Community risk governance research review at home and abroad

Zhang Zheng Wen1,2*

1Emerging Risk Research Institute, North China University of Technology, Beijing, 100144, China
2College of civil Engineering, North China University of Technology, Beijing, 100144, China

* Corresponding author’s e-mail: zzw10011@126.com

Abstract: Community safety is related to everyone. This article first analyzes the related concepts of community risk and understands the specific differences. Then by summarizing the current situation of community risk and emergency management at home and abroad, and comparing the research status at home and abroad, we can get the characteristics of community emergency management in China.

1. Introduction
Xi pointed out that "community is the 'last mile' for the party and the government to keep in touch with each other and serve the people. We need to strengthen the community management and service system, integrate various resources, and enhance the community public service capacity. "With the frequent occurrence of community security incidents in recent years, community security is related to every people. As the basic unit of a city, a community involves the most basic livelihood and social security and stability. The vulnerability of a community is related to the vulnerability of the whole city. The governance level of a city is highlighted by the governance level of the community. Community risk governance throughout the course of community governance is the starting point of community governance and community governance flag so in the process of community governance should arrange community risk management on the prominent position, the risk of community governance to the success of the community governance, community governance reflected in community emergency ability and emergency level.

2. Definition of relevant concepts

2.1 Community

The concept of "community" was first proposed by German sociologist tennis in community and community. He believed that "community" is a relatively fixed social group composed of a group of people with common value orientation, as well as a social group with close relationship, mutual help, disease care and human touch. The concept of community in China was put forward by fei xiaotong in the 1930s and defined as a regional community of human life with common characteristics formed in a certain area. The ministry of civil affairs issued the opinions on promoting the construction of urban communities throughout the country, which clearly pointed out that communities are social communities composed of residents living in a certain area. Therefore, community refers to the regional community...
of human life and its activity area, which is composed of residents with certain connections within a certain scope.

2.2 Risk
In China, risk is generally defined as the impact of uncertainty on the target, in which the uncertainty includes not only the uncertainty of the process but also the impact of the event uncertainty on the target. In the international standard ISO 31000:2018, risk is also defined as the impact of uncertainty on the target, and it is also noted that the impact on the target can be positive, negative or both. Risk has different categories and aspects and can be applied at different levels, usually expressed in terms of risk events, risk sources, possibilities and consequences. Risk is a fuzzy concept. From the perspective of fuzzy mathematics, risk is a fuzzy relationship under the uncertainty of quantity. Therefore, pure risk refers to the combination of possibility and consequence in a particular situation. Risk is a result. Risk is represented by the relationship between objects in the fuzzy event. One object after another in the event is called a risk factor. Because the relationship between objects in fuzzy events is fuzzy, it is important to clarify the relationship, possibility and consequence between risk factors. It is easy to control a complex risk by reducing it to one or several risk factors.

2.3 Community risk
Risk is defined as the uncertainty of target, the effect of community risk is mainly the influence of uncertainty on the community most refers to the negative effects and the possibility of a dangerous condition and the impact on the community, the most related to safety and the degree of the same consequences, the result of the different communities have different community risk mainly determine the risk of danger to the community. Therefore, community risk is the sum of all kinds of risks that may threaten community security.

3. Foreign research status
In risk management conducted a series of study abroad, there are many scholars pay attention to study the corresponding risk models such as Mmaphaka Tau\(^1\) is pointed out that the shortcomings of SADC model cooperation model, through the team interviews and empirical research to international cooperation, new institutionalism to improve SADC model to enhance the ability of disaster risk management and the main is to seek cooperation to ensure the implementation of disaster risk reduction for the country.

Lisa k. Flax\(^2\) points out CVAT model is a kind of risk and vulnerability assessment method, aimed to reduce disaster through a comprehensive and reasonable land use planning to reduce the harm of loopholes Outlines how to guide the specific flow of different stakeholders into the CAVT in disaster risk analysis and points out that the community must advance to the disaster comes, take the initiative to deal with an emergency further about the dangers of disaster recovery and disaster reduction, and sustainable development into the overall planning. Disaster prevention and mitigation is an important component of sustainable development and enables communities to recover quickly from disasters.

