

A guideline for the creation of countermeasures against
flood disasters during a pandemic situation (COVID-19)
(March 27, 2020 - 2nd Edition)

Originally, this guideline is written in Japanese for concerned actors including decision-makers in Japan. Therefore, the Japanese cultural background influences these contexts, and the citations are all from the Japanese references.

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Purposes of this Guideline

This section provides an overview of this guideline and its intended purposes.

<Preconditions>

- The respective authors made this guideline in terms of wisdom through their experiences and research findings. Though, it does not represent the policies and principles of the authors' affiliated institutions.
- The phenomenon of the combined disaster among the pandemic crisis (COVID-19) and natural disasters is still under the uncertainty conditions. Therefore, the guideline is in order to arrange the topics and get the points straight. Moreover, this guideline updates in accordance with the actual situations.
- It is not possible to completely eradicate all risks. Therefore, this guideline is for the decision makers , including residents who need to make countermeasures and decisions in order to make borders of risks whether they are acceptable or not, to consider whether the decision is feasible or not. The authors expect that the guideline could be useful for them to assist their decisions.

<Issues of the conventional countermeasures against natural disasters during the COVID-19 pandemic>

- The social distancing rules to prevent the spread of COVID-19 require people to refrain from gatherings and contact with other people. On the other hand, the conventional response to regional disaster prevention (i.e. support from members of the community in the form of watching out for and having contact with others; the setting up of evacuation sites where the “Three Cs” (Closed spaces, Crowded Places, and Close-contact settings) are the norm; and post-disaster recovery and reconstruction work enlisting assistance from large numbers of supporters) is grounded on the assumption of people congregating and coming into contact with one another. Therefore, countermeasures against natural disasters during the COVID-19 pandemic will require totally different ideas and approaches.
- It will take a great deal of time to share and elicit an understanding of these totally different ideas and approaches not only with administrative authorities, support groups and researchers but also among communities. Therefore, everyone concerned needs to begin thinking about the issues at an early stage (which includes community members themselves).
- In the case of COVID-19, it is not possible to reduce the risk of infection to zero, meanwhile there are still uncertainties about this disease.

- When it comes to the disaster response amid the COVID-19 pandemic, at present the necessary response frameworks and regulatory mechanisms are not in place (or are still under consideration). For example, in some cases, there are insufficient human and material resources available; clear roles have yet to be allocated to specific organizations, departments or people; and no usable systems are in place. Thus, this must essentially be a process of trial and error, one in which measures are thrashed out and taken on a regional basis in line with each region's individual set of circumstances.
- Depending on the type of natural disaster, what can be done differs according to the disaster situation and time phase. Since, it is difficult to create countermeasures for multiple hazards (this guideline begins by examining directions for measures targeting landslide disasters caused by flooding and rainfall, for which it is easy to set up a timeline, and then goes on to consider other disasters).

<Objectives>

- Based on the above Issues, this guideline brings together a pool of information to provide organizations and communities with a set of guidelines for creating countermeasures.
- It presents a scenario about what is likely to happen in the event that a natural disaster occurs during the COVID-19 pandemic (i.e. makes it easier for people to imagine what will occur), and possible directions for measures in such an eventuality (in other words, guidelines on how to make the best approach).
- Therefore, the guideline intends to provide a selection of possible measures and approaches in anticipation of such an event, rather than specific know-how from on the ground.

<Concerned actors, disaster and the phase of disaster process of this guideline>

- Intended readership: Households, communities, support groups (local), nursing care and welfare service providers, social welfare councils, medical institutions, other businesses, administrative authorities, support groups (external)
- Covered time phases: Preparedness phase before disaster, immediate aftermath of disaster, period in which victims are forced to evacuate and shelter from the impacts of the disaster, (Period in which victims work to rebuild their lives: covered in part)
- Applicable disasters: Landslide disasters caused by flooding and rainfall (in the future, earthquakes and tsunamis could also be included)

We appreciate receiving feedback and comments, and hope that this guideline will be helpful to create countermeasures. Please do not hesitate to contact us with any comments, suggestions or ideas that you would like to discuss.

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1. Characteristics of COVID-19 and general measures

For more information on the characteristics of COVID-19 and general measures being taken to tackle this disease, please refer to the following sources: Q & A on Coronavirus Disease 2019 (COVID-19) (Ministry of Health, Labour and Welfare) [1]; Materials from the Expert Meeting on the Novel Coronavirus Disease Control [2]; Tohoku Medical and Pharmaceutical University Handbook for Citizens [3]. This section describes those points which are particularly important in considering disaster measures based on these documents.

1.1 General measures to prevent the spread of COVID-19

- Cough etiquette, washing hands, thorough disinfection and ventilation of environment
- Avoiding the “Three Cs” (Closed spaces, Crowded Places, and Close-contact settings)
- Adoption of new lifestyles
(https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000121431_newlifestyle.html)
- Maintaining good health and noticing early if something is wrong (measuring one’s temperature, monitoring for symptoms, etc.)

1.2 Symptoms of COVID-19 and infectivity

- The incubation period is 1-14 days.
- Many people report cold-like symptoms that include a fever or respiratory symptoms, as well as a strong feeling of tiredness or loss of taste or smell, but some people do not exhibit any symptoms.
- Research suggests that even infected persons who do not exhibit any symptoms could spread the disease.
- The risk of group infection increases in closed spaces, crowded places, and close-contact settings.
- While the elderly and those with underlying conditions (diabetes, chronic lung disease, immune deficiencies, etc.) are most at risk of experiencing severe symptoms, some young people also experience severe symptoms.
- In the event of severe symptoms, the disease progresses quickly from the onset of worsening symptoms (there have been cases of people who were able to talk normally in the morning passing away during the night).
- Cases of reinfection among people who have already been infected have also been reported, but as of yet there is not enough information on the acquisition of immunity and how long immunity lasts once acquired.

1.3 Guidelines for seek advices in the event of a suspected COVID-19 infection

- The individual concerned is experiencing any strong symptoms, such as difficulty in breathing, a strong feeling of tiredness, a fever, etc. in the event.
- The individual concerned is in the high-risk category* and has comparatively mild cold-like symptoms, such as a higher than usual temperature, a cough, etc. in the event.
- Elderly persons, those with underlying conditions (diabetes, heart problems, respiratory conditions (chronic obstructive pulmonary disease, etc.), those on dialysis, patients taking immunosuppressive drugs or undergoing chemotherapy, etc.
- Individuals other than the above with persistent comparatively mild cold-like symptoms, such as a higher than usual temperature, a cough, etc.

