Preparedness and Contingency Plan for Influenza Pandemic
of the Ministry of Health, PR China
(Draft version)

The influenza (abbreviation flu) is the acute respiratory tract infectious disease caused by the flu virus. The flu virus are divided into three types: A, B, C. Influenza type A viruses are divided into subtypes H1N1, H2N2, H3N2, etc based on the difference of antigens. Type A is very easy to mutate, including the variation within the subtypes (drift), creation of a new subtype or re-emergency of an old one (shift). When the influenza type A produces a new subtype or an old subtype reemerge, most of people have little or no immune protection to it because the body's immune system may not recognize it. If this new virus causes illness in people and can be transmitted easily from person to person, influenza pandemic can occur. Influenza pandemic has characteristics of high incidents and fatal rate and rapid transmission and wide spreads.

The harmful consequence caused by influenza pandemic is totally different from the regional influenza epidemic caused by the changes of subtypes between two influenza pandemics. In 20^{th} centuries, there are 4 times of influenza pandemics which were named by "Spanish flu" in 1918-1919, "Asian flu" in 1957-1958, "Hong Kong flu" in 1968-1969 and "Russian flu" in 1977. Each pandemic harms human's life and economic development, such as the influenza pandemic of 1918-1919, which killed more than 20 millions people in the world and has been cited as the most devastating epidemic in the recorded world history.

China is a developing country with huge territory and large population, which used to be the prior affected area of flu in the history. In addition, the health care service and public health system are still poor in China. The surveillance system is also to be improved. The capacity of vaccine and drug research and production is still backward. If we won't prepare ourselves sufficiently, once the flu epidemic occur, the response to the pandemic will be out of order: the inputs will be costly, the preventive and control strategies will be ineffective and inefficient, which will result in a lot of illness and death in a short time, and increase the outpatients and inpatients burden dramatically, shortage of drug supply and etc. All of these will increase the terrors of society and people, devastate the economical activities and social life, even cause the social upheaval. In order to respond pandemic effectively, and prepare sufficiently before Pandemic and emergency management after Pandemic, MOH organized developing "MOH influenza Pandemic response and preparedness plan" based on the reference of "WHO Pandemic Preparedness Plan".

1 Provision

1.1 Objectives

- To identify the key components of the preparedness and response activities, including

surveillance, vaccines, antiviral drugs, communications and public health interventions and to respond effectively to a potential influenza pandemic.

- To decrease morbidity and mortality and to minimize societal disruption as a result of an influenza pandemic to protect public health and maintain the social stableness and development.

1.2 Principles

- Putting prevention first, basing on preparedness, insisting in the policy of "putting the prevention first", and actively organizing and implementing the preparedness to respond influenza pandemic.
- Coordination and command in place; insisting in the uniform leadership and command of Government, coordinating actively various departments at various levels to make pandemic preparedness and emergency response in place.
- Enhancing the ability of response. Enhancing personnel, technique and goods preparedness, and relying mainly on China's own capacity to manage the pandemic preparedness and emergency response.
- Prompt warning and effective response. Strengthen the capacity of pandemic surveillance and alert, make the preparedness timely using the science and technology.

1.3 Rationales

The law of the People's Republic of China on the Prevention and Treatment of Communicable Disease
Frontier Health and Quarantine Law of the People's Republic of China
Drug Administration law of PR China
The Regulation for Public Health Emergency Response
The Regulation for Implementation of the Drug Administration Law of PR. China
The Regulation for Domestic Transportation Quarantine
The National Contingency Plan for Public Health Emergency Response
WHO Global Influenza Preparedness Plan

1.4 Scope

The plan is applicable to the preparedness for the influenza pandemic and response management after the pandemic.

The emergency response activities for other epidemic situation of influenza should be carried out according to *The National Contingency Plan for Public Health Emergency Response* and relevant guidelines and protocols.

1.5 Phase and Response Level

The pandemic response shall be divided into three phases according to its characteristics, those are: phase of preparedness, phase of pandemic, phase of ending.

According to the classification for public health emergencies of *The National Contingency Plan for Public Health Emergency Response*, the epidemic situation for new subtype influenza would be divided into the situation of mild (Level Ⅳ, blue alert), relatively severe (Level Ⅲ,

yellow alert), severe (Level Ⅱ, orange alert) and very severe(LevelⅠ, red alert), which would be based on the characteristic, severeness and spread range. The response activities of Level Ⅳ, Level Ⅲ, Level Ⅱ and Level Ⅰ should be carried out correspondingly and respectively.

