies and to continue economic activities in the areas where cargo is dispatched to and from, even in the event of future earthquake disasters which are expected to occur. It was presented as such based on the fact that airports played a role as bases for emergency rescue and rescue operations and for the transport of emergency supplies during past earthquake disasters such as the Chuetsu earthquakes of Niigata Prefecture.

Prior to the occurrence of the Great East Japan Earthquake, each airport had made steady progress when it came to earthquake resistance and other such measures implemented based on the above basic approach. They had, however, not made sufficient efforts to address the matter of tsunamis.

Based on the tsunami inundation damage that was seen at the Sendai Airport when the Great East Japan Earthquake occurred, it became important to strengthen non-structural countermeasures at airports where tsunamis may strike under the assumption of the largest class of tsunami. In order to contribute to the establishment of tsunami response systems at airports, new basic approaches were presented in the “Policy for Tsunami Countermeasures at Airports (Report of the Investigative Committee on Countermeasures Against Tsunamis at Airports)” (Civil Aviation Bureau, Ministry of Land, Infrastructure, Transport and Tourism, October 2011), which included elements such as the establishment of an emergency evacuation system to fully protect human lives and the establishment of an early restoration system to quickly restore airport functions in the event of a tsunami. The two pillars of this policy are as follows.

○ Measures for the protection of human lives (formulation of tsunami evacuation plans)

In order to protect the lives of people such as passengers at airports, relevant personnel, and local residents in the event of a disaster involving a tsunami, formulate a tsunami evacuation plan which stipulates elements such as the establishment of evacuation sites, responses to evacuees, the organization and division of roles, and the implementation of training.

○ Measures for early restoration (formulation of early restoration plan in relation to tsunamis)

In order to quickly restore airport functions for emergency and lifesaving activities, the transport of emergency goods and personnel and the operation of commercial aircraft after the occurrence of a disaster involving a tsunami, forecast the damage of the assumed tsunami and examine beforehand the contents of the tasks to be performed when such an event occurs. In conjunction with that, formulate a plan for early recovery from a tsunami to start up the implementation system immediately after the disaster occurs.

2) Airport projects

a. Project overview

For the following airports and other such facilities, which are considered to be important for maintaining the aviation network and ensuring the continuity of economic activities in the areas where cargo is dispatched to and from, and which serve as emergency transportation bases in the event of earthquakes, etc., seismic retrofitting was implemented for the government buildings to ensure the necessary air traffic control functions and the basic facilities required as a minimum.

- Sendai Airport: earthquake-resistant measures on basic facilities (liquefaction countermeasures)
- Misawa Airfield: earthquake-resistant measures on the government building
 - Implementation period: FY2012
 - Project cost: 822 million yen

Figure 5-7-10 Project involving aseismic measures on airports

東日本大震災からの復旧・復興対策【復興】

東日本大震災による被災を踏まえ、空港の耐震化を行います。

○耐震対策事業

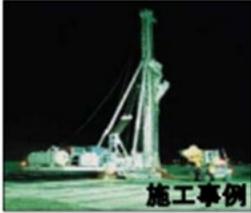
地震等被災時に緊急輸送の拠点となるとともに、航空ネットワークの維持、背後圏経済活動の継続性確保において重要と考えられる空港等について、必要な管制機能を確保するための庁舎、最低限必要となる基本施設の耐震化を行います。

直轄：事業費 8億円



仙台空港における液状化

➔



施工事例

基本施設の液状化対策

Source: Ministry of Land, Infrastructure, Transport and Tourism, “Overview of Budget Allocation Related to the Civil Aviation Bureau for FY2012”

b. Improvement effects

By ensuring the earthquake resistance of facilities such as basic facilities, the damage caused by the earthquake motion itself was minimized, and it became possible to quickly restore airport functions after an earthquake. This served to strengthen the airport’s role as a base for emergency and rescue operations and the transportation of emergency supplies, as well as its role in maintaining the aviation network and continuing economic activities in the areas where cargo is dispatched to and from.

3) Private sector consignment of operation at Sendai Airport

a. Background of project implementation

Taking into account the characteristics of the airport and the surrounding environment in the Tohoku region, Sendai Airport was expected to lead the full-scale reconstruction in the wake of the Great East Japan Earthquake in the Tohoku region by recovering and increasing the number of passengers and cargo handled and revitalizing the airport and the surrounding area.