Douglas a. Troy\(^3\) pointed out that community disaster reserves (CBDP) are important for local strategic reserves and the establishment of such reserves is a Shared responsibility of the government, ngos and individual organizations in the community. At the same time, community awareness should be raised to help assess local resources, and the role of (CBDP) should be strengthened through appropriate technology and collaboration between ngos and community organizations. Katrina m. Allen\(^4\) pointed out that the disaster preparedness method (CBDP) based on the coordination principle is increasingly becoming an important part of the community vulnerability reduction and disaster management strategy. CBDP can mobilize the masses to participate in to reduce the vulnerability of community activities, but in the context of climate change is not advocating a comprehensive work carried out in accordance with the CBDP deployment should put the construction of the community and the effective measures of the government and other organizations as a effective way of handling various fragility CBDP drawback is that the main strengthening processing of disasters of regional level and ability to cope with and adapt.
to the rights of the lack of resources and the local community based method.

From the perspective of community, some foreign scholars have pointed out the important measures and priorities of community risk prevention, such as a. Malizia[5], who pointed out that it is very important to timely and accurately deliver the danger warning to the victims in the emergency situation when a disaster is coming. Moreover, due to the diversity of user groups, this work is very challenging. By exploring different systems to develop this capability and considering how important people are to alerts, the system should also address the function of information sharing and information integration and provide accessibility in different conditions and to different types of users.Kambod Amini Hosseini[6] from a community based approach to reduce earthquake risk perspective emphasizes the community activities in the aspect of reducing earthquake disasters and casualties pointed out the importance of the plan by the participants themselves are not acceptable for citizens, especially when training them, let they can achieve in the short term is considered to be unrealistic. It was also noted that teachers could play an important role in disaster management because of their close relationship with community members and local authorities. If they are properly trained, teachers can provide important information to local people. In addition, supplementary textbooks for disaster education can be compiled, more educational activities can be carried out, and public awareness of disasters can be raised by disseminating disaster-related information and notifications through mass media. Rajib Shaw[7] pointed out that the impact of the flood on the community goes beyond the damage to buildings and infrastructure. It affects people's lives as well as community development issues, especially in health care and education. And the response to the crisis should start in the community, so any risk assessment process should involve community residents, communities and community-related government agencies working together to build sustainable community disaster management.Jeyanth k. newpor[8] points out that an effective development plan cannot be implemented effectively without community participation. Disaster prevention and mitigation measures should therefore be part of community programmes, both before and after disasters. Is mainly makes the process of community participation in disaster reduction and points out the energy of the community to participate in the activities of disaster reduction needs should be sustainable, disaster reduction is a process of multiple subject to participate in and to the existing community vulnerability assessment will be more effective planning for a practical system and points out the steps of the general community participation, including emergency plan, the establishment of community awareness, the establishment of the task force, the response mechanism of training, ngo coordination and participation. Finally, it is mentioned that good emergency strategies can promote the economic development of a country. As part of social and economic planning, mitigation measures cannot be effectively completed without community participation.

