

Chapter 2 Review and Measures on Typhoons Faxai and Hagibis in 2019

Typhoon Faxai (1915) caused prolonged power outages and communication failures and various challenges emerged during the recovery process and disaster response by national and local governments. Typhoon Hagibis (1919) caused major and widespread damage. Particularly because many elderly people were affected at home and many others were affected while driving, the importance of ensuring viable evacuation and providing disaster information was reaffirmed. Chapter 2 outlines the review and report at the verification team on the Series of Disasters, including Typhoons Faxai and Hagibis in 2019, the measures for residents' evacuation activities and the review and report at the Working Group on the Review of Evacuation from Disasters Caused by Typhoon Hagibis (1919).

Section 1 The Review on Typhoons Faxai and Hagibis in 2019

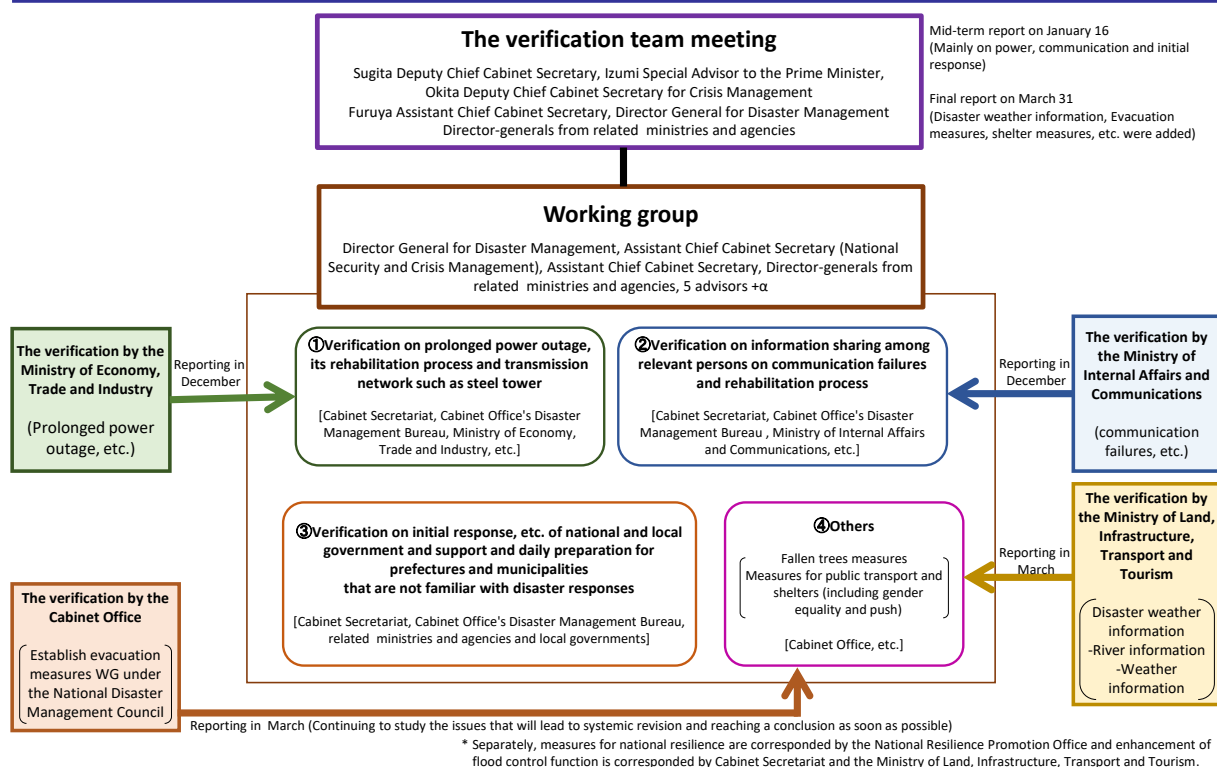
1-1 Review of the verification team on the Series of Disasters, including Typhoons Faxai and Hagibis in 2019

Regarding Typhoon Faxai, the government had prepared for the oncoming emergency before disasters having occurred, collected information and worked together to take measures such as deploying the SDF and providing push-mode support, while facing various challenges such as prolonged power outages and the recovery process. Based on lessons learnt from disasters having occurred, to improve disaster-prevention and mitigation measures and review efforts to handle incidents such as prolonged power outages and communication failures more effectively, the government established a verification team on Typhoon Faxai (1915) chaired by Deputy Chief Cabinet Secretary for Affairs on October 2, 2019.

