

東日本大震災からの復興、教訓を未来へ

防災環境都市・仙台

Reconstruction and lessons learned
from the Great East Japan Earthquake
to future generations



SENDAI

Disaster-Resilient and Environmentally-Friendly City

防災環境都市・仙台 SENDAI Disaster-Resilient and Environmentally-Friendly City

背景 Background

「杜の都」の環境づくりの歴史
History of Environment Building
in the "City of Trees"

大震災の経験・教訓と震災復興計画
Experience and Lessons of Major Earthquakes and
the Earthquake Disaster Reconstruction Plan

国連防災世界会議開催と
仙台防災枠組の採択等
Host city of the World Conference on Disaster Risk Reduction and
Adoption of the Sendai Framework for Disaster Risk Reduction, etc.

「仙台市防災・減災のまち
推進条例」の制定
Enactment of the "Sendai City Ordinance for Promoting
Disaster Prevention and Disaster Risk Reduction"

施策 Measures

防災環境まちづくり

Disaster risk reduction and
environment-focused city planning

防災環境ひとづくり

Disaster risk reduction and environment-
focused "human capacity building"

経験と教訓の伝承等

Passing down experience and lessons

復興の取り組み
Disaster recovery efforts



世界の防災文化への貢献・都市ブランドの確立 安全・安心で持続可能な都市づくり

Contributing to the world's disaster risk reduction culture and establishing the
city brand safe, secure and sustainable city planning

私たちは、東日本大震災を経験し、都市がさまざまな「災害の脅威」にさらされていることを改めて認識しました。この教訓を踏まえて、仙台市では、将来の災害や気候変動リスクなどの脅威にも備えた「しなやかで強靭な都市」に向け、「防災環境都市づくり」を進めています。

「杜の都・仙台」の豊かな環境を基本としながら、インフラやエネルギー供給の防災性を高める「まちづくり」、地域で防災を支える「ひとづくり」を進めます。あらゆる施策に防災や環境配慮の視点を織り込む「防災の主流化」を図り、市民の生活、経済活動の安全・安心や快適性が、高い水準で保たれている都市をつくります。

また、震災と復興の経験と教訓を継承し、市民の防災文化として育てるとともに、平成27年3月に本市で開催された、「第3回国連防災世界会議」を通じて培った国内外とのネットワークを生かし、地域・NPO・企業・研究機関などの取り組みを海外に発信。世界の防災文化への貢献と、快適で防災力の高い都市としてのブランド形成を目指します。

Having experienced the Great East Japan Earthquake, we once again realized that cities are exposed to a variety of disaster threats. Based on the lessons learned from this disaster, Sendai City is proceeding to build a 'Disaster-Resilient and Environmentally-Friendly City', which will be prepared for threats from future disasters and climate change.

With the affluent environment of Sendai, the City of Trees, as our base, we are promoting 'city planning' by improving the resilience of infrastructure and energy supplies as well as promoting 'human capacity building' that will help support disaster risk reduction activities in local communities. We focus on 'mainstreaming disaster risk reduction', while incorporating both this and environmental considerations into every measures, and maintaining a high level of security and safety in the lives of our residents and in our economic activities, in addition to maintaining the city's comfortable living environment.

While passing down our experiences and lessons learned from the Great East Japan Earthquake to future generations and nurturing our residents' disaster risk reduction culture, we will continue to share information on our various efforts. We will communicate efforts carried out by local communities, NPOs, businesses and research institutions by making use of the domestic and international networks that were created through the Third United Nations World Conference on Disaster Risk Reduction held in Sendai in March 2015. We will focus on contributing to the world's disaster risk reduction culture and establishing a city brand for a comfortable living environment and a high level of disaster preparedness.



東部復興道路
Eastern reconstruction road



小学生による炊き出し
Elementary School Students Serving Hot Meals



震災遺構 仙台市立荒浜小学校
Ruins of the Great East Japan Earthquake :
Sendai Arahama Elementary School

東日本大震災による被害 Damage caused by the Great East Japan Earthquake

地震の概要

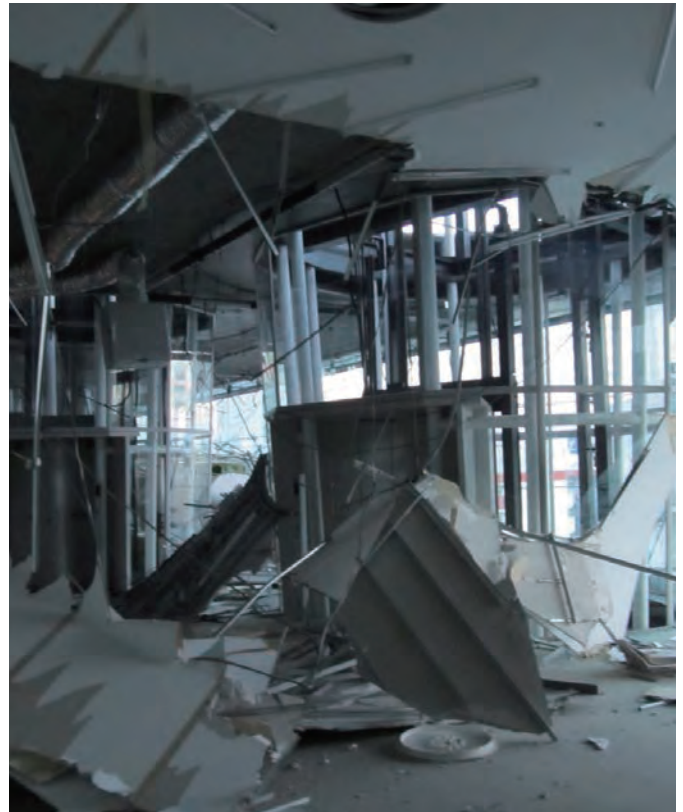
- 地震名：平成23年(2011年)東北地方太平洋沖地震
- 発生日時：平成23年3月11日14時46分
- 震央地名：三陸沖(北緯38度06.2分、東経142度51.6分)
- 規模：マグニチュード9.0
- 最大震度：震度7(宮城県栗原市)
- 市内震度：震度6強 宮城野区、6弱 青葉区・若林区・泉区、5強 太白区
- 津波の高さ：仙台港 7.1m(推定値)
- ※最大余震：4月7日23時32分 マグニチュード7.2 宮城県沖
震度6強 宮城野区、6弱 青葉区・若林区、5強 泉区、5弱 太白区

Earthquake Overview

- Name of the Earthquake:The 2011 off the Pacific coast of Tohoku Earthquake
- Date and Time: March 11, 2011, 2:46 pm
- Location of the Epicenter:Off the Sanriku Coast (38° 6.2'N, 142°51.6'E)
- Scale: Magnitude 9.0, Maximum Intensity: 7 on the Japanese Scale (1 to 7)
- Highest Recorded Seismic Intensity: 7 in Kurihara City, Miyagi Prefecture
- Seismic Intensity in Sendai City:Upper 6 in Miyagino Ward, lower 6 in Aoba Ward, Wakabayashi Ward and Izumi Ward, upper 5 in Taihaku Ward
- Height of Tsunami: 7.1 meters at Sendai Port (estimated)
- *Largest Aftershock: April 7, 11:32 pm; Magnitude 7.2, off the Coast of Miyagi Prefecture
Seismic Intensity in Sendai City: Upper 6 in Miyagino Ward, lower 6 in Aoba Ward and Wakabayashi Ward, upper 5 in Izumi Ward, lower 5 in Taihaku Ward



東部沿岸地域に到達した津波
Tsunami Reaching the Eastern Coastal Area



公共施設の被害
Damaged Public Facilities



行方不明者の捜索活動
Search Operation for Missing Person

被害の概要

- 人的被害：死者:904名 行方不明者:27名 負傷者:2,305名(令和4年3月1日時点)
- 建物被害：全壊:30,034棟 大規模半壊:27,016棟 半壊:82,593棟
一部損壊:116,046棟(令和4年3月1日時点)
- 宅地被害：地震による被害の程度が「危険」または「要注意」と確認された宅地:5,728 宅地
- 津波浸水：被害を受けた世帯:8,110 世帯(うち農家 1,160 世帯)
- 浸水面積：約4,500ha(うち農地約 1,860ha)
- 市内被害額：推計額 約1兆 3,041 億円(令和4年3月1日時点)

Extent of the Destruction

- Casualties: 904 Fatalities, 27 Missing, 2,305 Injured (as of March 1, 2022)
- Damage to Buildings: 30,034 Destroyed, 27,016 Severely Damaged, 82,593 Partially Damaged, 116,046 with Minor Damage (as of March 1, 2022)
- Residential Areas Confirmed to be Either "Dangerous" or "Requiring Caution" : 5,728
- Tsunami Flooded: 8,110 Households Affected (including 1,160 farming households)
- Flooded Area: Approximately 4,500 ha (including approximately 1,860 ha of farm land)
- Cost of the Damage in Sendai City: Estimated at 1,304.1 billion Japanese Yen (as of March 1, 2022)

東日本大震災による被害 Damage caused by the Great East Japan Earthquake

避難の状況 Evacuation Status

避難所

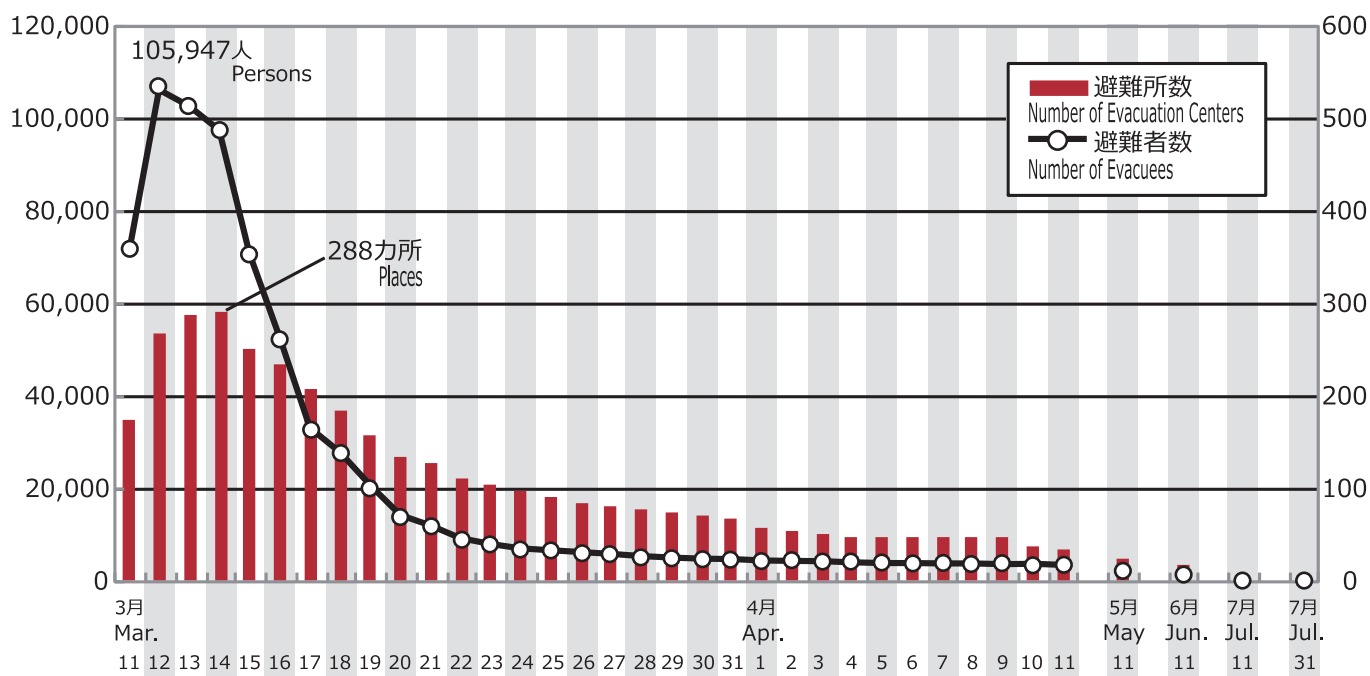
仙台市では、各地域にある市立小中高等学校などを災害時の指定避難所に定めています。今回の震災では、最大で仙台市の人口の約10%にあたる10万人以上の方々が指定避難所や市民センター・コミュニティセンター・集会所などを活用した避難所に避難しました。避難所は、最も多い時で市内に288カ所(3月14日)開設されました。電気・水道・ガス等のライフラインや交通機関の復旧に伴い避難者は減少し、避難所の集約や仮設住宅等への入居などを経て、7月31日に市内にあった全ての避難所が閉鎖となりました。

Evacuation Centers

Sendai City stipulates that municipal elementary, junior high and senior high schools in each area should serve as a designated refuge area at times of disaster. Following the Great East Japan Earthquake, up to more than 100,000 people, or 10% of the population of Sendai City, evacuated to such designated refuge areas, civic centers, community centers and meeting halls. At the peak (March 14), there were 288 evacuation centers were opened in the city. As essential utilities such as electricity, water supply, gas, etc. and public transportation were restored, the number of evacuees steadily decreased, and the evacuation centers were consolidated as evacuees moved into temporary housing. Eventually, the final evacuation center in the city was closed on July 31, 2011.

(避難者数:人) (Number of Evacuees:Persons)

(避難所数:カ所) (Number of Evacuation Centers:Places)



応急仮設住宅

仙台市内では、市外や県外からの避難者も含め、ピーク時には12,000世帯を超える方々が応急仮設住宅に避難しました。公園などにプレハブ仮設住宅1,505戸を建設したほか、民間賃貸住宅が応急仮設住宅（みなし仮設住宅）として大量に活用されました。

復興公営住宅の整備など住まいの再建に関する事業が進んだことや、生活再建支援の取り組みなどによって、平成28年10月には、プレハブ仮設住宅の入居者がゼロとなり、翌年3月末には仙台市で被災した方々は全て再建を果たしました。現在は、プレハブ仮設住宅は解体撤去され、仙台市外で被災した方々がみなし仮設住宅に入居しています。

Emergency Temporary Housing

At its peak, Sendai city had more than 12,000 households flee to emergency temporary housing which included evacuees from outside of the city and other prefectures. 1,505 prefabricated temporary housings were set up in parks etc. and large numbers of private rental accommodation (private rental housing) were also utilized as emergency temporary housing.