The classification of the phase for the pandemic should be determined by the expert panel by the MoH. The determination, declaration and termination for the classification, emergency alert and response activities for the epidemic situation of the new subtype should be carried out according to The national contingency plan for public health emergency response.

The MOH shall recommend to the State Council on the determination of infection area and announcement, health administration at county level and above shall recommend to the government at same level on determination of infection area and announcement.

1.5.1 Preparedness Phase

The Preparedness Phase is the phase before the pandemic. The new subtype of influenza virus does not always result in the pandemic. However the relevant response should be taken because of its potential threat to the public health. The possible situations and response levels that will be involved are as follows.

1.5.1.1 No response

No new influenza virus subtype has been detected.

1.5.1.2 Response Level Ⅳ (Blue alert)

A new subtype influenza virus strain is isolated from human specimens but no specific antibody is detected. Or the specific antibody is detected but no clinical symptoms is performed.

1.5.1.3 Response Level Ⅲ (Yellow alert)

Human infection(s)with a new subtype has been detected but no human-to-human transmission.

1.5.1.4 Response LevelⅡ (Orange alert)

Limited human-to-human transmission but spread is relatively localized.

1.5.2 Pandemic Phase (Red alert, Response Level I)

It will be the Pandemic Phase if either of the following condition appears.

- A new subtype sustains transmission with in the general population.
- WHO declares the initiative of the pandemic influenza.

1.5.3 End of the Pandemic

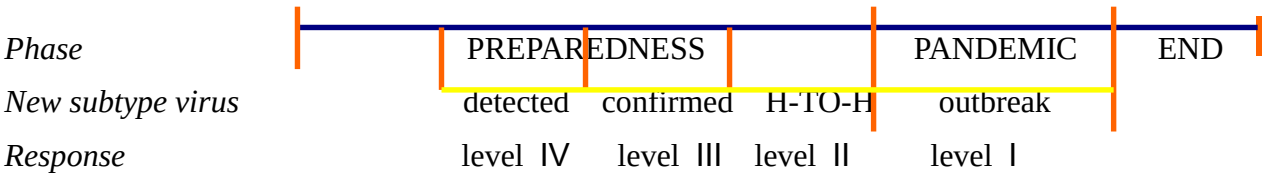
Pandemic in the nationwide is under control, the MOH organizes the expert panel to review the situation and declare the end of pandemic, consultations from WHO will be taken into

account.

Phase of pandemic and response level in China

Phase	Description	Response level
Preparedness Phase	No new influenza virus subtype has been detected	No response
	A new subtype influenza virus strain is isolated from human specimens but no specific antibody is detected. Or the specific antibody is detected but no clinical symptoms is performed	Blue/Response Level Ⅳ
	Human infection(s)with a new subtype has been detected but no human-to-human transmission	Yellow/Response Level Ⅲ
	Limited human-to-human transmission but spread is relatively localized	Orange/Response Level Ⅱ
Pandemic Phase	■ Pandemic period declared by WHO ■ Increased and sustained transmission with a new subtype in the general population	Red/Response LevelⅠ
End of the Pandemic	Pandemic was ended	Response terminated

Sketch of classification for phase and level of response activities in China



2 Organization and commanding system and its responsibility

2.1 Leading group for the pandemic preparedness

The leading group will be established in the Ministry of Health. The deputy minister should be

the leader of the group and principals from General Office, Office of Health Emergency, Department of Medical Administration, Disease Control, Science and Technology and International Cooperation of the MoH, China CDC, Chinese Academy of Medical Science, Chinese Medical Association, Chinese Preventive Medical Association should be the members of the leading group. The acting office that belongs to the Office of Health Emergency of the MoH will responsible for routine activities for pandemic preparedness.

2.2 Role of leading group

2.2.1 Leading and coordinating the preparedness and response activities with the administrative department of health, the medical organization and CDC at all levels nationwide.

- To set up the effective mechanism and system of responsibilities and obligations.
- To draft the annual work plan for pandemic.
- To strengthen influenza surveillance system.
- To prepare for the health care service and public health intervention.
- To analyze and evaluate influenza activity regularly and identify the new influenza virus subtype timely by expert panel.
- To supervise the preparedness activities for the pandemic regularly.

