

**The Feasibility of the Rockefeller Foundation Engagement in the
Chinese Healthy City Programs**

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Abstract

This research analyzes the feasibility of the engagement of the Rockefeller Foundation in Chinese new healthy city programs through a general evaluation and two case studies. The results show that the engagement is promising, for the Rockefeller Foundation which can provide a small amount of funding and important technical support in water management, livability improvement and economic reform, yet the trust between the Rockefeller Foundation and local government is weak. Chinese cities can acquire a good international reputation and resources through a collective framework, which helps these cities to open their eyes, win a broader stage and export their own experience.

Key words: Chinese healthy cities, the Rockefeller Foundation, charity engagement, urban resilience

● Introduction

Health is a critical part of life quality in modern societies. Health has far exceeded the needs for a non-diseased physical and mental condition, and was defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity by the World Health Organization (WHO, 1987). As cities became clusters of human settlements, urban health has been an increasingly addressed issue and discussed in detail in every city corner. Urban health does not merely focus on human diseases, but also the potential and capacity to ensure a sustainable developing pattern for the current and future generations. Therefore, urban planners play a critical role using planning, design, and policy tools to promote urban health outside a biomedical perspective.

However, there are a thousand understandings of urban health in a thousand entities' eyes. This is due to the different stages of industrialization and urbanization among diverse countries. As developed, rich and industrialized countries realized the significance of urban health in the post industrialization development process, they were also the pioneers of healthy city programs, especially for Canada, the European Union, the United States, Japan, and etc. Canada first systematically defined the concept of “healthy city” in 1984 and it spread to Europe and US. Such an improvement took the advantage of past advanced ideas like urban sustainability and resilience.

There are many highly related concepts of the health and the urban resilience is one of them. The urban resilience is defined by the Urban Resilience Hub as

“measurable ability of any urban system, with its inhabitants, to maintain continuity through all shocks and stresses, while positively adapting and transforming towards sustainability”. Such a concept is an extension of the United Nations Sustainable Development Goal 11—making cities inclusive, safe, resilient and sustainable. The concept of urban health and urban resilience both emphasize the maintenance of continuity, the survival and the sustainability of development in shocks and challenges. Such a similarity leads to a big overlap on urban issues, including disaster recovery, aging, pollution, environment capacity, future infrastructures, and livability. On the other hand, these two concepts differ a little bit, since the human health is not a direct urban resilient concern, while the resilience of a city to deal with stresses and shocks is an essential human health component. Therefore, the urban resilience is an important concept to understand the healthy cities from a broader perspective.

There are a growing number of scholars, political entities, red crosses, foundations and NGOs engaging in the urban resilience and the urban health issues. The service areas of these organizations distribute globally, especially in many developing and low income countries. The active participation of these international organizations brings hope to many developing countries in the form of disaster recovery, updated economic management skills and better built environment at diverse scales and have introduced different levels of technologies based on local culture.

China is the biggest player among the developing countries, yet China has its own political character. China started a national scale program called “Healthy China 2030”

in 2016 and asked all the provinces and cities to “integrate health into all policies”. However, the definition of “the health” far exceeds the physical and mental health of humans; rather it refers to the balanced development and emphasizes human well-being from multiple lenses. Although the program started in 2016, many local jurisdictions were not capable of creating their own regulations in a short time. Therefore, many institutional questions still remain unsolved.

Since many developing countries have received external helps from global organizations, it is quite interesting to discuss whether such a pattern is also compatible in a Chinese context. China is unique, because China has its own top down political system, a huge population and its ancient but still lively culture. Also, as China is in a fast industrialization and urbanization process, Chinese institutions still have a big gap with those of developed countries. China tries its best to reduce such a gap by upgrading its policies with more efficient ones and renewing its urban development ideas. Such a change may be very fast, which can bring much uncertainty on how China is going to build a healthy society, with or without external helps. I am going to partially answer this question in this thesis with an assessment of the feasibility of charitable engagements of the Rockefeller Foundation in Chinese new healthy city programs through qualitative methods and some necessary statistics.