Due to the efforts in constructing Disaster Reconstruction Municipal Housing and revitalizing peoples lives, the number of residents of prefabricated temporary housing decreased to zero in October 2016, and at the end of March of the following year, all the people affected by the disaster in Sendai City rebuilt their homes. Currently, prefabricated temporary housing has been demolished and removed, and people affected by the disaster outside the city are now living in private rental housing.



発災から2日後の避難所
Evacuation Center 2 Days after the Disaster



プレハブ仮設住宅団地（あすと長町地区）
Prefabricated Temporary Housing (Asuto Nagamachi District)

復旧から復興へ From Recovery to Reconstruction

震災復興計画

仙台市の震災復興計画では、復興に向けて4つの方向性を定めて取り組みを進めました。

- ① 減災を基本とする防災の再構築
自然を制御する完全な防災ではなく、人命を守り、被害を最小化する減災を基本に、防災のあり方を再構築。
- ② エネルギー課題等への対応
エネルギー・燃料の確保と再生可能エネルギーの利活用を推進。
- ③ 自助・自立と協働・支え合いによる復興
自分の身は自分で守り(自助)、災害弱者を地域で支え合う(共助)とともに、行政の支援(公助)を再構築して、減災のまちづくりを推進。
- ④ 東北復興の力となる経済・都市活力の創造
地域経済を再生させ、新たな活力を創造し、東北復興をけん引。

Sendai City Earthquake Disaster Reconstruction Plan

Four directions were outlined in the Sendai City Earthquake Disaster Reconstruction Plan towards recovery.

1. Rebuilding disaster-prevention systems based on disaster reduction
Rather than attempting to completely control nature, we build disaster prevention infrastructure based on the goals of protecting lives and minimizing damage.
2. Addressing energy issues
We secure energy and fuel sources while advancing the use of renewable energy.
3. Reconstruction with self-help, independence, cooperation, and mutual support
By protecting ourselves by ourselves (self-help), and helping those in need following the disaster in our own communities (mutual aid) while rebuilding the public aid infrastructure (public assistance), we promote the creation of cities that mitigate disaster.
4. Creating economy/urban vitality to drive the reconstruction of Tohoku
Reviving the local economy to create a new driving force to push Tohoku's recovery forward.

「新次元の防災・環境都市」 しなやかでより強靱な都市の構築

"A disaster-resilient, environmental city of a new level" Building a resilient and stronger city

被災された方々の生活再建
Rebuilding victims' livelihoods

①

減災を基本とする
防災の再構築
Rebuilding
disaster-prevention systems based on
disaster reduction

②

エネルギー課題等
への対応
Addressing energy issues

③

自助・自立と
協働・支え合い
による復興
Reconstruction with
self-help, independence, cooperation,
and mutual support

④

東北復興の力
となる経済・
都市活力の創造
Creating economy/urban vitality to
drive the reconstruction of Tohoku

復興に向けた4つの方向性

Four directions for reconstruction

住まいの再建 Rebuilding Homes

内陸部への移転（防災集団移転促進事業）

さまざまな津波防御施設を整備しても、なお津波による予測浸水深が2mを超える区域を災害危険区域として指定し、区域内の1,540世帯を対象とした移転事業を実施しました。

Inland Relocation (Disaster Prevention Collective Relocation Promotion Project)

In addition to constructing or improving a variety of facilities to prevent damage from tsunamis, we implemented a relocation promotion project for 1,540 households to move from the designated disaster risk areas where tsunamis are expected to flood the land up to a height of 2m.



集団移転先地の整備（田子西隣接地区）
Construction Site for Collective Relocation (Near Tago-Nishi Area)

被災宅地の復旧

内陸丘陵部の大規模な地すべり被害が発生した地域では、公共事業による被災宅地の復旧事業を実施しました。

Restoring Disaster-damaged Residential Land

This public project restored residential land in hilly inland areas that was severely damaged by landslides.



内陸丘陵部の宅地被害（青葉区折立）
Damage to an Inland Residential Area on a Hill (Oritate, Aoba-ward)

復興公営住宅の整備

被災された方々のうち震災によって住居を失い、お住まいの確保に困っている方を対象に、復興公営住宅(3,206戸)を整備しました。

Disaster Reconstruction Municipal Housing

This project provided 3,206 Disaster Reconstruction Municipal Housing units for those who had lost their homes in the disaster and had difficulties in securing housing.



復興公営住宅（六丁の目西町）
Disaster Reconstruction Municipal Housing (Rokuchonome-Nishimachi)

復旧から復興へ From Recovery to Reconstruction

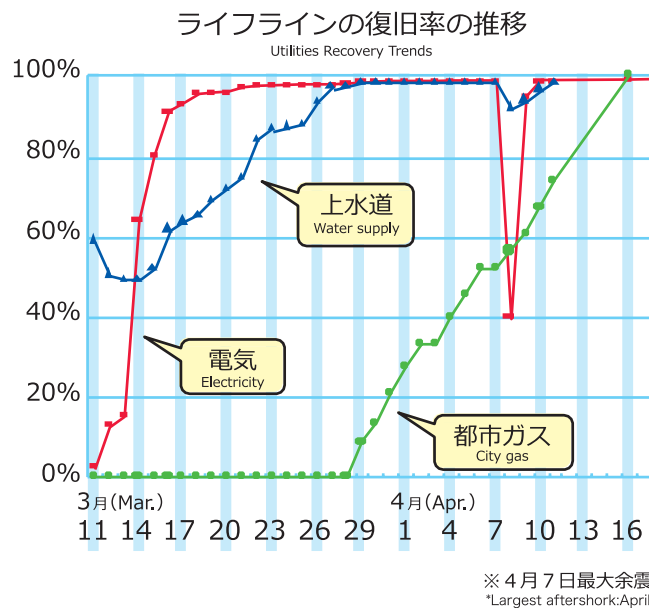
災害に強い都市の構築 Building a Resilient City to Disasters

ライフラインの被災及び復旧の状況

地震と津波によって、上水道は約半数の世帯が断水し、都市ガスや電気(民間の電力会社が供給)も全戸供給停止となりました。下水道は、沿岸部にある下水処理場(南蒲生浄化センター)が津波により壊滅的な被害を受けましたが、流下機能を維持しており、令和元年に全ての災害復旧が完了しました。

Damage and Recovery of Lifelines

The earthquake and tsunami caused water supply to be interrupted to roughly half of all households, while supply of city gas and electricity (provided by a private sector company) was interrupted to all households. Sewerage facilities sustained their flow functions, however, the sewage treatment plant on the coast (Minami-Gamo Wastewater Treatment Plant) suffered catastrophic damage and wasn't entirely restored until 2019.



次への備え

仙台市では、更なる安全・安心のために、これまで積み重ねてきたライフラインの耐震化や、バックアップ機能の強化をより一層進めるとともに、震災の教訓を踏まえた新たな対策を講じています。

Preparing for the Future

In Sendai City we are dedicated to making resilient public utilities that are safer and more secure while strengthening backup supplies. We also hope to take new measures based on lessons learned from the disaster.

下水道
Sewage

ハード・ソフトの両面から、災害対策を強化
Strengthening disaster prevention measures including infrastructure, systems, awareness, and knowledge.

下水道管の耐震化の更なる推進
Further promotion of making sewage facilities earthquake-resilient

…耐震化率(注1)の令和5年度目標:**46.9%**
Target earthquake proofing rate*1 in FY2023: 46.9%

南蒲生浄化センターの災害対策
Disaster risk reduction measures by the Minami-Gamo Wastewater Treatment Plant

…水処理施設の設置高さを上げるとともに、施設全体を
 覆蓋することにより、津波による被害を防止する施設に復旧
Restoration to facilities geared to preventing tsunami damage by raising the installed level of water treatment facilities and covering the facilities overall

事業継続計画(BCP)の運用
Operation of business continuity plan (BCP)

…対応力の向上に向けた事業継続計画の見直し
Review of business continuity plan geared to improvement of response capability

(注1): 耐震性を有する下水道管渠の延長/特に優先的に耐震化を必要とする
下水道管渠の延長×100(平成26年に国が改訂した指針に基づく新定義に準拠しています。)

*1: This figure represents the length of disaster-resilient sewage pipelines / prioritized areas of pipelines not yet disaster-resilient x 100 (This definition is a revised guideline from the Japanese government in 2014.)

水道 Water Supply

水道施設の被害と、市民生活への影響を最小化し、 災害に強い水道を目指す

We are working toward a disaster-resilient public water system that minimizes damage to water facilities and also minimizes the impact on citizens' lives.

水道管の耐震化・水系の二系統化などの更なる推進

Further promoting earthquake-resilient water pipes and the integration of backup sources in the water system

…耐震化率(注1): **88.6%**(令和3年3月末)

Earthquake resilient rate^{*1}: 88.6% (as of March 2021)

災害時給水栓による応急給水体制の強化

Strengthening of the emergency water supply system based on disaster water taps

…指定避難所である市立小中高等学校に、地域主導で応急給水が可能な給水栓を設置し、使用する皆様に操作方法を周知

At municipal elementary, junior high and senior high schools that are designated as evacuation centers, water supply hydrants that can be used to provide emergency water supply based on community initiative are installed, and the people who will use them are given operating instructions.

水備蓄の啓発を推進

Promoting water storage development

…広報誌「仙台の水道H2O」を活用した市民への呼びかけ

Appeals to citizens using the public information magazine, "Sendai's Water Supply H2O"

(注1): 耐震性を有する水道管路の延長/水道管路の総延長 ×100

*1: This figure represents the length of earthquake-resilient water pipelines / water pipelines overall length ×100



災害時給水栓
Disaster Water Taps

都市ガス City Gas

更なる安定供給と、津波襲来時にも供給を維持し、 全面供給停止回避へ

We are working to completely eliminate interruptions in gas supplies through more secure supplies and measures to maintain supplies when tsunamis strike.

ガス管の耐震化・ガス管網のブロック化の更なる推進

Further promotion of earthquake-resilient gas pipes and the sectioning of the gas supply network

…耐震化率(注1)の令和3年度実績: **87.1%**(令和4年3月末)

Earthquake proofing rate^{*1} in FY2021: 87.1% (end of March 2022)

製造設備(港工場)の津波対策

Tsunami readiness policies for the Minato Factory Production Facility

…設備の高所移設などにより津波による冠水を防止

Facilities will be relocated to higher ground to prevent it from being flooded.

緊急時ガス受入設備の増設

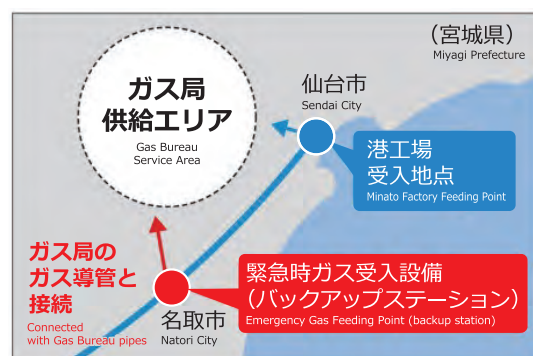
Adding new gas feeding facilities for use during emergencies

…津波の影響のない内陸側に受入地点を増設(平成26年12月)

New gas feeding sites have been built inland where tsunamis will not affect them (December, 2014).

(注1): 耐震性を有するガス導管の延長/ガス導管の総延長 ×100

*1: This figure represents the length of earthquake-resilient gas conduit pipes / gas conduit pipes overall length × 100



内陸側にガスの受入設備を増設
Adding New Inland Gas Feeding Points

より良い復興を目指して Addressing 'Build Back Better'



津波にのまれる南蒲生浄化センター
Minami-Gamo Wastewater Treatment Plant Flooded by the Tsunami

下水道施設の地震対策

仙台市の下水道事業は明治32年より整備を行っており、古くに整備した下水道施設は現在の耐震基準に照らし合わせた際に耐震性が乏しく、地震動による破損、倒壊などにより流下機能の喪失、道路陥没等のリスクを抱えていることから、早急な対策が必要となっています。

最も重要な処理場である南蒲生浄化センターは、東日本大震災の復旧の際に現行の耐震基準に基づき復旧を行っています。その他の処理場・ポンプ場については、順次耐震化を行っているところです。

一方、下水道管渠については最も重要な幹線である第1、2南蒲生幹線は、常時満水で内部の調査すら困難であることから、両幹線の機能を受け持つ新たな幹線を整備しているところです。整備完了後は、第1、2南蒲生幹線の内部調査を行い、必要により耐震化を図ることとしています。その他の下水道管については、耐震性に乏しく老朽化も進んでいる市中心部より対策を行っているところです。

Earthquake Countermeasures in Sewerage Facilities

Construction of Sendai City's sewerage utility dates back to 1899, however, the aging sewerage facilities lack earthquake resistance when measured against modern earthquake-resistance standards and there is risk that damage to sewers induced by seismic motions could cause flow functions to be lost and roads to collapse and so; hence it is urgently necessary to take countermeasures.

Following damage in the Great East Japan Earthquake, Minami-Gamo Wastewater Treatment Plant, which is Sendai's most important sewage treatment facility, was restored based on the current earthquake-resistance standards, while other treatment plants and pump stations are successively being strengthened to withstand earthquakes.

Meanwhile, concerning sewers, since the No. 1 and No. 2 Minami-Gamo trunk lines, which are the most important sewers, cannot be surveyed due to always being filled with water, new trunk lines are being constructed to take on their burden. After they are completed, No. 1 and No. 2 Minami-Gamo trunk lines will undergo internal inspection and seismic strengthening as needed. As for other sewers, measures are being implemented on deteriorated sewers in built-up areas that lack earthquake resistance.



