

## Section 5 Measures to Promote National Resilience

### 5-1 Formulation of the National Resilience Annual Plans

The government finalized the "National Resilience Annual Plans 2021" (hereafter referred to as the "Annual Plans 2021") on June 17th, 2021 (decided by the Headquarters of National Resilience Promotion). Based on the "Five-Year Acceleration Plan for Disaster Risk Reduction, and National Resilience" (hereafter referred to as the "Five-Year Acceleration Plan" in this section), which was formulated in December 2020, the Annual Plans 2021 included the following goals:

- 1) Water control measures in watershed areas, countermeasures for earthquakes and tsunamis, as well as ensuring the road network function and such for storms, flood disasters, and large-scale earthquakes.
- 2) Measures for earthquake resistance, tsunamis, and facility aging-management in infrastructures such as road facilities and schools.
- 3) Encouragement of digitalization such as sophisticating prediction, collection, amassment, and relay of disaster-related information.

Also, the cost of the Five-Year Acceleration Plan in FY 2021, which is its first fiscal year, was estimated. The Acceleration Plan would amount to approximately 4.2 trillion yen, of which the national expense would be around 2.0 trillion yen, while its whole cost would amount to approximately 15 trillion yen.

The "Three-Year Emergency Countermeasures for Disaster Prevention and Mitigation and National Resilience" (decided by the Cabinet Office on December 14th, 2018) was also followed up in the Annual plan. An evaluation was made that its goals were generally achieved as approximately 6.9 trillion yen was ensured for the expected plans of around 7 trillion yen, and 153 out of 160 emergency response measures met their goals or almost reached them with the budget through FY 2020.

In addition, to enhance each citizen's understanding and interest in the necessity of reducing the disaster risk in advance and the effects that follow, specific cases which effectively worked using these measures in disasters were put together to raise public awareness.

Besides, in response to the recommendations for realizing a new era of disaster prevention, disaster mitigation, and national resilience as well as the latest lessons from the Heavy Rain Event of July 2020 and heavy snowfall between December 2020 and February 2021, a determination was made to promote required measures from the perspective of national resilience.

Furthermore, in FY 2021, the "Advisory Committee on National Resilience (Disaster Prevention and Mitigation)" (Chairperson: Satoshi Fujii, Professor of Kyoto University) (hereafter referred to as the "Advisory Committee" in this section) discussed the formulation of the Annual Plans 2021. (FIG. 5-1-1)

**FIG. 5-1-1 Summary of Annual Plan for National Resilience, 2021 (Jun, 2021)**

**Summary of Annual Plan for National Resilience, 2021—1**

Based on the "Fundamental Plan for National Resilience," the annual plan outlines the main measures to be undertaken for each of the 45 programs during the fiscal year, manages progress using quantitative indicators and steadily promotes measures through the PDCA cycle.

**1. Key Points of National Resilience Efforts in FY2021**

**(1) Promotion of Five-Year Acceleration Plan**

■ In recent years, weather-related disasters have become more severe and frequent, and the occurrence of large-scale earthquakes is imminent. In order to protect the lives and property of citizens and maintain the important functions of society, we have decided to further accelerate and deepen the efforts for national resilience based on the Fundamental Plan for National Resilience, and have set medium- and long-term targets and will implement them intensively, bringing forward the target achievement year.

■ Further accelerate and deepen efforts in 123 measures of the three areas.  
(Response to storm and flood disasters and large-scale of earthquakes, etc.)

- In addition to river management, river basin management that integrates structural and non-structural measures, such as prior flow from dams and disaster prevention town planning to reduce flood damage
- Tsunami countermeasures in ports and harbors, countermeasures for densely inhabited areas that are extremely dangerous during earthquakes, etc. and countermeasures to create disaster-resilient urban areas.
- Eliminate the missing link of high-standard roads to ensure disaster-resilient national main road network functions, etc.

(Measures to address aging infrastructure)

- Measures against earthquakes and tsunamis, and aging of road facilities, school facilities, other infrastructure facilities, etc.

(Promotion of digitization, etc.)