Conversely, immediately after this review started, Typhoon Hagibis (1919) caused major and widespread damage. For this, to review the evacuation measures highlighted as challenges and facilitate the provision of river and weather information, the review system was re-organized as the Verification Team on the Series of Disasters, including Typhoons Faxai and Hagibis in 2019. This verification team was tasked with collecting and summarizing the lessons learnt from responses to a series of disasters and reflecting them in future disaster responses.

Under this verification team, working groups to review each issue chaired by the Director General for Disaster Management were established and based on the verification outcome on each issue handled by working groups of the Ministry of Economy, Trade and Industry, the Ministry of Internal Affairs and Communications, the Cabinet Office and the Ministry of Land, Infrastructure, Transport and Tourism and other ministries, the whole government summarized the verification. By March 2020, three working groups in total were held to decide on points to review and review challenges and future measures to take in collaboration with advisers and related ministries and agencies.

The Verification Team on the Series of Disasters including Typhoons Faxai and Hagibis in 2019



Source: Cabinet Office

1-2 Report of the verification team on the Series of Disasters, including Typhoons Faxai and Hagibis in 2019

(1) Overview of the report

Based on discussions at working group level, the mid-term report of the Verification Team on the Series of Disasters, including Typhoons Faxai and Hagibis in 2019 (related to Typhoon Faxai) on challenges mainly on power, communication and initial response, etc. was published on January 16, 2020 and challenges and future measures were summarized (Reference: http://www.bousai.go.jp/pdf/r1t_15_19.pdf). As future measures, suggestions on system enforcement to assess damage in the form of power outages and communication failures, improve methods of providing information on rehabilitation work and the rehabilitation process and the initial response for municipalities unfamiliar with disasters were summarized. And after adding a review on the challenges of evacuation measures, shelter measures, disaster weather information, etc. the final report of the Verification Team on the Series of Disasters, including Typhoons Faxai and Hagibis in 2019 was published on March 31, 2020. Working groups under the National Disaster Management Council Disaster Management Implementation Committee to review the enhancement of evacuation measures will be explained fully in Section 2.

The government continue working on ceaseless reviews of disaster risk management and taking necessary measures.