復旧後の南蒲生浄化センター
Minami-Gamo Wastewater Treatment Plant after Restoration

南蒲生浄化センターの復旧

仙台市の下水の約7割を処理してきた南蒲生浄化センター。震災の10mを超える津波により、構造物の破損や機械・電気設備の水没、流出、送電鉄塔の倒壊などの壊滅的な被害を受け、処理機能が停止しました。

市民生活に不可欠なインフラであるため、センター内のがれき処理やライフラインの復旧と並行して早期復旧に向けた方法の検討を進め、平成23年9月には、従前の機能回復にとどまらない復旧方針を決定。約1年の設計期間を経て、通常なら10年を要するとされた施工期間をほぼ3年に短縮させることに成功しました。

Restoration of Minami-Gamo Wastewater Treatment Plant

Before the disaster, the Minami-Gamo Wastewater Treatment Plant had been treating about 70% of Sendai's sewage. On March 11, 2011, a tsunami of over 10 meters in height hit the plant and caused catastrophic damage with building structures broken, its machinery and electrical facilities submerged or swept away, and transmission towers collapsed, resulting in the shutdown of sewage treatment functions.

It was imperative to restore the plant promptly, since it was indispensable to the everyday lives of the residents in Sendai. Along with removing debris from the tsunami and restoring the facilities and equipment at the plant, we held discussions on how to implement quick recovery. In September 2011, a restoration policy was decided to restore the plant with better functions than it had previously. It took one year to complete the design of a new plant. The plant was constructed in around three years while successfully reducing construction time from the average of ten years that are usually required to complete such projects.

省エネで環境負荷の少ない新設備

最初沈殿池、最終沈殿池を2階層化、反応タンクを深槽式としてコンパクトにするとともに、津波高T.P.+10.4m(※)に対応するように施設をかさ上げし、建屋に耐水扉を設置することで、東日本大震災クラスの津波に耐えうる施設となりました。

また、電源を喪失してもポンプを使用せず、最低限の下水処理を行い放流できるルートを確認するとともに、太陽光発電設備も設置。使用電力の抑制に役立つ小水力発電も新たに設置しました。

「仙台防災枠組」には、災害発生後の復旧において、災害発生以前と同じ状態に戻すのではなく、次の災害発生に備えてより良い状態にするという考え方、「より良い復興(Build Back Better)」が取り入れられました。南蒲生浄化センターは、まさにその考え方を具現化した施設となりました。

※T.P. (Tokyo Peil)とは日本の水準測量の基準点となる東京湾平均海面

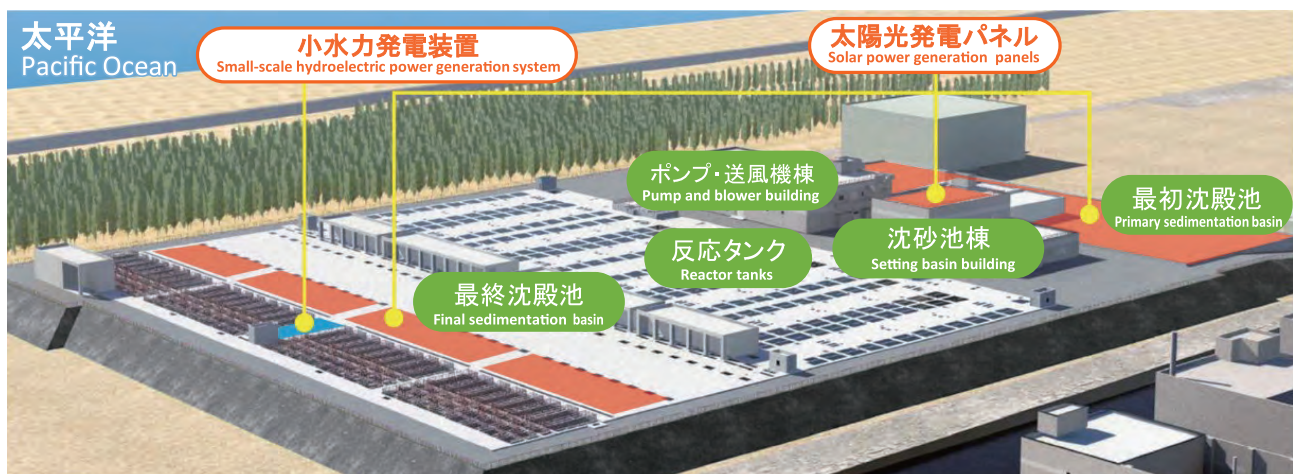
A new plant with energy saving features and low environmental impact

Through installing the initial sedimentation basin and final sedimentation basin on two levels and adopting deep reactor tanks, the new facility is more compact than before; moreover, it has been built to withstand a tsunami of the size experienced in the Great East Japan Earthquake through elevating the facility to tsunami wave height T.P.+10.4m (※) and installing water-resistant doors.

Moreover, even if power is interrupted and the pumps cannot be used, a route for conducting the minimum treatment and discharge of sewage has been secured, and solar power generating equipment has also been installed. A micro-hydropower system has also been installed to limit use of electricity.

The Sendai Framework for Disaster Risk Reduction incorporates the principle of "Build Back Better". This means that, when conducting recovery in the wake of disasters, rather than simply restoring facilities to the same state they were in before disaster, they are made even better in readiness for the next disaster. Minami-Gamo Wastewater Treatment Plant is a prime example of this principle being put into action.

※T.P. (Tokyo Peil) refers to Tokyo Bay mean sea level, which is the reference point for level surveying in Japan.



水処理施設の配置図 Layout of the Wastewater Treatment Plant



太陽光発電 Solar power



小水力発電 Micro hydropower

より良い復興を目指して Addressing 'Build Back Better'

下水道事業継続計画

被害の軽減と早期の回復を図るために、災害発生時に職員が取るべき対応と行動を予め定めた計画で、「地震・津波編」と「大雨編」の2種類があります。

平成18年度に下水道災害対策マニュアルを定め、平成22年度からは事業継続計画(BCP)(※)の策定にも取り組んでいたことから、東日本大震災では、速やかに初動体制に移行することができました。

※BCPとはBusiness Continuity Planの略

Sewerage Business Continuity Plan

This business continuity plan consists of two parts, namely 'Earthquakes and Tsunamis' and 'Heavy Rainstorms'. The plan was formulated to mitigate the damage and recover quickly from such disasters. It predetermines responses and actions that staff members should take when a disaster occurs.

When the 2011 disaster occurred, quick initial responses were available. This was due to the fact that the sewerage disaster response manual had been created in FY 2006 and development of a sewerage business continuity plan began in 2010.



トルコ・イズミル市での技術協力
Technical Cooperation with the City of Izmir in Turkey

下水道事業のアセットマネジメント Asset Management of Sewerage Business

アセットマネジメントとは

もともと金融資産の管理・運用業務に用いられる用語でしたが、近年では、下水道や道路を資産と捉え、社会インフラに対しても使われるようになりました。

仙台市下水道事業では、アセットマネジメントを「下水道施設がその期待されている役割を果たし続けるため、現状のパフォーマンスや将来のリスク、必要な費用を適切に評価し、これらの最適なバランスを取りながら事業を運営すること」と定義しています。

また、アセットマネジメントの取組みに必要な様々なツールや技術手法などの仕組み全体をまとめて、アセットマネジメントシステムと呼称しています。

What is Asset Management

The term "asset management" was originally used in work for managing and administering financial assets, however, in recent years, it has also come to be used for social infrastructure because sewerage systems and roads have come to be regarded as assets. In Sendai City's sewerage business, asset management is defined as follows: "Appropriately assessing current performance, future risks, and necessary costs and administering the business while securing the optimum balance of these elements to ensure that sewerage facilities continue to fulfill their expected roles". The overall framework, comprised by the various tools and techniques, etc. required for asset management initiatives, is referred to as the asset management system.

経験や教訓を海外へ

国土交通省や(独)国際協力機構(JICA)の協力のもと、防災・減災対策やアセットマネジメントに関する国内研修、職員派遣など、トルコ・イズミル市等海外諸国に対する技術協力を行ってきました。今後も引き続き、震災で得た貴重な経験と教訓を海外に伝えていきます。

Conveying Experiences and Lessons Overseas

With the cooperation of the Ministry of Land, Infrastructure, Transport and Tourism and the Japan International Cooperation Agency (JICA), Sendai City provided technical cooperation with the City of Izmir in Turkey and other countries, via means such as domestic training, sending staffs, which are related to disaster risk reduction and asset management. Sendai City will continue to convey the valuable experience and lessons learned from the disaster overseas.

日本初となるISO55001の認証を取得

平成25年度に仙台市下水道事業の管路部門は、国内で初めてアセットマネジメントシステムの国際規格ISO55001の認証を取得しました。

アセットマネジメントに取り組む中で、下水道管や設備は標準耐用年数の約1.5～2倍の期間、健全な状態が保たれていることが明らかになり、適切な時期に長寿命化対策や更新を実施することで、ライフサイクルコストの縮減効果が期待されています。また、震災時には、アセットマネジメント導入に伴い整備した情報システムを活用し、被害調査を円滑に行うことができました。

市内の汚水施設設備は、平成20年度までに概ね完了しており、今後は、維持管理や改築に加え、地震や浸水など災害に対する対策も進める必要があります。予算や人員といった経営資源が限られる中、アセットマネジメントを活用した事業の優先順位付けや長期の費用予測などを行うことで、事業の安定的、効率的な運営や施設の安全性の確保を図っていきます。

Acquisition of Japan's First ISO 55001 Certification

In FY 2013, the Water Pipeline Construction Section of Sendai City sewerage business acquired Japan's first certification under the international standard ISO 55001 Asset Management System.

While conducting asset management activities, it was made clear that sewerage pipes and facilities could be maintained in sound condition for about 1.5-2 times longer than their standard service life, and it is anticipated that through implementing life extension measures and renewals at appropriate times, lifecycle costs can be reduced. Moreover, during the Great East Japan Earthquake, through the utilization of asset management and the information system implemented alongside it, it was possible to smoothly conduct damage investigations.

Improvement of most of the sewage facilities in Sendai had been completed by FY 2008. In future, it will be necessary to promote measures against disasters such as earthquakes and flooding in addition to facility maintenance and renovation. In spite of limited resources such as budgets and personnel, we intend to run the utility steadily and efficiently and ensure the safety of the facilities by utilizing asset management to prioritize the most important projects and estimate cost over the long term.

教訓を生かして減災へ Utilizing Lessons in Disaster Risk Reduction



かさ上げ道路

令和元年度に完成した全長10.2kmのかさ上げ道路は堤防機能を持つ道路として整備され、海岸堤防、海岸防災林と合わせて、津波被害を大幅に軽減させる多重防御の要として位置づけられています。

Elevated Road

This elevated road, which also serves as an embankment, was completed in 2019 with a total length of 10.2 km. Together with the coastal levees and coastal disaster prevention forests, it is regarded as an important element in the multiple defenses for greatly mitigating tsunami damage.



かさ上げ道路
Elevated Road

海岸堤防

津波に対する第一の備えとして、頻度の高い津波(数十年～百数十年)に対応する高さT.P.+7.2mの海岸堤防を、約9kmにわたって国と分担して整備し、平成29年3月に完成しました。想定を上回る規模の津波が来襲した場合でも、堤防が破壊・倒壊するまでの時間を少しでも長くする、あるいは全壊に至る可能性を少しでも減らす構造上の工夫が施されています。

Coastal Levee

First, to prepare for a tsunami that may occur frequently (once every several decades to once every hundred years or so), we launched a project to construct a coastal levee of about 9km in length and a height of T. P. plus 7.2m, jointly with the national government and the levee was completed in March 2017. The levee is designed so that, in the event of a tsunami that exceeds our projections, the breakdown or collapse time of the levee can be extended or the possibility of its total collapse can be reduced.



海岸堤防
Coastal Levee

海岸防災林・避難の丘

自然環境と海辺の景観を再生するとともに、沿岸部のにぎわいを取り戻し、新たな交流の場とするために、防災林の再生と海岸公園の再整備を行っています。

公園の再整備では、蒲生地区をスポーツゾーン、荒浜地区をレクリエーションゾーン、井土地区をプレイゾーン、藤塚地区をネイチャーゾーンとして憩いの場とします。それぞれに高さ10～15mの避難の丘を整備し、津波襲来時は周辺住民や公園利用者のための避難場所としての機能を持たせています。

Coastal Disaster Prevention Forests and Evacuation Hills

We are rebuilding coastal disaster prevention forests and improving Kaigan Park to restore the natural environment and landscape around the coastal areas, in addition to revitalizing the coastal areas to make them new and attractive spots for social interactions.

The development of Kaigan Park includes construction of various sections, with the Gamo development area as a 'sports zone', the Arahama development area as a 'recreation zone', the Ido development area as a 'play zone', and the Fujitsuka development area as a 'nature zone'. A hill 10-15m in height designed for temporary evacuation has been built in each of these zones, allowing for the evacuation of nearby residents and visitors up to the hills when a tsunami strikes.



避難の丘（荒浜地区）
Evacuation Hill (Arahama Area)

避難施設

津波の浸水が想定される地域に、タワー型施設を6カ所、消防団施設が併設されたビル型施設を5カ所、既存の小中学校の津波避難屋外階段を2カ所、合計13カ所の津波避難施設を整備しました。中野五丁目津波避難タワーは、津波の波力や漂流物の衝突を考慮した強固な構造で、地上6m以上の高さに300人が避難することができます。

震災の教訓から、避難者の低体温症を考慮して、避難階に屋内空間を設けて寒さ対策を施しているほか、車椅子やベビーカー、高齢者などの避難に配慮してスロープを設置しています。また、避難者が24時間程度滞在することを想定して、発電機・毛布・水・食料・簡易トイレなどを備蓄しています。

民間施設を津波避難ビルとして使用する協定を締結しているほか、NEXCO東日本では、震災時に津波をせき止める役割を果たした仙台東部道路への避難階段を市内に5カ所整備しました。

Evacuation Facilities

In areas of projected tsunami inundation, 13 tsunami evacuation facilities, comprising six tower facilities, five building facilities that also act as fire brigade centers, and two tsunami evacuation staircases leading to the rooftops of existing elementary and junior high schools, have been constructed. The tsunami evacuation tower at Nakano 5-chome is a robust structure built to withstand the wave force of tsunami and impacts by floating objects, and it can evacuate 300 people to a height of at least 6 meters above ground.

In light of the experience of the Great East Japan Earthquake, when evacuees suffered from hypothermia, indoor spaces have been built on the evacuation floor to provide protection against the cold, and slopes have been included in consideration of evacuation by wheelchair users, people with strollers, elderly persons and so on. Also, generators, blankets, water, food and basic toilets are provided to allow evacuees to stay around 24 hours.