1.4 Effects of the spread of infection on medical institutions, welfare facilities, etc.

- Shortage of sanitary items and PPE for individuals, such as masks or disinfectant
- As the number of infected patients increases, medical institutions start to experience major disruptions to their regular health care services. Patients often have to be hospitalized for a longer period of time than with other illnesses, such as influenza (i.e. they occupy beds and other facilities for a longer period of time). What is more, those whose condition worsens occupy medical resources such as respiratory equipment and artificial heart and lung machines, putting medical resources under increasing strain.
- Increased risk of infections spreading within hospitals
- Increased risk of infections spreading within welfare facilities for the elderly, disabled, etc.

1.5 End of the COVID-19 pandemic and what we need to do in the meantime

- One of the following needs to happen if the COVID-19 pandemic is to come to an end: 1. Development and dissemination of a vaccination; 2. Development and dissemination of medicine; or 3. Acquisition of herd immunity. However, estimates suggest that it will take a few years before we are in this position, so we are likely to have to live with this virus for a long time, necessitating a protracted response.
- Statistical information on those who have tested positive for COVID-19 does not include the day of infection. As such, taking into consideration the incubation period, the period in which people stay at home recovering, the amount of time it takes to undergo a test, and the amount of time it takes to receive the results of the test, based on the day of infection, we are seeing the situation as it stood 2 weeks ago. Therefore, when coming up with measures, we need to give consideration to this time lag.

1.6 If a family member starts feeling unwell or someone has come into close contact with an infected person

Refer to the guidelines set out in the Ministry of Health, Labour and Welfare's "Eight-point list of precautions to take at home" [4].

➤ Refer to the guidelines set out in 1.3.

*In this case, "close contact with an infected person" is defined as follows:

- (1) Those living with or who have had prolonged contact with (including in a car, airplane, etc.) a COVID-19 patient (confirmed case)
- (2) Those who have provided medical care, nursing care or caregiving to a COVID-19 patient (confirmed case) without proper protection from infection
- (3) Those who are highly likely to have come into direct contact with contaminants originating from a COVID-19 patient (confirmed case), such as secretions from the respiratory tract or bodily fluids, etc.
- (4) Those who have talked for 15 minutes or more with a patient who first exhibited possible COVID-19 symptoms 2 days ago at a distance of within 1 m and without any mouth covering such as a mask, etc.

2. COVID-19: What has already happened and what is likely to happen in the future

2.1 How the situation currently stands

- COVID-19 infections spread across Japan, prompting the national government to issue a state of emergency. However, as the spread of infection has subsided, this state of emergency has been lifted in some areas. It is likely that this pattern of rising and falling infections will continue into the foreseeable future.
- We may get a clearer picture of the COVID-19 situation by reinforcing the systems under which PCR tests are carried out and conducting antibody tests.

2.2 Convalescence and medical treatment for infected persons

- Patients with mild or no symptoms are being treated at hotels designated as “makeshift medical institutions” rather than self-isolating at home.
- More and more hotels are being secured for the purpose of treating patients with mild or no symptoms.
- There are some people who cannot cope with the environment in these hotels and return home.
- In the event that the spread of infection worsens and the medical care system collapses, treatment for COVID-19 will be provided on the basis of triage (i.e. according to the level of priority of patients' treatment in terms of severity or likelihood of recovery) [5].

2.3 Humanitarian concerns, Stigma

- Violation of privacy, slander, harassment, discrimination, etc. of people thought to be infected persons or to have been treating/dealing with infected persons (there have been many cases of mistaken identity) along with their families
- Slander, harassment, violence, etc. towards people not wearing masks or people/business establishments not exercising self-restraint in their activities
- Worsening of environment at hotels for COVID-19 patients

2.4 Social activities, etc.

- People become unfit because they are refraining from going outside, which takes a toll on their health.
- Other negative effects on health include a worsening of chronic medical conditions, as people hold off seeking treatment or medical institutions are unable to provide them with treatment.

- People are not able to get together, meaning a decline in community activities (community development activities, disaster prevention activities, community watch activities, welfare salons...) and support activities (eateries for disadvantaged kids, free cram schools...)
- Increase in the number of socially isolated people due to a decline in support and social activities
- It becomes difficult to provide support to vulnerable people due to a decline in support and social activities.

3. Things that are likely to happen in the event a natural disaster (landslide disasters caused by flooding and rainfall) occurs during the COVID-19 pandemic

3.1 Overwhelming on medical resources

- In the event of a natural disaster, the risk of infection will increase as a result of subsequent rescue operations, evacuation, people living in shelters and other evacuation destinations, etc. Medical resources will come under strain if the number of people infected with COVID-19 rises.
- In the event medical resources overwhelm, it may not be possible to treat people with minor symptoms, no matter what illness or injury they are suffering from.
- In the event that an increasing number of people are unable to receive the medical attention they need, there is a risk that more people will die at home or at evacuation locations of conditions other than COVID-19.
- In the event that the medical care system collapses, even if a cluster infection breaks out at an evacuation shelter, there is a risk the people will not be able to receive treatment because treatment for COVID-19 is being provided on the basis of triage (i.e. according to the priority of patients' treatment in terms of severity or likelihood of recovery) [5].

3.2 Evacuation

- When hotels for COVID-19 patients are in predicted flood areas or landslide disaster warning areas, it means people who are clearly infected with COVID-19 have to evacuate.
- In the event of evacuation, people would have many options for places where they can seek refuge. (There will be an increasing number of people who opt not to go to an evacuation shelter so as to avoid being in a densely packed environment. Potential places include staying in one's own car, at the home of a friend or relative, at an accommodation facility such as a hotel, etc. On the other hand, there will be those who want to or have no choice but to seek refuge at an evacuation shelter.)
- There will be some people who are not sure where to evacuate. (Those who had not given any thought to evacuation until a disaster strikes will hesitate about going to a designated evacuation site out of fear that they will be at a high risk of infection, or that there will be too many people and they will not be admitted. As such, they will not know where to go to find a safe place to evacuate.)
- Many people will seek refuge at a designated evacuation site or shelter.

- It will not be possible to know whether those seeking refuge at evacuation sites or shelters are infected. (Broadly speaking, there will be a mixture of four types of people: people with no symptoms, people with cold-like symptoms, people who have come into close contact with infected individuals, and people who are clearly infected.)
- There will be many people arriving at evacuation sites and shelters without a mask or a change of mask.
- Those at evacuation sites who are feeling unwell or are suspected of being infected will be ostracized.
- The administrative headquarters of evacuation shelters will not be able to avoid the “Three Cs.”
- Cluster infections will break out at evacuation sites and shelters.