Final Report of the "Verification Team on the Series of Disasters including Typhoons Faxai and Hagibis in 2019"			Issues Mainly Related to Typhoon Faxai
[Long-Term Electrical Blackout]		Countermeasures	
Damage Assessment	- Shortage of patrol officers commensurate with the scale of the damage - Delayed understanding of the situation due to patrols and simultaneous investigation of failure parts - Drone operator shortage - No electrical blackout caused by damage to low voltage and lead lines (so-called "hidden electrical blackouts") can be identified in TEPCO's current system - Shortage in staff capable of responding to inquiries about electrical blackouts during the initial reaction	- Develop a system for assessing damage within 24 hours in principle and within 48 hours in case of a large-scale disaster (e.g. systematic deployment of patrol officers) By end of June 2020 - Standard assignment of dedicated drone teams, training and securing of operating personnel, development of operational policies, etc. By end of June 2020 - Use the smart meter data to thoroughly check electrical blackouts in general households, etc. By end of June 2020 - Implement measures to reduce the number of incoming calls by using SNS and chat systems, etc. Measures have been taken	
Rehabilitation work Rehabilitation process information provision	- Restoration work takes time, which leads to delays in power distribution - Insufficient collaboration between TEPCO and related organizations (telecom companies, Self-Defense Forces, other power companies, etc.) - Delayed announcement of restoration projections and multiple changes - Inefficient dispatch operation of the power supply vehicles during the initial phase due to the lack of engineers capable of operating the vehicles	- Early implementation of "temporary restoration" to prioritize early provisional rehabilitation from electrical blackout over full restoration during large-scale disasters By end of June 2020 - Institutionalization of a disaster collaboration plan among power companies and related organizations Amendment to legislation (submitted in the 2020 Ordinary Diet Session) - Establishment of a liaison system for electric power and telecommunication companies and implementation of training, etc. Measures have been taken - Streamlining method of gathering and reporting on damage information for more accurate recovery forecasts By end of June 2020 - Preparation of a TEPCO liaison response guide and info-sharing tools By end of June 2020 - Standard deployment of a dedicated team for power vehicles By end of June 2020	
Structural measures for power transmission and distribution networks	Insufficient development of technology standards for pylons and measures against falling trees toppling poles and distribution lines consistent with regional conditions	- Review of technology standards for pylons based on regional conditions By end of June 2020 - Review the wheeling charge system to ensure the required investments in transmission and distribution facilities are made, including the planned replacement of pylons and the elimination of poles Amendment to legislation (submitted in the 2020 Ordinary Diet Session) - Established "Forest Improvement around Critical Infrastructure Facilities" to promote forest development after concluding agreements on promoting pre-logging with electric power companies partnering local governments and forests near infrastructure facilities 2019 Supplementary Budget and 2020 Initial Budget	
Introduction of emergency power supply	- Emergency power sources at critical facilities requiring continuous power supply such as hospitals and government buildings are not sufficiently secured - Prolonged electrical blackout in mountainous and other inaccessible areas	- Promotion of the development of emergency power sources for important social facilities such as medical and welfare facilities, water and sewage facilities, government buildings and evacuation shelters 2019 Supplementary Budget and 2020 Initial Budget - Development of a system to promote the installation of decentralized power sources to improve community resilience in the event of a disaster Amendment to legislation (Submitted in the 2020 Ordinary Diet Session) and the 2020 initial budget	
[Related to Communication Failure]			
Determine the Status of Communication Failure and Information Provision	- The status of mobile phone communication failure is published on an area map, but the quantitative impact is unknown and because it is published online, users cannot view it in areas where communication failures have occurred - Insufficient sharing of information on the damaged points of communication blackspots and outages caused by fallen trees, etc. with the agencies concerned - Difficulty in determining the bigger picture of communication failures among fixed-line users	- Provision of information on mobile phone communication via quantitative indicators such as the number of affected users Started in July 2020 - Provide user-friendly information to mobile phone users (including in areas of communication failure areas) Started in July 2020 - Clarification of the roles of the Ministry of Internal Affairs and Communications (MIC) liaison and carrier liaison on info-sharing with related organizations Measures have been taken - Improvement of methods for identifying obstacles, such as calling on users to check the status of landline communication Started in July 2020	
Rehabilitation work Rehabilitation process information provision	- Non-disclosure of estimated rehabilitation of mobile and landline phone services - Insufficient sharing of information and coordination of response with related organizations regarding recovery - Emergency communication measures among prefectures and municipalities are not fully used	- Examine the timing and specific details of the announcement of the expected mobile phone rehabilitation and start scope (also consider fixed phones as well.) Started in July 2020 - Enhance the liaison operations of the MIC via manualization and training, etc., to strengthen collaboration with related organizations for earlier rehabilitation Measures have been taken - Implement "push-mode" prior unifications equipment to local governments for disaster management equipment to local governments for disaster management Measures have been taken	
Longer emergency power supply	Prolonged electrical blackout prevents important communication facilities from sustaining emergency power supplies	- Prolonged emergency power supplies for mobile phone base stations, etc. Review of Technologies Standard (By the End of June 2020) - Additional deployment of mobile power supply vehicles to the MIC (Regional Bureau of Telecommunications) 2019 Supplementary Budget - Use mooring drones with a base station mounted Review of Technologies Standard (By the End of June 2020)	
Final Report of the "Verification Team on the Series of Disasters including Typhoons Faxai and Hagibis in 2019"			Issues Mainly Related to Typhoon Faxai
[Related to Initial Response, etc.]		Countermeasures	
More support for local governments that are not familiar with disasters	- Reorganization of the timing, destination and positioning of the dispatch of staff from the national government to the affected local governments - Coordination of the national and local governments, businesses, and other stakeholders in on-site disaster responses sites - Leadership of local government leaders and crisis management/disaster management officers in the event of a major disaster - Establishment of a system for rapid disaster response	- Dispatch of a "Cabinet Office Research Team" to quickly determine the damage status and support affected local governments when a large-scale disaster is expected Review the Basic Plan for Disaster Risk Reduction, etc. - A National On-site Disaster Management Office was established and liaison, coordination and local work coordination meetings were held according to the level of the on-site disaster response, to ensure the relevant ministries and agencies would collaborate for a speedy disaster response Review the Basic Plan for Disaster Risk Reduction, etc. - Enhance training for municipal crisis-management/disaster management managers to give them the knowledge and skills required in the first response and throughout the entire disaster response 2020 Initial Budget - Promote efforts to establish an aid acceptance system in prefectures, which are region-wide administrative bodies to receive various types of support promptly and accurately and establish a mutual support system for municipalities Review the Basic Plan for Disaster Risk Reduction, etc.	
Shortage of disaster response staff in local governments, etc.	Lack of technology staff capable of responding to disasters in local governments, lack of staff with expertise in disaster response management, etc.	- Further use and enhanced deployment of support officials to assist affected municipality system Review the Basic Plan for Disaster Risk Reduction, etc. - Support for boosting the technology staff strength in prefectures, etc. Local government finance in FY2020 - Enhanced the national support system, including increased staffing of the Tech Force Capacity in 2020 - Promptly secure a support system for the UR's survey of damaged houses Implementation in and after April 2020 - Promote disaster recovery work management via the UR and streamline construction via coordination among contractors and contractors Started in April 2020 - Conclude disaster agreements with private sector businesses, architects and building engineers and other industry groups Review the Basic Plan for Disaster Risk Reduction, etc. - Secure and train construction workers to streamline construction Completed the 2020 Amendment to legislation	
Preparedness during ordinary times	A collaboration system to rapidly rehabilitate the community in the event of a large-scale disaster	Promote mutual cooperation in prefectures, as region-wide administrative bodies, from normal times with various lifeline related organizations, such as the "Disaster-Prevention Liaison Committee" during normal times Review the Basic Plan for Disaster Risk Reduction, etc.	
Promote stockpiling and information sharing, and enhance material support	- How to share information on the status of stockpiled supplies and goods transportation status among government agencies - Lack of awareness of goods details of the national government's push-mode support supplies	- Promotion of stockpiling by the national government, prefectures and municipalities and registration and information sharing of stockpiled supplies within the "goods system." Review 2019 supplementary budgets (stockpiling), and start in April 2020 (registration and information sharing) - Menu configuration and familiarization of standard items in the national push-mode support Review the Basic Plan for Disaster Risk Reduction, etc.	
[Others (Typhoon Faxai)]			
Public Transportations	- With regard to the planned operational suspension, numerous passengers were concentrated at the station when operations resumed, causing confusion, such as restrictions on entry at the station. - Airport access was disrupted, while the runway could be operated normally, increasing airport traffic and resulting in insufficient information for airport users	- For the planned operational suspension, strengthen preparedness, including deploying the required personnel and equipment to resume operations and inform users clearly and calmly MLIT's development has finished and operators are responsible - Establish a comprehensive disaster management headquarters at Narita International Airport, etc., as soon as possible, which can oversee coordination Revise the BCP if Narita Airport	
Blue sheet	- A shortage of local operators, capable of setting up blue sheets - During Typhoon Faxai, the following measures were taken, but it took time to install: -Blue sheets on the damaged houses -Support for the establishment of firefighters, the construction industry, NPOs, SDF, etc.] -Matching with operators by Chiba Prefecture -Training sessions are held to introduce construction methods, etc.	- Promote the introduction of installation companies by local governments. Summarize concepts on segregations of duties of those who assist in installation such as firefighters, NPOs with installation skills, skilled volunteers and the SDF. Measures have been taken - Apply examples of countermeasures including matching support between victims and installation companies to other prefectures throughout Japan (Chiba Prefecture offered matching support during Typhoon Faxai) Measures have been taken - A guide to installation methods, supervised by a NPO with installation skills, is widely available Measures have been taken - Provide information on NPOs capable of offering training sessions on installation skills and facilitating implementation during a disaster Measures have been taken	