Modern charitable foundations were invented in the US in the late 19th century. The Rockefeller Foundation, created in 1904, was an example of the combination of the modern charity and the Baptism. Chinese foundations learned from these pioneers, but have their own features (Foundations Development Forum, 2018; Mu, 2011). China

defined the following organizations like foundations, social leagues, NPOs, and NGOs as Social Organizations (The State Council of the People's Republic of China, 2016). Xu (2008) summarized that the Foundation Law issued in 2004 ruled that each foundation must have "a business master entity" (The State Council of the People's Republic of China, 2004). Such a section was publicly criticized by scholars for a foundation might not register to run if it could not find a master entity. It seems to change a little bit, since the newest law says some foundations may register without a master entity. Xu (2008) found that in reality foundations have no obstacles to find a master entity, for most foundations in China have a strong relationship with the governments. Although this may be achieved in various ways, it is clear that Chinese foundations have a low independence upon the government for the authorization is an essential way to socialize these foundations.

At the end of June 2014, there were 560 thousand legal social organizations including 3,736 foundations based on records of *The Chinese Charity Annual Report 2015*. These social organizations provided 1.2 million jobs and received 24.07 billion dollars donations (China Charity Federation, 2016). The biggest charity China Charity Federation held 11.7% of the total donation (China Charity Federation, 2016). Charity China (2018), a quasi-official organization, reported the number of charities in China excluding Taiwan Province was 4,792, including 3,508 foundations, 828 social leagues, 231 Red Crosses, and 225 social volunteer leagues. However, this data is questionable since *Chinese Charity Report 2017* and *Chinese Social Organizations Report 2018* manifest that China had 5,545 foundations in 2016 and 6,322 foundations in 2017.

Charity China has run for only several months and may not have a complete data (Yang, 2017; Yang, 2018; Huang, 2018).

Yet these charities have participated in health issues for a long time, there is no evidence to show that these charities or foundations are working on the healthy city programs. Researches on the healthy cities are not many either—only 27 papers published on Chinese noted planning journals until 2017 and no one discussed about charity. A unique report, *Annual Report of Healthy City Construction in China 2017*, points out China should extend funding sources for these programs, such as public health promotion foundations, public health insurances, and publicly subsidized charitable funding. However, this report no longer provides rationally detailed mechanisms, specific proposals or typical cases about this proposition (Wang & Sheng, 2017). Thus in such a new field, all researches in China are still at the early stage.

Nonetheless, charities had a long history supporting medical research, founding academic institutions in medical, biomedical, agricultural, genetic, sanitary fields and medical staff training (Zi, 1996). Some predecessor researches revealed that the Rural Improvement Campaign led by Yangchu Yan from 1920s to 1940s was the fundamental of Chinese Sanitary City Model, which was a crucial precursor of the current Chinese Healthy City Programs. The Rural Improvement Campaign was funded by the Rockefeller Foundation from 1934 to 1939 with 1.5 million dollars and assisted the staff to migrate west during war-time. This assistance, for political reasons, stopped in 1951, and the Chinese sanitary movements were finished by Chinese alone. Thus it's hard to say how much these remote works of the Rockefeller Foundation impact on

today, yet it is obvious that the Rural Improvement Campaign did have a significant impact both physically and politically in the early 20th century—interestingly, Mao Zedong even took part in this campaign in early 1920s (Xu, 2015).

After 1978, the Rockefeller Foundation reentered China mainly investing in agriculture, medical research, and environmental protection. One NGO sponsored by the Rockefeller Foundation is 100resilientcities (the 100RC). the 100RC selected 100 cities globally to emphasize the significance of the urban resilience. There are three Chinese cities in the 100RC's network, including Deyang in Sichuan Province, Huangshi in Hubei Province and Yiwu in Zhejiang Province (the 100RC, 2018). the 100RC's activities, including disaster recovery and preventions, environmental protection and site cleaning in these three cities, also fitted a broader definition of the health (WHO, 1987). The Chinese governments welcomed such a positive engagement of the 100RC. Judith Rodin (2018), the former president of the Rockefeller Foundation, said in a lecture that the data sharing between the Rockefeller Foundation and China was not a problem and there existed collaborative designs working to reduce the city cost and improve the urban resilience. Thus it's safe to say that the Rockefeller Foundation has taken part in the Chinese prototype healthy city programs, but has not been highlighted as a "healthy engagement". These works, associated with SDGs (United Nations Department of Economic and Social Affairs, 2015), and the Chinese own health definitions, stress "a positive development of not only individuals' well-being but also the whole society" (Pan, Shan, Li & Wu, 2016), clearly suggest a bright collaborative working potential between charities like the

Rockefeller Foundation and the Chinese new healthy city programs.