Agreements have been signed to use private sector facilities as tsunami evacuation buildings in the event of disaster, while NEXCO East Japan has built stairs leading to Sendai Tobu Road, which acted as a barrier to the tsunami in the Great East Japan Earthquake, at five locations in Sendai City.



岡田小学校津波避難屋外階段
Outdoor Tsunami Evacuation Stairs at Okada Elementary School



中野五丁目津波避難タワー
Tsunami Evacuation Tower at Nakano 5-chome

脱炭素都市づくり Zero Carbon City

仙台市では、令和3年3月に2050年ゼロカーボンシティを表明しました。また、同時期に策定した「杜の都環境プラン（仙台市環境基本計画2021-2030）」においても、施策の第一の柱として「脱炭素都市づくり」を掲げ、2050年温室効果ガス排出量実質ゼロを長期目標と定めるなど、温室効果ガス排出削減のため、より一層取り組んでいくこととしています。

In March of 2021, Sendai City declared its commitment of becoming a Zero Carbon City by 2050. Moreover, in the “City of Trees Environment Plan (Sendai City Environmental Master Plan 2021-2030)” that was drafted at the same time, “Zero Carbon City Development” was raised as the primary pillar of initiatives, and the city’s commitment to further reduce greenhouse gas emissions is demonstrated by the adoption of zero greenhouse gas emissions by 2050 as the long term goal.

地球温暖化対策推進計画

本計画では、令和3年3月に策定した「杜の都環境プラン（仙台市環境基本計画2021-2030）」の第一の柱として掲げる「脱炭素都市づくり」を、中長期における温室効果ガス削減目標や実施施策などについて定めています。本計画に基づき、市民・事業者・行政の協働のもと温室効果ガス削減に取り組むこととしています。

Global Warming Countermeasures Promotion Plan

This plan outlines the city’s greenhouse gas reduction goals and implementation measures, etc. over medium to long term that are related to “Zero Carbon City Development”, which was raised as the primary pillar initiative in the “City of Trees Environment Plan (Sendai City Environmental Basic Plan 2021-2030)” drafted in March of 2021. Based on this plan, efforts are made to tackle greenhouse gas reduction measures through cooperation between citizens, businesses and government.

事業活動における温室効果ガス削減の取り組み

「仙台市地球温暖化対策等の推進に関する条例」に基づき、事業者と市が協働して計画的な温室効果ガス排出削減を図る「温室効果ガス削減アクションプログラム」を令和2年度から運用しています。【32頁の「新たな取り組み」をご覧ください。】

Greenhouse Gas Reduction Initiatives in Business Activities

Based on the “Ordinance relating to Sendai City Global Warming Countermeasures, etc. Promotion Plan”, businesses and the city have cooperated to implement the “Greenhouse Gas Reduction Action Program” since FY2020 in order to achieve the phased reduction of greenhouse gases. [In regards to the “Greenhouse Gas Reduction Action Program”, please refer to “New Initiatives” on page 32.]



温室効果ガス削減アクションプログラム
Greenhouse Gases Reduction Action Program

家庭における温室効果ガス削減の取り組み

家庭における温室効果ガスの削減を推進するため、住宅の断熱改修やZEH（ネット・ゼロ・エネルギー・ハウス）などのエネルギー性能の高い住宅の普及促進等に向けた取り組みを行っています。また、住宅におけるエネルギーの地産地消を推進するため、初期費用が不要な太陽光発電システムの導入や共同購入による太陽光発電設備・蓄電池等の導入促進に取り組んでいます。

Greenhouse Gas Reduction Initiatives in Households

To promote reduction of greenhouse gases in households, measures are implemented to promote the heat insulation renovation of homes, dissemination of ZEH (Net Zero Energy House) and other high energy performance housing, and other measures. Also, to promote domestic production and domestic consumption of energy in households, we are working to introduce solar power systems that require no initial cost, adoption of solar power systems and storage batteries based on joint purchasing and so on.

せんだいE-Actionの推進

東日本大震災での燃料供給の途絶や長期の停電などの経験を踏まえ、できることから3E（省エネ・創エネ・蓄エネ）を実践していく、市民・事業者・行政協働の普及啓発活動を平成25年度から開始しています。脱炭素なライフスタイル・ビジネススタイルの定着を促すためイベント等への出展のほか、Web啓発ツールの運用や動画の配信など様々な取り組みを行っています。

Promotion of Sendai E-Action

In light of the experience during the Great East Japan Earthquake, which fuel supplies were severed and power supplies were interrupted for an extended period of time, starting from 2013, dissemination and enlightenment activities based on cooperation between citizens, businesses and government were commenced with the goal of encouraging the practice of 3Es (energy saving, energy generation, and energy storage). In addition to placing exhibits at events, etc. for promoting establishment of zero carbon lifestyles and business styles, other initiatives such as the operating online awareness programs and the publication of informational videos were also adopted.



たまきさんサロンで育成した緑のカーテン
Green wall at Tamakisan salon

防災対応型太陽光発電システム Introduction of Disaster-Resistant Solar Power Generation Systems

指定避難所への導入

東日本大震災では、電気・ガス・ガソリンなどの供給が途絶し、避難所運営などの初期対応においてさまざまな問題が生じました。こうした経験を踏まえ、指定避難所となる小中学校など約200カ所に太陽光発電と蓄電池を組み合わせたシステムを導入し、災害時における自立型の電源の確保と、平常時のCO2の排出削減を図る取組を進めています。停電時には、昼は太陽光発電、夜は蓄電池による電気を確保することで、防災無線やテレビなどの情報通信機器、照明などの使用が可能になります。

システムの一元管理に向けた遠隔監視・制御への取り組み

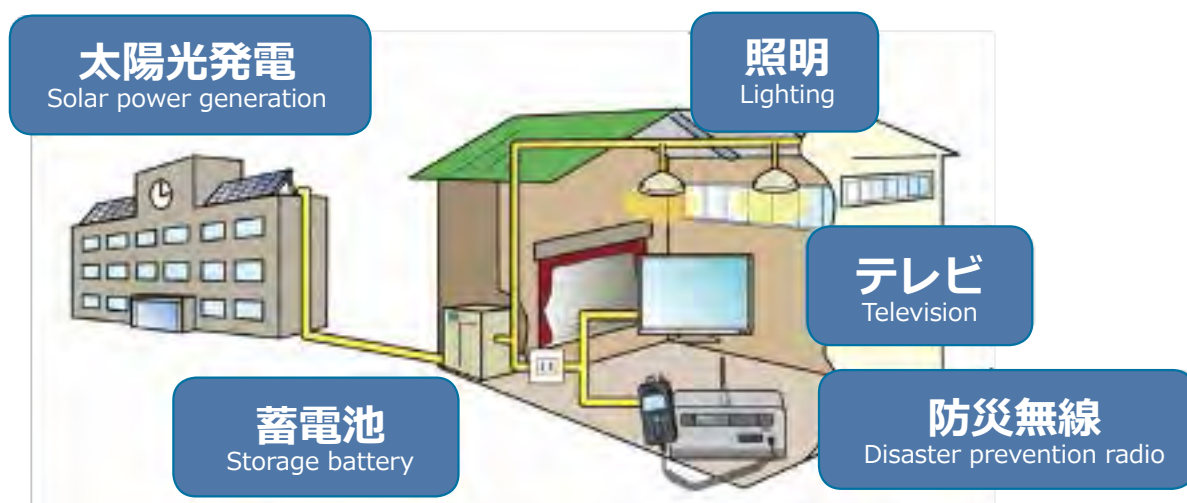
企業や大学等との連携のもと、防災対応型太陽光発電システムに遠隔監視・制御等が可能となるエネルギーマネジメントシステムの導入に向けた取り組みを進めています。

Designated Evacuation Centers

Immediately after the Great East Japan Earthquake, electricity, gas and gasoline supplies were suspended, which resulted in various problems during the initial disaster response, amongst which including the operation of evacuation centers. In light of this experience, we have introduced solar power generation systems combined with storage batteries into approximately 200 facilities including elementary and junior high schools which are used as designated evacuation centers. With these systems, an independent power supply is secured when a disaster occurs, while CO2 emissions are reduced during times of normalcy. During power outages, electricity is supplied from the solar power generation system during daytime and from the storage battery at night. This makes the operation of information communications equipment such as disaster-prevention wireless communication systems, televisions, as well as lights possible.

Initiatives for Remote Monitoring and Control Aimed at Consolidated Management of Systems

In collaboration with companies, universities, etc., we are advancing initiatives geared to introducing energy management systems that make it possible to remotely monitor and control disaster-response solar power generation systems.



民間事業者向け各種支援

災害時に地域の防災拠点となる民間施設において、防災拠点機能を確保・維持するために必要な再生可能エネルギーなどの設備を導入する場合、その費用に対して助成しています。

また、仙台市内において、クリーンで安定的なエネルギーの製造・供給を行う事業者や、次世代エネルギー等の研究開発・実証実験を行う施設を新設・増設する事業者に対して助成しています。

Supports for Private Sector Operators

When introducing renewable energy equipment, etc. that is necessary for securing and maintaining disaster management base functions in private sector facilities earmarked as local disaster management bases during disasters, Sendai City subsidize the costs. Moreover, we offer subsidies to businesses within the city that manufacture and supply clean and stable energy, and businesses that construct new or additional facilities that will serve the purpose of conducting research and development and demonstration testing of next generation energy, etc.

藻類から創る次世代エネルギーの研究

大学や民間事業者と共同で、生活排水からオイル等を生産する「藻類バイオマス」の研究を進めています。これまでに、南蒲生浄化センター内に「仙台・南蒲生藻類バイオマス技術開発実験室」及び屋外パイロットプラントを建設し、下水を活用した藻類の培養やオイルの抽出・精製等のための研究を行ってきました。

今後もこれまでの成果を踏まえ、事業性の向上につながる研究開発を促進していきます。

Research into Revolutionary Next Generation Energy Made from Algae

Sendai City, in collaboration with universities and private sector operators, is advancing research related to "algal biomass" that can be used to produce oil, etc. from domestic waste water. So far, the "Sendai Minami-Gamo Algal Biomass Technology Development Laboratory" and an outdoor pilot plant have been constructed inside of the Minami-Gamo Wastewater Treatment Plant, where research on culturing algae with sewage and the extraction and purification of oil have been conducted. We will continue to carry out research and development based on these past results with the objective of enhancing commercial viability.

自助・共助・公助 Self-Help, Mutual Aid and Public Assistance

仙台市地域防災計画

震災後の平成25年に改訂を行い、災害時の被害を最小化する「減災」、災害時要援護者への配慮、男女共同参画の促進などを基本方針に盛り込みました。また、地域による「共助」の取り組みを推進するため、計画の構成を、市民・町内会などの活動をまとめた「自助・共助編」と、行政の活動をまとめた「公助編」に分け、それぞれがどのような活動をするべきか分かりやすく記述しました。

Sendai City Disaster Prevention Plan

In 2013, two years after the disaster, this plan was revised by incorporating additional policies, including 'disaster risk reduction' to minimize damage from a disaster, focusing attention on the needs of people requiring assistance during a disaster, and the promotion of gender equality, into the basic policy. To promote 'mutual aid' activities undertaken in local communities, the plan was divided into 'Self-help and Mutual Aid' and 'Public Assistance' to specifically envisage what kind of activity is required for each party. In this plan, 'Self-help and Mutual Aid' describes activities by individual residents and neighborhood associations, and 'Public Assistance' describes Sendai City programs.



地域版避難所運営マニュアルの作成

震災後、仙台市では町内会などの地域団体と行政、施設管理者が一体となり避難所ごとの運営の在り方を再検討し、各避難所の地域特性を踏まえた「地域版避難所運営マニュアル」を作成してきました。

地域特性を考慮しつつ、女性や障がい者、外国人への対応もマニュアルに取り入れるなど、多様なニーズに配慮しながら、避難所の運営に取り組めます。

また、多様化する自然災害に対応するため、大雨時や、ため池決壊時の避難所の運営等を加えた「大雨時避難・開設編」に基づいたマニュアル作成を行っているほか、避難所での新型コロナウイルス感染症の拡大を防ぐため、「新型コロナウイルス対策追加事項」を定め、各避難所で取り組む感染症対策や、そのための事前検討などに取り組んでいます。

Creation of Areal Evacuation Center Operation Manuals

Following the Great East Japan Earthquake, Sendai City and neighborhood associations, other local organizations, administrative offices and facilities managers came together to re-evaluate the city's current way of operating evacuation centers. From there on, the "Areal Evacuation Center Operation Manuals" is created with regards to the local characteristics of each evacuation center. While considering local characteristics, the manuals also take into account measures for women, persons with disabilities and non-Japanese residents so as to ensure that the evacuation centers can be operated while giving consideration to the diverse needs of citizens. In addition, in response to the increasingly diversifying natural hazards, manuals are also being created for operating evacuation centers in times of torrential rainfall, rupture of reservoir and so on. Moreover, in response to the need to prevent the spread of COVID-19 infections in evacuation centers, the "Additional Resources for COVID-19 Countermeasures" has been developed and efforts are being directed to the investigation and implementation of infection prevention measures at evacuation centers.



市民力と地域力を育む総合防災訓練

大規模災害から命を守るため、年間を通じて自助、共助、公助による訓練をバランスよく実施し、市民の総合力による防災の実現を目指しています。

毎年6月12日の「市民防災の日」には、大規模地震の発生を想定した市民参加型の身体保護訓練(シェイクアウト訓練)を実施し、併せて各家庭等で家具の転倒防止や備蓄物資の確認を実施します。また、9月上旬の防災週間を中心に公共交通機関の停止を想定した帰宅困難者対応訓練、9月の防災・減災強化月間を中心に各区及び宮城総合支所管内の6地区において、地震や水害など地域の特性に応じた想定で地域主体の各地区総合防災訓練、11月5日の「津波防災の日」前後の日程では、東部沿岸地域の津波避難エリアで津波避難訓練を実施します。

Comprehensive Disaster Preparedness Drills to Improve the Capacity of Residents and Communities to Respond to Disasters

To protect lives from large-scale disasters, we aim to implement a good balance of drills that are based on self-help, mutual aid and official assistance throughout the year, and realize disaster prevention based on all-round civic capability.