Final Report of the "Verification Team on the Series of Disasters including Typhoons Faxai and Hagibis in 2019"		Issues Mainly Related to Typhoon Hagibis
[River/Climate Information]	Issues	Countermeasures
Flood Warnings after the Lifting of Emergency Warning	Flooding occurred downstream after the special heavy rainfall warning the lifted. Continued vigilance is required even after the warning is lifted, but the warning was not satisfactory.	- The lifting of a special heavy rainfall warning should be expressed as a "switchover to warning" and in conjunction with the switchover, the information on river flooding should be released, including an expected rise in water levels in the future. From 2020 flood season - Continue to alert the public through press conferences and take all other means From 2020 flood season
Improve and enhance weather information	- Quoting the "Kano River Typhoon" in warning did not convey a sense of urgency. - Lacking the sufficient awareness of the hazard distribution, which indicates the detailed disaster generation risk in the region	- When using a past instance, provide clear explanations, such as indicating regions more at risk of disaster Gradually implemented from FY2020 on - Strengthen public relations to increase awareness and understanding of the hazard distribution (SNS, etc.) Gradually implemented from FY2020 on
Confirmation of levee bursts, overflows and other damages and announcement of flood forecasts	- Instance: weaknesses in the system for releasing flood forecasts and other information due to congestion between inquiry responses and disaster responses, hampering efforts to release flood forecasts and other information. - Limited scope of monitoring via river monitoring cameras and water gauges and no on-site check is possible, hampering efforts to quickly assess burst and overflow.	- Establishing dedicated contact points for inquiries, increasing the number of flood-weather forecasters and easing the flood forecasts workload By flood season in 2020 - Installing more river surveillance cameras and water gauges of the emergency management type Within 2020 - Developing detection sensors such as overflow and flooding Pilot program in and after 2020
Countermeasures for access concentration to the "Disaster Information River"	Access is concentrated on MILT's website "Disaster Information River" which provides river information including water level and it is difficult to connect to the site.	Enhancing the system to build "Disaster Information River" and improving of the processing ability By flood season in 2020
[Others (Typhoon Hagibis)]		
Damages outside areas assumed affected by flooding	Non-designated small and medium-sized rivers in areas assumed affected by flooding did actually flood and caused damages. It is necessary to designate small and medium-sized rivers as areas assumed affected by flooding and make this setting widely known.	To promote the establishment of inundation areas in river embankment managed by prefectures that are not designated as expected inundation areas, the "Guide to Preparing Simplified Expected Inundation Area Map for Small and Medium Rivers" was prepared and disseminated. By flood season in 2020
Flooding on electrical installation of buildings	Electrical equipment installed in the building basement was flooded, cutting off elevators and water service unavailable.	Organize and summarize the desirable measures against flooding of electrical equipment in buildings, and give specific examples, and alert architects and building engineers organizations, construction industry organizations, building owners and managers organizations, electrical equipment organizations, etc. By flood season in 2020
Disaster waste	Systems to collect and transport disaster waste not fit for purpose. The waste accumulated on roads.	- Organize segregation of duties and efforts during ordinary times and create manuals including good practices such as One NAGANO to find the collaboration among the Ministry of Defense (MOD), the SDF and the Ministry of the Environment. By flood season in 2020 - Organize and publicize case studies of wide-area support and promote efforts to review of the action plan for disaster waste management Measures have been taken
Improving living conditions in shelters	Lack of women's perspectives on shelter management and environmental improvement	In the event of a major disaster, dispatch of officials from the Gender Equality Bureau of the Cabinet Office to an affected area, participation of officials from the gender equality departments of prefectures and municipalities in the Disaster Management Headquarters, and other measures are considered From April 2020

