

Risk Communication in Building National Resilience in Japan

By Taro Seto



Author Taro Seto

Introduction

The Great East Japan Earthquake disaster of March 11, 2011 left us with the lesson that there are limits to protecting the lives and property of the citizenry, as well as economic and social activities, simply through measures focused on developing infrastructure. Japan is working on “national resilience” towards the development of national land and social and economic systems that feature both “resistance” and “flexibility” — the ability to protect as many human lives as possible and to avoid fatal damage to important functions of the nation and society from large-scale natural disasters and the like and recover swiftly from the damage.

This report provides an outline of the measures being taken to build national resilience as well as the guidelines for the promotion of risk communication and specific examples of efforts being made in that regard.

Overview of the Basic Act for National Resilience

The Basic Act for National Resilience Contributing to Preventing and Mitigating Disasters for Developing Resilience in the Lives of the Citizenry (hereinafter referred to as “the Basic Act”) was established in December 2013. Article 8 of the Basic Act lays out the basic policies for building national resilience including the following:

- 1) Ensure the protection of human lives from large-scale natural disasters to the extent possible.
- 2) Avoid fatal damage to important functions of the nation and society and ensure that such functions are maintained even in the event of large-scale natural disasters.
- 3) Minimize damage to the property of the citizenry and public facilities due to large-scale natural disasters.
- 4) Contribute to swift recovery and reconstruction in the event of large-scale natural disasters.

Article 9 also lays out policies such as reducing costs through the effective use of existing social capital, etc. and the active utilization of private sector funding.

The Basic Act stipulates that the national government shall establish a “Fundamental Plan for National Resilience” (Article 10) after conducting an assessment of vulnerability to large-scale natural disasters (hereinafter referred to as “Vulnerability Assessment”), and that a prefectural or municipal government may establish a “Fundamental Plan for Regional Resilience” (hereinafter referred to as the “Regional Plan”) (Article 13). The Fundamental Plan for National Resilience and the Regional Plan serve as guidelines for other plans of the national and local governments as far as building national

resilience is concerned (Articles 10 and 13).

The National Resilience Promotion Headquarters was established with the prime minister as its head as the national organization for promoting measures concerning national resilience in a comprehensive and systematic manner (Article 15). The Headquarters established guidelines for the Vulnerability Assessment and a draft of the Fundamental Plan (Article 17).

Establishment of the Fundamental Plan for National Resilience

The Headquarters established the “Guidelines for Assessment of Vulnerability to Large-scale Natural Disasters” (hereinafter referred to as the “Vulnerability Assessment Guidelines”) based on the Basic Act and conducted the Vulnerability Assessment across ministerial and agency boundaries according to the Vulnerability Assessment Guidelines. Specifically, individual measures currently being taken by ministries and agencies to avoid 45 “worst events that should never happen” (*Chart 1*) were identified. Then, indexes to express progress and levels of achievement were established to the maximum possible, analyzed, and categorized. This measure-by-measure analysis was used to conduct a comprehensive analysis and evaluation of the vulnerability of each set of measures (program) aimed at avoiding these worst events.

The Fundamental Plan for National Resilience was established as a cabinet decision on June 3, 2014 on the basis of this Vulnerability Assessment. It lays out the promotion policy for roughly five years going forward in 12 individual sectors of measures — ① administrative functions/police and fire services; ② housing and cities; ③ healthcare and welfare; ④ energy; ⑤ finance; ⑥ information and communications; ⑦ industrial structures; ⑧ transportation and logistics; ⑨ agriculture, forestry and fisheries; ⑩ national land conservation; ⑪ environment; and ⑫ land use (national land use) — and three cross-cutting sectors — ① risk communication; ② countermeasures for aging infrastructure; ③ research and development (*Chart 2*).

On the same day, the “Action Plan for National Resilience 2014” was adopted by the National Resilience Promotion Headquarters. The Action Plan, a compilation of specific individual measures that should be undertaken year-by-year in each of the programs, is aimed at the steady execution of the Fundamental Plan for National Resilience. Under the Action Plan, numbers for the current states of affairs and the goals were established for key performance indicators (KPI) so that the progress of measures could be ascertained as quantitatively as possible.

