

The Role of Emergency Management Systems and Smart Community Building: The Examples of China, Germany and Singapore

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Abstract. Since the outbreak of New Coronary Pneumonia, the United States, Germany and Singapore have each adopted different response, and these countries have different framework conditions. China, on the other hand, has adopted a more rational emergency management system thanks to the efforts of the whole country and has therefore been extremely successful in combating the outbreak. And the intelligent community building undertaken in Singapore, China and elsewhere is a cornerstone of the response to future social challenges and emergency management. Although China has made some achievements, it still needs to strengthen its emergency management system and smart community building.

1 Introduction

At the end of 2019, the global economy and the people of the world suffered a huge blow with the global outbreak of a new form of coronary pneumonia. This outbreak is still raging today and poses a great challenge to the emergency management capacity and public health service capacity of individual countries. Building national emergency management systems is a major issue, and efficient grassroots community management and services is a foundation. A country's performance in emergency management is rooted in the day-to-day management of its institutions. Community management and service delivery is an important cornerstone of national emergency management and day-to-day management.

Community services revolve around the public, and are also the way to solve the problem of ageing, as China's elderly population will exceed 300 million in 2025 and 400 million in 2035, and the number of elderly people, empty nesters, elderly people living alone and elderly people with disabilities will continue to increase. This is not only a requirement for the development of China's ageing society, but also a shortcoming that needs to be filled in order to maintain social stability.

The elder is the most vulnerable and hardest hit by the new pneumonia epidemic. In the seven days following the closure of Wuhan, more than 70,000 enquiries were received from elderly people nationwide reflecting difficulties in buying groceries and medicines, accounting for more than 60% of the total, especially those suffering from chronic diseases such as diabetes and heart disease, creating widespread shopping anxiety. At the same time, the cessation of most community tables for the elderly also poses a great obstacle to the daily lives of elderly people living alone or semi-disabled, especially elderly men living alone. The imbalance in nutritional intake of many elderly people due to the high consumption of instant noodles, canned food, frozen food and other fast foods high in sugar, salt and oil, aggravates the development of chronic diseases. Also. Older people have become the hardest hit by mental health. According to statistics, the known prevalence of depression among people over 55 years of age in China is about 23.6%, and the development of the epidemic and life hardships have aggravated the psychological problems of the elderly

population. The article "Mental health services for older people in China during the New Coronary Pneumonia epidemic" published in *The Lancet* during the epidemic pointed out that older people, especially empty nesters, had become the hardest hit by mental health problems during the epidemic.

2 Framework Conditions in Germany, Singapore and China

Germany has a population of 82 million, less than the 100 million people in Guangdong province. But a similar population size is more relevant as a comparator. The Federal Office of Civil Protection and Disaster Assistance (BBK, Das Bundesamt für Bevölkerungsschutz und Katastrophenhilfe) has two main tools for emergency management: the "Common Reporting and Situation Centre" and the "German Emergency Prevention Information System". The Federal Ministry of the Interior and the Länder have developed a new strategy for the protection of the population, which is based on the idea that the Confederation and the Länder share responsibility for responding to and resolving unusual hazards and disasters. Germany emphasizes the coordination of existing federal and Länder rescue forces, especially fire brigades and rescue organizations. The BBK is also supported and coordinated by various German authorities, such as the Robert Koch Institute, the Potsdam Centre for Geological Research, the German Weather Service etc.

Singapore's current population of 5.6 million is probably less than the population of a single district in Shanghai compared to Shanghai. But in terms of community planning and management, Singapore has a successful experience in community management. Firstly, the government plans community management scientifically. In a community, apart from housing, various facilities such as schools, offices, shops, recreation, libraries, postal services, clinics, people's clubs, senior citizen apartments, sports complexes, swimming centers and parks are planned according to the number of people. Secondly, voluntary welfare organizations undertake various service projects tendered by the government through various professional services and carry out a range of counselling, consultation, education, referral, assistance and activities to enable the government to purchase community services.

Both Shanghai and Guangdong Province in China have introduced a series of policies as well as regulations on social management and services, but in terms of the integration of emergency and day-to-day management, there is currently some progress in the promotion of the integration of business and health care in daily life support such as vegetable markets, fresh supermarkets, convenience stores, repair shops and catering outlets. However, due to insufficient planning, most communities do not have a "15-minute living service circle", i.e., they can enjoy better medical, nursing and living services within a 15-minute walking distance; there are still many shortcomings in the rational layout of community medical, day care, community pharmacy and elderly table services. There are still many shortcomings in the rational layout of community health care, day care, community pharmacy, elderly table and other services; especially during epidemics and other emergencies, community day care services, door-to-door transport services, elderly bathing services, psychological comfort and babysitting are still full of uncertainties.

3 Successful Experiences in China

In terms of the results of the fight against the epidemic, Germany has 3 659 990 infections out of a population of 82 million, while Guangdong, China, with a population of 120 million, has only 2 412 confirmed cases. In Singapore, with a population of 5.6 million, the number of confirmed cases is 61 890, and in Shanghai, with a total resident population of 24.23 million, the number of confirmed cases is 2 072. Compared to Singapore and Germany, China has had great success in combating the epidemic.