The specific work of emergency management and safe community building in the United States and other countries, although different, is still from the perspective of community safety to adjust government agencies and strengthen coordination among residents so as to ensure the safety of the country and the community. At the national level, the concept of safe communities was proposed and promoted at the first world health organization (WHO) congress on accidents and prevention in 1989, which became an important work of WHO. Safe communities should have two conditions. One is to develop active safety prevention programs for all residents, the environment and conditions. Second, it has a working network that includes the government, health service agencies, volunteer organizations, enterprises and individuals. The United States Security Commissioner divided June 2003 as a safe production month into four phases and the Federal Emergency Management Agency (FEMA) has developed a sustainable disaster reduction plan including land use planning, warning system settings, construction management, and supervision of emergency rescue and medical system crises. Management Command System[9],Comprehensive emergency management in the public security management includes four aspects: all dangerous method, comprehensive emergency management system, emergency management, the whole life cycle, the governments at all levels and the unified emergency resource allocation points out that the recovery ability of community is an important part of urban disaster prevention and reduction and puts forward the construction of the emergency response plan and team (CERT)[10].The earliest emergency ability construction of the federal emergency
management agency (FEMA), and the federal emergency management committee (NEMA) joint development of the emergency preparedness assessment system (CAR) pay attention to the evaluation of emergency work in 13 management function, 56, 209 and 1014 indicators form the government, enterprises, communities, families linkage ability of disaster emergency system. In 2002, Japan set up the disaster prevention capacity assessment project of local public groups to evaluate Japan's disaster prevention capacity and emergency response capacity of crisis management, and made an objective assessment based on specific indicators. Australia has established a high-level panel of senior officials from federal, state, regional and local government associations to conduct a review of the country's approach to natural disaster management, including an assessment of current practices in natural disaster management in Australia. Canada established the ministry of public safety and emergency response in 2003, which mainly deals with the coordination work of all departments and agencies in Canada in safeguarding national security and formulates relevant plans and policies\textsuperscript{[11]}. The Asian conference on disaster reduction recognized the three strategic goals and five priority areas for disaster reduction identified in the hyogo platform for action and carried out disaster reduction work in the common interests of Asian countries and formulated contingency plans on time\textsuperscript{[12]}. Tong Thi My Thi\textsuperscript{[13]} proposed that community disaster risk management (CBDRM) in Vietnam has been developing continuously in recent years. CBDRM mainly determines the level of risks through proactive risk assessment and concrete measures to reduce risks, so as to strengthen community response capacity. It also points out that top-down measures do not necessarily work when disaster strikes because they fail to meet the real needs of vulnerable groups and may even increase the vulnerability of communities. Therefore, the community should be the center of development in order to reduce the role of disaster risk. The government of Vietnam encourages international and non-governmental organizations to cooperate with local governments and institutions and has focused on raising awareness among the grass-roots population and planning for village security. Let grass-roots residents make their own response to reduce the loss of life and property to make effective measures. In the recent CBDRR project, Vietnam has been characterized by the participation of local residents from beginning to end. E. Petrov\textsuperscript{[14]} pointed out that reducing natural disasters, the most important way to improve the natural disaster risk prevention is vulnerability assessment for high-risk areas through the study of the clustering analysis of Russia's 89 regions that a total of 5 types of communities, and is characterized by only one (very few) factors lead to increased vulnerability, mainly is the low per capita income results in the decrease of the cost of prevention and protection. The qualitative assessment method of vulnerability indicators can draw conclusions from the factors that affect the level of vulnerability, which is helpful to improve the direction of risk management. However, the deficiency is that the indicator factors cannot be evaluated quantitatively, but they are more convincing than the subjective assumptions of experts.

4. Domestic research review

Emergency management in our country after 2003 have important progress in some domestic scholars on research method and model of risk assessment system such as Wan Beilei\textsuperscript{[15]} with analytic hierarchy process (ahp) and fuzzy comprehensive evaluation model to conduct the risk assessment of urban community of Shanghai, clear up the index system by the analytic hierarchy process with fuzzy comprehensive evaluation method to identify more comprehensive vulnerability assessment and to identify the comprehensive risk assessment. Liu Qing Jing\textsuperscript{[16]} through the establishment of sustainable construction and implementation of the basic system of disaster prevention community put forward the direction for comprehensive and the whole community disaster prevention and mitigation planning method, the community disaster prevention and reduction as a basic design concept into the community, and will be introduced to the government, society and so on various strength community mechanism of disaster prevention and mitigation, and build a daily strain capacity and sustainable ability of disaster prevention toughness community. Wang xiaojing\textsuperscript{[17]} constructed the risk management system and risk management capability evaluation model of urban community public security and proposed targeted Suggestions and optimization schemes through field visits. Zhang zhenguo\textsuperscript{[18]} built a community-
oriented participatory disaster risk assessment model (CBPDRAM). Zheng bin[19] adopted TOPSIS method to analyze the community resilience level in Sichuan Province, and concluded that community residents' community awareness and community participation should be improved in a targeted way, and community disaster capacity should be improved. Cheng jing[20] based on the characteristics of community risks, established an indicator system from the perspective of disaster causing factors and carrier vulnerability, and introduced offsetting factors to improve the community's ability to resist risks by proposing the method of prevention and risk avoidance in advance. Based on the multi-center governance theory, public crisis management theory and the ladder theory of public participation, Han xuewan[21] constructed the theoretical framework of urban community and redefined the participating subjects, methods, effects and evaluation methods of disaster risk reduction in urban communities. Liu yuan[22] introduced the theory of project risk management when studying the relationship between government work and management methods, and added the risk process in the process of creating a safe community, and reached a convincing conclusion in an example. Alone[23] drew lessons from foreign related patterns and experience from the perspective of risk prevention, in thought, system, legal system, environment, technology innovation, establish early warning and risk analysis and risk assessment mechanism, and strengthen the relationship between community and cooperation, restructuring of community social capital community prevention and control of risk diversification development. Ms li[24] based on the governance theory put forward the city emergency management should follow the government dominant cooperative mode, build the "legal norm operation + government + community + social participation" emergency cooperation governance mode, advocate in perfecting community emergency management system under the premise of multiple subject cooperation mechanism to improve the residents save your communal abilities. Zhou Yonggen[25] to introduce community disaster risk management, put forward the theory of network governance, community disaster risk management goal is not only pay attention to the ability of disaster prevention and mitigation pay more attention to community's sustainable development, strengthen the integrity between the government's social management, public participation and sustainable community disaster prevention and mitigation capacity research of ascension.