The plan-do-check-act (PDCA) cycle has been adopted so that the

CHART 1

The 45 programs & the 15 to be prioritized

*Highlighted in yellow: 15 programs to be prioritized

Goals to be achieved before disasters	The worst events that should never happen and must be avoided through the programs	Goals to be achieved before disasters	The worst events that should never happen and must be avoided through the programs
1 Protect human lives to the utmost extent even in the event of a large-scale natural disaster.	1-1) Deaths and injuries due to multiple and large-scale collapse, etc. of buildings and transportation facilities in large cities and fires in densely-populated areas	5 Prevent functional disturbance in economic activities (including supply chains) even after the occurrence of a large-scale natural disaster.	5-4) Significant impact on overseas trade due to suspension of maritime transport functions
	1-2) Collapse of and fires at facilities used by the general public		5-5) Malfunction of the core road/marine transport networks, such as disruption of Pacific Belt Zone traffic arteries
	1-3) Extensive loss of human life due to a large-scale tsunami, etc. affecting wide areas		5-6) Concurrent damage to multiple airports
	1-4) Extensive and prolonged flooding in urban areas due to abnormal weather, etc.		5-7) Circumstances where dysfunction of financial services has a tremendous impact on commercial transactions
	1-5) Situation where a large-scale volcanic eruption, sediment disaster (deep-seated landslide), etc. not only causes a large number of deaths and injuries but also increases the vulnerability of national land for years to come.		5-8) Bottlenecks in stable supply of food, etc.
	1-6) A large number of deaths and injuries due to delay in evacuation caused by failure of information transmission, etc.		6-1) Suspension of functions of power supply networks (power stations and substations, power transmission/distribution equipment) and oil/LP gas supply chains
2 Promptly conduct rescue and first-aid activities, provision of medical care and the like immediately after a large-scale natural disaster (including responses required in the absence of such activities).	2-1) Prolonged suspension of supply of food, drinking water and other vital materials in affected areas	6 Secure the minimum electricity, gas, water and sewerage, fuel, and transport networks necessary for daily life and economic activities even after the occurrence of a large-scale natural disaster, and seek their early recovery.	6-2) Prolonged suspension of water supply, etc.
	2-2) Concurrent occurrence of isolation of many villages for long periods		6-3) Prolonged suspension of functions of sewage treatment facilities, etc.
	2-3) Severe lack of rescue and emergency activities due to damage to the Self-Defense Forces, the police, fire services, the Japan Coast Guard, etc.		6-4) Circumstances where local transport networks are disrupted
	2-4) Prolonged suspension of energy supply for rescue/emergency activities and medical services		6-5) Disruption of supply of water for specific uses due to drought, etc.
	2-5) Shortage of food and drinking water, etc. caused by the unexpected number of people and length of time stranded due to a disaster		7-1) Outbreak of large-scale fires in urban areas
	2-6) Paralysis of medical services due to damage to and/or severe lack of medical facilities and personnel and disruption of routes for offering support		7-2) Occurrence of an extensive complex disaster on the sea or in coastal areas
	2-7) Large-scale outbreak of plagues or infectious diseases in disaster areas		7-3) Direct damage and traffic paralysis due to collapse of buildings along railroads and roads
3 Secure indispensable administrative functions immediately after a large-scale natural disaster.	3-1) Decline in public safety due to escape of inmates from correctional facilities and a significant deterioration of the functions of local police due to damage	7 Prevent any uncontrollable secondary disasters.	7-4) Occurrence of a secondary disaster due to damage to and functional failure of reservoirs, dams, disaster prevention facilities, natural dams, etc.
	3-2) Frequent serious traffic accidents due to total traffic light failures, etc.		7-5) Large-scale spread and leakage of hazardous materials
	3-3) Malfunction of the national government in the capital region		7-6) Expansion of damage due to devastation of farmland and forests
	3-4) Significant deterioration of the functions of local governments due to damage to personnel, facilities, etc.		7-7) Tremendous impact on the national economy, etc. due to harmful rumors
4 Secure indispensable information communication functions immediately after a large-scale natural disaster.	4-1) Paralysis and prolonged suspension of information transmission due to power supply suspension, etc.	8 Establish conditions that enable swift recovery and reconstruction of local communities and economies even after the occurrence of a large-scale natural disaster.	8-1) Circumstances where recovery and reconstruction are delayed significantly due to delay in treatment of a large amount of disaster waste
	4-2) Circumstances where various important mail is left undelivered due to prolonged suspension of postal services		8-2) Circumstances where recovery and reconstruction are delayed significantly due to shortage of personnel in charge of opening of access routes or other recovery/reconstruction-related activities (experts, coordinators, workers, engineers well versed in the respective regions, etc.)
	4-3) Circumstances where disaster information cannot be delivered to the people who need it due to the suspension of TV and radio broadcasting, etc.		8-3) Circumstances where recovery and reconstruction are delayed significantly due to the collapse of local communities and a decline in public safety
5 Prevent functional disturbance in economic activities (including supply chains) even after the occurrence of a large-scale natural disaster.	5-1) Decline of the international competitiveness of businesses due to deterioration in production capacity caused by disruption of supply chains, etc.	8-4) Circumstances where recovery and reconstruction are delayed significantly due to damage to the Shinkansen bullet train system and other core infrastructure	8-5) Circumstances where recovery and reconstruction are delayed significantly due to extensive and prolonged flooding due to widespread ground subsidence, etc.
	5-2) Suspension of energy supply necessary for social and economic activities and for maintaining supply chains		
	5-3) Damage to and fires, explosions, etc. at industrial complexes and other important industrial facilities		