- Enhancement of disaster-related information forecasting, collection, accumulation, and dissemination, such as by strengthening observation systems and improving forecast accuracy for intense heavy rain, utilizing robot and drone technology, providing evacuation information via smartphones, and accelerating social implementation of disaster prevention chatbots that collect information on disaster damage, etc.
- Implement digitization measures efficiently through collaboration with ministries and agencies. (Watershed flood disaster management, the establishment of a coordinated infrastructure data platform, etc.)

**(2) Promotion of regional resilience**

■ Regional plans have made significant progress, with all prefectures and 1,398 municipalities (approximately 80%) having completed their formulation. (As of May 1, 2021).

■ Content has been enhanced by incorporating medium- and long-term goals of the five-year accelerated plans into each regional plan and showing the future image of the region to be aimed for. Focused promotion and support of initiatives based on regional plans. (From FY 2022 onward, the budget will be focused on initiatives based on regional plans with this enhanced content.)

■ Promoted the establishment of a system for municipalities to quickly and accurately accept support staff, etc., according to the threat of disaster for the purpose of sharing information and making various adjustments, etc.

**(3) Promotion of public awareness**

■ In order to increase the understanding and interest of each citizen in disaster prevention, including the necessity and effectiveness of disaster prevention in advance, related parties will work together to clarify the target audience for public awareness and strategically implement them. A strategy for public awareness for national resilience (tentative name) will be compiled by the end of this year.

**(4) Strategic Policy Issues, WG recommendations on realizations for a new era of disaster prevention and mitigation, and national resilience, and efforts based on lessons learned from disasters in FY 2020.**

■ National resilience that meets climate and natural conditions: Promote green infrastructure and land use that takes disaster risk into account. Resilience of People and Communities: Promote the use of the power of diverse actors, etc.

■ Reflected recommendations of WG on reducing disaster risk in advance and complex disasters, the future vision and social implementation team of WG on the digital and disaster prevention technology, and disaster risk reduction education and disaster volunteer team of WG on DRR education and public awareness.

■ Based on the experience gained through the Heavy Rain Event of July 2020 (disaster response under the influence of COVID-19) and heavy snow disasters, as well as the results obtained from the study, necessary measures will be promoted.

**Summary of Annual Plan for National Resilience 2021—2**

**2. Examples of Key Measures in the Annual Plan 2021**

**Promote measures for 45 programs in the Basic Plan, taking into account the five-year acceleration plan**

■ Formulate the "Watershed Flood Control Project" as the big picture of flood control measures to be implemented through the collaboration of all parties concerned for the 109 first-class water systems across the country. In addition to river management, watershed flood control is being promoted through the integration of structural and non-structural measures, such as prior flow from dams, community development to reduce flood damage and the elimination of flood risk information gaps.

■ Promote measures against earthquakes and tsunamis, and aging of infrastructures facilities such as roads, bridges and school facilities.

■ Eliminate the missing link of high-standard roads to ensure disaster-resilient national main road network functions, etc.

■ Enhancement of disaster-related information forecasting, collection, accumulation and dissemination such as by strengthening observation systems and improving forecast accuracy for intense heavy rain, utilizing robot and drone technology, providing evacuation information via smartphones, and accelerating social implementation of disaster prevention chatbots that collect information on disaster damage.

■ Training of DMAT and DPAT, enhancement and reinforcement of TEC-FORCE

■ Promotion of snow damage prevention measures on roads, such as maintaining snow protection facilities, snow melting facilities, median openings, U-turn roads etc., and creation of timelines

■ Promote the creation of individual evacuation plans for the evacuation of those who require assistance evacuating

■ Respond to COVID-19 in shelters etc.

**3. Progress Management of Five-Year Acceleration Plan**

**(1) Progress (based on project cost)**

■ The total project size was targeted to be approximately 15 trillion yen (including the use of fiscal investment and loan program (FILP) and projects by the private sector), but the amount for FY2021, the first year of the project, was approximately 4.2 trillion yen.