While the public facility operation project was introduced in 2016, before that, Sendai Airport was not able to manage the airport as a whole in an integrated and flexible manner because ① facilities such as basic facilities of the airport which are owned by the government, ② passenger and cargo building facilities owned by the respective passenger and cargo building facility operators, and ③ parking facilities owned by parking facility operators, had all been operated on a separate basis.

Therefore, in order to maximize the original functions of the airport, the Ministry of Land, Infrastructure, Transport and Tourism decided to implement this project in order to have an entity with operating rights implement the airport operation project, to integrate the operations of the above facilities at the airport in question, and to realize integrated and flexible airport operation by utilizing private-sector funds and corporate management capabilities.

b. Characteristics

Sendai Airport is the first state-managed airport in Japan to introduce a public facility operation project, which is a symbolic project when it comes to reconstruction taking place in the wake of the Great East Japan Earthquake.

It is expected that the operation of runways and other such facilities as well as terminal buildings and other such facilities will be carried out in an integrated and flexible manner through the utilization of private-sector funds and corporate management capabilities to promote the revitalization of Sendai Airport and the area surrounding the airport, thereby promoting the revitalization of the Tohoku region through developments such as the expansion of the domestic and foreign exchange populations.

Moreover, the entity with operating rights for facilities such as public facilities can expect high profitability as a result of acquiring a share of the building company and carrying out projects involving terminal buildings and other such facilities together with the operation of runways and other such facilities as a unified effort.

In the promotion of this project, national government employees with the know-how necessary for airport operation were also dispatched to the entity with operating rights under the Public Employees Retirement Dispatch System of the PFI Act (Act on Promotion of Private Finance Initiative (Act No. 117 of 1999)).

Figure 5-7-11 Overview of the Sendai Airport Public Facility Operation Project

Scales of public facilities, etc.	Site area: 239 ha
Entity with operating rights	A specific purpose company (Sendai International Airport Co., Ltd.) established by the Tokyu, Maeda, and Toyota Tsusho groups
Project period	<ul style="list-style-type: none"> • 30 years (from the date on which airport operation business had commenced until the day before the 30-year anniversary date of the day of the establishment of operating rights) • With respect to the project period, it is possible for the entity with operating rights to request a further extension of the project period during the 30-year extension period (provided, however, that the end of the extension shall not be beyond the day immediately preceding the date on which 65 years have passed from the date of the establishment of the operating rights).
Project type	<p>Self-financing type</p> <ul style="list-style-type: none"> • The business operator will collect landing fees, parking facility usage fees, and facility usage fees from air transport operators, building facility tenants, etc. • The business operator will bear all costs required for the implementation of this project.
Division of roles between the public and private sectors	<p>[Public operations]</p> <ul style="list-style-type: none"> • Possession of facilities such as basic facilities at airports, implementation of air traffic control operations, implementation of approvals and authorizations, etc. <p>[Operations of the private-sector business operator]</p> <ol style="list-style-type: none"> ① Project involving items such as basic facilities at airports (maintenance and management operations for items such as basic airport facilities, operation of the same facilities and other such facilities, setting of elements such as landing fees, and the providing of notifications to and receipt of notifications from the Minister of Land, Infrastructure, Transport and Tourism) ② Project involving elements such as the operation of airport air navigation facilities (maintenance and management of airport air navigation facilities, operation of the facilities, setting of usage fees for the facilities, and the providing of notifications to and receipt of notifications from the Minister of Land, Infrastructure, Transport and Tourism) ③ Project involving environmental measures (project stipulated in Act on Prevention of Damage caused by Aircraft Noise in Areas around Public Airports (Act No. 110 of 1967; otherwise known as the Law for the Prevention of Damage by Noise Pollution Attributable to Aircraft)) ④ Other incidental projects (formulation of regulations and airport land leasing, parking facility business, shouldering of costs for measures to prevent occurrences such as hijackings, and attendance at council meetings) ⑤ Project involving items such as building facilities (passenger building facility business, cargo building facility business, aircraft fueling service business, and business conducted at airport sites by the operator) <ul style="list-style-type: none"> • Replacement investments: Replacement investments, etc. for facilities subject to establishment of operating rights are implemented by the entity with operating rights (with ownership by the national government). The national government may make replacement investments for reasons of public interest. • Investments in facilities for which operating rights are not held (not limited to replacement investment) are implemented by the entity with operating rights.
VFM	<ul style="list-style-type: none"> • An evaluation based on a comparison between the present value of profits earned during the project period when the manager, etc. personally implemented the project in question and the consideration paid for operating rights by the entity with operating rights. • According to the revenue and expenditure by airport for FY2011-2013, an ordinary loss had occurred in revenue and expenditure corresponding to this project. However, the government received 2.2 billion yen as consideration for the operating rights, so an assessment was made to the effect that VFM would be recognized for this project.