Source: National Resilience Promotion Office, Cabinet Secretariat

specific measures to be undertaken under the Fundamental Plan for National Resilience each year will be planned (plan) and systematically executed (do), and the results thereof will be evaluated (check) as an Action Plan, and corrections appropriate to the state of progress and upgrades such as the addition of new, necessary measures (act), which will be the basis of the Action Plan for the following year, will be made (Chart 3).

Determination of the Action Plan for National Resilience 2015

The “Action Plan for National Resilience 2015” was adopted on June

16, 2015 on the basis of the efforts in the one year since the establishment of the Action Plan for National Resilience 2014. Under the Action Plan for National Resilience 2015, efforts are being made to improve the accuracy of the KPI by promptly ascertaining their current numbers and other means. Integrated performance indexes (IPI) are being introduced on a provisional basis to ascertain the state of individual progress at each of the 45 programs in addition to the KPI, which are indexes for ascertaining the progress of individual measures. Efforts for improvement are being made to thoroughly execute PDCA cycles including the establishment of operation schedules for 15 prioritized programs.

The Action Plan also specifically states that support will be provided

Outline of the Fundamental Plan for National Resilience Cabinet decision, June 3, 2014

Fundamental Plan for National Resilience

- A plan established under Article 10 of the Basic Act for National Resilience as the guidelines for other national plans concerning national resilience.
- Lays out promotion policies for each sector of measures and each program.

● Basic Concept concerning National Resilience (Chapter 1)

[Principles]

- Basic principles of national resilience
 - ① Protect human life
 - ② Avoid fatal damage to and maintain important functions of the state and society
 - ③ Minimize damage to property of the citizenry and public facilities
 - ④ Achieve swift recovery and reconstruction
- Secure social and economic systems that do not become dysfunctional even in the event of a disaster

[Basic Policies, etc.]

- Depart from the still progressing overconcentration in the Tokyo Metropolitan area and create national land that is “autonomous, decentralized and coordinated”
 - Prioritize measures to be implemented intensively and appropriately combine tangible and intangible measures
 - **Reduce cost** through effective use of the existing social capital
 - Aggressively utilize private sector funding
 - Manage through the repetition of the PDCA cycle, etc.
- #### [Matters Requiring Particular Consideration]
- Measures for the coming Olympic and Paralympic Games, etc.

● Vulnerability Assessment (Chapter 2) (Omitted)

● Policies for Promoting Initiatives for Building National Resilience (Chapter 3) – Promotion Policies for Each Sector of Measures –

Individual Areas for Measures

[Administrative functions/Police and fire services]

- Promotion of measures based on the government-wide business continuity plan, etc.

[Housing and cities]

- Measures against fires in densely-populated areas, seismic reinforcement work of housing, schools, and other structures, etc.

[Healthcare and welfare]

- Construction of a wide-area collaboration system through appropriate allocation of medical resources, etc.

[Energy]

- Strengthening of disaster response capacity of facilities supplying energy, etc.

[Finance]

- Securing of backup functions of financial systems, etc.

[Information and communications]

- Early implementation of measures against long-term suspension of the power supply for information communications systems, etc.

[Industrial structure]

- Promotion of the preparation of enterprise partnership-oriented BCP/BCM, etc.

[Transportation and logistics]

- Enhancement of disaster resistance of transportation and logistics facilities, etc.