**(2) Progress on 123 measures**

■ Track and manage progress to ensure steady progress on medium- and long-term goals set for each of the 123 measures.

■ Based on the implementation of the measures during the fiscal year, follow up on the progress in the annual plan to be developed in the following fiscal year.

Category	Projected scale of business (at the time of Cabinet decision)	Scale of business (for the first fiscal year)	Of which, government funds (for the first fiscal year)
<b>Five-Year Acceleration Plan for Disaster Risk Reduction and National Resilience</b>	Approx. 15 trillion yen	Approx. 4.2 trillion yen	Approx. 2.0 trillion yen
1 Measures to cope with increasingly severe wind and flood damage and imminent large-scale earthquakes	Approx. 12.3 trillion yen	Approx. 3.5 trillion yen	Approx. 1.5 trillion yen
2 Aging Management for a shift to preventive maintenance	Approx. 2.7 trillion yen	Approx. 0.7 trillion yen	Approx. 0.4 trillion yen
3 Promotion of digitization, etc. for efficient implementation of measures related to national resilience	Approx. 0.2 trillion yen	Approx. 0.03 trillion yen	Approx. 0.03 trillion yen

\*The amount of some projects that utilize FILP are funded in the first fiscal year, exceeding the annual average of the five-year project size (approximately 15 trillion yen in total) in consideration of the current low-interest rate environment. This is because the loan amount is collectively financed in the first fiscal year or they are a part of the economic stimulus measures.

\*Of the total project size of the five-year accelerated plans, which is approximately 15 trillion yen, the government expenditures are generally in the mid-7 trillion yen range.

\*Some of the totals do not add up due to rounding.



# Summary of Annual Plan for National Resilience, 2021—3

## 4. Results of implementation of Three-Year Emergency Countermeasures for Disaster Prevention and Reduction, and National Resilience

### (1) Implementation results (based on project cost)

■ The project size was targeted to be approximately 7 trillion yen in total (including the use of fiscal investment and loan program (FILP) and projects by the private sector). After a detailed examination of the local situation, approximately 6.9 trillion yen was secured by FY 2020, which is the period of the project, and the project is progressing smoothly.

Category	Project Scale (Initial Assumption)	Project Scale (as of FY2020, the period of the project)
<b>Three-Year Emergency Countermeasures for Disaster Prevention and Reduction, and National Resilience</b>	Approx. 7 trillion yen	Approx. 6.9 trillion yen
<b>I. Maintain functions of critical infrastructure and others for disaster prevention</b>	Approx. 3.5 trillion yen	Approx. 3.4 trillion yen
(1) Prevention and minimization of damage caused by large-scale flooding, sediment disaster (landslide disaster), earthquakes, tsunamis, etc.	Approx. 2.8 trillion yen	Approx. 2.8 trillion yen
(2) Ensure disaster response capabilities such as rescue, first aid and medical activities	Approx. 0.5 trillion yen	Approx. 0.5 trillion yen
(3) Secure information necessary for evacuation actions, etc.	Approx. 0.2 trillion yen	Approx. 0.1 trillion yen
<b>II. Maintain the functions of critical infrastructure and other assets that support the national economy and livelihoods</b>	Approx. 3.5 trillion yen	Approx. 3.5 trillion yen
(1) Secure electricity and other energy supplies	Approx. 0.3 trillion yen	Approx. 0.3 trillion yen
(2) Secure food supply, lifelines, supply chains, etc.	Approx. 1.1 trillion yen	Approx. 1.1 trillion yen
(3) Secure land, sea and air transportation networks	Approx. 2.0 trillion yen	Approx. 2.0 trillion yen
(4) Ensure information and communication functions, and services necessary for daily life, etc.	Approx. 0.02 trillion yen	Approx. 0.03 trillion yen

Some of the totals do not add up due to rounding. \*1 Some parts of the project have not been completed due to the impact of COVID-19, coordination with other related plans, and changes in the project plan and construction process originated from site conditions and other factors. However, a high percentage of the work has been completed and is on schedule for completion. \*2 Items that require consideration in order to achieve the target, such as the need to secure financial resources for the facility provider or local government, or to adjust rights with related parties.