Source: The 3rd "Verification Team on the Series of Disasters including Typhoons Faxai and Hagibis in 2019"
(Reference: <http://www.bousai.go.jp/kaigirep/r1typhoon/index.html>)

Section 2 Evacuation measures for residents

2-1 Review of Government's Evacuation Measures after Typhoon Hagibis

The Heavy Rain Event of July 2018 caused record-breaking rainfall and triggered emergency heavy rain warnings for 11 prefectures, leading to river flooding and sediment disasters in many areas, especially Okayama, Hiroshima, and Ehime Prefectures. More than 200 people were affected in a major disaster, which claimed over 100 lives following the torrential rains of August 1983.

To review efforts to enhance evacuation measures based on this major heavy rain disaster, the Working Group on the Review of Evacuation from Flood and Sediment Disasters caused by the Heavy Rain Event of July 2018 set up under the Disaster Management Committee of the National Disaster Management Council suggested the need to establish a disaster-aware society by enhancing residents' own measures – namely each member of society retaining the mindset of protecting his/her own life and evacuate on his/her own judgement and the government providing full support.

Accordingly, national and local governments decided to improve disaster awareness across society as a whole, based on the premise that government-directed evacuation measures were limited by supporting and enhancing residents' own measures to foster the mindset of protecting their own lives and promote education on regional disaster risks and required evacuation actions.

During Typhoon Hagibis, the JMA issued an emergency heavy rain warning for 13 prefectures and 309

municipalities. Various damage occurred concurrently over a wide area, such as 142 cases of levees bursting at government- and prefecture-administered rivers. Besides, the heavy rain from a low-pressure system, etc. from October 24-26 caused river flooding and sediment disasters centered in Chiba and Fukushima Prefectures which left 104 people dead (of which seven due to disasters) and 3 people missing.

The damage caused by this heavy rain happened because people did not evacuate, they did so late or they were affected while moving out of their homes during heavy rain or inundation and many elderly people were affected. A lack of sufficient mindset of protecting their own lives emerged. Moreover, challenges on the evacuation information and government calls for evacuation and the difficulty of evacuation timing and region-wide evacuation such as shelters also emerged.