Matching the political goals with charities’ interests is helpful to build a collaborative work. Local authorities may have various requirements from place to place, but all these requirements should meet the principles from laws and national lead agencies. The National Patriotic Sanitary Campaign Committee, a branch authority of National Health Commission of the People’s Republic of China, is led by a vice premier and publicized the national standardized indicators on March 28, 2018 (The Office of The State Council of the People’s Republic of China, 2018; National Patriotic Sanitary Campaign Committee, 2018). These indicators are divided into three ranks, including 5 major factors, 20 subcategories and 42 items (National Patriotic Sanitary Campaign Committee, 2018). Although many indicators are managed under local municipalities, there still leaves enough space for charities to engage in. For example, charities can invest in Item Seven—eco-friendly toilets in rural areas, Item Eighteen—Healthy Community rate, and Item Nineteen—Healthy School rate. In these items and part of other items, private funding is acceptable, especially given some rural areas are hard to reach with a poor funding.

Table 1. Chinese Healthy City Assessment Indicators System

(National Patriotic Sanitary Campaign Committee, 2018)

Major Factors	Subcategories	Items
Healthy Environment	Air condition	The portion of qualified air condition days
		Heavy air pollution days

	Water quality	Qualified drinking water rate	
		Water source security rate	
	Trash disposal	Trash innocuous disposal rate	
	Other Environments	Public toilet density	
		Rural Innocuous toilet rate	
		Green space area per capita	
		Pathogenic microbe density	
		National Sanitary County Portion	
	Healthy Society	Social welfare	The public funded portion in basic medical insurance of hospitalization fee
		Physical exercise	Gym area per capita
Social physical exercise guiders rate			
Occupational security		Occupational Physical Examination rate	
Food security	Food security test		

	Educational	Student fitness test rate	
	Aging	Recovering beds for elders	
	Healthy Cell Program	Healthy Community rate	
		Healthy School rate	
		Healthy Business rate	
Healthy Services	Mental illness management	Regular management rate of serious mental ill patients	
		Children and women service	Children's health management rate
			Pregnancy health management rate
	Health source	Physician number	
		Public health server number	
		Sickbeds in medical orgs	
		Chinese Medical Service rate in elementary medical organizations	
		Public health budget in total finance	
	Healthy Population	Healthy level	Life expectancy

		Infant mortality	
		Children under 5 mortality	
		Pregnancy mortality	
		Urban residents rate of National Fitness Test	
	Epidemics	I/II Type Epidemics' mortality	
	Chronic diseases	Early death rates of serious chronic diseases	
		Hypertension rates of 18-50	
		Changing scale of the aged standard cancer morbidity	
	Healthy Culture	Healthy knowledge	Resident healthy knowledgeable level
			Healthy behavior
Smoker rate above 15			
		Frequent physical exercise population rate	
Healthy atmosphere		Healthy knowledge media propaganda	
		Registered volunteer rate	

On the other hand, it is necessary to evaluate the capability of the Rockefeller Foundation to meet the requirements of these items, since this is not only a funding problem but also a technical one. Fortunately, the Rockefeller Foundation is much experienced and has a long history focusing on health, both in the biomedical and environmental perspectives. The slogan of the Rockefeller Foundation is “health for all” (The Rockefeller Foundation, 2018). Nowadays, the Rockefeller Foundation narrows down its focus on three initiatives, the Planetary Health, the Transforming Health Systems, and the Disease Surveillance Networks (The Rockefeller Foundation, 2018). Under the Planetary Health Initiative, the Rockefeller Foundation cooperated with the Lancet and published a Planetary Health Report on the Economics in 2014, which especially stressed Chinese environmental concerns within a single chapter (The Rockefeller Foundation & the Lancet, 2014). This evidence shows that the Rockefeller Foundation has a strong will to engage in Chinese environmental health issues, are eager to cooperate with local governments and have conducted some qualified works on some related topics.