### (2) Results of implementation of 160 emergency measures

■ The budget up to FY2020 resulted in the achievement of 141 items. Although there are some delays due to the impact of the spread of COVID-19 and changes in plans and processes due to site conditions and other factors, 12 items are on track to achieve their targets, and it is estimated that targets have been almost achieved as a whole.

Achieve targets through budget by FY2020	141 items
Targets are on track to be achieved in FY2021 and beyond. (*1)	12 items
Needs to be considered to achieve the goal. (*2)	7 items
Overall measures	160 items

■ Necessity of securing financial resources for local governments and private facility providers and adjusting rights with related parties, etc. has been arisen, and 7 items need to be considered for achieving the target. For these items, the relevant ministries and agencies will study the measures to be taken to achieve the target, reach a conclusion as soon as possible and promptly implement the measures.

### (3) Cases of effectiveness in times of disaster, etc.

<Prevention and minimization of damage caused by large-scale flooding, sediment disaster (landslide disaster), earthquakes, tsunamis, etc.>

- Emergency measures for flood hazards in rivers
- Emergency measures regarding the danger of internal flooding
- Emergency measures for earthquake resilience of structures of school facilities and others

<Ensure disaster response capabilities, including rescue and first aid, and medical activities>

- Emergency measures to secure fuel for in-house power generation facilities at disaster base hospitals, etc.

<Securing electricity and other energy supplies>

- Emergency measures for seismic reinforcement of high-pressure gas facilities

<Secure food supply, lifelines, supply chains, etc.>

- Emergency measures to prevent disaster damage to agricultural greenhouses

<Securing land, sea and air transportation networks>

- Emergency measures for road slopes and embankments

## Examples of Disaster Prevention by Projects Related to National Resilience

### ● River improvement in the Sendai River Area (Isa City and Satsuma Town, Kagoshima Prefecture, etc.)

By building levees and excavating the river channel, the water level was reduced by approximately 3.1 m, and overflow from the main stream of the Sendai River was avoided during the heavy rain in July of 2021. Damage of flooding was reduced.



Major projects	Details of measures	Project cost	Period of measures
Special emergency projects to deal with extremely severe disasters	Building levees, excavating the river channel and diversion channel improvement	Approx. 37.5 billion yen	2006 - 2011
3 years emergency response	Building levees and excavating the river channel	Approx. 10.1 billion yen	2018 - 2020
Tsuruda Dam	Increase of flood control capacity (effective use of dams)	Approx. 71.1 billion yen	2007 - 2018

Heavy rain in July of 2006	Heavy rain in July of 2021
297 mm/12 h	354 mm/12 h (Precipitation at Miyanojo Rainfall Observatory (Satsuma Town, Kagoshima Prefecture))
<b>Damage and effect</b>	
Inundated area: approx. 2,800 ha Inundated houses: approx. 2,350 Fatalities: 2 Damage amount: 37.85 billion yen	Inundated area: approx. 1,260 ha* Inundated houses: approx. 140* Fatalities: 0 Damage amount: (calculation in progress)

\*Based on local government interviews as of August, 2021

### ● Road flooding prevention project (Hichisou Town, Gifu Prefecture)

Road flooding was prevented during the heavy rain in August of 2021 by installing drainage structures such as crossing culverts and gutters.



Route	Contents of measures	Project cost	Period of measures
National route 41	Drainage structures (crossing culverts and gutters, etc.)	Approx. 2.7 billion yen*	2018 - 2020

\*Total amount of emergency response project cost (flooding) for disaster prevention and mitigation, and national resilience in the improvement of Gifu Prefecture's national route 41.

Localized heavy rain in September of 2018:	Heavy rain in August of 2021:
163 mm (continuous rainfall)	358 mm (continuous rainfall)
<b>Damage and effect</b>	
Road flooding occurred in a section exceeding 100 m	No damage

## Examples of Disaster Prevention by Projects Related to National Resilience

### ● Hiroshima West mountain range direct erosion control project (Hiroshima City, Hiroshima Prefecture)

Heavy rain in August of 2021 caused debris flow but the developed check dam caught the sediment and driftwood. There was **no damage** in downstream area.