2.2.2 Setting up an effective communication mechanism and channel to in conjunction with relevant departments under the state council; to enhance the capacity preparedness of vaccine production jointly, and research, development and production; prepare for the stockpile and production of anti flu drug and to improve the capacity of research; conduct the scientific study for influenza control and prevention; improve the cooperation with the international organizations.

2.2.3 Publicize surveillance results timely, release warning and provide the relevant measures and recommendations to the public.

2.3 Mechanism of leading group

The regular meeting should be held by the national leading group to summarize the evolvement and coordinate the problem. The pandemic plan should be revised timely to keep its practicability and rudder according to the advantage of science and practical experiences. It is necessary to exchange the process information for preparedness by news letter. It is also necessary to carry out the measure by supervision and examination. The specific section and person should be appointed to be responsible to make the information and government orders smooth.

2.4 commanding organization of Emergency response

The MoH is responsible to organize and coordinate the emergency response activities according to “The regulation for public health emergency response”, and make suggestion to the State Council to establish the national headquarters for public health emergency according to the epidemic situation.

3 Preparedness activities

It will belong to the different phase for pandemic preparedness for different countries and regions during the specific time. So that it will be a continuous process for the pandemic preparedness and will not be significant difference by different time.

3.1 Surveillance

Under the guidance by the MoH and health administrative departments at all level the CDC at all level nationwide should be responsible to strengthen the influenza surveillance and alert system to improve the sensibility and validity.

3.1.1 Surveillance system building

The National Influenza Center should build laboratories which meet the standard of biosafety (including the laboratory for HPAI virus) and national database for molecular information of influenza virus strain; have the capacity/technology to isolate and identify the new, old and mutating virus strain; be responsible for the identification, analysis and assessment of the flu virus and providing the consultation, guidance and sufficient standardized reagents to provincial and prefecture level.

The Regional Influenza Center should be established for providing the technical assistance to the neighboring provinces and assist the NIC to conduct the antigenic and genetic analysis, and training, instructions and scientific study on national influenza surveillance.

The specific influenza laboratory which reach the standard of biosafety requirement should be set up in each provincial CDC and sufficient lab experts and epidemiologists should be available as well. The responsibility for the provincial CDC is to improve the capacity of isolation, identification, analysis for antigenic mutation, rapid testing in the field, epidemiological investigation for outbreak and analysis for surveillance information.

The specific laboratory for influenza which reach the standard of biosafety and should be set up in CDCs at prefecture and county level step by step to improve the capacity of rapid testing and isolation.

The health care facilities appointed by the health administration at county level and above shall allocate the specific staff for influenza surveillance to collect, record and transport the samples of influenza-like illness according to the work requirements of disease prevention and control institutes.

The relevant departments should shorten the process of accreditation for the laboratory (BSL-3 lab for HPAI, etc)

3.1.2 Function of surveillance system

The CDCs and health care facilities at all level should conduct the pathogenic, epidemiological and serological surveillance, outbreak and human avian influenza infection surveillance according to the National Influenza Surveillance Protocol and the National Human Avian Influenza surveillance Protocol.

The health care facilities should collect specimen from ILI cases and deliver them timely to the laboratories for isolation. The CDCs should carry out the test for isolation and report the result timely.

3.1.3 Reporting

The ILI cases should be reported by the health care facilities at all level and case of unknown cause pneumonia should be reported by health facilities above county level according to requirements and stipulation of Law of PR China on control and prevention of communicable disease, the regulation for public health emergency response and National Influenza Surveillance Protocol and the standardized documents of National Human Avian Influenza surveillance Protocol.

The information of outbreak, cluster and abnormal case should be reported as well by CDCs.

3.1.4 Communication

China CDC is responsible to apply the technology of national infectious diseases reporting network to establish the National Influenza Surveillance Information System, and manage integrated the influenza etiology and epidemiology surveillance information. China CDC and all provincial CDCs should analyze the surveillance information weekly and inform the MoH and provincial health administration timely and feedback to local CDCs and relevant hospitals.

The MoH is responsible to coordinate with the relevant ministries of the State Council to set up the mechanism of information exchange and cooperation on influenza surveillance.
The MoH would keep communicating with WHO to collect and analyze the information of global influenza surveillance.