[Agriculture, forestry and fisheries]

- Implementation of intangible measures such as the preparation of BCP/BCM at the distribution and processing stages, etc.

[National land conservation]

- Comprehensive measures combining tangible measures such as the development of disaster prevention facilities and intangible measures such as the development of warning and evacuation systems, etc.

[Environment]

- Construction of waste treatment systems, etc.

[Land use (national land use)]

- Collaboration between the Sea of Japan side and the Pacific side of the archipelago with the aim of enhancing redundancy and substitutability, etc.

Cross-cutting areas

[Risk communication]

- Education and training for encouraging voluntary efforts by citizens, business operators, and other parties, etc.

[Countermeasures for aging infrastructure]

- Establishment of maintenance cycles, etc.

[Research and development]

- R&D, dissemination, and utilization of superior techniques, etc.

● Promotion & Constant Review of the Plan (Chapter 4)

- The plan shall be promoted, while conducting reviews as necessary concerning other national plans pertaining to national resilience.
- The content of the plan shall be reviewed roughly once every five years.
- The National Resilience Promotion Headquarters establishes a plan for promoting programs for avoiding the worst events that should never happen as an Action Plan for National Resilience for every fiscal year. The Action Plan is the basis for managing the progress, etc. of the measures and programs.
- 15 programs to be prioritized are to be promoted intensively.

Source: National Resilience Promotion Office, Cabinet Secretariat

to prefectures and municipalities so that as many as possible establish Regional Plans as soon as possible, harmonization and cooperation between undertakings for national resilience and regional revitalization will be promoted, and that support for self-motivated private sector undertakings will also be amplified and reinforced in order to contribute to economic growth. It also mentions support for designating Nov. 5 as World Tsunami Day and the implementation of measures targeting the 2020 Tokyo Olympic and Paralympic Games.

Risk Communication as Elaborated in Fundamental Plan for National Resilience

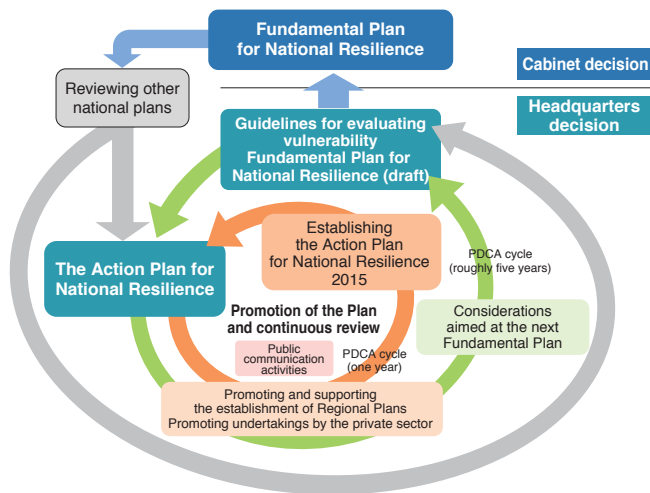
The Fundamental Plan for National Resilience states in “Risk Communication and Fostering Human Resources, etc.”, as one of the items to be given special consideration, that “each and every one of

the people of Japan” is responsible for building national resilience, and it is important for the people to voluntarily consider national resilience through bidirectional communication between the people and the administrative authorities, and not only by way of public communication from the administrative authorities to the people. To that end, nurturing and securing human resources with expert knowledge and technology concerning disaster prevention and mitigation, and activities to convey and utilize the lessons and knowledge gained from disasters, will be promoted as a national movement, keeping in mind the gender-equality perspective.

The promotion policies in the cross-cutting sectors lay out the following policies for the promotion of measures to be taken by the relevant ministries and agencies in the roughly five years going forward.