● **Research Questions**

This research is going to determine the prospect of the Rockefeller Foundation’s engagement in the newly proposed Chinese Healthy City Programs. The main research question is how it is possible for the Rockefeller Foundation to engage in planning built environment and funding a Chinese healthy city program? Is it possible to engage in these programs? What is the potential role of the Rockefeller Foundation? How will it cooperate with the local governments and the local communities? Will

local people accept such a charitable funding and how will they use it? What are the potential risks and benefits in a long run of such a mechanism?

The aim of this research is going to depict a general analysis of potential interests and barriers to such a charitable organization in the engagement of local healthy city programs. This research, however, is not going to replace a formal feasibility analysis of a specific project between a city and the Rockefeller Foundation with signed contracts. Rather, this study utilize the Rockefeller Foundation as an example of all other charitable organizations to discuss a potential rational framework and what kinds of problems need to be stressed in a real implementation. Although these factors may vary case by case, some of them are still instructive since the political structures and cultures are the same regarding China as a whole. Thus, I am not representing the Rockefeller Foundation or any elected officials, but based on my observation from their missions, interests, available approaches and feedbacks to manifest the possibility and impact of such a collaborative work.

● **Methodology**

This research is going to utilize a mixed methodology. The overall estimate is based on a general analysis from a macro perspective and a detailed analysis from a micro perspective.

The first step is to indicate a general analysis of difficulty based on current evidence. I will focus on two critical factors—a contextual assessment based on legislation, regulations, and the past records of foundations or NGOs' engagements. Usually, information of charities are publicly accessible, so I can obtain some basic

information from their annual reports. Also, the Chinese government has organized to edit annual report books of domestic charities, and some public assessable websites, which include the summary of charity numbers and investments in different regions.

However, there are some problems for the general analysis mentioned above. First, these data cannot indicate directly on the local impacts in details. Second, although the contextual analysis is essential for an overview, this overview is limited in explaining what a specific charity will do, like the Rockefeller Foundation. These problems need to be solved by other methods.

More detailed analysis will come from two case studies. In these case studies, I will go further to discuss the goals, institutions, concerns and supposed implementation with concrete content. The cases will be selected from a Model City without the Rockefeller Foundation and a city with the Rockefeller Foundation funding in other planning modes. I will go further to interview the staff and some local decision makers and planners to collect their ideas on such an issue.

The interviews of the Rockefeller Foundation, local governments and local residents will be the main source of a collaborative framework on built environment and institutional issues. It is supposed to have something new from existed Sanitary City Programs and Sustainable City Programs, but the top down political structure is impossible to remove. Thus it is important to conduct research based on current political organizational operations and acquire experience from some case study cities where experiments have been conducted for a while.

Based on these two layers of analysis, I am going to draw my own conclusion

about the overall possibility to let the Rockefeller Foundation in to fund, promote and design a Chinese healthy community project as some evidence suggests that the Rockefeller Foundation is highly willingly to have new programs in China.

- The General Analysis of the feasibility

China issued a new law regulating the foreign NGOs in April 2016 and started to implement it on January 1, 2017. Before 2017, China only had two laws regulating on foreign commercial associations and foundations. Therefore, foreign NGOs are actually illegal in many cases. This new law is critical, since it provides a legal framework for foreign NGO activities. Jinping Jin, a legislative professor of Peking University Law School, pointed out that there were no more than a hundred NGOs registered under the police departments, while nearly ten thousand NGOs worked in China without permissions (Zhang, 2016). On the one hand, this law helps many active NGOs to avoid unnecessary inspections and distrusts from local authorities; on the other hand, this law also brings some challenges for these NGOs, since it requires the NGOs to complete some necessary procedures to register, which increases the cost of most non-profit organizations. A study shows that there were over a thousand NGOs had long term and stable activities in China, while about seven to ten thousand NGOs had short term events.

This new law requires foreign NGOs to register with the national or a local (provincial) police authority to get approval and set up their own representative organizations in China with “a relevant lead agency”. This reflects concerns about security upon these foreign NGOs, since some of them may be impacted, supported,

or guided by western politics. Some evidence support such a concern, since several hundred NGOs proved to be politically influenced. In January 2016, the Chinese secure department arrested a spy from disguised NGO activities.