On Citizen Disaster Preparedness Day, which is held on June 12 every year, a body-protection drill (shake-down training) with citizen participation is implemented assuming the scenario of a large-scale earthquake. In tandem with this, households, etc. check measures to prevent furniture from falling and confirm their stocks of disaster prevention supplies. Moreover, in early September, mainly during disaster prevention week, drills assuming that public transport is suspended and people are stranded are held; while mainly during September (disaster prevention and risk reduction strengthening month), general disaster prevention drills are conducted in each district and the six blocks within the jurisdiction of Miyagi general branch offices. These drills are tailored to the specific disaster characteristics, for example, earthquake or flood, etc., of each local area. Also, on dates around World Tsunami Disaster Prevention Day, (November 5), tsunami evacuation drills are implemented in tsunami evacuation areas on the eastern coastline.



避難誘導訓練
Drills for Evacuation Guidance

仙台市地域防災リーダー(SBL)の養成

自主防災組織の活性化と市内全域での地域防災力の底上げを図るため、平成24年度から仙台市独自の講習プログラムにより「仙台市地域防災リーダー(SBL)(※)」の養成を開始し、令和3年度までの10年間で、女性226人を含む1,001人が養成されました。

SBLは、平常時には地域の特性を考慮した自主防災計画づくりや効果的な訓練の企画・実践するなど予防活動の中心的役割を担い、災害時には避難誘導や救助・救護活動を指揮するなど、地域の自主防災組織の核となる活動を行います。

養成後も、毎年度全市及び各区バックアップ講習会を開催するなど、SBLとしての知識・技術の向上、並びにSBL同士及び地域との連携強化を図っています。

(※)SBL=Sendai shi chiiki Bousai Leaderの略

Training of Sendai City Community Bosai Leaders (SBL)

To vitalize autonomous disaster prevention organizations and raise the level of community disaster prevention capacity, Sendai City started training of Sendai City Community Bosai Leaders (SBL)(※) based on an original training program in 2012. In ten years up to 2021, 1,001 persons including 226 women have been trained as SBLs.

At normal times, SBLs mainly conduct preventive activities, such as compiling autonomous disaster prevention plans and planning and implementing effective drills suited to the characteristics of each area, while at times of disaster, they play a leading role in community autonomous disaster prevention activities by helping people evacuate and directing rescue and relief activities, etc.

Following the initial training, Sendai City stages annual city-wide and district-based backup training sessions, thereby enabling SBLs to improve their knowledge and skills and strengthening links between SBLs and with local areas.

支援を必要とする方を地域で守る災害時要援護者情報登録制度

災害時に安否確認や避難誘導などの支援を必要とする方の情報を地域団体などに提供することにより、地域における避難支援体制づくりに活用する制度です。

登録は、支援を必要とする方からの申し出によって行われ、令和4年3月時点での登録者数は10,055人です。

The Local Community Helps Residents in Need Registration System for People Requiring Assistance at Times of Disaster

This registration system provides local community organizations with information concerning people who require assistance, such as confirmation of their safety or the need for help in evacuating. It allows each community to create their own evacuation support system. People who require assistance at times of disaster must apply for registration. 10,055 such persons were registered as of March 2022.

福祉避難所

指定避難所での生活が困難な高齢者や障害のある方などの災害時要援護者を受け入れるため災害時に必要に応じて開設される二次的避難所です。災害発生直後から必ず開設されるものではなく、専門職(保健師)などが、本人の状況や要介護認定の有無などを確認し、福祉避難所への避難の必要性を判断するものです。

仙台市では、福祉避難所として協定を締結する福祉施設を増やすとともに、資機材や備蓄物資の充実を図っています。令和4年4月1日時点での福祉避難所は142カ所となっています。

Welfare Evacuation Centers

Secondary evacuation centers are opened for elderly persons, persons with disabilities and other persons who cannot go to designated evacuation centers and require special assistance at times of disaster. Such centers are not always opened immediately after disasters, but first, experts (public health nurses) assess the conditions and long-term care certification, etc. of such persons and determine the necessity for evacuating to such welfare evacuation centers.

Sendai City aims to increase the number of welfare facilities with which it signs welfare evacuation center agreements, and to enhance stocks of equipment, materials and supplies in readiness for disasters. The city has 142 welfare evacuation centers as of April 1, 2022.

ヘルプカード

「ヘルプカード」は、障害のある方が、緊急時や災害時、困った際に、周囲の配慮や手助けをお願いしやすくするカードです。

名刺大のカードに、緊急連絡先やかかりつけ医療機関・必要な支援などを記載して携帯することができます。

「災害時要援護者情報登録制度」への登録とあわせてヘルプカードの活用を促進しています。

Help Card

A 'help card' is available for people with disabilities to make it easier for them to ask for attention or help when a disaster or problem occurs or in an emergency.

It is the size of a business card with information on their emergency contacts, names of hospitals/clinics they are consulting with, and the support they require.

We encourage people requiring assistance during a disaster to use the help card and to apply for the registration system.

The image displays a sample 'ヘルプカード' (Help Card) form and a colorful illustration. The form is a white card with black text and lines for input. It includes fields for '障害種別・疾病等' (Type of disability/disease), '種別' (Type: physical, mental, etc.), '障害名・病名' (Disability name/disease name), '症状' (Symptoms), 'かかりつけ医療機関' (Regular medical institution), '病院名' (Hospital name), and '電話番号' (Phone number). The illustration shows a pink cartoon character holding a blue balloon, with the text 'あなたの支援が必要です ヘルプカード' (We need your support Help Card) and a red cross symbol. The bottom right corner of the illustration has the text '仙台市' (Sendai City).

自助・共助・公助 Self-Help, Mutual Aid and Public Assistance

災害用備蓄物資の充実

仙台市では、家庭内での災害用備蓄物資として、一週間分の食料、飲料水、最低限の生活物資及び医療品の準備を推奨しています。東日本大震災時の最大避難者数10万6千人及び災害対応職員1万人の2日分にあたる食料(6食)と飲料水(2リットル)のほか、簡易型トイレ、カセットガス発電機、感染症対策物資などの避難所運営に必要な物資を各避難所に備蓄しています。また、各区役所等には粉ミルクや哺乳瓶などの乳幼児用の物資、衛生用品、感染症対策物資などを備蓄し、当該物資が必要となった避難所に配布できる状態としています。さらに、女性や高齢者に配慮した物資などを流通在庫備蓄方式により民間企業の倉庫で備蓄し、災害時には避難所に搬送します。そのほか、地域の自主防災活動の拠点となるコミュニティ防災センターを102カ所、センターがない地区には簡易型防災資機材倉庫を30カ所整備し、地域の自主防災活動に必要な物資を備蓄しています。

Expansion of Stockpiled Disaster Supplies

Sendai City recommends that each household prepare disaster supplies consisting of one-week worth of food supply, drinking water, basic living supplies and medical supplies. The city also has planned public stockpiles at each evacuation center. These reserves store two days' worth of food (six meals per person) and drinking water (two liters per person), mobile toilets, portable gas type generators, supplies for treating infections, and other supplies required for the operation of evacuation centers. The content of each reserve can accommodate up to 106,000 evacuees and 10,000 disaster response workers, which was the maximum number of evacuees and workers during the Great East Japan Earthquake. Moreover, each Ward Office, etc. are tasked with the storage of items such as milk powder, nursing bottles and other baby items, sanitary products, supplies for treating infections control measures, so as to ensure that resources are appropriately distributed depending on the demands of each evacuation center. Also, supplies for women, elderly persons, and so on are stockpiled as distribution inventory in the warehouses of private sector companies and delivered to evacuation centers at times of disaster based on the distribution stockpile method. In addition, 102 community disaster-prevention centers that can become bases for local volunteer disaster risk reduction activities have been established, while basic disaster risk reduction equipment and materials warehouses have been established in 30 districts that have no such center. Such stockpiles ensure that communities will have the necessary equipment and materials to conduct volunteer disaster risk reduction activities during times of disaster.



指定避難所倉庫
Designated evacuation center warehouse



流通在庫備蓄
Running stock system

流通在庫の活用

平成22年、仙台市は政令指定都市として初めて、災害用備蓄物資の保管方法として流通在庫備蓄方式を導入しました。この方法は、仙台市が購入した紙おむつ、生理用品、トイレトーパーなどの備蓄物資を企業の流通ルートに乗せ、流通在庫の一部として企業の倉庫に保管し、災害時には避難所に搬送するものです。使用期限到来に伴う更新が不要で、購入経費が節約でき、保管用の倉庫を必要としないメリットがあります。震災時も、この方式に基づいて備蓄物資が提供されました。

Use of Emergency Supplies

In 2010, Sendai City introduced a 'running stock system' to stockpile goods for disasters for the first case that this system was introduced in an ordinance-designated city. Under this system, the goods that the city has purchased, such as disposable diapers, sanitary items, and toilet paper are put in the distribution route of sales companies and stored in their warehouses as part of emergency supplies, and, in times of disaster, the goods are sent to evacuation centers. This system has the advantages that it does not need to be renewed with the expiration, saves purchasing costs, and does not require a warehouse for storage. Immediately after the Great East Japan Earthquake, these stockpiled goods were provided to each evacuation center according to this system.

帰宅困難者対策

震災時、公共交通機関の運行停止により、観光客を含む1万人を超える帰宅困難者が発生し、最寄りの指定避難所に殺到したため、地域住民が避難所に入れないなどの混乱が生じました。

これを教訓として、JR仙台駅など交通結節点周辺において、大規模災害時に想定される約1万4千人の帰宅困難者に対応できるよう、関係機関、団体による共助の取組みとして、駅構内・ホテル・商業施設・大学キャンパスなどの協力を得ながら帰宅困難者の一時滞在場所を確保するとともに対策の検討や訓練等を実施しています。

JR仙台駅では、周辺の関係団体による連絡協議会を設立し、平成26年5月には仙台駅周辺帰宅困難者対応指針を策定し、事業所からの一斉帰宅の抑制の周知など、災害時の取り組みや役割分担を定めるとともに、定期的に対応訓練を実施しています。

また、JR長町駅周辺においても、駅周辺の関係団体による連絡協議会を平成30年6月に設立するとともに、長町駅周辺帰宅困難者対応指針の策定を行い、仙台駅周辺と同様に定期的に対応訓練を実施しています。

一方で、徒歩での帰宅を支援するため、(一社)日本フランチャイズチェーン協会加盟事業者11社と宮城県、仙台市とで3者協定を締結し、災害時帰宅支援ステーションとなった店舗では、水道水やトイレ、道路情報等の提供を受けることができます。

Measures for Stranded Commuters

At the time of the Great East Japan Earthquake, public transportation was suspended and more than 10,000 people including tourists, were left stranded. Confusion resulted from the stranded people who rushed to nearby evacuation centers, making it impossible for local residents to get into their own designated centers.

In light of this experience, we collaborated with related agencies and organizations to secure temporary stay places for accommodating up to around 14,000 possible stranded people in the event of a major disaster, by utilizing train stations, hotels, commercial facilities and university campuses. In addition, countermeasures are examined and drills are carried out.

A 'liaison council' was established by concerned parties located around JR Sendai Station. In May 2014, they drew up the guidelines for responding to stranded people. They include stopping commuters from going home all at once and specifying the measures that people must take, and roles and responsibilities at times of disaster, as well as holding disaster drills on a regular basis.

A 'liaison council' was established by concerned parties located around JR Nagamachi Station in June 2018. They drew up guidelines for responding to stranded people and implemented similar drills to those conducted around Sendai Station.

Meanwhile, to support people who choose to walk home, Miyagi Prefecture, Sendai City and 11 companies that belong to the Japan Franchise Association have signed an agreement whereby shops will act as support stations and provide potable water, toilet facilities and road directions to people walking home in the event of a disaster.



帰宅困難者対応訓練
Drill for responding to stranded commuters

防災・減災の新たな担い手 New Drivers of Disaster Risk Reduction

未来へつなぐ

仙台は869年(貞観11年)、1611年(慶長16年)の地震による津波をはじめ、川の氾濫による水害など、様々な災害に襲われてきた歴史を持っています。先人たちは石碑や古文書などで災害の歴史を今に伝えてくれており、それを広く防災教育に生かしていく必要があります。

Connecting with the Future

The City of Sendai has a long history of various disasters, for example, tsunami caused by earthquakes in 869 and 1611, flooding caused by burst rivers. Our forefathers have conveyed the history to us in the form of stone monuments and written records, and we need to reflect these lessons widely in disaster risk reduction education.

防災教育の推進

自分自身や家族を守り、地域の防災力を支えるのは人であり、災害時に適切な行動が取れる人づくりが重要です。

仙台市では、震災後に新たな防災教育の方針を策定し、平成28年度からは仙台版防災教育として全市立小・中学校で防災教育を実施しています。全校に防災主任を配置するほか、仙台市独自の仙台版防災教育副読本を全児童生徒に配付し、各教科等で活用しています。

Promotion of Disaster Risk Reduction Education

Since it is the job of people to protect themselves and their families and support the disaster risk reduction capability of communities at times of disaster, it is important to train people who can take appropriate actions at such times.

Following the Great East Japan Earthquake, Sendai City compiled its disaster risk reduction education policy and has implemented its own original disaster risk reduction education program at all municipal elementary and junior high schools since FY2016. All schools appoint a teacher in charge of disaster risk reduction, and supplementary readers for disaster risk reduction education describing Sendai's original disaster risk reduction education are distributed to all children and used in lessons of various subjects.



防災マップづくり
Creating a Disaster Risk Reduction Map

防災教育副読本

防災・減災の意識を高め、主体的な判断力・行動力の定着を目指し作成しました。子どもたちの震災の体験談を載せたり、緊急時の行動についての問いを設けるなど、子どもたちの主体性を育むための工夫を凝らしています。小学校1～3年生用、4～6年生用、中学生用の3分冊からなり、発達段階に応じて、理解を深めていけるように構成されています。

Supplementary Readers for Disaster Risk Reduction Education

This reading material was created to raise children's awareness about disaster risk reduction and develop their ability to judge and act.