This working group discussed urgent measures to be taken by the 2020 flood season and fundamental measures to be discussed after 2020 and obtain outcomes sooner. By flood season, it was decided that an awareness campaign such as improving disaster understanding to promote evacuation activities, fostering the mindset of protecting his/her own life for each citizen and major agendas requiring systematic review such as evacuation information and evacuation for those requiring support during evacuation would be continuously discussed and reviewed.

Disaster Management Committee of the National Disaster Management Council The Working Group on Evacuation from Disasters Caused by Typhoon Hagibis in 2019

○Purpose

A working group was established under the Disaster Management Implementation Committee in order to strengthen evacuation measures against increasingly severe and frequent heavy rains, learning from the lessons of Typhoon Hagibis (1919) in 2019, which caused extensive and devastating damage in the Tohoku and Kanto-Koshinetsu regions.

○Discussion Points

- Promoting understanding of disaster risks and actions to be taken
- Ensuring the effectiveness of evacuation of the elderly, etc.
- Providing clear disaster prevention information (evacuation recommendations and instructions), etc.

* Examining it in cooperation with the measures taken by related ministries and agencies.

○Schedule

Setting up a working group within _____
Compiling within FY _____

* Continuing to study the issues that will lead to systemic revision and reaching a conclusion as soon as possible



Damage at Marumori Town,
Miyagi Prefecture



Damage at Nagano City,
Nagano Prefecture

○Member

Committee Member	Affiliation
◎Jun Tanaka	Director of the Center for Integrated Disaster Information Research / Professor, Graduate School of Interdisciplinary Information Studies, Tokyo University
Junko Iijima	Professor, School of Law, Tohoku University
Hiromi Ishikawa	Executive Board Member of the Japan Medical Association
Motoyuki Ushiyama	Professor, Shizuoka University Center for Integrated Research and Education of Natural Hazards
Toshitaka Katada	Project Professor, Tokyo University Graduate School of Interdisciplinary Information Studies
Mayumi Sakamoto	Associate Professor, Graduate School of Disaster Resilience and Governance, University of Hyogo
Nana Suzue	Broadcaster, Nippon Television
Yoshihiko Shimizu	Faculty of Science and Technology, Gunma University
Yasuhiro Shuin	Professor, Faculty of Agriculture, Utsunomiya University
Yuki Shuto	Director and General Manager of the Research Institute for Social Safety
Shigeo Tachiki	Professor, Faculty of Sociology, Doshisha University
Hitoshi Tanaka	Professor, Graduate School of Engineering Department of Civil and Environmental Engineering, Tohoku University
Keiko Tamura	Professor, Risk Management Office, Headquarters for Risk Management, Niigata University
Kazuhisa Tsuboki	Professor, Institute for Space-Earth Environmental Research Center for Integrated Data Science, Nagoya University
Muneharu Nakagai	Mayor of Toyooka City, Hyogo Prefecture
Eiichi Yamazaki	Professor, Kansai University Faculty of Safety Science Department of Safety Management
Noboru Yamazaki	Professor, Kokushikan University Research Institute of Disaster Management and Emergency
Junichi Yoshitani	Professor, Faculty of Engineering Water Environment and Civil Engineering, Shinshu University

◎: Chief

* Officers from related ministries and agencies also joined in the group as members

Source: Materials from the 1st Working Group on evacuation from disasters caused by Typhoon Hagibis (1919)
(Reference: <http://www.bousai.go.jp/fusuigai/typhoonworking/index.html>)

2-2 Report (Proposal) by the Working Group on the Review of Evacuation from Disasters Caused by Typhoon Hagibis, etc.

Following the discussion by said working group, the Cabinet Office published the Report by the Working Group on the Review of Evacuation from Disasters Caused by Typhoon Hagibis, etc., in March 31, 2020. (Reference: <http://www.bousai.go.jp/fusuigai/typhoonworking/index.html>). Learning from the challenges from Typhoon Hagibis, etc., the following measures to enhance evacuation preparation were decided. Of these, measures to be implemented promptly would be taken by 2020 flood season (promoting improved awareness of evacuation etc.) and fundamental issues would be continuously reviewed even after 2020 (review of systematic issues, etc.)