Therefore, the Rockefeller Foundation needs to obey at least two laws to start their activities—one is for the foundation itself; the other is for its attached NGO. These procedures require some time and legal expertise to assist in the registration with the police departments. However, such an issue is not a difficulty for the Rockefeller Foundation, as for the Rockefeller Foundation was the earliest foundation to cooperate with Chinese academies after 1978. The Rockefeller Foundation had much experience to deal with the legal and political issues during the past four decades.

Until September 2018, there were 420 NGOs registered with the police department system to hold 1,068 events (some activities to achieve NGOs' goals). Most of these NGOs came from the United States, Japan, Korea and Germany. Among these 420 NGOs, 71% of them registered in Beijing, Shanghai, Yunnan Province, Guangdong Province and Sichuan Province. 74% of these NGOs' relevant lead agencies are commercial departments, civic affair departments, educational departments, public health departments, and people leagues; particularly, public health departments constitute 6.9%. There were 92 ministry-level relevant lead agencies and 328 province-level relevant lead agencies. Half of these 420 NGOs focus on economic development, and a third focus on aid to poor and vulnerable people, education and environmental protection. As for the scale of events, 32.86% of these

NGOs hoped to hold at the national scale, while others hoped to hold in several provinces (Aongomps, 2018).

These data suggest that the activities of NGOs have some typical fields and events. The Rockefeller Foundation comes from the United States; in China it focuses on health, agriculture, and energy. These issues are common affairs within public welfare topics, yet some information may still be sensitive. If the Rockefeller Foundation wants to engage in urban planning, socioeconomic development and public health projects, it needs to follow the requirements of the Foundation Law and NGO Law and be cautious in some sensitive topics. Therefore, despite some constraints on specific projects, the Rockefeller Foundation does not have an institutional barrier to participate.

The United States NGOs Charitable Activities in China Report (the Report) was an analytical report published by an independent think tank called the Zhongmin Charitable Donation Information Center on March 30, 2012 (Liu, 2015). The Report specifically summarized the American NGO activities during the past thirty years. The Report pointed out that the whole Chinese society had totally different attitudes between international business companies and social entities. The Chinese government had made a series of laws and regulations to attract commercial investments and encourage the development of international businesses. On the other hand, the social entities, especially the NGOs, were treated differently. For these NGOs, China welcomed their donations, accepted their advanced techniques and skills, doubted and almost rejected the western culture, and absolutely forbade the

political and civic right-protection behaviors. However, Chinese social entities have a much smaller scale and fail to deal with many social affairs. Therefore the Report revealed the real impact of American NGOs on Chinese issues to find what lessons can learn from these cases.

The Report collected the data from Chinese governmental levels, NGO network websites, the US Tax Bureau, the US Census Bureau, the American Foundation Center website, the American Charitable Statistics Center and the American Charity Navigation Net and found there were about a thousand US NGOs working in China, of which half of them were charities, and half commercial or industrial associations. These 1,000 NGOs came to China in different years. Based on a sample of 266 American NGOs, the Report calculated that 34 (13%) were independent foundations; 54 (20%) were commercial foundations; 166 (62%) were charitable foundations; and other 5% were other types or without a category.

Based on the 2009 tax information, these NGOs had a variety of funding sources—44% were from foundations; 24% were from public donations; 16% were from governmental funding; 9% were from investments or profits; 6% were from member or service fees; and 1% was from business donations. The Rockefeller Foundation and its branches belong to the first and the most common category.

The total donations from all kinds of NGOs in the past 30 years were about 3 billion dollars; 31% were donated to higher educational institutions, 30% to research institutions, 21% to governmental agencies and 17% to other entities. Among these recipients, central and local governments were the most important collaborative

partners in NGOs' working network.

These donations covered 29 provinces in China, but Beijing became the biggest recipient because most American NGOs are located in Beijing and the donations towards central agencies were also calculated in Beijing. Shanghai, Jiangsu Province, Guangdong Province, Sichuan Province, Yunnan Province and Shanxi Province were also the popular donation recipients.

However, in 2012, most of the NGOs in the sample did not register with **the police department system**. 94 of them had long-term representative organizations or agencies. 36 of them had registered with the tile of NGO with a business department; 30 did not register; 23 registered in civil departments; 9 did not reveal their registration status. Therefore the registered NGOs were only a small portion.