3.3 Sheltering

- Lifelines such as water, electricity and gas will be not supplied, creating unsanitary conditions that will only get worse. This in turn will encourage the spread of infection.
- Disaster victims, fearing infection, will seek refuge in a diverse range of locations (in their own damaged homes, in their cars, at the home of a friend or relative...).
- Disaster victims will become dispersed in various locations, making it difficult to get information and provisions to those in need.
- With no prospect of support from outside (help with improving environments at evacuation shelters, setting up of soup kitchens, etc.), administrative authorities, businesses, organizations, and members of local communities themselves will have no choice but to get by as best they can.
- The administrative headquarters of evacuation shelters will not be able to avoid the “Three Cs.”
- It will not be possible to put in place zoning at evacuation shelters, and there will be a mixture of four types of people living side-by-side: people with no symptoms, people with cold-like symptoms, people who have come into close contact with infected individuals, and people who are clearly infected.
- It will not be possible to isolate those suspected of being infected.
- Those at evacuation sites and shelters who are feeling unwell or are suspected of being infected will be ostracized.
- Cluster infections will break out at shelters.
- There will be many people in evacuation shelters who are at a high risk of developing severe symptoms, such as elderly persons. This means that should there be an infected person in an evacuation shelter, many people will contract the disease and develop severe symptoms.
- In order to avoid contact between people as a means of preventing the spread of infection, it will be difficult to provide evacuees with mutual support or care (this will increase the risk of related deaths).

- In the event that environments at evacuation shelters are poor, people will fall sick more easily. But if the medical systems are under strain, it may not be possible for people to see a doctor (this will increase the risk of related deaths).

3.4 Disaster response

- [Administrative authorities] When people are in need of rescuing, rescuers may not have any information on whether those they are assisting are people with no symptoms, people with cold-like symptoms, people who have come into close contact with infected individuals, or people who are clearly infected, and may lack personal protective gear for themselves. As such, there is a risk that infections will spread through rescue activities.
- [Administrative authorities] Offices at disaster response headquarters etc. will not be able to avoid the “Three Cs.”
- [Administrative authorities] In some cases, confusion will arise as to whether it is the role of departments dealing with the disaster or departments dealing with infections to take the initiative, and it will not be possible to coordinate the response well.
- [Administrative authorities] Confusion will arise as to what kinds of systems and under what conditions disaster victims can turn to receive support for rebuilding their lives. (Even before COVID-19, the situation was such that people found it difficult to make use of systems. However, during the COVID-19 pandemic, it may be necessary to regulate systems related to infections and systems related to disasters.)
- Members of neighborhood associations working mainly in communities consist largely of elderly persons (who are at a high risk of suffering from severe symptoms if infected) and will no longer be able to take the predetermined response to the situation.
- With no prospect of support from outside (scraping away sludge, tidying up, etc.), administrative authorities, businesses, organizations, and members of local communities themselves will have no choice but to get by as best they can.
- Meanwhile, there will also be cases in which individual supporters (volunteers) who have not been taking the risk of infection seriously move around communities and stay in disaster-hit areas.

4. Basic guidelines for disaster response (landslide disasters caused by flooding and rainfall) during the COVID-19 pandemic

4.1 Common challenges facing individuals, communities and administrative authorities

- Take measures to reduce last minute evacuations as much as possible.
- It is not possible to relocate or evacuate everyone in advance from areas at a high risk from natural disasters. As such, there is a need to draw up plans for the disaster response, plans for the administration of evacuation shelters, and plans for helping people rebuild their lives that envisage the need to evacuate people directly before and after a disaster.
- It is conceivable that evacuation sites and shelters where large numbers of people congregate will be administered by the people taking shelter there themselves. As such, protective clothing for individuals, gowns, face shields, etc. should be prepared in advance, and lectures on how to use these are initiated. Please refer to the advice of JVOAD on how to make one's own face shields, gowns, etc. [6]
- Take steps to ensure that communication and bonds between people are sustained despite having to maintain physical distance.

4.2 Individuals

- If individuals live in an area at a high risk from natural disasters, decrease the level of risk as much as possible before a disaster occurs. (Individuals should move to a new location if they live in a predicted flood area and below the predicted height of flooding, or if they live in a landslide disaster warning area. Or, they should evacuate at an early stage (consider according to the individual's own circumstances, such as a few months before the flood season, a few days after a weather forecast has been issued predicting weather conditions which pose a risk of a major disaster occurring, a few days from when a level 3 warning has been issued, etc.))

4.3 Administrative authorities

- Do not allow people who are clearly infected with COVID-19 to stay in hotels to recover if hotels are located in an area at a high risk from natural disasters (in a predicted flood area and below the predicted height of flooding, or in a landslide disaster warning area).
- Have people with no symptoms, people with cold-like symptoms, people who have come into close contact with infected individuals, and people who are clearly infected evacuate to a separate place (both the act of evacuating itself and subsequent sheltering).
- In evacuation shelters, establish separate rooms for people wherever possible. If people stay in a communal area as a group, carry out zoning of the area so that it is separated into small sections, and prevent people in each zone from coming into contact with one another.

5. Individual measures

5.1 Improve knowledge and coping skills relating to infectious diseases

- People should familiarize themselves with the content of the general measures to prevent the spread of COVID-19 introduced in 1.1.
- Educate yourself about what kind of infectious disease COVID-19 is, and help spread awareness in the community. (For instance, learn about COVID-19 through sources such as the video in the following link, and encourage people to think and act based on the content. https://www.youtube.com/watch?v=BtN-goy9VOY&feature=emb_logo)
- It is impossible to reduce the risk of infection to zero (anybody is at risk of infection), so instead of ostracizing others out of fear of infection, think of ways to help each other out while reducing the risk of infection.

5.2 Creating an evacuation plan

*See 8. for more information on how to make an evacuation plan

- In reference to 3.2, you should consider evacuating to the location which is as comfortable for you as possible (consider the merits and demerits of the various options, such as the home of a relative or friend, inside a car, a hotel, designated evacuation site, etc.), and make arrangements in advance to ensure the feasibility of your plan. When doing so, take into consideration your own particular circumstances, such as whether or not you can cope living by yourself, whether or not you require nursing care or support, whether or not you can drive, etc. (Ideally, those at high risk of developing serious symptoms from COVID-19 should move house or move out temporarily for the long term. However, in the case of elderly persons, there are many people who find it hard to adapt to new environments, and relocating increases other risks, such as suffering from dementia. People at risk should therefore think of how to best move forward by taking into consideration their own circumstances and in consultation with family members and other people providing them with assistance.)
- Use hazard maps etc. to find out how vulnerable your home is to disasters, and if you live in an area of high vulnerability, think up an evacuation plan according to your own circumstances (individuals should move to a new location outside the danger zone, or evacuate at an early stage (consider according to the individual's own circumstances, such as a few months before the flood season, a few days after a weather forecast has been issued predicting weather conditions which pose a risk of a major disaster occurring, a few days from when a level 3 warning has been issued, etc.)). Also decide on the evacuation timing (in what situations you should evacuate), means of evacuation, evacuation destination, what to take with you, etc.