Figure 5-7-12 Arrangement plan for the Sendai Airport Public Facility Operation Project

発注者	国土交通省	事業スキーム
施設概要	空港基本施設、空港航空保安施設、駐車場施設、各施設に附帯する施設等	
事業内容	①空港運営等事業 空港基本施設等事業、空港用地等管理業務 ②空港航空保安施設運営等事業 ③環境対策事業 ④その他附帯事業 (※①～④が運営権に基づくもの) ⑤ターミナルビル等事業 (関連事業)	
運営権者	「東急・前田建設・豊田通商グループ」が設立した特別目的会社 (仙台国際空港株式会社)	
運営権対価	22億円	
VFM ※Value For Money: PFIで実施した場合に、 公共直轄の場合と比べ どれだけ費用が下がるか	平成23年～25年の収支は3期連続して経常損失が生じていたところ、運営権対価として国は22億円を得ているため、本事業にはVFMが認められると評価。	
事業期間	平成28年7月1日～(ビル事業は2月1日～) (最長65年(当初30年+オプション延長30年以内+不可抗力等による合意延長))	

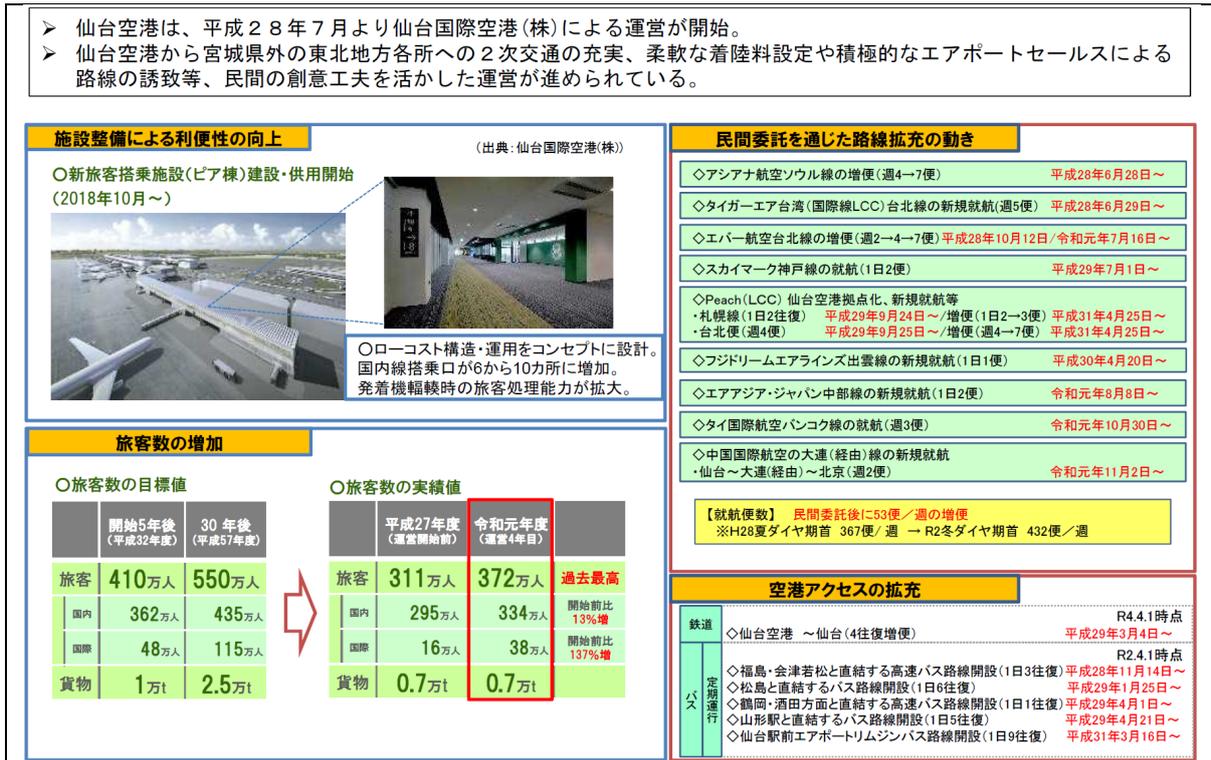
Source: Cabinet Office, “PFI Project Example (Case 4-2) PFI Project Example (Concession 2)”