Major projects	Details of measures	Project cost	Period of measures
Direct erosion control project	Check dam	Approx. 1.1 billion yen	2015 - 2016

#### If not improved

If a debris flow occurs due to the heavy rain with no check dam, 252 houses\* in the downstream area may be damaged.

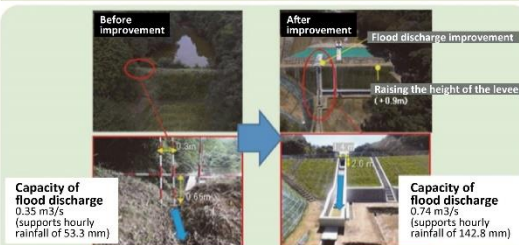
#### Heavy rain in August of 2021

- A debris flow event occurred on August 14 due to Heavy Rain from August 12 of 2021 (cumulative rainfall of 541 mm and maximum hourly rainfall of 37 mm were observed at the Takase rainfall observatory).
- The check dam caught the sediment. There was no damage in the downstream area.

\*Assumed damage in case where houses in the sediment disaster hazard zone of this river are affected.

### ● Okuhara Pond irrigation pond improvement project (Izumo City, Shimane Prefecture)

The levee body of the irrigation pond was enhanced by raising its height and improving the capacity of flood discharge of its spillway. Even during the heavy rain in July of 2021, the floodwater was safely discharged and there was **no damage** due to breakage, etc.



Project name	Details of measures	Project cost	Period of measures
Disaster prevention and mitigation projects in farming areas	Raising the height of the levee - Flood discharge improvement	90 million yen	2017 - 2019
Among above, three-year emergency response plan		25 million yen	2019

#### If not improved

If the irrigation pond collapsed due to heavy rain while the irrigation pond was not improved, the following damage could occur.

- Estimated number of damaged houses: 6
- Estimated amount of damage: 120 million yen

#### Heavy Rain in July of 2021

No damage was caused by the heavy rain on July 12 (hourly rainfall: 57.5 mm).

Source: Website of National Resilience Promotion Office, Cabinet Secretariat  
(Reference: [https://www.cas.go.jp/jp/seisaku/kokudo\\_kyoujinka/pdf/nenjikeikaku2021\\_01.pdf](https://www.cas.go.jp/jp/seisaku/kokudo_kyoujinka/pdf/nenjikeikaku2021_01.pdf))

## 5-2 The National Resilience Related Budgets and Revision of Tax Systems Contributing to National Resilience

In the FY 2021 supplemental budget, a national expense of approximately 1.5 trillion yen was booked as a cost to accelerate and deepen the Five-Year Acceleration Plan, along with another national expense of around 0.3 trillion yen as a cost to promote measures for national resilience consistently based on the Fundamental Plan for National Resilience. In the original budget for FY 2022, a national expense of approximately 4.6 trillion yen was also booked as a national resilience-related budget.

To encourage private business operators to work on national resilience by way of the tax system, the related ministries and agencies have been collaborating to further improve the tax system contribution to national resilience. 8 revisions, including 1 new item and 2 expansions and improvements, were completed in the FY 2022 tax system revisions.