The Report indicated that American Foundations and NGOs impacted significantly on Chinese issues, yet the propaganda and the public education about these things were little. There were four major influences from these NGOs. The first one was the political impact, including the expertise training, the policy making consultancy, and the legal and the civil research. The second one was the economic impact, which cuts both sides. On the one hand, these NGOs helped trained a number of economics and conducted direct benefits to some fields; on the other hand, these NGOs would be detrimental to China in economic battles. The third was educational impact, including the higher education training, the expertise training and the helps inelementary or middle school education with vulnerable groups. The fourth one was upon the charitable affairs, including economic aid, disaster recovery, social welfare,

expertise, advanced skills, and civil responsibility. These helped China to be open to both sides, welcoming to the foreign organizations and engaging in global affairs.

The Rockefeller Foundation seems to be in the commonest type of foundation/NGO in China working on public welfare fields. First, it is one of the US foundations, the most critical international foundations type toward China. Second, the funding source is from the donation which is also the most welcomed approach. Third, the public health issues, the sustainable and resilient development issues are the strengths of the Rockefeller Foundation, and are also what China needs. Fourth, China accepts the skills and the expertise from the Rockefeller Foundation, in some energy programs and city planning projects.

As Chinese healthy cities programs are ongoing, such collaboration is likely to happen. This may be much likely to emerge in Beijing, Shanghai, Guangdong Province, Sichuan Province, Yunnan Province etc. However, how to convert these advantages into the real programs and how to implement it still need to be tested by cases. I will conduct two cases to adjust the analysis in a pragmatic worldview—one is from Huangshi City with the 100resilientcities (the 100RC), a branch of the Rockefeller Foundation and another is from Xiashan District, Weifang City without the Rockefeller Foundation.

● **Huangshi City Case Study**

Huangshi, a city whose population was 2.47 million in 2018 in Hubei Province, built a collective framework with the 100RC, a sub-organization of the Rockefeller Foundation in 2015. The theme of such cooperation is about urban resilience,

including water security, economic reform and urban livability which all overlap with the definition of a healthy city. Therefore, the Rockefeller Foundation indeed has some projects and in China on healthy cities, yet these projects are not titled by healthy cities. These early efforts can be seen in my view as prototypes of a formal collaborative network before the period of “integrating health into all policies”, but still they have a long way to go. I hope such a case can provide a unique insight of the institution within such a collective framework, which can also provide a window for the upcoming opportunities and challenges in a larger scale.

Huangshi is a mining city. In Hubei Province, Huangshi’s gold mines cover 88% of provincial resources, while the percentage of cooper mines is 91.5%. Huangshi has a huge complex metallurgy corporation in Daye County. As the mining capacity decreases, Huangshi has to find a new sustainable way for its future development against decline; however, the problem is not only about economic growth, but also includes the environmental threats coming from the decades of mining and metallurgy. Air pollution, for example, is a big problem to Huangshi City. The main pollutants are PM_{2.5}, PM₁₀ and ozone.