At the same time, some domestic scholars started from a single disaster to study relevant evaluation systems. For example, Zhang zhenguo[26] proposed a theoretical framework and method system for risk assessment of urban community rainstorm and waterlogging disasters, and built a risk assessment model. It is pointed out that the risk assessment of rainstorm and waterlogging disaster in urban communities is the whole process of simulating, analyzing, evaluating and expressing the risk of waterlogging disaster under different scenarios in the research area by means of scenario analysis and probability statistics with the participation of risk assessment experts and different local stakeholders. Three modules, including flood disaster database, urban community storm flood model and urban community risk model, are established and the storm flood disaster in Shanghai is analyzed based on historical data. Yin jie[27] put forward R = H * V * E natural disaster assessment method theory in the risk assessment of urban community rainstorm and waterlogging disaster by applying GIS technology. He established the urban community rainstorm and waterlogging assessment model from three aspects of disaster-causing factor assessment, vulnerability assessment and exposure analysis. Che lei[28] Shanghai three cycles is obtained by formula of rainstorm intensity of rainstorm under net flows through the calculation of the SCS model, combined with the research area of the elevation data and then get storm water depth combined with local knowledge to get heavy rain risk analysis, and through the scope of GIS and 3D technology will rain further, disaster prevention and mitigation training and back to the community. Cao shunxue[29] conducted fire risk analysis and fire control research for communities and pointed out that prevention and control measures in line with the characteristics of community fires should be formulated.

Some domestic scholars from different Angle to study the community also risk operation mechanism such as: Amy[30] is proposed from the perspective of risk perception, public risk perception coping behavior model is established, and through example investigation using structural equation model to verify this hypothesis to the corresponding conclusion, finally from the public, government, media, social four aspects public risk perception of social disaster prevention and mitigation strategies.
LanXuLing [31] proposed the perspective of risk society, society should be centralized and unified leadership, multiple network coordination, meet different demands, interconnection and sharing resources, to establish a link between controllable five basic characteristics and information disclosure, administrative operation, public services, and make community management and sharing development of targeted efforts and governance. Du Yuyu [32] put forward to prevent and reduce risk factors, control and eliminate the strategy, through the evaluation principles, scope, content, main body and so on four aspects to build a safe campus under the perspective of community safety risk assessment system, and analyzed the community safety risk assessment methods and procedures and mechanism, using the results of the assessment to establish and perfect community predict warning and prevention mechanism and take necessary and effective interventions to reduce campus accidents. Lazer [33] put forward to the main line to enhance consciousness of community residents a full range of security and save your communal abilities, starting from the coordinated mechanism of the community, the community and improve the emergency team construction, safety knowledge propaganda and training, plan formulation and drills, risk forecast warning ability, set up and the situation of our country is quite emergency management system. Wu xiaolin [34] analyzed the spatial governance risks of super-large communities and proposed that the government should avoid super-large communities, put the relationship between market and residents into the perspective of community governance, and put the overall sustainable development of the city in an important position to protect the rights of urban residents. Wang xiaoyun [35] pointed out that public safety management should be promoted at the community level to give full play to the role of risk management in preventing disasters, and the occurrence of various accidents should be reduced through scientific planning and prevention, so as to improve residents' self-rescue and mutual rescue ability to fundamentally reduce disasters. Li yongmei [36] introduced the perspective of seamless government and holistic governance after the risk of urban and rural integration and concluded that the community risk of urban new space is the concentrated outbreak of the problem of the absence of the responsibility of the upstream government in the downstream communities, and the community governance is faced with the "double gap" of "the absence of government responsibility" and "the loss of the connection between the government and society". It is pointed out that the government and society should be governed in the whole process of government examination, approval, supervision, late governance and autonomy. Zhu huagui [37] pointed out that community is an important part of social organization, and it is of great significance for the community's self-preservation and self-rescue ability to promote the development of the whole society to establish the material reserve of community resilience and improve the operation mechanism of community resilience. Zhang yongli [38] analyzed the risk classification of rural communities since China's reform and opening up, and pointed out that through institutionalized construction, the rural communities can be built into communities that are prepared, resistant and resilient by cultivating residents' risk awareness and self-rescue and mutual rescue skills.