Figure 5-7-13 Overview of Sendai Airport

【空港概況】	
・種別	: 拠点空港 (国管理空港)
・設置管理者	: 国土交通大臣
・位置	: 宮城県名取市
・面積	: 241ha
・滑走路 (長さ×幅)	: (A) 1,200m×45m : (B) 3,000m×45m
・運用時間 (利用時間)	: 14.5時間 (7:30～22:00)

Source: Ministry of Land, Infrastructure, Transport and Tourism, “Airport List: State-Managed Airports (19)”

Figure 5-7-14 Initiatives and results of the consigning the operation of Sendai Airport



Source: Ministry of Land, Infrastructure, Transport and Tourism, "Operation of State-Managed Airports Leveraging Private Sector Capabilities: Promotion of Private Sector Management of Airport Operations at Sendai Airport"

3. Issues that arose in project implementation and responses, etc.

(1) Best form of disaster preparedness at airport facilities in anticipation of widespread disaster, including the Nankai Trough Megathrust Earthquake

Based on the lessons learned from the Great East Japan Earthquake and the results of deliberations undertaken by organizations such as the Central Disaster Prevention Council since then, the Civil Aviation Bureau of the Ministry of Land, Infrastructure, Transport and Tourism established the "Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake" in order to examine the future direction of disaster countermeasures for airport facilities assuming a wide-area disaster such as a Nankai Trough Earthquake, and disclosed a summary of the examination results in March 2015.

The summary contains a compilation of specific items for which efforts should be moved forward and points to note for airport administrators and other such entities based on experience with past earthquakes when it comes to implementing countermeasures which address the occurrence of damage attributable to large-scale earthquakes and tsunamis occurring over a wide area.

Figure 5-7-15 Best form of disaster preparedness at airport facilities in anticipation of widespread disaster, including the Nankai Trough Megathrust Earthquake Summary Overview

南海トラフ地震等広域的災害を想定した空港施設の災害対策のあり方 とりまとめの概要 平成27年3月

南海トラフ地震等の広域的で大規模な災害の発生を想定し、滑走路等の空港施設の災害対策の今後の方向性を検討。平成26年11月より平成27年3月まで計3回の審議を実施。（委員長：森地茂 政策研究大学院大学教授）

これまで進めてきた空港の地震・津波対策の基本的考え方

地震：全空港での耐震性確保を基本としつつ、航空輸送上重要な空港（13空港）を優先し耐震性確保を実施。
津波：人命保護のための津波避難計画、早期機能回復のための津波早期復旧計画の策定を実施。

東日本大震災による影響と空港が果たした役割






空港の地震・津波対策における今後の方向性

- 1 基本的な考え方
 - ・あらゆる可能性を考慮した最大クラスの巨大地震・津波発生の考慮が必要。
- 2 緊急輸送の拠点となる空港における耐震対策
 - ・地震防災対策推進地域等に所在する空港及び災害応急対策の活動が見込まれる空港の耐震性確保の優先性を考慮することが必要。
- 3 航空ネットワークの維持(代替性確保)のための耐震対策
 - ・航空輸送上重要な空港が被災した場合の機能を代替するため、その機能を支援する空港を想定し、耐震性確保の優先性を考慮することが必要。
- 4 航空ネットワークの維持(機能の低下の最小化)のための耐震対策
 - ・航空輸送上重要な空港で、ネットワークの機能低下を可能な限り抑制するための耐震性確保を図ることが必要。
 - ・特に、首都圏空港(羽田、成田)は、国内外の航空輸送を維持するため、機能の低下を最小化するための耐震性確保を図ることが必要。