*Hazard maps sometimes do not contain information for small and medium-sized rivers, or places at risk of landslide disasters where there are no buildings. Therefore, it would be a good idea to confirm this information with the administrative authorities in advance. In such cases, things will go a lot more smoothly if the community can consult with administrative authorities on a collective basis.

- People who would require assistance in the event of a disaster, such as those receiving in-home care, should consider their evacuation destination, means of evacuation, etc. together with their family or their current care manager or other people providing them with support (where to evacuate, who will be able to assist and the extent of the assistance they can provide, etc.).

5.3 Sheltering

- In reference to 3.3, you should consider evacuating to the location which is the most comfortable for you (options include your own damaged home, at the home of a friend or relative, in your car, a hotel, a facility with effective evacuation shelter status (post-disaster public-funded rental accommodation?), conventional evacuation shelter...), and make arrangements in advance to ensure the feasibility of your plan.
- Disaster victims will become dispersed in various locations. As such, people will become isolated more easily and it will be difficult to get information and provisions to those in need. This is why it is important to connect with people and secure the means to obtain information and provisions, as well as places you can turn to should you need to talk to someone (you should consult with your community or administrative authorities in advance).
- People who would require assistance in the event of a disaster, such as those receiving in-home care, should also consider the kinds of care systems they would require after the disaster together with their family or their current care manager or other people providing them with support (where to evacuate, who will be able to assist and the extent of the assistance they can provide, etc.).
- At evacuation shelters, it is extremely important to detect infected persons early on and trace their movements so as to prevent the spread of infection. Therefore, people need to cooperate with the administrative headquarters of evacuation shelters when they are asked to have their temperature taken, and provide a report on their health and movements.
- With no prospect of support from outside, active cooperation is necessary from the preparatory stage under the understanding that there is a high chance that those staying at the shelter themselves will have to assume responsibility for the shelter's administration.

5.4 Period in which victims work to rebuild their lives following a disaster

- Disaster victims will become dispersed in various locations. As such, people will become isolated more easily and it will be difficult to get information and provisions to those in need. This is why it is important to connect with people and secure the means to obtain information and provisions, as well as places you can turn to should you need to talk to someone (you should consult with your community or administrative authorities in advance).
- It is impossible to reduce the risk of infection to zero (anybody is at risk of infection), so instead of ostracizing others out of fear of infection, think of ways to help each other out while reducing the risk of infection.
- Make sure you know where to consult about systems intended to help people rebuild their lives.
- People who would require assistance in the event of a disaster, such as those receiving in-home care, should also consider the kinds of care systems they would require after the disaster together with their family or their current care manager or other people providing them with support

6. Community measures

6.1 Disseminate information regarding infectious diseases and measures

- Communities should take the initiative to practice and disseminate the content of the general measures to prevent the spread of COVID-19 introduced in 1.1.
- Educate yourself about what kind of infectious disease COVID-19 is, and help spread awareness in the community. (For instance, learn about COVID-19 through sources such as the video in the following link, and encourage people to think and act based on the content. https://www.youtube.com/watch?v=BtN-goy9VOY&feature=emb_logo)
- Under circumstances such as these, fear of infection can easily lead to human rights violations, such as ostracizing or monitoring people involved with COVID-19 patients or those suspected of being infected and their family members. Therefore, it is important to put in place the kind of environment in which people help each other out while reducing the risk of infection.
- In the event that it is difficult to hold face-to-face public information briefings, meetings or workshops during the COVID-19 pandemic, consideration should also be given to using the telephone, SNS, online meeting services, etc.

6.2 Securement of evacuation sites and shelters

- In addition to evacuation sites and shelters provided by the authorities, communities should also take their own steps to secure evacuation sites and shelters (by working as a community, in some cases it makes it easier for people to take action earlier and cooperate).
- If communities choose to secure their own evacuation sites and shelters, they should share this information with administrative authorities (because those sheltering in locations other than designated evacuation shelters can easily be overlooked when it comes to receiving assistance).

6.3 Support for drawing up evacuation plans

*See 8. for more information on how to make an evacuation plan.

- In reference to 3.2, share within the community information on what is likely to happen in the event a natural disaster occurs during the COVID-19 pandemic (presentation of disaster scenarios with the added risk of the spread of infection).
- Provide support enabling each person to choose an evacuation destination (based on the merits and demerits of the various options, such as the home of a relative or friend, inside a car, a hotel, designated evacuation site, etc.) according to his or her individual circumstances (including measures for those requiring assistance in a disaster, such as by providing examples of patterns for measures that residents themselves can take).

- Provide support to allow each member of the community to find out how vulnerable their homes are to disasters using hazard maps etc.

*Hazard maps sometimes do not contain information for small and medium-sized rivers, or places at risk of landslide disasters where there are no buildings. Therefore, it would be a good idea to confirm this information with the administrative authorities in advance. In such cases, things will go a lot more smoothly if the community can consult with administrative authorities on a collective basis.

- Areas without a community disaster prevention plan should draw up a community disaster prevention plan (map of places where people can seek temporary shelter). Such plans should be drawn up taking into account the COVID-19 situation. (Would it be possible to include a diverse range of evacuation destinations on the map?)
- Increase the number of people in communities who are capable of helping draw up evacuation plans (i.e. train more people to fulfill this role).

6.4 Evacuation and short-term sheltering

- Consideration should be given to a system which enables those who would require assistance at predicted evacuation destinations, such as elderly persons, to entrust someone with an emergency backpack, etc. which can be taken quickly in an emergency.
- Steps should be taken (by neighborhood associations and administrative authorities?) to understand as much as possible where members of the local community intend to evacuate in an emergency. This information could then be used to ensure that there are sufficient evacuation sites in place, and to help provide support in the aftermath of a disaster.
- When it comes to opening evacuation sites where there is a high possibility of involvement by local organizations, etc., think together with administrative authorities and concerned organizations about how best to approach things, such as the arrangements and facilities at evacuation sites, routes by which people move, the kinds of provisions to be stored there, registration procedures for when people arrive, etc. (it may be a good idea to carry out actual tests or armchair simulations as to how the environment will be).
- For more information on arrangements and facilities at evacuation centers, etc., please refer to documents by the Disaster Reduction and Human Renovation Institution [7] [8] and JVOAD [6].
- In the event that it is difficult to hold face-to-face public information briefings, meetings or workshops during the COVID-19 pandemic, consideration should also be given to using the telephone, SNS, online meeting services, etc.