The material contains stories of children who experienced the disaster as well as questions about what to do in an emergency that will lead children to develop their independence.

It consists of three separate volumes, one for 1st to 3rd year elementary school students, one for 4th to 6th year elementary school students, and one for junior high school students, so as to deepen their understanding according to their developmental stage.





防災ワークショップ
Disaster Risk Reduction Workshop

仙台版防災ワークショップ「みんなのための避難所作り」

震災の際、避難所では女性がさまざまな不便や困難を抱えましたが、その背景には、避難所運営について決定する場への女性の参画の少なさがありました。そこで、平常時から地域防災に女性をはじめさまざまな人が参画できるよう、(公財)せんだい男女共同参画財団では、市民と協働で、多様な意見を生かした避難所運営を考えるワークショッププログラム「みんなのための避難所作り」を作成し、市民センターや社会学級などで実践しています。

避難所で起こった課題を題材にして、参加者同士で解決策について話し合い、さまざまな意見の中から、自分では気づかなかった視点や思いもよらない考え方を認め合い、共感するプログラムで、知恵を出し合うことにより、「みんな」が納得できる解決策を生み出すことを体験できます。

Sendai Workshop on Disaster Risk Reduction, 'Shelters for Everyone'

The various problems women faced in evacuation centers at the time of the disaster were often due to the fact that there were only a small number of women participating in the decision making process with regard to the operation of evacuation centers. Thus, in collaboration with residents, the Sendai Gender Equal Opportunity Foundation created a workshop program called 'Shelters for Everyone' that employs the various viewpoint in the operations of evacuation centers. This program has been implemented at civic centers and adult education classes so various people including women can take part in local disaster risk reduction activities on a routine basis.

In the program, participants discuss solutions using actual problems that occurred in the evacuation centers. They realize that others have viewpoints and thoughts that would not occur to them. As a result, they will realize that solutions that suit everybody can be produced by sharing each other's knowledge.

災害時の外国人支援

言葉や習慣の違いから必要な情報を得られないおそれのある外国人住民を支援するため、仙台市は大規模災害発生時に災害多言語支援センターを設置し、(公財)仙台観光国際協会が運営にあたります。

また、災害時言語ボランティアの登録も行っており、災害時には協力して支援を行います。研修の一環として地域防災訓練に参加し、外国人参加者への通訳なども行っています。

外国人住民の防災意識を高めるとともに、災害時の支援を円滑に行うため、多言語で作成した防災パンフレットや動画を活用した防災情報の発信や、来日間もない外国人を対象とした防災訓練・研修を行っています。また、FMラジオ局の協力により、防災番組に外国人住民が出演し、被災体験や防災の取り組みを紹介しています。

Support for Non-Japanese Residents at Times of Disaster

To support non-Japanese residents, who may not be able to obtain necessary information due to differences in language and customs, Sendai City establishes a multilingual disaster support center, which is operated by Sendai Tourism, Convention and International Association, at times of major disaster.

It also registers disaster linguistic volunteers through which it offers cooperation and assistance. As part of their training, volunteers participate in community disaster prevention training and provide interpreting services for non-Japanese participants.

To raise the disaster risk reduction awareness of non-Japanese residents and facilitate smoother support activities at times of disaster, we transmit disaster prevention information in the form of multilingual pamphlets and videos, and implement disaster prevention drills and training for non-Japanese residents who have only recently arrived in the country.

Moreover, with the cooperation of FM radio stations, non-Japanese residents appear on disaster risk reduction programs to share their experiences and introduce disaster preparation initiatives.



12言語で制作した多言語防災ビデオ
Disaster Risk Reduction Video in
12 Languages



防災教室ではボランティアが心肺蘇生法を通訳
Volunteers Interpreting How to perform CRR at a Disaster Risk Reduction
Training Session

未来へ、世界へ To the Future and the World

震災を経験していない世代が今後増えてきていきます。

震災の記憶を長くとどめ、経験や教訓を未来の防災へ活かすためには、年月の経過とともに失われていく私たちの記憶や資料、哀悼の思いを形に残し、継承していくことが必要です。

仙台市では、市民・地域団体と連携・協働したメモリアル施設の運営、映像や写真によるアーカイブの整備などの取り組みを通じて、震災の記憶や経験を伝えていきます。

また、第3回国連防災世界会議の成果文書「仙台防災枠組2015-2030」の採択都市として、世界に向け発信することで世界の防災と減災の推進に貢献していきます。

The number of generation who didn't experience the Great East Japan Earthquake will increase from now on.

In order to keep the memory of the disaster fresh and leverage the experience and lessons of it for future disaster prevention, it is necessary to retain and pass on our memories, records and sentiments of condolence in tangible form.

Sendai City will convey memories and experiences of the disaster through initiatives such as operating memorial facilities in collaboration with civic and community groups and compiling archives of video and photographic images.

Moreover, as the city that adopted the Sendai Framework for Disaster Risk Reduction 2015-2030 at the Third UN World Conference on Disaster Risk Reduction, Sendai is committed to sending its message and contributing to disaster prevention and reduction around the world.

震災遺構 仙台市荒浜地区住宅基礎

「荒浜記憶の鐘」隣接地に津波により被害を受けた住宅6戸の遺構と浸食された地形をそのままの形で保存するほか、地域の記憶やそこにあった人々の暮らしや様子、被災後の状況を伝えるため、写真や証言を掲載した説明看板も設置しています。エリア内は見学用通路から見学できます。

Ruins of the Great East Japan Earthquake: Residential Foundations in Arahama District, Sendai

On land adjoining "Arahama Kioku-no-Kane" (Arahama Memorial Bell), the remains of six houses and terrain that were destroyed by the tsunami are preserved unchanged, and an explanatory board has been erected to show photographs and accounts of the local area's memories, how people used to live there, and what conditions were like following the disaster. Visitors can observe the area from an observation pathway.



震災遺構 仙台市荒浜地区住宅基礎
Ruins of the Great East Japan Earthquake :
Residential Foundations in Arahama District, Sendai

震災遺構 仙台市立荒浜小学校

津波被害の教訓を発信・継承し、将来起こりうる津波による犠牲を少しでも減らすため、荒浜小学校の校舎を震災遺構として整備し、平成29年4月から一般に公開しています。

荒浜小学校は海岸線から約700m内陸に位置し、震災前は91名の児童が通っていました。津波により校舎の2階まで浸水しましたが、校舎内に避難していた児童や教職員、地域住民ら320名は翌日までに全員無事救助されました。

校舎内部では、破損した教室や被災直後の写真、当時の状況を振り返る映像などにより津波の脅威を伝えているほか、荒浜地区の歴史や小学校の思い出に関する資料も展示しており、地域の記憶の継承にも努めています。

Ruins of the Great East Japan Earthquake : Sendai Arahama Elementary School

Sendai City is preserving the Arahama Elementary School building as a tsunami memorial, so as to pass down the lessons learned from the disaster to future generations while striving to reduce the impact of the damage and casualties in the event of a tsunami that may occur in the future. The memorial facility has been open to the public since April 2017.

Located about 700m inland from the coastline, Arahama Elementary School was attended by 91 students before the 2011 disaster. Although the tsunami flooded the school building with water up to the second floor, 320 persons, including students, teachers and staff of the school and nearby residents who had evacuated to the building, were all safely rescued by the next day.

Inside the school building, visitors learn about the tremendous damage that can occur during a tsunami through photos of destroyed classrooms and photos taken immediately after the tsunami struck the school in 2011. There are also DVDs on the history of the Arahama area and materials that recall the elementary school before the disaster so that these memories can be conveyed to future generations.



震災遺構 仙台市立荒浜小学校 1階廊下
Ruins of the Great East Japan Earthquake :
Sendai Arahama Elementary School
School building 1st floor

せんだい3.11メモリアル交流館

平成28年2月、地下鉄東西線の東側の起点である荒井駅舎内にオープンした、震災伝承の拠点施設です。1階は地図やスライドなどによる東部沿岸地域の情報発信のための交流スペース、2階は震災被害や復旧・復興の状況、東部沿岸地域の記憶を伝える展示室とワークショップなどの開催や市民活動用のスタジオ、そして屋上は憩いの空間として活用されています。

「交流館」の名が示すように、単なる展示だけの施設ではなく、地域住民をはじめとする市民やNPOなどの市民団体が集い、多様な活動を展開する中で、人と人との新たなつながりを生み出す場としての役割を担っています。

Sendai 3/11 Memorial Community Center

At the eastern terminus of the Tozai Subway Line, located inside Arai Station, is the Sendai 3/11 Memorial Community Center. The center opened in February 2016 as a place to archive items so they can be used to pass down the experiences and lessons learned from the 2011 disaster. The 1st floor is a 'communication space' that provides information on the eastern coastal areas affected by the tsunami using maps and slides. On the 2nd floor, there is an exhibition room where visitors can see and learn about the destruction wrought by the tsunami and earthquake, the progress made thus far in our restoration and reconstruction efforts, and scenes of the eastern coastal areas before the disaster. There is also a studio used for holding workshops or other civic activities on the same floor. The rooftop is utilized as a space to rest.

The Memorial Community Center is not only a facility for displaying exhibits but also a place where people from all walks of life, including residents, residents' groups and NPOs, are able to gather and take part in various activities and build new relationships.



せんだい 3.11 メモリアル交流館
Sendai 3/11 Memorial Community Center

記録誌等の発行

大震災の経験や教訓の発信、風化の防止のため、発災から復興計画期間終了までの5年間にわたる仙台市の取り組みなどをまとめた記録誌や、市民や地域団体などの多様な主体による取り組みを紹介する広報誌など、さまざまな記録誌・広報誌を発行しています。

Issue of Records, etc.

To ensure that the experience and lessons of the Great East Japan Earthquake are conveyed and not allowed to fade, the City of Sendai has issued various records and publications, including a record of the city's efforts over the five years from occurrence of the disaster to the end of the reconstruction plan. Some of the publication themes include introducing initiatives by citizen and community groups and other entities, and so on.



さまざまな記録誌や広報誌
Various Records and Publications



3月12日ははじまりのごはん展示
(3.11オモイデアーカイブとの協働)
Photo exhibition 'March 12:
Hajimari no Gohan
(Meals that mark a new start)'
(in collaboration with the
Remember 3/11 Archive)

3がつ11にちをわすれないためにセンター

市民、さまざまな分野の専門家・アーティスト・スタッフが協働して、震災とその復旧・復興のプロセスを記録・発信し、震災に対して向き合って考えるためのプラットフォームとして、平成23年5月に「3がつ11にちをわすれないためにセンター」(略称: わすれん!)がせんだいメディアテーク内に開設されました。

さまざまな立場の個人が見聞きし、記録した映像・写真・音声などは適切な権利処理がなされたのち、「震災の記録・市民協働アーカイブ」として整理・保存され、ウェブサイトでの公開、ライブラリーへの配架、展示や上映会の開催など、さまざまな形で活用されています。また、記録を囲み、震災について語り合う場づくりも行っています。

Center for Remembering 3/11

In May 2011, in a joint effort between citizens, experts from various fields, artists, and staff, the "Center for remembering 3/11" ("Wasuren!") was opened within the Sendai Mediatheque as a platform to face and reflect on the earthquake, and record and convey the Great East Japan Earthquake Disaster and the process of recovery and reconstruction.

After observing and listening to the situations of a diverse range of individuals and performing the appropriate information right processing of video recordings, photographs, and recordings, the records are organized and preserved as "Chronicles of Disaster: Residents' Collaborative Archive". They are utilized in various forms such as being made available to the public on the center's website, displayed in libraries, and are exhibited or screened. Additionally, it creates a place for enclosing records and holding discourse about the disaster.

未来へ、世界へ To the Future and the World

第3回国連防災世界会議

震災2カ月後の平成23年5月、仙台市は、震災の経験と被災地の再生を世界に発信するため、「国連防災世界会議」の誘致を表明しました。平成25年12月に、仙台開催が国連総会で決定。平成27年3月14日から18日まで開催されました。

本体会議には、185カ国の政府代表団、49の政府間組織、188のNGO、38の国際機関など、25名の首脳級を含む100名以上の閣僚、国連事務総長を含む6,500名以上が参加し、本体会議と合わせて行われた一般公開のパブリック・フォーラムには、シンポジウム、展示などに延べ15万人以上が参加するなど、日本で開催された国連関係の国際会議としては最大級のものとなりました。

また、東北6県と連携し、被災地へのスタディツアー、エクスカーションやレセプションなどの歓迎行事も行われました。

The Third United Nations World Conference on Disaster Risk Reduction (WCDRR)

In May 2011, two months after the disaster, Sendai City announced their hope to host the United Nations World Conference on Disaster Risk Reduction to convey their experiences of the disaster and the recovery of the disaster-affected areas. In December 2013, the United Nations General Assembly passed a resolution to hold the conference in Sendai, and it was held from 14 to 18 March 2015.

The main conference of the WCDRR was attended by over 6,500 participants, including 25 heads of state, over 100 ministerial-level delegates and the Secretary-General of the United Nations, representing government delegations from 185 countries, 49 intergovernmental organizations, 188 non-governmental organizations, and 38 international organizations. The public forum events, such as symposiums and exhibitions, were attended by a total of over 150,000 participants. The WCDRR in Sendai was one of the largest international conferences held by the United Nations in Japan.

Other events including study tours of the disaster-affected areas, excursions and receptions were held in cooperation with the six prefectures of Tohoku Region.



閉会式（仙台国際センター）
Closing ceremony (Sendai International Center)



国連防災世界会議 WCDRRP27
Third UN World Conference on Disaster Risk Reduction

仙台防災枠組2015-2030

第3回国連防災世界会議の成果文書で、2005(平成17)年の第2回会議(兵庫)で採択された「兵庫行動枠組」の後継となるもの。2030年までの国際的な防災の取組指針として、世界各国で、仙台防災枠組に基づいた取り組みが行われています。

仙台市は、この枠組の採択都市として、ライフライン、インフラなどのハード整備はもちろんのこと、子どもから高齢者まで、また女性・障害者なども含めた多様な市民が主体となる防災・減災の強化を図っていきます。

■ 特徴

- ①災害による死亡者の減少など、地球規模の目標を初めて設定。
- ②防災の主流化、事前の防災投資、復興過程における「より良い復興(Build Back Better)」などの新しい考え方を提示。
- ③防災・減災での女性や子ども、企業など多様なステークホルダーの役割を強調。

The Sendai Framework for Disaster Risk Reduction 2015-2030

The Sendai Framework is the outcome document of the WCDRR and a successor to the Hyogo Framework for Action 2005-2015 that was adopted at the Second United Nations World Conference on Disaster Risk Reduction held in Hyogo Prefecture in 2005. Many countries implement measures for disaster risk reduction based on the Sendai Framework for Disaster Risk Reduction, an international guideline up to 2030.