- Promoting understanding of disaster risks and actions to be taken (measures during normal time)
- Providing clear disaster prevention information (measures during disasters)
- Ensuring the elderly can be effectively evacuated, etc.
- Ensuring the effectiveness of large-scale extensive evacuation

In the following summary, the second point “Providing clear disaster prevention information (measures during disaster)” was integrated into the first point “Promoting understanding of disaster risks and actions to be taken (measures during normal time)”. To review evacuation measures, a web questionnaire for web monitors residing in areas affected by Typhoon Hagibis, a questionnaire for crisis management and welfare departments of entire municipalities, questionnaires to groups of persons with disabilities, opinions from local leaders, field research and a status analysis of human damage, etc. were conducted and referred to.

Final Report of the “Verification Team on the Series of Disasters including Typhoons Faxai and Hagibis in 2019”		Issues Mainly Related to Typhoon Hagibis
[Evacuation (Evacuation WG)]	Issues	Countermeasures
Promoting understanding of disaster risks and actions to be taken	• Insufficient recognition and use of hazard maps • Nearly 70% of deaths from flooding occurred within the expected flood zone • In residents’ web feedback, nearly half said “I have never seen any hazard map” or “I’ve seen it, but I haven’t used it as a reference for evacuation.” • The meanings of the alert level 4 “evacuation recommendation” and “(emergency) evacuation instruction” are not correctly understood. • In residents’ web inquiries, only 17.7% correctly understood both meanings of evacuation recommendation and (emergency) evacuation instruction • Residents do not understand the points of “Everyone evacuates” and the “Best action to protect your life” • In a citizen survey online, about 40% said that “all evacuation” meant that people in areas without disaster risks would have to evacuate, too.” • The risk of going out during heavy rainfall is not recognized. • About 60% of the victims of Typhoon Hagibis were affected outdoors, more than half of whom while driving. People on their way to and from work were among the victims. • A case where accesses are concentrated on municipalities’ websites and the server went down	• The “improvement in understanding campaign of evacuation” launched throughout Japan to promote evacuation behavior [Details of the Implementation] Municipalities distribute and circulate hazard maps and flyers to improve awareness of evacuation activities among residents (Main Points) • Evacuation means to escape, in other words, to ensure your safety • Safe relatives’ or acquaintances’ houses are also “refuges” • Alert level 4 means “Everyone evacuation from hazardous place” - Evacuation recommendations are issued considering the time needed to evacuate. Evacuate when an evacuation recommendation is issued. - Evacuation instructions (emergency) are issued when an emergency or repeated evacuation is required. (not necessarily issued.) • When Warning Level 5 is issued, a disaster has already occurred: refrain from forced outdoor evacuation. Elementary and junior high schools in areas at risk of flooding and sediment disasters check disaster risks and the evacuation decision flow ensues. Facility administrators of hospitals and welfare facilities check disaster risks in their locations, etc. • The campaign gives a supplementary explanation about “Everyone evacuates” and the “Best action to protect your life” and calls for the evacuation behavior in the event of disaster [By flood season in 2020] E.g. When using the phrase “Everyone evacuates,” the mass media, prefectural/municipal disaster management radio communications system, etc. must supplement it with the phrase “Everyone evacuates from hazardous place.” • Institutional arrangement of evacuation recommendations/evacuation instructions (emergency) based on the opinions of local governments [Within 2020] • Requested that economic organizations take measures such as telecommuting, staggered working hours and planned leave to help employees and others refrain from unnecessary and non-urgent outings. [By flood season in 2020] • Promote the implementation of countermeasures against concentrating access to the website during a disaster (e.g., making the website lighter). [By flood season in 2020]
Ensuring effective evacuation of the elderly, etc.	• Issues when evacuating the elderly and persons with disabilities • 65% of the fatalities in Typhoon Hagibis (84) were elderly, aged 65 years or more • 79% of the fatalities at home (34) were elderly	• Municipalities use the list of those who require assistance for evacuation and hazard maps to identify those who require assistance evacuating living in high-risk areas and share them among disaster prevention and crisis management departments and medical, health and welfare departments. [By flood season in 2020] • Welfare participants, etc. identify disaster risks and others with the elderly and disabled when in visiting their homes (“improvement in understanding campaign of evacuation”) [Within 2020] • Deliberations concerning measures to further promote the effective evacuation of the elderly, etc. [Within 2020]
Ensuring the Effectiveness of Large-Scale Extensive Evacuation	• Challenges of conducting a large-scale extensive evacuation become apparent • An extensive evacuation is a realistic problem for the first time in the downstream basin of the Arakawa (Koto 5 wards) • Challenges such as the difficulty in securing evacuation time and sites were identified • In the middle basin of the Tone, an extensive evacuation was conducted at midnight	• Notify municipalities of the points to keep in mind in extensive evacuation [By flood season in 2020] (Need to coordinate and issuing timing for early evacuation, etc., in anticipation of evacuation avoidance and planned operational suspension during rainstorms, etc.) • Deliberation concerning institutionalizing a mechanism to facilitate large-scale extensive evacuation before a disaster occurs [Within 2020]