3.1.5 Identification for the new subtype virus strain

If the new virus subtype is isolated in human case, it is necessary for the NIC and one RIC at lease or another influenza laboratory in other department (ministry) to confirm the result.

3.2 preparedness of Influenza vaccine

3.2.1 Assessment for national vaccine manufacturing capacity

The relevant ministry will carry out the investigation and evaluation for national vaccine production capacity and its potentials and provide the information to improve the capacity of vaccine production.

3.2.2 Improvement of national vaccine production capacity

The relevant departments should make the policy to support the production and research of influenza vaccine and to improve the willingness for the manufactory; disseminate the knowledge on influenza vaccination to the public and increase the coverage of vaccination; give the priority to the research and development of the new flu vaccine and develop various types and vaccination of vaccine; establish and complete the vaccine quality management system to improve the quality and reduce the cost of the vaccine and prepare for developing the new subtype vaccine and its production capacity.

The relevant departments shall complete the policy of vaccine development, research and production, and establish a effective mechanism to ensure the vaccine for new subtype influenza virus available earlier.

3.2.3 Priority population for Vaccination

The priority population for vaccination includes the elderly, the children, the occupational risk population, the population with the chronic diseases and immunodeficiency.

3.3 preparedness of Antiviral

3.3.1 Stockpiles

The MoH should be responsible for estimating the category and quantity and submitting to the relevant departments of the government for the stockpile. It should be put into force for the stockpile and transfer of the drug according to The National Contingency Plan for Stockpile issued by the State Development and Reform Committee.

3.3.2 Assessment of current and potential manufacturing capacity at national level

The MoH should evaluate the current and potential capacity for antiviral production in domestic manufactories with the relevant departments of the government to provide information for improving the capacity of production.

3.3.3 Improvement of national production capacity

The relevant departments shall develop the relevant national policy of antiviral production to increase willingness for the manufactory to do research and produce the drug. The research for antiviral and the Chinese traditional medicine should be done as well.

3.3.4 Strategy of antiviral usage

The priority population for antiviral is the clinical patients and the priority population for prophylactic are the elder, the children, occupational risk population and the people with chronic diseases.

The CDCs at all levels should be responsible for the management of the vaccine and the prophylactic. The health facilities above township level should be responsible for the therapeutic. It should be conformed to the guideline of drug administration.

3.4 Preparedness of health care services

The health administration at all level should designate appointed health facilities to treat the

case of new subtype virus infection and severe cases during pandemic. The contingency plan for mobilizing the temporary medical center should be worked out as well.

3.5 Preparedness of personnel

The health administration at all level should be responsible for setting up the technical guidance expert panel consisted of the epidemiologists, clinicians and laboratory experts and medical expert panel consisted of the clinical experts. Both expert panels should be responsible for the technical guidance, training, diagnoses, health care service and epidemiological investigation.

The expert panel should be set up in the health facilities at all level for training workshop, epidemiological investigation and health care service.

The emergency investigation group consisted of epidemiologists, disinfection experts and laboratory experts should be established in the CDCs at all level.

3.6 Technological preparedness

The health administration at various levels should be responsible for training to the technical staffs. The technical staffs must have the knowledge on diagnostic standard, disease identification, treatment principle, disinfection, isolation and personal protection very well.
The institutes at national level should conduct training workshop for staff of epidemiology and laboratory at least once a year. The institutes at lower level should also conduct the training workshop to the technical staff, administrative staff and village doctor under their jurisdiction.
The health administration at various levels should draft the exercise plan for emergency response and carry out the rehearsal of health care service and public health intervention to enhance the consciousness for emergency response and capacity.

3.7 cost and goods preparedness

With the support of the government at various levels, the health administration at various levels should provide the budget for training, health education, surveillance, health care service and emergency investigation to ensure that the activities mentioned above could be fulfilled.

4 Response activities

According to the contingency plan for national public health emergency response, the relevant departments at various levels should be responsible for implementing response measures within the scope of their responsibilities.

4.1 Response Level IV

The patient from whom the new virus subtype strain is isolated should be hospitalized in the appointed health facilities and the medical observation, disinfection and control for hospital infection should be carried out.