As the city where this framework was adopted, we are improving tangibles such as essential utilities and other infrastructure as well as promoting disaster risk reduction on the community level where a variety of residents, including children, elderly people, women and those with disabilities, play a main role in the efforts.

■ Features of the Sendai Framework

1. Global targets such as reducing the mortality rate from disasters were agreed upon for the first time
2. New ideas, such as mainstreaming disaster risk reduction, pre-disaster investment to be used in measures for disaster prevention and disaster risk reduction, and the concept of 'Build Back Better' were presented
3. Emphasis on roles of various relevant stakeholders, including women, children and the private sector to take a preventive approach to prevent disaster and reduce disaster risk



仙台防災枠組講座
Seminars of the SENDAI FRAMEWORK for DRR for citizens in Sendai City

持続可能な開発目標 (Sustainable Development Goals: SDGs)

2015年9月25日～27日に開催された国連持続可能な開発サミットにおいて、持続可能な開発目標(SDGs)として、17の目標(Goals)と169のターゲット(Target)が採択されました。

防災に関連する目標も策定され、目標11. b では、仙台防災枠組2015-2030に沿って、あらゆるレベルでの総合的な災害リスク管理の策定と実施を行うことが記されています。

Sustainable Development Goals: SDGs

At the United Nations Sustainable Development Summit that was staged from 25 to 27 September 2015, 17 Goals and 169 Targets were adopted as Sustainable Development Goals (SDGs).

Goals were also formulated in relation to disaster risk reduction. Goal 11.b calls for the formulation and implementation of comprehensive disaster risk management at all levels in line with the Sendai Framework for Disaster Risk Reduction.



持続可能な開発目標 (Sustainable Development Goals: SDGs)

未来へ、世界へ To the Future and the World

仙台防災未来フォーラムの開催

第3回国連防災世界会議での市民発信を一過性のものとすることなく、2016年から毎年開催しています。大震災の経験や教訓を未来の防災につなぐため、多様な主体が集い、防災について学び、考え、発信するイベントです。

Holding of the Sendai Symposium for Disaster Risk Reduction and the Future

To ensure that the messages of citizens conveyed at the Third UN World Conference on Disaster Risk Reduction are not forgotten, the Sendai Symposium for Disaster Risk Reduction and the Future has been held every year since 2016. This event brings together various entities to learn, consider and convey information about disaster risk reduction, in order to link the experience and lessons of past disasters to future disaster risk reduction.



多様な主体が参加
Participation of Various Stakeholders



仙台防災未来フォーラム
Sendai Symposium for Disaster Risk Reduction and the Future

国際会議や視察の受け入れなどを通じた情報発信

防災・減災の推進に貢献するため、仙台市は、海外・国内の会議での発表のほか、JICA研修や自治体職員研修など、国内外の防災関係者・企業などの視察を積極的に受け入れています。

Sending Out Information through Presentations at International Conferences and Hosting Study Tours

To contribute to disaster risk reduction, Sendai City makes presentations at domestic and international conferences, and actively hosts study tours for people involved in disaster risk reduction from domestic and international organizations and companies. They include training programs for JICA and other municipalities' staff.



せんだい 3.11 メモリアル交流館への視察
Visit to Sendai 3/11 Memorial Community Center



第2回世界防災フォーラムの様子
Scene from the 2nd World BOSAI Forum

新たな取り組み New Initiatives

BOSAI-TECHイノベーション創出促進事業

「仙台市経済成長戦略2023」を平成31年3月に策定し、ICT関連企業と幅広い分野の民間企業等との協業を創出し、イノベーションを促進するとともに、「防災×IT」(BOSAI-TECH)やドローン等の実証実験などを通じた防災関連産業の創出を通して、地域産業の活性化を目指しています。

BOSAI-TECH Innovation Creation Promotion Initiative

Following compilation of "Sendai Economic Growth Strategy 2023" in March 2019, it is intended to create cooperation between ICT enterprises and private sector companies, etc. and promote innovation in a wide range of fields, and to vitalize local industries by creating disaster prevention-related industries through "BOSAI x IT" (BOSAI-TECH) and field testing of drones, etc.



BOSAI-TECH イノベーション創出促進事業
BOSAI-TECH Innovation Creation Promotion Initiative

仙台BOSAI-TECHイノベーションプラットフォーム

「防災」・「テクノロジー」・「ビジネス」のそれぞれの領域で活動する企業・団体・人材等が参画し、産学官金連携により多様な防災課題に対する新たな解決策や新事業を継続的に生み出す場としての役割を担います。このプラットフォームを通じて、参画企業の新たな防災事業の創出と成長を支援するとともに、ここから生まれた事業を、本市、国内、さらには海外へと展開を図り、「仙台防災枠組」の理念の実現を目指します。

Sendai BOSAI-TECH Innovation Platform

With participation by companies, groups, human resources, etc. active in the respective fields of disaster prevention, technology and business, Sendai BOSAI-TECH Innovation Platform serves as a platform for continuously generating new solutions and initiatives for addressing various disaster prevention issues through cooperation between industry, academia and government. Through this platform, in addition to supporting the creation and growth of new disaster prevention initiatives in participating companies, it is intended to extend initiatives to the city, the rest of Japan and overseas and thereby realize the ideal of the "Sendai Framework for Disaster Risk Reduction".



津波避難広報ドローン事業

津波警報等の発表とともに、スピーカー等を搭載したドローンが飛び立ち、あらかじめ定めたルートにおいて、自動運航による避難広報を行うもので、全て人の手を介さずに自動で行います。

これらは、「自動運航のドローンにより津波避難広報を行うこと」及び「専用のLTE通信網でドローンの制御等を行うこと」の2点において世界初の事例であり、実現により、東部沿岸部の来訪者に対する効果的な津波避難広報体制の確立が期待されています。

Tsunami Evacuation Announcement Drone Operation

In this initiative, as tsunami warnings, etc. are being made, evacuation announcements will be carried out simultaneously by drones equipped with speakers, etc. that have been preprogrammed to fly along predetermined routes. This process is conducted entirely automatically with no manual operation needed. This is a world-first initiative in two aspects, i.e. "tsunami evacuation announcements by automatically operated drones" and "maneuvering of drones using a designated LTE communication network". Through the realization of this system, it is anticipated that an effective tsunami evacuation announcement network catering to visitors of eastern coastal area will be established.



導入機体と同型機による現地でのテスト飛行の様子
Tsunami Evacuation Public Information Drone Project

ふるさとの杜再生プロジェクト

東日本大震災により、東部沿岸地域のみどりは甚大な被害を受けました。みどりの再生には、たくさんの樹木を植えるだけでなく、その後の樹木の育成、保全等に多くの力と時間が必要となります。

本プロジェクトは、「杜の都・仙台」の復興のシンボルのひとつとなる事業として、市民・NPO・企業等の力を結集し、海岸防災林をはじめとした東部沿岸地域のみどりの再生を図り、東部地域にかつてのみどり豊かな景観を取り戻し、再び皆が集う場となるよう、取り組んでいます。

Furusato-no-Mori Regeneration Project

The Great East Japan Earthquake imparted massive damage to vegetation on the eastern coastline. In order to restore greenery, efforts beyond mass tree-planting, such as dedicating time and care on nurturing and conserving trees, are also requires. As the program that symbolizes the reconstruction of "Sendai City, the City of Trees", local citizens, NPOs, and companies, etc. combine their resources to regrow coastal disaster-prevention forests and other greenery, with the vision of restoring the previously verdant landscape of the eastern area in order to make the area into a place for people to gather together once more.



活動の様子
Scene from activities

温室効果ガス削減アクションプログラム

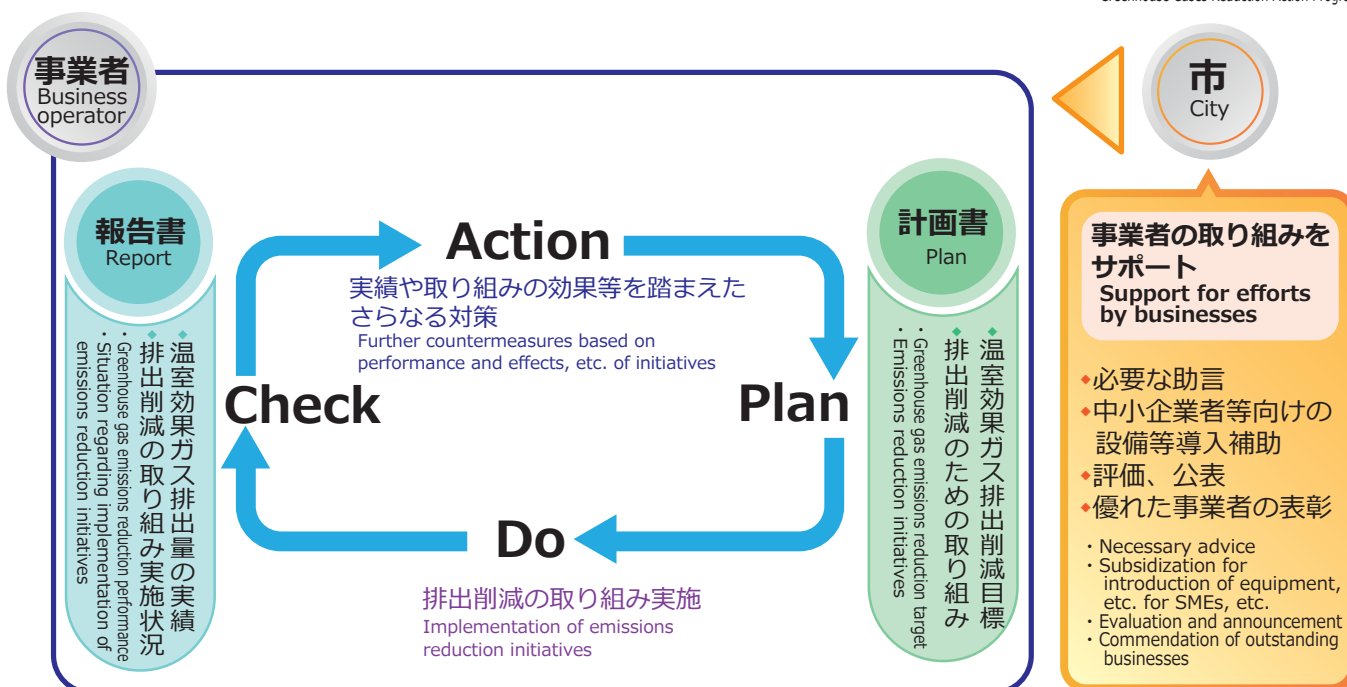
地域の温室効果ガス排出量の約6割を占める事業活動からの排出削減を進める「温室効果ガス削減アクションプログラム」について、中小企業者等の幅広い参加を促すため、省エネ・再エネ設備や次世代自動車導入のための補助を行っています。また、市職員と外部専門家が事業所を訪問し、温室効果ガス削減計画書の作成支援や業種業態に応じた助言等のきめ細やかな支援を実施しています。

Greenhouse Gases Reduction Action Program

Regarding the "Greenhouse Gases Reduction Action Program" for reducing emissions from business activities, which account for approximately 60% of greenhouse gas emissions in urban area, subsidies are provided for introducing energy saving/renewable energy equipment and next generation vehicles with the goal to promote the wide participation of small and medium businesses, etc. Also, city employees and external experts visit business establishments to facilitate the creation of greenhouse gas reduction plans and give detailed advice and assistance according to the type of business by providing individualized consultation.