CHART 3

PDCA cycle for “Fundamental Plan for National Resilience”



Source: National Resilience Promotion Office, Cabinet Secretariat

- Bidirectional communication will be used to promote voluntary measures in which all parties including the national and local governments, the people, and private sector operators participate based on the concepts of self-help, mutual assistance, and public support. All generations will receive lifetime education, training, and enlightenment concerning national resilience including the enhancement of disaster prevention education in schools and elsewhere in order to build a risk-resilient society and economy and to reduce damage.
- Necessary measures will be promoted in local communities — the foundation for the promotion of risk communication — mindful of the fact that increasing the social participation of residents and strengthening the power of the regions lead to the enhancement of response capabilities and post-disaster mental care through mutual help and cooperation between residents, including consideration for women, the elderly, children, the handicapped, foreigners, etc. Voluntary activities including logistic support by institutions and organizations of disaster prevention volunteers to protect local communities will be encouraged.
- The national government will take the lead in establishing and presiding over a liaison committee with the participation of academic experts, local governments, private sector operators, and other relevant parties as the core for undertaking risk communication, and to develop material to enhance awareness of the people towards building national resilience and to consolidate information by such means as developing databases of risk information. The nurturing of instructors, leaders, and other human resources among residents and private sector operators who correctly understand the lessons and knowledge gained from disasters and have acquired the practical skills will be supported by these means.
- Private sector investment in each sector concerning national resilience will be encouraged by promoting popularization and education measures in order to render products, services and the like that contribute to national resilience understandable to the

people of Japan.

Risk Communication as Elaborated in Action Plan for National Resilience 2015

The Action Plan for National Resilience 2015 states the following on the promotion policy regarding cross-cutting sectors for programs. The ministries and agencies will collaborate this fiscal year to promote measures on this basis.

- Bidirectional communication will be used to promote voluntary measures in which all parties including the national and local governments, the people, and private sector operators participate based on the concepts of self-help, mutual assistance, and public support, using symposiums and other opportunities. All generations will receive lifetime education, training, etc. concerning national resilience including the enhancement of disaster prevention education in schools and elsewhere in order to build a risk-resilient society and economy and to deduce damage. Supplementary teaching material concerning national resilience to be used in school classes will be considered as part of these efforts.
- In local communities, the social participation of residents will be increased and the power of the regions will be strengthened with emphasis on the enhancement of response capabilities and post-disaster mental care through mutual help and cooperation between residents including consideration for women, the elderly, children, the handicapped, foreigners, etc. Building safe communities will be promoted, including the relocation of facilities, in order to protect people requiring assistance during disasters from earthquakes and tsunamis. Voluntary activities including logistic support by institutions and organizations of disaster prevention volunteers, etc. to protect the local communities will be encouraged.
- The National Resilience Promotion Headquarters will collaborate with the relevant ministries and agencies and Association for Resilience Japan and other private sector organizations to develop material for enhancing public awareness of national resilience, and to build and popularize databases of hazard maps, ground structure information and other risk-relevant information, and so on. Through these undertakings, residents and private sector operators will receive the correct lessons and knowledge gained from disasters, and will be supported in nurturing instructors, leaders, and other human resources who have acquired the practical skills regarding emergency responses, mental care and the like, while private investment will be promoted by generating demand for various services that contribute to national resilience.
- In order to correct the trend towards overconcentration in the Tokyo Metropolitan area and to meet challenges in metropolitan areas and local urban areas, people responsible for supporting communities that engage in community building not passively but by doing their own thinking will be nurtured strategically, mindful of declining fertility, an aging society and the like. Efforts will also be made to develop diverse actors towards building a mutual assistance society that utilizes the circulation of people and to rehabilitate communities.
- The establishment of Regional Plans contributes to active risk communication by the administrative authorities, local residents, private sector operators and the like. The objective is to achieve the

early establishment of Regional Plans by as many prefectures and municipalities as possible through measures such as support by sharing expert knowledge and expertise necessary to considering Regional Plans through such means as the Fundamental Plan for Regional Resilience Model Projects Program and the amendment of the Establishment Guidelines for Regional Plans.

Specific Examples of Risk Communication for National Resilience ① : Great East Japan Earthquake Forum at the Third UN World Conference on Disaster Risk Reduction

The Great East Japan Earthquake Forum entitled “Building National Resilience — What Should We Leave for the Next Generation?” was held on March 16, 2015 at the Third UN World Conference on Disaster Risk Reduction.

The objective of the forum was to make building national resilience understood by everyone responsible for self-help, mutual assistance, and public support measures for avoiding catastrophic damage to human life, property, and societal functions as the consequence of mega-earthquakes, mega-typhoons and other natural disasters and to deepen the understanding of the international community about building national resilience in Japan.

The following is a summary of the keynote speech entitled “On National Resilience” by Professor and Special Advisor to the Cabinet Satoshi Fujii, a faculty member of the Graduate School of Engineering at Kyoto University.