The provincial department of health is responsible for the epidemiological investigation and to collect the specimens from the animal and close contact for virus isolation. The result should be reported to the MoH and China CDC timely.
The MoH should appoint the expert at national level to conduct the field investigation and risk assessment if necessary.

4.2 Response Level Ⅲ

4.2.1 treatment for patient and close contacts

The health care workers in the appointed health facilities should put the personal protection and hospital infection control measures in place. The close contacts should take prophylactic. The technical guidance from national level and provincial level should be available for patient treatment. The ILI cases and other cases of respiratory illness in health facility should wear the mask. It is recommended that the close contacts should wear the mask as well.

4.2.2 epidemiology investigation

The epidemiological and clinical investigation should be conducted to find out the infection source, incubation period, contamination period and clinical features of the case. The close contact tracing should be conduced and it is necessary to be informed by health status twice every day. The isolation and medical observation should be carried out if the close contact persons perform the symptoms. The staffs who conduct the epidemiological investigation should improve the personal protection.
The MoH should appoint the experts at national level to go to the field for investigation guidance and risk assessment.

4.2.3 Surveillance and report

The preliminary examination spots should be established in the all health facilities in the affected are. The epidemiological investigation should be conducted carefully. If the suspected patients was found, they should be isolated immediately and reported. The specimens from the patients should be collected to the local influenza network laboratory for virus isolation and identification.

The epidemiological investigation should be conducted carefully for the ILI cases from affected area by the health facilities in the unaffected area. The specimens from the suspected patients should be collected to the local influenza network laboratory for virus isolation and identification. At the same time, the biosafety measures should be undertaken.

The provincial CDCs should be responsible for reporting the surveillance activities under their jurisdiction to the national influenza surveillance network information system week and at the same time a carbon copy should be informed to the provincial department of health. China CDC should make a summary report of national surveillance activities to the MoH weekly and inform the provincial CDCs.

The MoH and provincial departments of health should notify the surveillance activities to relevant departments such as the Ministry of Agriculture and the General Administration of Quality Supervision, Inspection and Quarantine, etc.

4.2.4 MOH shall publicize the situation of epidemic, surveillance and prevention and treatment to mass.

4.2.5 Vaccine and drug

The NIC should be responsible for selecting the prototype virus for the vaccine with the component of new subtype to help the manufactories to conduct research and development for new vaccine and save time.

The MoH should be responsible for developing the sensitivity study of drug for the vaccine with the component of new subtype and make the recommendations for adjustment of stockpile according to the risk assessment.

4.2.6 Other public interventions

4.2.5.1 disinfection

The CDCs should coordinate to carry out the disinfection measure to the potential contaminated stuffs and appliances. It is unnecessary to disinfect the air and the environment.

4.2.5.2 health education and consultation

The department of health in the affected area should conduct the health education timely to tell the people that it is necessary to report the local department, to stay at home for isolation and to wear mask when go out of home if they develop the sign of ILI.

The CDCs at all levels should publicize the hot line number and provide the consultation service to public.

4.3 Response LevelⅡ

The additional measures should be taken base on the Response Level Ⅲ.

4.3.1 Epidemiology investigation

The CDCs should conduct the epidemiological investigation for the patients from whom the new virus subtype strain is isolated to understand the spectrum of disease better and present the evidence for surveillance and control measure. The investigation for transmission chain and close contact tracing should be conducted and all the close contacts should be isolated and observed.

4.3.2 Surveillance

The health facilities in the affected area should set up and publicize the hot line number for case reporting. The case reporting would be encouraged and further investigation should be conducted timely.

The preliminary examination for the cases with fever and respiratory illness should be improved in the health facilities of the unaffected area. The medical professionals should be available to screen and identify the patients with fever. The suspected cases should be isolated timely and specimens should be collected for virus isolation.

4.3.3 Vaccine and drug

The health administration in the affected province and the neighboring provinces should provide the vaccination for influenza to the occupational exposed population and other high risk population firstly in the vaccination spots. The infirmaries of the units could be considered as the emergency vaccination spot if necessary. The health care workers of the infirmaries should be trained and the vaccination spots should reach the essential requirement for vaccination.

The health administration should estimate the need of antiviral and be ready for stockpiles according to the epidemic situation.

4.3.4 Other public interventions

4.3.4.1 Quarantine

In the affected area the quarantine should be conducted for the people who will leave the area and their temperature should be taken. The medical observation should be carried out for the people whose temperature is over 38 degree centigrade.