温室効果ガス削減アクションプログラム
Greenhouse Gases Reduction Action Program



温室効果ガス削減アクションプログラムの仕組み
Mechanism of the Greenhouse Gases Reduction Action Program

東日本大震災からの復旧・復興のあゆみ

平成23年

03.11	東日本大震災(東北地方太平洋沖地震発生・津波襲来)
03.11	避難所開設(3.12最大避難者数105,947人 3.14最大避難所数288か所)
03.15	仙台市災害ボランティアセンター設置(～8.10)
03.28	プレハブ仮設住宅建設開始(あすと長町地区)
04.01	仙台市震災復興基本方針公表
04.07	最大余震(震度6強)
04.11	応急仮設住宅第一次募集申込受付開始
04.16	ガス供給の全面再開(避難勧告区域などを除く)
04.22	宅地内がれき等撤去開始(東部津波被災地域)
05.23	損壊家屋等の解体・撤去申請受付開始
05.30	仙台市震災復興ビジョン策定
06.01	全国の自治体から長期派遣職員の受入開始
06.12	復興まちづくり意見交換会開催(～6.26 7回開催)
06.15	プレハブ仮設住宅全1,505戸完成
07.11	東日本大震災仙台市慰霊祭開催
07.16	東北六魂祭開催(～7.17)
07.31	宅地内がれき等撤去完了(東部津波被災地域)
07.31	市内の避難所閉鎖
10.01	仮設焼却炉によるがれき焼却処理開始
11.09	仙台東地区におけるほ場整備事業説明会開始
11.30	仙台市震災復興計画策定
12.16	災害危険区域指定(東部津波被災地域)
12.17	防災集団移転促進事業に関する説明会(～12.26)(東部津波被災地域)
12.28	農地内がれき等の撤去完了(東部津波被災地域)

平成24年

01.10	被災宅地の復旧に係る相談窓口開設(内陸丘陵部)
03.11	東日本大震災仙台市追悼式開催
04.01	復興事業局設置
05.	復旧工事と除塩が終了した農地の震災後初の営農再開
06.05	住宅宅地再建支援制度受付開始(東部津波被災地域)
09.03	南蒲生浄化センター新水処理施設着工(起工式)
09.10	災害危険区域指定(緑ヶ丘4丁目・内陸丘陵部)
10.10	県道塩釜亘理線等かさ上げ道路事業着手
11.11	防災集団移転先荒井公共区画整理地区の宅地申込受付開始(東部津波被災地域)
12.21	復興公営住宅1住宅12戸の入居申込受付開始

平成25年

03.11	東日本大震災仙台市追悼式開催
03.11	「東日本大震災 仙台市震災記録誌」を発行
03.15	災害危険区域指定(松森陣ヶ原・内陸丘陵部)
04.01	仙台市地域防災計画(共通編、地震・津波災害対策編)全面修正
04.01	仙台・宮城デスティネーションキャンペーン開始(～6.30)
09.17	復興公営住宅6住宅661戸の入居申込受付開始
09.29	がれき(可燃物)の焼却処理完了
10.25	国営仙台東土地改良事業(ほ場整備)起工式
12.27	がれき等の処理・リサイクル完了

平成26年

03.11	東日本大震災仙台市追悼式開催
03.16	県道塩釜亘理線等かさ上げ道路着工(起工式)
03.31	被災者生活再建推進プログラム策定
03.31	長期派遣職員の受入終了
05.10	防災集団移転先最終7地区の宅地申込受付開始(東部津波被災地域)
07.10	復興公営住宅36住宅2,447戸の入居申込受付開始
11.18	海岸公園災害復旧着工

平成27年

02.14	1カ所目の津波避難施設完成
03.11	東日本大震災仙台市追悼式開催

03.14	第3回国連防災世界会議開催(～3.18)
03.23	被災者生活再建加速プログラム策定
03.26	防災集団移転先最終7地区の宅地引渡し式・全ての宅地完成(東部津波被災地域)
08.10	蒲生北部被災市街地復興土地区画整理事業着工
08.12	海岸公園避難の丘着工
12.06	地下鉄東西線開業

平成28年

02.03	「集団移転跡地利活用の考え方」公表(東部津波被災地域)
02.13	せんだい3.11メモリアル交流館全館オープン
03.11	東日本大震災仙台市追悼式開催
03.12	仙台防災未来フォーラム2016開催
03.31	震災復興計画期間終了・復興事業局廃止
04.01	南蒲生浄化センター新水処理施設全系列運転開始
04.19	集団移転跡地利活用アイデア募集開始(東部津波被災地域)
04.29	農業園芸センターがリニューアルオープン
05.20	G7仙台財務大臣・中央銀行総裁会議開催(～5.21)
06.30	復興公営住宅全3,206戸整備完了
09.30	海岸公園避難の丘全4カ所完成
10.15	海岸公園一部利用再開
10.28	プレハブ仮設住宅の供与終了

平成29年

03.	「東日本大震災 仙台市復興五年記録誌」を発刊
03.11	東日本大震災仙台市追悼式開催 「仙台市防災・減災のまち推進条例」施行
03.12	仙台防災未来フォーラム2017開催
03.23	津波避難施設全13カ所整備完了
03.28	プレハブ仮設住宅解体撤去完了
03.28	「仙台市東部沿岸部の集団移転跡地利活用方針」公表(東部津波被災地域)
04.30	震災遺構仙台市立荒浜小学校の一般公開開始
06.10	東北絆まつり開催(～6.11)
11.25	世界防災フォーラム/防災ダボス会議@仙台2017開催(～11.28)

平成30年

03.09	仙台防災未来フォーラム2018開催
03.11	東日本大震災仙台市追悼式開催
03.28	集団移転跡地利活用事業候補者決定(一次募集)(東部津波被災地域)
07.08	海岸公園全面利用再開

平成31年/令和元年

03.10	仙台防災未来フォーラム2019開催
03.11	東日本大震災仙台市追悼式開催
03.27	集団移転跡地利活用事業候補者決定(二次募集)(東部津波被災地域)
08.02	震災遺構仙台市荒浜地区住宅基礎を公開
11.09	世界防災フォーラム/防災ダボス会議@仙台2019開催(～11.12)
11.10	仙台防災未来フォーラム開催
11.27	集団移転跡地利活用事業候補者決定(三次募集)(東部津波被災地域)
11.30	かさ上げ道路(東部復興道路)開通

令和2年

03.11	東日本大震災仙台市追悼式開催
03.30	仙台防災未来フォーラム2020動画公開

令和3年

02.05	国営仙台東土地改良事業(ほ場整備)完工式
03.06	仙台防災未来フォーラム2021開催(～3.7)
03.11	東日本大震災仙台市追悼式開催
06.01	集団移転跡地利活用事業候補者決定(四次募集)(東部津波被災地域)
09.30	蒲生北部被災市街地復興土地区画整理事業完了

令和4年

03.05	仙台防災未来フォーラム2022開催
03.11	東日本大震災仙台市追悼式開催

Milestones in Recovery and Reconstruction from the Great East Japan Earthquake

2011			
Mar.11	Great East Japan Earthquake struck (tsunami hit the area)	Mar.14	The Third UN World Conference on Disaster Risk Reduction took place in Sendai (until Mar.18)
Mar.11	Evacuation centers opened (a peak of 105,947 evacuees on Mar.12 and a peak of 288 evacuation centers on Mar.14)	Mar.23	Program for the Speedy Rebuilding of Disaster Victims' Lives formulated
Mar.15	Sendai City Disaster Volunteer Centers opened (until Aug.10)	Mar.26	Residential land for seven areas of Disaster Prevention Collective Relocation Land Handing-Over Ceremony and all residential land completed (tsunami-flooded Eastern area)
Mar.28	Construction of prefabricated temporary housing began (Asuto-Nagamachi area)	Aug.10	Northern Gamo Disaster-Affected Area Urban Redevelopment Project started
Apr.01	Sendai City Basic Policy for Earthquake Disaster Reconstruction announced	Aug.12	Construction started on Kaigan Park Evacuation Hill
Apr.07	Largest aftershock struck (seismic intensity: Upper 6)	Dec.06	Sendai Subway Tozai Line began operation
Apr.11	Applications for primary recruitment of emergency temporary housing opened	2016	
Apr.16	Gas utilities fully recovered (excluding evacuation advisory areas, etc.)	Feb.03	Announcement of "Thinking on utilization of areas vacated by collective relocation" (tsunami-flooded Eastern areas)
Apr.22	Tsunami-flooded residential area debris removal began (tsunami-flooded Eastern area)	Feb.13	Sendai 3/11 Memorial Community Center fully opened
May.23	Applications accepted for demolition and removal of destroyed houses	Mar.11	Great East Japan Earthquake Memorial Service held in Sendai
May.30	Sendai City Earthquake Disaster Reconstruction Vision formulated	Mar.12	2016 Sendai Symposium for Disaster Risk Reduction and the Future held
Jun.01	Reception of personnel from local governments nationwide on long-term assignment began	Mar.31	Sendai City Post-Disaster Reconstruction Bureau closed in connection with the end of the Sendai City Earthquake Disaster Reconstruction Plan
Jun.12	Opinions exchanged on reconstruction and community building(seven meetings through Jun.26)	Apr.01	Minami-Gamo Wastewater Treatment Plant repairs fully completed
Jun.15	All 1,505 prefabricated temporary housing units completed	Apr.19	Start of open entry for ideas on how to utilize areas vacated by collective relocation (tsunami-flooded Eastern areas)
Jul.11	Great East Japan Earthquake Memorial Service held in Sendai	Apr.29	Agriculture and Horticulture Center is renovated and reopened
Jul.16	Tohoku Rokkon Festival held in Sendai (until Jul.17)	May.20	G7 Finance Ministers and Central Bank Governors' Meeting, Sendai held (until May 21)
Jul.31	Debris removal in tsunami-flooded residential area completed(tsunami-flooded Eastern area)	Jun.30	All 3,206 houses for Disaster Reconstruction Municipal Housing completed
Jul.31	All evacuation centers in Sendai closed	Sep.30	4 Kaigan Park Evacuation Hills completed
Oct.01	Debris incineration began with temporary incinerators	Oct.15	Part of Kaigan Park reopened for use
Nov.09	Briefing sessions began for the Farmland Consolidation Project in Eastern Sendai	Oct.28	Provision of prefabricated temporary housing completed
Nov.30	Sendai City Earthquake Disaster Reconstruction Plan formulated	2017	
Dec.16	Disaster Risk Areas designated (tsunami-flooded Eastern area)	Mar.	"Sendai City's Five-year of Recovery from the Disaster" published
Dec.17	Briefing sessions began for the Disaster Prevention Collective Relocation Promotion Project (until Dec.26, tsunami-flooded Eastern area)	Mar.11	Great East Japan Earthquake Memorial Service held in Sendai Enforcement of the "Sendai City Ordinance for Promotion of a Disaster Risk Reduction and Mitigation City"
Dec.28	Debris removal in farmland completed (tsunami-flooded Eastern area)	Mar.12	2017 Sendai Symposium for Disaster Risk Reduction and the Future held
2012		Mar.23	All 13 Tsunami Evacuation Facilities completed
Jan.10	Consultation desk for recovery in affected residential areas opened (hilly inland area)	Mar.28	Prefabricated temporary housing dismantled
Mar.11	Great East Japan Earthquake Memorial Service held in Sendai	Mar.28	Announcement of the "Sendai City policy on utilization of areas vacated by collective relocation in Eastern coastal areas" (tsunami-flooded Eastern areas)
Apr.01	Sendai City Post-Disaster Reconstruction Bureau established	Apr.30	Disaster Ruins of Sendai Arahama Elementary School opened to the public
May	Farming restarts on farmlands where recovery work and desalination was completed	Jun.10	Tohoku Kizuna Festival held (until Jun.11)
Jun.05	Applications accepted for residential reconstruction aid for Eastern Sendai (tsunami-flooded Eastern area)	Nov.25	The World BOSAI Forum / Davos International Disaster and Risk Conference (IDRC) in Sendai 2017 held (until Nov.28)
Sep.03	Minami-Gamo Wastewater Treatment Plant repairs began (groundbreaking ceremony)	2018	
Sep.10	Disaster Risk Areas designated (Midorigaoka 4-chome hilly inland area)	Mar.09	2018 Sendai Symposium for Disaster Risk Reduction and the Future held
Oct.10	Elevated road project started on Shiogama-Watari Prefectural Road	Mar.11	Great East Japan Earthquake Memorial Service held in Sendai
Nov.11	Applications accepted for residential area for Disaster Prevention Collective Relocation in Arai (tsunami-flooded Eastern area)	Mar.28	Decision on candidate projects to utilize areas vacated by collective relocation (first entry period) (tsunami-flooded Eastern areas)
Dec.21	Applications accepted for 12 units in first Disaster Reconstruction Municipal Housing	Jul.08	Kaigan Park fully reopened for use
2013		2019	
Mar.11	Great East Japan Earthquake Memorial Service held in Sendai	Mar.10	2019 Sendai Symposium for Disaster Risk Reduction and the Future held
Mar.11	"Activity Records from First Year after the Disaster" published	Mar.11	Great East Japan Earthquake Memorial Service held in Sendai
Mar.15	Disaster Risk Areas designated (Matsumori-Jingahara hilly inland area)	Mar.27	Decision on candidate projects to utilize areas vacated by collective relocation (second entry period) (tsunami-flooded Eastern areas)
Apr.01	Sendai City Regional Disaster Prevention Plan revised (general information, earthquake and tsunami measures)	Aug.02	Disaster Ruins: Residential foundations in Arahama District, Sendai opened to the public
Apr.01	Sendai-Miyagi Destination Campaign started (until Jun.30)	Nov.09	The World BOSAI Forum / Davos International Disaster and Risk Conference (IDRC) in Sendai 2019 held (until Nov.12)
Sep.17	Applications accepted for 661 units in six Disaster Reconstruction Municipal Housing	Nov.10	Sendai Symposium for Disaster Risk Reduction and the Future held
Sep.29	Debris (combustible) incineration completed	Nov.27	Decision on candidate projects to utilize areas vacated by collective relocation (third subscription) (tsunami-flooded Eastern areas)
Oct.25	National Eastern Sendai Land Improvement Project (farmland development) groundbreaking ceremony	Nov.30	Opening of elevated road(Eastern Reconstruction Road Project)
Dec.27	Debris treatment and disposal completed	2020	
2014		Mar.11	Great East Japan Earthquake Memorial Service held in Sendai
Mar.11	Great East Japan Earthquake Memorial Service held in Sendai	Mar.30	2020 Sendai Symposium for Disaster Risk Reduction and the Future: Video released
Mar.16	Road elevation work on Shiogama-Watari Prefectural Road began (groundbreaking ceremony)	2021	
Mar.31	Program for the Rebuilding of Disaster Victims' Lives formulated	Feb.05	National Sendai East Land Improvement Project (Field Improvement) Inauguration Ceremony
Mar.31	Reception of personnel on long-term assignment ended	Mar.06	2021 Sendai Symposium for Disaster Risk Reduction and the Future held(until March 07)
May.10	Applications accepted for residential land in seven areas for Disaster Prevention Collective Relocation (tsunami-flooded Eastern area)	Mar.11	Great East Japan Earthquake Memorial Service held in Sendai
Jul.10	Applications accepted for 2,447 units in 36 Disaster Reconstruction Municipal Housing	Jun.01	Decision on candidate projects to utilize areas vacated by collective relocation (fourth subscription) (tsunami-flooded Eastern areas)
Nov.18	Damage recovery work began in Kaigan Park	Sep.30	Completion of the Land Readjustment Project for Reconstruction of Gamo North Urban Disaster Area
2015		2022	
Feb.14	Construction completed on the first Tsunami Evacuation Tower	Mar.05	2022 Sendai Symposium for Disaster Risk Reduction and the Future held
Mar.11	Great East Japan Earthquake Memorial Service held in Sendai	Mar.11	Great East Japan Earthquake Memorial Service held in Sendai

経験をつなぎ、そして未来へ
防災環境都市・仙台



仙台市まちづくり政策局防災環境都市推進室

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日本語版 <https://sendai-resilience.jp/> **英語版** <https://sendai-resilience.jp/en/>

表紙写真提供: HOPE FOR project