6.5 Advance disaster prevention and disaster mitigation activities (sheltering)

- In reference to 3.3, share within the community information on what is likely to happen in the event a natural disaster occurs during the COVID-19 pandemic (presentation of disaster scenarios with the added risk of the spread of infection).
- Urge residents to create a plan to prepare for going into evacuation, and provide them with support for this (residents may have difficulty in thinking about these issues by themselves, so it would be beneficial to have people in the community who can sit down and think things through with them).
- Provide support enabling each person to choose an evacuation destination (based on the merits and demerits of the various options, such as the home of a relative or friend, inside a car, a hotel, a facility with effective evacuation shelter status (post-disaster public-funded rental accommodation), etc.) according to his or her individual circumstances (such as by providing examples of patterns for measures that residents themselves can take).
- People who would require assistance in the event of a disaster, such as those receiving in-home care, should also be told that they should consider the kinds of care systems they would require after the disaster together with their family or their current care manager or other people providing them with support (where to evacuate, who will be able to assist and the extent of the assistance they can provide, etc.). Also, provide them with support with this when it comes to considering their options.
- Areas without a community disaster prevention plan should be encouraged to draw up a community disaster prevention plan (plans for the administration of evacuation shelters, map of places where people can seek temporary shelter, etc.). Such plans should be drawn up taking into account the COVID-19 situation. (Would it be possible to include a diverse range of evacuation destinations in these plans? For example, accommodation facilities or facilities with effective evacuation shelter status (post-disaster public-funded rental accommodation)?)

6.6 Support for administering evacuation shelters

- Think together with administrative authorities and concerned organizations about best to approach things, such as the arrangements and facilities at evacuation sites, routes by which people move, the kinds of provisions to be stored there, registration procedures for when people arrive, etc. (it may be a good idea to carry out actual tests or armchair simulations as to how the environment will be).
- There is a high chance that those staying at shelters themselves will have to assume responsibility for their shelter's administration. As there is no prospect of support from outside, those who intend to go to evacuation shelters should create and prepare systems that enable them to administer shelters, and should be given assistance to this end.

- The kinds of places typically envisaged as evacuation shelters (i.e. those places that tend to become designated evacuation shelters), such as gymnasiums, community centers and meeting places, schools, etc., will be highly vulnerable to incidences of cluster infections. As such, it is vital to generate awareness of the need for monitoring so as to detect people feeling unwell early on, to create the proper conditions for cooperation in the community, and to also reflect this in manuals for the administration of evacuation shelters (aim to detect infected persons early on through daily temperature checks and health reports).
- For more information on arrangements and facilities at evacuation centers, etc., please refer to documents by the Disaster Reduction and Human Renovation Institution [7] [8] and JVOAD [6].
- In the event that it is difficult to hold face-to-face public information briefings, meetings or workshops during the COVID-19 pandemic, consideration should also be given to using the telephone, SNS, online meeting services, etc.

6.7 Support for sheltering and to help victims rebuild their lives

- Disaster victims will become dispersed in various locations. As such, people will become isolated more easily and it will be difficult to get information and provisions to those in need. This is why it is important to provide support in connecting people and securing the means to obtain information and provisions, as well as places people can turn to should they need to talk to someone (people should consult with their community or administrative authorities in advance).
- Increase the number of people in communities who are capable of consulting with administrative authorities about systems intended to help people rebuild their lives (i.e. train more people to fulfill this role).
- People who would require assistance in the event of a disaster, such as those receiving in-home care, should also be urged to consider the kinds of care systems they would require after the disaster together with their family or their current care manager or other people providing them with support, and providing assistance to this end.
- In the event that it is difficult to hold face-to-face public information briefings, meetings or workshops during the COVID-19 pandemic, consideration should also be given to using the telephone, SNS, online meeting services, etc.

6.8 Other

- Communities cannot expect to receive assistance from outside volunteers. As such, members of the community will need to cooperate in scraping away sludge and tidying up homes through their own efforts. Communities should consider methods with a low risk of infection in advance with administrative authorities (authorities related to waste management, health and sanitation, civic activities, disaster prevention, etc.) and support groups such as JVOAD.

- Understand who in the community possesses special skills or knowledge (medicine, care, welfare, architecture, language, law, finance, management, ICT, entertainment...), and have these people become part of a team for coming up with measures (having people raise their hands is one possibility).
- When carrying out measures, people without special skills or knowledge can also be given roles suitable for them, enabling work to be carried out in the spirit of helping each other out rather than some people serving as the providers of help and others the recipients of help.- People will not continue to help out if they are assigned tasks that are overly arduous. Therefore, steps should be taken so that people can enjoy getting involved as much as possible without overdoing things.

7. Administrative measures

7.1 Disseminate information regarding infectious diseases and measures

- Cooperate with local organizations and groups disseminating the content of the general measures to prevent the spread of COVID-19 introduced in 1.1 by using various means of communicating information to residents and providing support for implementing measures.
- Under circumstances such as these, fear of infection can easily lead to human rights violations, such as ostracizing or monitoring people involved with COVID-19 patients or those suspected of being infected and their family members. Therefore, it is important to put in place the kind of environment in which people help each other out while reducing the risk of infection.
- In the event that it is difficult to hold face-to-face public information briefings, meetings or workshops during the COVID-19 pandemic, consideration should also be given to using the telephone, SNS, online meeting services, etc.

7.2 Securement of evacuation sites and shelters

- In the case of both short-term and long-term sheltering, people with no symptoms, people with cold-like symptoms, people who have come into close contact with infected individuals, and people who are clearly infected should ideally be separated into different evacuation sites. As such, adjustments need to be made to separate evacuation sites and shelters, and to arrange for the necessary people (whether or not to allocate medical personnel, etc.) and things to be available at each location (coordinate the response with groups of hotels for COVID-19 patients).
- If evacuating for a short period of time (if one can avoid getting caught up in the disaster), taking refuge in a vehicle is one way in which people can evacuate in a dispersed manner. An effective way of ensuring this is to secure a safe place where people can shelter in their vehicles and to inform people of this location along with steps they can take to prevent economy class syndrome.
- Seek out facilities within the community with the potential to serve as evacuation shelters, including accommodation facilities (hotels, inns, training institutes, etc.) or vacant houses (vacant houses under private ownership, public housing or housing for teachers under prefectural or municipal management, etc.), as well as facilities that can accommodate infected persons or evacuees, trailer house providers (if using trailer houses, this also includes the securement of sites), etc. When doing so, do not limit candidates to places that have been designated as evacuation shelters in the past; rather, list up all facilities with the potential for use, and coordinate to secure their use (enable accommodation facilities such as hotels, inns, etc. to be used as facilities with effective evacuation shelter status for short-term evacuations, and enable vacant houses to be occupied immediately as temporary housing for times of disaster).