In the unaffected area the quarantine should be conducted for the people who come from the affected area. It is necessary to book the register, to take the temperature and physical examination. The medical observation should be carried out for the people whose temperature is more than 38 degree centigrade. The suspected cases should be sent to the local hospitals for further physical examination and be informed to the local CDCs timely.

In the unaffected area the health of the people who come from the affected area should be followed up and informed to the local CDCs. The people who develop the sign of illness should be sent to the local hospitals for further physical examination.

4.3.4.2 health education

The department of health should carry out the health education and tell the people to make the personal protection, wash hands frequently and wear make when go to hospital or close contact with the patient.

4.3.4.3 According to the epidemic situation, the department of health in the affected area should make suggestions to close the school temporarily and take holiday for factory, department and unit.

4.3.5 health care service

The severe case of influenza should be hospitalized in the appointed hospitals. The first hospital which the patients visit or the first aids center should be responsible for transfer of the patients, during which the drivers and health care workers should take the personal protection.

4.4 Response Levell

During pandemic period the health resource should be concentrated in management, distribution and usage.

4.4.1 health care service

According to the epidemic situation, the appointed hospitals and reserved hospitals should be mobilized duly by the department of health above county level to provide the treatment to the severe cases. The temporary medical center should be established and mobilized if necessary.

All of the patients with respiratory illness must wear the mask when they visit the hospital.

4.4.2 adjustment of strategy for surveillance

The surveillance for influenza should focus on collecting and reporting the number of ILI case, hospitalization, severe cases and death. The usage of antiviral, vaccine and the other drug and the antiviral resistance should be also collected and reported to support the decision making and present the evidence for understanding the epidemic situation, the spectrum of illness, health care service and usage of vaccine and drug.

4.4.3 vaccine and drug

The commanding center for public health emergency should evaluate and estimate the need of vaccine and drug to require the manufactories to try their best for producing to meet the demands.

4.4.4 other public interventions

The government at all level should mobilize the health and media resources to conduct the health education by broadcast, television, newspaper, booklet and so on to tell the public that it is important to conduct medical examination by themselves, to wash hands frequently and disinfect the house, to avoid the unnecessary trip to the affected countries and to avoid visiting the affected farm and live poultry market.

The uniform full day hot line should be set up by the department of health at all level for consultation, report and complaint.

4.5 End of the pandemic

4.5.1 Assessment

After the end of the pandemic, the department of health at all level should evaluate the management and measures for the pandemic, which the harmful impact, the field investigation, the usage of drug and vaccine, the health care service, the effect assessment for control measures, the problems, experiences and recommendations are involved. The result of evaluation should be reported to the government at same level and department of health at upper level.

4.5.2 Other issues arising from the pandemic

According to the relevant laws, the commendation and reward should be given to the department and person who make the contributions to preparedness and response activities for pandemic. The reasonable subsidy and recompense should be provided to the sick, the disability and the dead attributed to preparedness and response activities for pandemic. The compensation should be given to the units and enterprises due to the confiscation during the pandemic period.

5 Supervision

5.1 Supervision of preparedness

The leading group for the pandemic preparedness of the MoH should be responsible to supervise the preparedness activities. The leading groups at all levels should conduct the supervision for at least once a year regularly or irregularly, which the implementing plan, establishment of the administrative organization and mechanism, establishment and operation of the surveillance system, the preparedness for vaccines, drugs and health care service, training and health education should be involved. The leaders of the health department and the professionals from CDCs and health care facilities should be the members of the supervision team. The supervision could be conducted publicly and privately to know the real fact, and investigation and guidance shall be combined. The result of supervision should be made a feedback timely and tracing the correction if needed.

5.2 Supervision of response

With the leadship of government, the health administration at various levels shall organize overall supervision of their territories on pandemic response, and inspect and implement one by one against the requirements of relevant administration and technique protocols. The supervision contents include surveillance system, drug and vaccine management and vaccination, medical treatment, health education and consultation and etc. The problems found over supervision should be dealt with in the field and the result should be informed to the public timely.

6 Supplement

The MoH will be responsible to the clarification of the plan and it shall come into force from its release.

The departments of health at province, prefecture and county(city and district)levels should draft the local contingency plans and implementing plans according to this plan and current local situation.