- 5 旅客ターミナルビルの耐震・耐津波対策
 - ・地震、津波に対する構造上の安全性を確認することが必要。
 - ・大規模な吊り天井の点検、改修等を積極的に進めることが必要。
- 6 空港避難計画の策定
 - ・災害発生時の人命の安全確保のため、各空港で想定される地震・津波災害に対応する空港避難計画を策定することが必要。
- 7 空港施設の早期復旧計画の策定
 - ・災害発生時に施設を早期復旧するため、各空港で想定される地震・津波災害に対応する早期復旧計画を策定することが必要。
- 8 維持管理・更新の確実な実施
 - ・災害発生時に施設が所要の機能を発揮出来るよう、各空港での維持管理・更新の取り組みを確実に実施していくことが必要。
- 9 災害時の管制、駐機場の利用調整等の対応
 - ・ダイバートの円滑な調整、災害対応機の駐機場利用等に係る連絡調整体制の構築が必要。

Source: Ministry of Land, Infrastructure, Transport and Tourism, “Summary of the Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (Overview)” (March 2015)

(2) Model evacuation plan and early recovery plan in response to earthquake and tsunami at airports

Based on the lessons learned from the Great East Japan Earthquake and the “Summary of the Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake (Committee on the Best Form of Disaster Preparedness at Airport Facilities in Anticipation of Widespread Disaster, including the Nankai Trough Megathrust Earthquake)” issued in March 2015, in addition to the measures based on the aforementioned documents titled “Ideal in Terms of Earthquake-Resistant Airports (Report by the Investigation Committee on the Ideal in Terms of Earthquake-Resistant Airports)” and “Policy for Tsunami Countermeasures at Airports (Report of the Investigative Committee on Countermeasures Against Tsunamis at Airports),” the Civil Aviation Bureau of the Ministry of Land, Infrastructure, Transport and Tourism, established the “Committee for the Study of Planning for Evacuation and Early Recovery in Response to Earthquakes and Tsunamis at Airports” in October 2015 in order to set evacuation plans to ensure the safety of human lives in the event of a disaster and specific procedures and measures for the early restoration of airport functions, as well as to ensure smooth and reliable implementation of evacuation plans and early restoration plans, and compiled the “Model Evacuation Plan and Early Recovery Plan in Response to Earthquake and Tsunami at Airport” in January 2016.

It is expected that this model will be used as a reference to formulate evacuation plans and early recovery plans at the councils run by airport officials and local government officials, and that it will be utilized in examining proactive steps undertaken in relation to the matters addressed.

Figure 5-7-16 Overview of model evacuation plan and early recovery plan in response to earthquake and tsunami at airports



Source: Ministry of Land, Infrastructure, Transport and Tourism, “Committee for the Study of Planning for Evacuation and Early Recovery in Response to Earthquakes and Tsunamis at Airports: Overview of Model Evacuation Plan and Early Recovery Plan in Response to Earthquake and Tsunami at Airport”

(3) Lessons learned and know-how gained

In the event of an earthquake disaster, airports are required to play the role of bases for activities such as emergency and lifesaving activities in the very early stage after the occurrence of the disaster, and as bases for the transport of things such as emergency goods and personnel within three days after the occurrence of the disaster. Moreover, the role of maintaining the aviation network and continuing economic activities in the areas where cargo is dispatched to and from is required even in the event of a disaster. In order to secure these functions, it is necessary to have earthquake resistance present at airport facilities, which is why earthquake resistance measures are being implemented for runways and other such facilities.

Furthermore, in order to maintain the functions of airports and other facilities that are important for air transportation in the event of a disaster, it is necessary to maintain the functions of not only facilities found inside airports, but also of essential service facilities and of transportation facilities such as roads and railways. As such, the formulation of evacuation plans and early recovery plans in response to earthquakes and tsunamis is being undertaken, and efforts are being promoted such as evacuation drills based on these plans alongside elements such as the establishment of cooperative systems with relevant organizations.

In addition, based on airport BCPs¹ formulated at airports across the country, responses for disaster situations are implemented under cooperation with the persons concerned at airports and with access operators, and attempts are being made to strengthen the effectiveness of airport BCPs through action such as the conducting of drills to ensure that the aviation network in Japan can be maintained.

¹ Airport BCP: An airport business continuity plan (A2-BCP) which clarifies elements such as target times and the division of roles among relevant organizations for the purpose of maintaining the functions of the airport as a whole and for the purpose of early recovery.