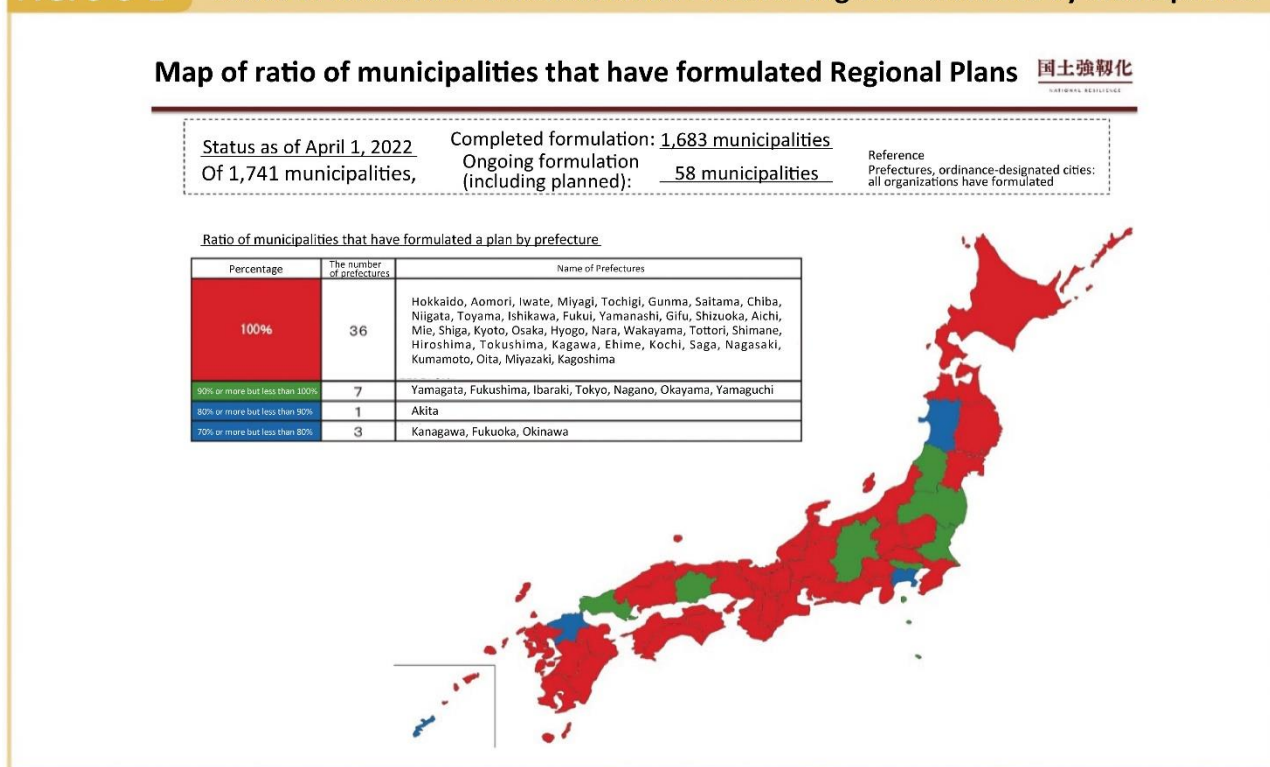
## 5-3 Support in the Formulation of Fundamental Plans for Regional Resilience

To proceed with national resilience effectively, the promotion of regional resilience with a focus on local governments is extremely important. Local governments moved forward with formulating the Fundamental Plans for Regional Resilience (hereafter referred to as the "Regional Plans" in this section). The national government sent officers to hold briefings and supported by 57 grants and subsidies from relevant government ministries and agencies for measures that local governments conducted based on the Regional Plans. As a result, as of April 1st, 2022, 47 prefectures and 1,683 municipalities completed their formulation, while the rest of the 58 municipalities are in discussion to formulate plans as soon as possible (FIG. 5-3-1). Regarding the support of the grants and subsidies, based on the situations of each Regional Plan formulation, a determination was made from FY 2022 to promote the improvement of the content in these Regional Plans by focusing on projects that clarify project



locations, implementation periods, and other details in their plans.

**FIG. 5-3-1 Status of formulation of Fundamental Plans for Regional Resilience by municipalities**



Source: Cabinet Secretariat data

## 5-4 Encouragement of Measures for National Resilience by Private Sectors, Promotion of Public Relations, and Raising Public Awareness

### (1) Encouragement of Measures for National Resilience by Private Sectors

To encourage private sectors to work on measures contributing to national resilience, the government has been operating an initiative where the third party organization approves organizations that proactively continue their projects to enhance resilience as "Organizations Contributing to National Resilience" since FY 2016. During large-scale disasters, maximizing both the self-help of each organization and the mutual support of the entire society is critical. Therefore, the government started another system to approve organizations that take the initiative in social actions as "Organizations Contributing to National Resilience (+Mutual Support)" among "Organizations Contributing to National Resilience" in FY 2018. By the end of November FY 2021, 257 organizations, including 156 "+Mutual Support" organizations, were approved in total. Advanced measures for national resilience by private sectors are spread via publishing the "Collection of Private Sector Efforts to Contribute to National Resilience" every year and introducing them on the website and social media (FIG. 5-4-1).