By the end of April 2021, the resumption rate of industrial enterprises above the national scale exceeded 99%, the resumption rate of small and medium-sized enterprises reached 88.4% and the resumption rate of major projects exceeded 95%. China's economic operations are accelerating back

to normal and economic vitality is being rapidly released, which further validates the science and precision of China's anti-epidemic initiatives.

3.1 Strengthening Emergency Management Systems.

Information on the fight against the epidemic is efficiently shared among relevant agencies at all levels in China and reported to the national level quickly, creating the conditions for rapid response and decision-making.

The capacity to produce and distribute anti-epidemic supplies has been strengthened, as well as the counselling and material support for medical personnel. There is an urgent need for countries to quickly coach health workers on how to manage COVID-19 patients through workshops, webinars, smartphone accessible methods, peer education, etc. In addition, equipment such as personal protective equipment, ventilators, oxygen and testing reagents should be provided in a timely manner, and supply chain management of medical supplies should also be strengthened.

Table 1. Compare by the fight against the epidemic

Subject	Germany	Singapore	Guangdong	Shanghai
population	82 [mil.]	5.6 [mil.]	120 [mil.]	24.23 [mil.]
Current confirmed diagnosis	163 151	542	41	61
Cumulative cures	3 408 800	61,316	2,363	2,004
Cumulative deaths	88 039	32	8	7
Cumulative diagnoses	3 659 990	61,890	2,412	2,072
Cure rate	93.1%	99.1%	98%	97%
Mortality rate	2.4%	0.1%		

The timeframe is 2021.05.25 17:26

The Chinese government has taken lockdown measures for Wuhan and has taken meltdown measures for certain routes, effectively preventing the spread of the virus. The Chinese people were united and showed great cohesion. A high level of responsibility was shown by the people in all positions of epidemic prevention and control. Everyone was mobilized and organized to give full play to collective action and cooperation, shouldering the common responsibility of stopping the spread of the epidemic and actively participating in this epidemic prevention and control blockade.

3.2 Strengthen Commercially-Assisted Smart Communities

Information sharing under disasters should be guaranteed to the maximum extent through the Internet of Things, television and the internet, to achieve a smooth logistics system, adequate reserves, stable market prices, and efficient operation of online and offline retail, to guarantee uninterrupted community living services and serve community residents, including the elderly; and to build "15-minute living service circles" Communities that enjoy more complete medical and nursing care, and living services within a 15-minute walking living circle. The following four points were noted in the study.

A Neighborhood support system construction. Communities take the initiative to establish neighborhood mutual aid relationships with community volunteers, properties and various organizations. Community commercial service enterprises should establish coordination mechanisms with community organizations, properties and volunteer organizations for interface, and use information technology such as big data and the Internet of Things to monitor the living conditions and needs of empty nesters and elderly people living alone, which can effectively solve the problems of shopping difficulties and medical care for the elderly.

B Promote the construction of grassroots community business organizations. The epidemic has exposed the lack of grassroots community business organizations in China's cities. Some enterprises did not form organized and planned activities to provide livelihood support for community residents' lives after the outbreak, and cooperation between individual enterprises and communities has led to frequent problems with delivery-to-home services due to mixed channels and confusing

prices, poor communication between businesses and communities and residents, and failure to share information. Effective grassroots community business organizations in unexpected situations can quickly interact with the community and improve the efficiency of relief and rescue. Strengthen collaborative relationships with government and community organizations and institutions. Community lifestyle service businesses should establish the concept of living in symbiosis with the community and actively participate in community building and community services to benefit and reward the residents of the region.

C Deepen home-based services. Community supermarkets, convenience stores and other brick-and-mortar shops, as well as online retail services such as fresh food e-commerce, have provided great convenience to residents in home quarantine and community closures during the epidemic, and have played an important role in securing livelihood supplies. Home-based services have also provided livelihood support for thousands of elderly empty nesters in home isolation. Home-to-home services based on brick-and-mortar community shops have proven to be an effective means of addressing the difficulties of shopping for empty-nesters in an ageing society. Retail and distribution companies can extend the scope of home-delivery services from merchandise delivery to basic care services for the elderly, which can effectively help solve the problem of caring for the elderly living alone and the empty nesters.

D Realizing the "unmanned" service model. This includes drones, unmanned vehicles, delivery robots, unmanned storage boxes, unmanned warehouses, automated driving and so on. The logistics industry is gradually crossing over from the era of traditional manual operation to the era of intelligent control. Enhanced automation and unmanned applications are gradually extending from the front-end sorting and transport links to the end-delivery links. Telemedicine systems are being built to enable people in need to access medical services without having to leave home. Building cloud-based classrooms to provide online education and enhancement opportunities for various groups.

4. Conclusions

The fight against the epidemic in Germany and Singapore has different national contexts. The protection of individual freedoms made the fight against the epidemic in Germany difficult and Chancellor Angela Merkel could only tearfully call on Germans to unite against the epidemic and understand the government. Singapore's small size made it easier to manage, and its open communities played a role during the epidemic. However, compared to China's response to the epidemic, both Germany and Singapore adopted a milder strategy, with fewer restrictions on people's rights, thus making the fight against the epidemic a tortuous one. China, on the other hand, took tougher measures, with Guangdong and Shanghai at the forefront in terms of emergency management systems and smart communities.

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