- Estimate the number of people who would need to evacuate on a short-term basis (people who live in a predicted flood area and below the predicted height of flooding, or people who live in a landslide disaster warning area).
- Estimate the number of people who would be able to stay in facilities (based on the desirable space on the assumption that evacuations are taking place during the COVID-19 pandemic), including conventional designated evacuation shelters, evacuation sites, accommodation facilities that are available for use, number of vehicles in which people would seek refuge (number of available parking spaces in parking lots for this purposes, etc.), and share this data with related facilities and communities.
- Also consider setting up temporary evacuation shelters (tents, etc.?). (It may also be possible to use balloon tents owned by the fire service or in private hands.)
- In some cases, communities have established their own evacuation sites and shelters, so share information with communities.

7.3 Arrangements and facilities at evacuation sites and shelters

- Ideally, separate rooms should be established so as to reduce the risk of infection, but if this is not feasible, separate people into small groups by putting in place zoning. In this case, to prevent people coming into contact with people from other zones, separate the facility into clear zones and completely isolate each zone, telling people not to cross over the lines demarking their zone (this will help limit the impact in the event infected persons are present). For advice on zoning, please refer to materials published by JVOAD [6].
- Ensure the availability of online environments at places earmarked to become evacuation sites and shelters. (Assume that communication between zones and the sharing of information will be performed online. In addition, use of the Internet is also recommended for other purposes, including providing evacuees with information and communications between evacuees.)
- Ensure the availability of lifelines at places earmarked to become evacuation sites and shelters (electricity, gas, water, communications (Wi-Fi), etc.).
- For more information on layouts and other daily necessities at evacuation sites and shelters, etc., please refer to documents by the Disaster Reduction and Human Renovation Institution [7] [8] and JVOAD [6].
- In the event infected persons are confirmed at an evacuation shelter, do not move any evacuees to another shelter. Moving those who have had close contact with an infected person or who are under observation will only serve to increase the risk of a cluster infection breaking out at the destination evacuation shelter. As such, have evacuees stay put and explore available measures, such as monitoring people's health.

- Work under the assumption that cluster infections could break out at evacuation shelters, and take steps to detect cluster infections early on and ensure that preparations are in place to deal with a cluster infection should one occur (aim to detect infected persons early on through daily temperature checks and health reports).
- Envisaging a scenario in which a mass outbreak occurs at an evacuation shelter, come up with clear policies on how to deal with people who have died from infection, and where the bodies of deceased individuals should lie in state. (The same situation could occur as in cases in which cluster infections have broken out at elderly welfare facilities, etc. Overseas, some people have been unable to receive medical care. Care needs to be taken as there have also been reports that people have been infected from coming into contact with the dead body of an infected individual.)

7.4 Evacuation support

- Reconsider ways of putting out evacuation information. (For example, set more detailed information for areas in which people need to evacuate based on whether they are in predicted flood areas or landslide disaster warning areas, etc. However, bear in mind that some areas at risk have not been reflected in hazard maps.)
- Promote understanding of the risks from natural disasters to people's homes (predicted flood areas (having considered the predicted height of flooding) and landslide disaster warning areas)

7.5 Support for drawing up evacuation plans

*See 8. for more information on how to make an evacuation plan.

- Provide residents with support (face-to-face, online, apps to help people draw up plans, etc.) for coming up with evacuation plans (evacuation timing, means of evacuation, evacuation destination, things to take with them, etc.)
- When helping those who would require support in the event of a disaster come up with evacuation plans, liaise with departments connected with general community support and support for people with disabilities.
- When helping people draw up evacuation plans, conduct simulations in advance using flood predictions and building data on such things as the number of people subject to evacuation and the number of people that can be evacuated (adopt multiple scenarios in simulations, such as only designated evacuation shelters, or if accommodation facilities can be used).
- In the event that it is difficult to hold face-to-face public information briefings, meetings or workshops during the COVID-19 pandemic, consideration should also be given to using TV, telephone, SNS, online meeting services, etc.

7.6 Rescue activity

- Consider the forms that rescue work for people who did not evacuate in time will take, and prepare in advance. (There are a number of things to take into consideration here, such as the kinds of protective gear etc. to be used, lectures on how to correctly put on and remove protective gear, flow of rescue work for when it is clear that those being rescued are infected and for when it is not clear, designation of evacuation sites to which to take people following rescue, etc.)

7.7 Temporary clinics, dealing with infected patients, etc.

- Consult with health centers, etc. and decide on the arrangements for clinics in advance.
- Consider preparing body bags, etc.
- Arrange for those expected to have to deal with infected patients to receive personal protective gear and hold lectures on how to correctly put on and remove protective gear
- Decide on a flow of procedures for when there is surge in the number of people reporting symptoms at evacuation sites, or when it is clear that evacuees have been infected, and inform evacuation sites of these.

7.8 Ascertaining the situation surrounding disaster victims and providing support while they are sheltering

- Consider how best to provide evacuees with support while they are sheltering based on the points outlined in 9. Basic approaches to evacuation shelter administration and 10. Things to be aware of concerning evacuation destinations other than shelters.
- Create a system for ascertaining the situation surrounding people who are still in their homes or have evacuated following a disaster. (Until now, the procedure for checking up on people following a disaster has been a door-to-door search operation in which each house receives a visit to check on the status of occupants. While this will probably continue to form the basis of search operations, it may be of help if people were informed in advance of a place to contact in the event they are continuing to live at home within the affected area for some reason.)
- Prepare measures of support tailored to the various evacuation patterns (not only evacuation centers but also to cater for those who choose to shelter in their car, at the home of a friend or relative, at a hotel, in their own home, etc.). (Possible support measures include the provision of supplies and information, systems for looking after and checking up on people, and the employment of supporters.) Measures should be considered in coordination with disaster support groups, departments connected with medical care, nursing care and welfare, departments connected with support systems, members of the local community, etc.

- In order to be able to cope with the various evacuation patterns, consideration should be given to putting in place the kind of system in which distribution hubs for evacuation supplies are set up in gymnasiums, etc., which people sheltering at home, in their cars, etc. can visit to receive goods in person. Even at evacuation shelters with few people, the same steps should be taken to enable people to receive the supplies they need. This should ensure that evacuees outside evacuation shelters receive the necessary supplies.
- Ideally, information on the kinds and quantities of supplies available at distribution hubs should be posted on the municipality's website.
- The selection of distribution hubs for evacuation supplies and the management and administration of supplies should preferably be coordinated in advance with groups involved in the transportation of commodities, etc.