Furthermore, to spread individual and local activities for national resilience, the "National Resilience Work Shop" are held online for the general public, and it has been held 4 times in total in FY 2021. In addition, pilot projects for industrial parks are also conducted to promote collaboration between the government and private sectors for national resilience. In January 2022, a symposium was held to share the results in Kyoto City, Kyoto Prefecture.

**FIG. 5-4-1 Encouragement of Measures for National Resilience by Private Sectors**

**Certification system for "Organizations Contributing to National Resilience"**

A third-party certification structure for companies, etc. that positively take measures for business continuity as "organizations contributing to national resilience" was established in FY 2016.

In addition, a system was added to certify companies, etc. that are engaged in social contribution among these organizations as (+ mutual support).

☆ Certified organizations: 257 (including 156 + mutual support organizations)



**Collection of Private Sector Efforts to Contribute to National Resilience**

As a reference for those who are going to take measures related to national resilience, leading activities have been collected and published in a booklet and on a website every fiscal year since FY 2014 (A total of 705 cases).



Source: Website of National Resilience Promotion Office, Cabinet Secretariat  
 (Reference: [https://www.cas.go.jp/seisaku/kokudo\\_kyoujinka/torikumi\\_minkan.html](https://www.cas.go.jp/seisaku/kokudo_kyoujinka/torikumi_minkan.html))

**(2) Promotion of Public Relations and Raising of Public Awareness for National Resilience**

To promote public relations and to raise public awareness for national resilience, a determination was made to formulate the Strategy for Public Relations and Public Awareness for National Resilience (tentative) in the Annual Plans 2021. Therefore a new study group on public relations and public awareness was established and it made an interim report in January 2022. In this report, based on the review and the analysis of problems in the past measures, the directionality for improvement and following basic policies for public relations and public awareness were mentioned:

- a) Show clear, specific information on the philosophy of national resilience, its effects, etc.
- b) Offer information from the receivers' perspective, and use suitable media.
- c) Encourage related agencies to take the initiative and have a positive manner in conducting measures, and enhance the collaboration.

Based on this report, the Cabinet Secretariat will formulate the Strategy for Public Relations and Public Awareness for National Resilience with cooperation between related ministries and agencies, and work harder on public relations and public awareness measures for national resilience.

**5-5 Reconsideration of the Fundamental Plan for National Resilience**

Under the philosophy that "we have to proceed with measures for national resilience as a part of the 100-year-national development based on 'the Grand National Plan' looking far ahead to 1,000 years" (the Fundamental Plan Chapter 1), the current Fundamental Plan for National Resilience (hereafter referred to as the "Fundamental Plan" in this section) establishes the basic guidelines regarding the formulation of measures for national resilience as the basic plans to aim to promote them comprehensively and systematically. It also determines to "review contents of the plans approximately every five years considering future changes of the socio-economic status surrounding national resilience and the future situation of promoting national resilience measures" (the Fundamental Plan Chapter 4). Considering that the last revision of the current Fundamental Plan was completed in December 2018, which is three years prior to FY 2021, the Advisory Committee began to discuss its reconsideration.

In light of past measures for national resilience, the philosophy of national resilience, and knowledge from changes in the latest social circumstances and disasters, the Advisory Committee is discussing the general issues

on national resilience in the future, including the Regional Plans, the Annual Plans, how to stimulate private sectors into taking their measures, and systems of national resilience plans such as each national resilience measure in order to promote national resilience even further. The Advisory Committee will proceed with a revision of the Fundamental Plan based on these discussions.