Other domestic scholars have judged important factors through the evaluation system and then made important suggestions for emergency management. Zhang Zhiying [39] proposed a key indicator system for the development of community elder care real estate projects by studying the embedded residential community elder care real estate projects, and through the extension method Establish the final example of the evaluation system to verify the risk assessment results and put forward risk management and control recommendations for investment decisions.

5. summary
Although the researches on emergency management at home and abroad are different, they have the characteristics of interrelation. The work of emergency management abroad started earlier and formed a series of theories, such as the theory of multi-center governance, which has a profound impact on China's emergency management. Community has become the focus of emergency management at home and abroad has formed a consensus, China's emergency management work from a single disaster disaster prevention and reduction to the 2003 SARS event after the integrated emergency management system, emphasizing that local governments to "one case three system" as the focus to strengthen emergency management.
management. With the deepening of emergency management, community risk management will be further strengthened.

References
[1] Mmaphaka Tau, Dewald van Niekerk, Per Becker. An Institutional Model for Collaborative Disaster Risk Management in the Southern African Development Community (SADC) Region[J]. Int J Disaster Risk Sci 2016, 3: 352.
[2] Lisa K. Iax, Russell W. Ackson, David N. Tein. Community Vulnerability Assessment Tool Methodology [J] Nat. Hazards Rev. 2002, 3: 163-176.
[3] Douglas A. Carson, Jean Vanderbeek, and Anne Hutton. Enhancing community - based emergence of "with information technology" [J]. Journal of Disasters. 2008, Vol. 32, No. 1, pp. 149-165.
[4] Katrina M. Allen. Community-based disaster preparedness and climate adaptation: local capacity building in the Philippines [J]. Disasters, Vol. 32, No. 1, pp. 81-101.
[5] A. Malizia, T. Onorati, P. Diaz et al. An ontology for emergency notification systems accessibility [J]. Expert systems with Applications. 2010(37): 338-3391.
[6] Kambod Amini Hosseini, Maziar Hosseini, et al. Main Challenges on community-based Approaches in Earthquake Risk Reduction: Case study of Tehran, Iran [J]. International Journal of Disaster Risk Reduction, 2014, 8: 114 -- 124.
[7] Rajib Shaw. Critical Issues of Community Based Flood Mitigation: Examples from Bangladesh and Vietnam [J]. Flood Disaster Risk Reduction in Asia, January 2006, 72:1-2.
[8] Newport J K, Jawahar G P. Community participation and public awareness in disaster mitigation [J]. Disaster prevention and management, 2003, 12 (1) : 33-36.
[9] Jin lei. Theory and practice of community safety disaster reduction construction [J]. Journal of Beijing union university (humanities and social sciences edition), 2003, 2: 49-56.
[10] Jin lei. Research on the construction method of the emergency system for urban public safety in the United States [J]. Planner, 2008, 2: 81-84.
[11] Liu Xinjian, Chen Xiaojun. Review of theories and Time of Emergency Management Capability Evaluation at home and abroad [J]. Journal of Yanshan University, 2009, 3: 271-275.
[12] Asian conference on disaster reduction. Beijing action plan for disaster risk reduction in Asia [J]. China disaster reduction, 2005, 11: 25-27.
[13] Tong Thi My Thi, Huy Nguyen, et al. Community-based disaster risk reduction in Vietnam [J]. Community, Environment and disaster risk Management[R], 2012, 10, 255 -- 273.
[14] E. Petrova. Vulnerability of Russian regions to natural risk: experience of quantitative assessment [J]. Natural Hazards and Earth System Sciences, 6, 49-54, 2006.
[15] Wan Beilei. Risk assessment of urban community in Shanghai based on ahp-fuzzy comprehensive evaluation model [D]. Fudan university, 2011.
[16] Liu Qingjing. Research on community system construction of urban sustainable disaster prevention [D]. Huazhong university of science and technology, 2015.
[17] Wang Xiaoqiu. Research on public safety risk management system of urban residential communities [D]. Henan university of technology, 2015.
[18] Zhang Z g, wen J h, li x l. a model of participatory disaster risk assessment for communities [J]. Journal of disaster science, 2013, 28 (3) : 142-146.
[19] Zheng b, hao y h, ning n, et al. Analysis of community resilience to risk disasters in sichuan province by TOPSIS method [J]. China public health, 2017, 33 (5) : 699-702.
[20] Cheng Jing. Community comprehensive risk analysis and research [D]. Shenyang university of aeronautics and astronautics, 2016.
[21] Han xuewan. Research on public participation in disaster reduction in urban communities [D]. Lanzhou university, 2016.
[22] Liu yuan. Hazard identification, risk assessment and control in building safe communities [D]. Shandong university, 2011.