7.9 Support for drawing up plans for sheltering

- Provide residents with support (face-to-face, online, apps to help people draw up plans, etc.) for coming up with plans for sheltering.
- When providing residents with support for creating plans, it would be a good idea to reflect the support measures set out in 7.8 along with revisions made according to local conditions, etc.

7.10 Overall system

- In the event offices at disaster response headquarters etc. do not take steps to avoid the “Three Cs,” or if the kind of system is in place which places leaders together in direct contact, if someone happens to become infected, it will effectively put a stop to decision-making within the agency. This is why arrangements need to be made at offices, personnel separated into groups (that are not in contact with each other), and adjustments made to the workflow. To this end, transfer over to a system enabling those things which can be performed without contact to be performed without contact.
- Many adjustments will need to be made (and it will take time to review and implement these adjustments), and even if policies have been decided, it will take even more time to implement these to the point at which they can be put into practice by residents. Therefore, the review process needs to begin at an early stage.
- There are still many things we do not know about COVID-19, and the infection situation is constantly changing. This is why even if we do not have a complete set of definite measures and plans in place, we should be ready to respond to events as and when they occur, and to make the appropriate revisions taking into account the situation as it stands.

- The response shall be a mixture of measures against infection and measures in response to the disaster. Given this, departments responsible for dealing with the infection situation and those responsible for dealing with the disaster situation will have to share measures against infection based on the disaster situation, along with measures in response to the disaster based on these measures against infection. All involved will have to work out what needs to be done at the preparatory stage before a disaster occurs, and who will be responsible for coordinating this – i.e. consider who will take the initiative in which areas, and the kinds of information that needs to be shared and at what stage.
- Concerned departments should share information on places where patients with mild or no symptoms are receiving treatment, the place of residence of individuals who have had close contact with an infected person, etc. (The reason for this is because in the event rescue operations need to be carried out, such information will enable those concerned to draw up and implement a strategy for rescue operations that includes measures against infection, and to provide support for evacuation and sheltering that limits the risk of the spread of infection.)
- It would be practical for administrative authorities to stock and provide materials to be used in the fight against infection, such as Tyvek or N95. If possible, the national government should be requested to source such materials.

7.11 Securement of human resources

- An effective way of securing the necessary human resources would be to hire retired workers with administrative experience as emergency administrative staff, much like a Reserve Self-Defense Official. When actually hiring such individuals, it would be necessary to register them in advance and decide on their standing and allocation of roles. In particular, there are very few women working in fields related to disaster prevention, so some consideration would need to be given in this respect.
- The situation may reach a point at which there is an overwhelming shortage of human resources to deal with the disaster. Meanwhile, there is also likely to be an increase in the number of people who find themselves out of work. Therefore, consideration should be given to hiring unemployed persons to help deal with the disaster (consider this in advance).
- There is a high chance that those staying at shelters themselves will have to assume responsibility for their shelter's administration. As there is no prospect of support from outside, those who intend to go to evacuation shelters should create and prepare systems that enable them to administer shelters, and should be given assistance to this end.

7.12 Systems

- If it would prove difficult to apply laws that form the basis of carrying out measures as is, consider whether it is possible to apply them through a particular interpretation or by revising the said laws if necessary (such as by including “facilities with effective evacuation shelter status” in the Disaster Relief Act and other legislation, thereby making them eligible for financial assistance, etc.).
- Please see Nakabayashi [9] for information on current legal systems and their application.

8. Basic approaches to evacuation plans

8.1 What to consider when coming up with an evacuation plan

- The way of deciding evacuation plans (timing and methods) is the same as existing initiatives such as “my timeline” and evacuation cards. The only difference is the addition of the COVID-19 pandemic as a condition.
- Check whether you live in a predicted flood area or in a landslide disaster warning area. If you live in a predicted flood area, also check the maximum predicted height of flooding and your home’s level of risk from flooding. (If it is clear that the floor on which you live will not become flooded, or that your home will not be washed away, one approach is not to evacuate but to remain where you are, ensuring that you have enough provisions to last you a week (prepare such items as food, water, toiletries, etc.). (In this case, though, if a disaster actually occurs and the restoration of lifelines etc. looks as if it will take longer than expected, make preparations to relocate to a temporary evacuation facility of some kind.)

8.2 Basic approach to evacuation

- When choosing an evacuation destination (such as the home of a relative or friend, inside a car, a hotel, designated evacuation site, etc.), consider the merits and demerits of the various options, and select the location you think best for you or the person concerned according to the circumstances of each person involved, giving thought to such things as whether you can actually evacuate there, what kinds of people will be there and how many, and whether you can live in such an environment.

8.3 Basic approach to evacuation timing

- The best approach to evacuation timing is not to leave evacuation to the last minute. When thinking about timing, you should also take into consideration the means by which you will evacuate. This will enable you to estimate the amount of time you will need to prepare to evacuate and actually evacuate.
 - One possible approach for those who would have trouble evacuating repeatedly (for instance, those who would require assistance in evacuating) would be for them to spend the entire flood season, from beginning to end, in one location (the individuals concerned would need to think of a place where this would be possible).

- Reflecting on the kind of situation that occurred when torrential rain hit northern Kyushu in 2017, sufficient time can be allocated to preparing to evacuate and move if individuals take steps to evacuate at least a few days in advance, referring not only to evacuation information but also information on the possibility of a warning-level flood occurring, or a press conference held by the Meteorological Agency a few days in advance warning that there is a high risk of flood damage (by taking action early, people will have an increased range of options for potential evacuation destinations).
- Some are of the opinion that you would still have leeway at around a level 3 warning if there is a safe place where you can seek refuge nearby, if you can evacuate without any assistance, and if you will not take long to prepare to evacuate.
- Time your evacuation so that everything is complete before it gets dark.

8.4 Things to take with you

- Create an evacuation bag that you can take with you in an emergency based on your chosen evacuation destination and means of getting there (review the contents of your bag if you already have one to ensure you have everything you need).
- In addition to the usual items such a bag would contain prior to the COVID-19 pandemic, also include a thermometer, soap, masks, sanitizer, etc.
- The COVID-19 pandemic is likely to make it even more difficult to ascertain the situation surrounding evacuees at evacuation shelters and give them the consideration they need. As such, it would be best to prepare for all your particular needs in advance, including daily necessities such as contact lenses, medicine, children's clothes, etc.; something containing details of things for which you require special consideration, such as medical conditions, allergies, etc., making sure to include your name, affiliation, blood type, and other pertinent information; and something listing any other things you will need assistance with in the immediate aftermath of a disaster.