Note: The evacuation working group will continue to examine the items to be examined within 2020

Source: Summary of Proposal (Report) on Evacuation from Flood and Sediment Disasters After the Typhoon Hagibis
(Reference: <http://www.bousai.go.jp/fusuigai/typhoonworking/index.html>)

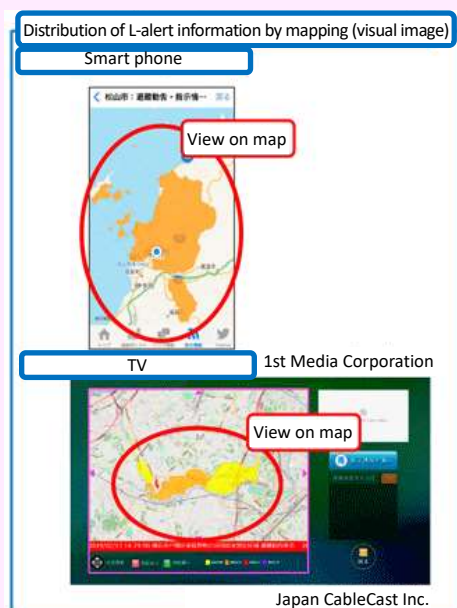
[Column]

Measures to provide clear evacuation information by mapping of evacuation recommendations and utilizing AI

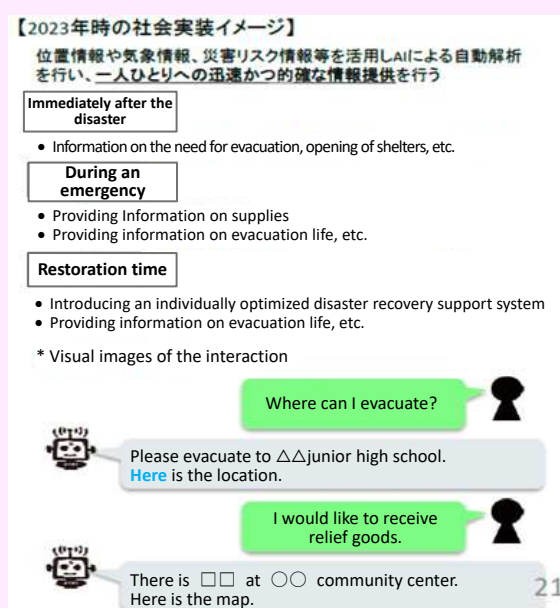
It was pointed out that evacuation information during disasters was not easily understood in terms of its issuance and call for evacuation. For example, there was a need to review whether evacuation recommendations and instruction (emergencies) were easily understandable and whether evacuation was excessively promoted by the words of “Everyone evacuates” and “Take the best action you can to protect your life”.

To provide information during disasters more effectively, the government is taking measures to easily determine the issuance of evacuation information by mapping information such as evacuation recommendations and distributing through L-alert. Originally, L-alert was used to distribute text information, while the government studied and verified how the L-alert information was mapped. The government will strive to promote the introduction and mapping of L-alert information among each of the prefectures.

In addition, before disasters occur, if the residents can determine the location of shelters or evacuation sites and the number of people they can accommodate, this will help them choose where to evacuate in real time. Doing so would mean developing a technology capable of distributing the most appropriate information to each citizen at the required time concerning the opening status of shelters, status of relief goods, etc. Therefore, regarding the evacuation direction measures using AI, etc., measures are to be taken in collaboration with a Cross-ministerial Strategic Innovation Promotion Program (SIP). Research & Development into Chatbot for disaster management is conducted, allowing information to be provided depending on each condition, responding to inquiries by AI and striving to develop a system and implement the society to support appropriate evacuation depending on the disaster risk of the current location or the opening status of evacuation sites.



Source: Ministry of Internal Affairs and Communications (MIC)



Source: Materials from the 2nd Working Group on evacuation of disasters caused by Typhoon Hagibis (1919)
(Reference: <http://www.bousai.go.jp/fusuigai/typhoonworking/index.html>)