[23] Wang teng. Research on innovation of community management model based on social risk governance [D]. Central south university, 2013.

[24] Li feifei. Research on urban community emergency management based on governance theory [D]. Jinan university, 2015.

[25] Zhou yonggen. Strategic focus and transformation enlightenment of global community disaster risk management in the new century [J]. Disaster science, 2017, 32 (3) : 171-175, 182

[26] Zhang zhenguo. Risk assessment of rainstorm and waterlogging disaster in urban communities [D]. Shanghai normal university, 2014.

[27] Yin J, Yin z z, Wang J, et al. Risk assessment of rainstorm and waterlogging disaster in urban communities based on GIS [J]. Geography and geographic information science, 2009, 25 (6) : 92-95.

[28] Chen lei. Risk analysis of urban summer rainstorm waterlogging based on community [D]. Shanghai normal university, 2012.

[29] Cao shunxue, Deng songhua, Du xiangyang. Analysis and management of fire risk in urban communities [J]. Fire science and technology, 2011, 30 (7) : 649-650, 654.

[30] Li tingting. Research on community disaster reduction strategies based on public risk perception [D]. Lanzhou university, 2014.

[31] LAN xuling. Community smart governance in risk society: motivation analysis, value scenarios and system change [J]. China administration, 2019, volume missing (1) : 140-145.

[32] Du yuyu. Study on community safety risk assessment system from the perspective of ping an campus [D]. Wenzhou university, 2015.

[33] Lei ze. Research on emergency management mechanism in community governance of large cities in China [D]. Graduate university of Chinese academy of social sciences, 2015.

[34] Wu xiaolin. City within city: space production and governance risks of super-large communities [J]. China administration management, 2018, volume missing (9) : 137-143.

[35] Wang xiao-yun. Community risk management: the cornerstone of improving disaster prevention capability [J]. Reality, 2011, volume missing (S1) : 197-199.

[36] Wu xiaolin, Li yongmei. New urban areas in old villages: community risk management of urban "new space" [J]. Journal of Beijing academy of governance, 2016, volume missing (4) : 9-16.

[37] Journal of nanjing university (philosophy. Humanities. Social sciences edition), 2012, 49 (5) : 47-53, 159.

[38] Zhang yongli, Xu hao. A study on the risk changes of rural communities in China since the reform and opening up [J]. Marxism and reality, 2014, (6) : 64-69.

[39] Zhang zhiying. Study on decision risk evaluation of community old-age care real estate development project based on extension method [D]. Xihua university, 2015.