8.5 Drills

If possible, it would be beneficial to carry out a drill in which you actually put your evacuation plan to the test. This will enable you to check whether you can move to the evacuation destination within your estimated time, and the level of difficulty you would experience in staying in such an environment.

9. Basic approaches to evacuation shelter administration

9.1 Arrangements and facilities at evacuation shelters

- For detailed information on specific approaches, arrangements and facilities, and things to prepare in relation to the administration of evacuation centers, etc., please refer to documents by the Disaster Reduction and Human Renovation Institution [7] [8] and JVOAD [6].

9.2 Utilization of ICT

- Prepare online environments at places that will serve as evacuation shelters. This will enable people (not only administrators but also evacuees) to effectively share information and communicate while maintaining physical distance (and it will also help prevent people from becoming isolated).
- One thing to consider is enabling the use of ICT for evacuation shelter check-in forms rather than just paper submissions. In addition to filling out the forms, another possibility is to enable pre-registered information to be accessed using a QR code.
- If networks are available, the use of online tools would be beneficial for sharing information and contacting people at evacuation shelters (including information on evacuees, orders for food and supplies, etc.).

9.3 Administrative system

- With no prospect of support from outside, the administration of evacuation shelters will be placed into the hands of the evacuees themselves, requiring an even greater level of cooperation than ever before. Given this, manuals should be created covering all aspects of shelter administration, and drills should be carried out in advance to check the effectiveness of the content. Manuals should be subject to ongoing revisions while generating awareness among residents and increasing the number of people getting involved.
- When it comes to administering evacuation shelters, people should be allocated roles so as to keep face-to-face contact to an absolute minimum, and contact between zones should be avoided.
- When considering roles, do not allow those at an increased risk of developing severe symptoms (the elderly, people with underlying conditions, etc.) to work face-to-face with other evacuees or have duties that require contact with others.

9.4 Things to take into consideration

- During the COVID-19 pandemic, contact between people will need to be kept to a minimum at evacuation shelters. Because of this, people will become more isolated, and restrictions on social activities will lead to an increased risk of people suffering from a decline in physical functions, a worsening of chronic diseases, etc. This is why frameworks need to be created that enable people to interact and socialize with one another while maintaining physical distance (the use of online tools would be one effective way of achieving this).
- Under circumstances such as these, fear of infection can easily lead to human rights violations, such as ostracizing or monitoring people involved with COVID-19 patients or those suspected of being infected and their family members. Therefore, it is important to put in place the kind of environment in which people help each other out while taking appropriate steps to reduce the risk of infection. (To this end, it will be important to generate awareness among residents and increase the number of people getting involved. Initiatives taking into consideration these points should be included in manuals.)
- Evacuation shelters are also places where people who are taking refuge in various places other than designated evacuation shelters, such as at home, can come to receive the supplies they need. As such, consideration should be given to methods for getting supplies and information to those outside shelters.

9.5 Putting in place infection-conscious living environments and making improvements as the need arises

- Separate toilets, changing rooms and places to dry clothes for men and women
- Guarantee privacy through the establishment of nursing rooms, etc.
- Measures against heat and cold
- Ensure opportunities for bathing and washing clothes and other things
- Secure areas for children to play and learn, etc.

Examples:

- A Tatami mats, mats, carpets, fold-up beds.
- B Partitions for dividing rooms.
- C Consider heating, air conditioning and ventilation in view of the wind direction and ventilation method.
- D Keep washing machines, driers and places to dry clothes separate and closed off until washing.
- E Divide usage hours for baths and showers.
- F With televisions and radios, disinfect common use items and areas such as remote control units.

- G Avoid common use of kitchenettes and kitchen utensils.
- H Disinfect common use items and areas for other necessary facilities and equipment.

10. Things to be aware of concerning evacuation destinations other than shelters

10.1 General

- It is difficult to get a clear picture of the circumstances surrounding those who have chosen to seek refuge in places other than designated evacuation shelters (such as at home, in their own car, at the home of a friend or relative, etc.). Therefore, steps should be taken to find out who intends to take shelter at a location other than a designated evacuation shelter in advance, and to decide on methods for finding out about such individuals in the wake of a disaster. The validity of these methods should be tested through drills and subjected to ongoing revisions as needed.
- It is difficult to get information, supplies and support to those who have chosen to seek refuge in places other than designated evacuation shelters. As such, methods for getting necessities through to people should be decided in advance, and the validity of these methods should be tested through drills and subjected to ongoing revisions as needed.

10.2 Sheltering at home

- There are many people who will have no choice but to shelter at home irrespective of their infection status because of tangible issues at evacuation shelters, relationships with others, etc. This is why cooperation with general community care providers, nursing care providers, welfare service providers, etc. is necessary so as to gain a clearer picture of such individuals in advance. It will also be necessary to come up with measures to support them.

10.3 Sheltering in a car

- Choose a suitable location to park your car in advance (a facility with a large parking lot, etc.).
- Decide on methods of maintaining hygiene at sites, such as by disinfecting toilets (public toilets, etc.) that individuals sheltering in their car are expected to use (it may be a good idea to create a system whereby the evacuees themselves take responsibility for maintaining hygiene).
- When providing support to people sheltering in cars, take care to avoid infection through eating and drinking together or conversation.
- Be aware of the risks of developing deep vein thrombosis as a result of prolonged, long-term inactivity, making sure to move your arms and legs regularly.

11. Challenges people will face when seeking to rebuild their lives

- It will be the people living in the communities in question who will be mainly responsible for scraping away sludge and cleaning homes. This is why all residents should know in advance what will happen in the event of flood damage, and how to respond. In addition, preparations should be made in advance to put together a community-centered response by recruiting volunteers to help others scrape away sludge and clean homes.
- Support measures are in place for disasters, and the Ministry of Health, Labour and Welfare has also issued its own support measures, but these should be simplified to allow each and every person to understand which of the measures they can use (it would be good to adopt a system whereby people can select check lists to display the relevant measures, and click on the ones they wish to apply for).
- Economic support systems (systems specifically for COVID-19 are currently under review, with information provided when available on the Ministry of Health, Labour and Welfare website)
- In addition to bereavement and poverty brought on by the disaster, daily life itself will most likely become a struggle for victims. Without any source of enjoyment, they will find it hard to carry on (actively seek to incorporate things that bring enjoyment to people).
- Please see Nakabayashi [9] for ideas that include the period in which people work to rebuild their lives following a disaster.

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