Resilience is the ability to prevail in the face of pressure, the ability to bounce back with force and flexibility. Government efforts to adopt resilience fall into the following three categories.

First is the recognition that Japan currently faces a wide range of threats such as the threat that another massive quake similar to the Great East Japan Earthquake may hit, the threat from mega-typhoons and massive floods triggered by climate change, and the growing number of accidents arising from the deterioration of infrastructure built during the high growth era. The beginning of the 21st century finds Japan faced with such threats, yet it still operates in the belief that the same social mechanisms that used to be safe in the past are still so. In fact, I believe that the lack of awareness of such threats is the biggest threat that Japan currently faces as a nation.

Second are the efforts to acquire the resilience to overcome these threats. Specifically, it is my belief that we will not be able to overcome the threats we currently face unless we secure resilience in all areas including the economy, industry, local communities, infrastructure, energy, education, healthcare, food, communication, and so on. Some scientists believe there is a 70% probability of a major quake hitting Tokyo within the next 30 years (“Final Report by the Working Group for the Study of an Earthquake Directly under the Metropolitan Tokyo Area”, Dec. 19, 2013), while the possibility of a Tokai earthquake is estimated at 88% (“Earthquake Research Committee, Headquarters for Earthquake Research Promotion, Geological Survey of Japan”, Jan. 11, 2012). Do the people of Japan have such a sense of urgency?

Third, we will be able to secure the power for Japan to grow forcefully if the Japanese people put all their efforts into building resilience and creating a framework that enables us to overcome the most serious threats. It is my belief that doing so will make Japan “a growth center for the 21st century”.

If we do nothing to address the challenges that we face today, Japan will lose many human lives, and its economy will suffer deep, long-

lasting damage. But I am convinced that we will be able to build a country that will never buckle under threats if we tackle them with courage.

Prof. Fujii was coordinator for Part 2 of the panel discussion entitled “Mainstreaming the Notion of Disaster Prevention and Mitigation and the Conveyance of Culture for Better Reconstruction”, featuring four panelists who gave presentations on undertakings for disaster prevention and mitigation and the like. Masahiko Mochizuki, president of Sanriku Railway, talked about disaster prevention measures at railways based on the experience of the Great East Japan Earthquake disaster. Shiori Yamamoto, a certified weather forecaster, gave an explanation of disaster prevention education utilizing weather information. Kozo Kumagai, vice governor of Tokushima Prefecture, gave an explanation of Tokushima’s history of natural disasters and its Fundamental Plan for Regional Resilience. Nobue Kunizaki, head of the *Kikikanri Kyoiku Kenkyujo* (Crisis Management Institute), pointed to the importance of measures and self-help and mutual assistance to minimizing damage from disasters. In conclusion, Prof. Fujii conveyed the importance of undertaking disaster prevention and mitigation while always being mindful of protecting ourselves and our families, companies, and neighbors under the assumption that we become less conscious of disaster prevention over time.

Specific Examples of Risk Communication for National Resilience ② : Creating and Distributing as Supplementary Reading Material a Workbook for Study Entitled “Building Our Community and Our Country for Disaster Prevention”

Japan has repeatedly gone through long cycles of recovery and reconstruction from many disasters in the past. In order to avoid this, it is necessary to move forward with building a country with the “strength and flexibility” to save lives, minimize damage to the economy and society to non-catastrophic levels, and recover swiftly. To that end, it is our understanding that it is extremely important to undertake risk communication including disaster prevention education in schools.

The Cabinet Secretariat is collaborating and cooperating with the Cabinet Office (Disaster Management Unit), the Ministry of Education, Culture, Sports, Science and Technology, and the Japan Society of Civil Engineers to create supplementary reading material (a 20-page workbook for study) that can be utilized in school classes. It will be delivered to each and every student in domestic schools free of charge.

The workbook will include pages evoking threats, explaining damage from earthquakes and heavy rain, making readers imagine disaster-resistant communities and countries while they look at maps, and encouraging the development of disaster-resistant communities while keeping in mind life during normal times. The supplementary reading material nurtures the “ability to think for yourself” about how to protect your “country” and “community” from earthquakes and heavy rain. The intended readers are upper-grade elementary school to middle and high school students (mainly upper-grade elementary school students, with somewhat more sophisticated material included on some pages to challenge middle and high school students). JS

Taro Seto is director for Policy Planning at the National Resilience Promotion Office, Cabinet Secretariat.