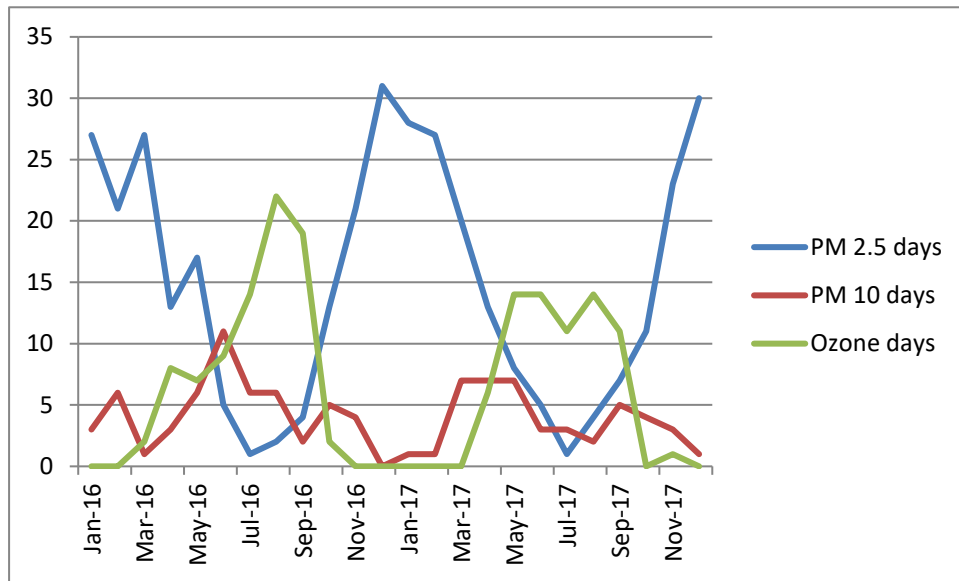


Fig.1 Air pollution days of Huangshi City per month

(Data source: Xu & Yue, 2019)

Huangshi knew the 100RC from an international urban resilience forum in Singapore. The 100RC is a subsidiary organization of the Rockefeller Foundation whose primary goal is to help cities, governments, academies, companies, NGOs and other groups to emphasize the significance of urban resilience and build a collaborative working network among 100 global cities. According its mission description from its website, “the 100RC supports the adoption and incorporation of a view of resilience that includes not just the shocks—earthquakes, fires, floods, etc—but also the stresses that weaken the fabric of a city on a day to day or cyclical basis.” Currently, the 100RC has 17 partner cities in Asia, 3 in Central America and the Caribbean, 17 in Europe, 5 in the Middle East and North Africa, 32 in North America, 4 in Oceania, 10 in South America, and 9 in Sub-Saharan Africa. With such a wide international collaborative working network, Huangshi believed that the 100RC was capable to provide some new ideas on urban development to help it

switch from an unsustainable track.

In October 2013, Huangshi started its application to the network. In the application profile, Huangshi selected five major urban challenges, including difficulties in economic and industrial reforms, industrial pollution, water environmental deterioration, heavy metal pollution, and weakness in ecological and environmental protection institutions. These problems are adjusted in later discussion with the 100RC members and experts into water security, economic reform and urban livability.

Huangshi major officials, including Municipal Party Secretary Xianwang Zhou, and Mayor Weimin Dong, approved the plan in December 2014 and March 2015 respectively. Therefore, the intensive meetings and discussions all happened after December 2014. However, Huangshi did not gain higher level political support from Hubei Province or national agencies. Hubei Provincial heads neither said yes nor no to such a cooperation which brought political risks to its collective framework. On the one hand, Hubei Provincial heads hoped that Huangshi officials could experiment by themselves to see whether such a collaborative framework was feasible; on the other hand, these heads did not want to be responsible for the risks in working with such an institution. Therefore, it was considerably political risky since a new provincial head may stop such an institution through a top down political order or regulations.

Huangshi continued even though it had not obtained upper level permission. On December 3, 2014, Vice Mayor Shuisheng Du was invited to attend an urban resilience forum in Singapore, and received the announcement of acceptance of

Huangshi into the 100RC network. Du spoke highly of such an achievement that he thought this was a milestone of Huangshi new ecological and industrial strategies to be a new megacity in East Hubei Province. Du also discussed Huangshi resilience with the president of the 100RC, Michael Berkowitz, and vice president Bryna Lipper. The 100RC promised to assist Huangshi with charitable funding 1 million dollars to initiate projects, research and expertise training.

The 100RC also promised to give another 4 million dollars to further develop these projects. However, local planners did not confirm the acceptance of further funding. What the 100RC confirmed include four types of benefits—two years of salaries for a Chief Resilient Officer, urban resilience planning expertise through network partnerships, consulting through partnerships with discount on business tools, and online conferences guidance.

At the beginning, such a collective framework seemed to go well. From 2014 to 2017, Huangshi City officials, local planners and experts had many meetings or conferences online or in person. On June 9, 2015, Huangshi established a new lead group dealing with urban resilience issues. The director of this group was a vice mayor, Zhanping Ye, while its members included officials from City Construction Bureau, Political Academy, City Development and Reform Commission, Land Use Bureau, Environmental Protection Bureau, City Planning Bureau, City Infrastructure Investment Corporation, and Chief Resilience Officer from the 100RC. Each official in this lead group represented a governmental agency with a clear responsibility:

- The City Construction Commission was the coordinator of all other construction

work within the city including waste water network management, greening, livable environment improvement, urban resilience projects approval, sanitary city capacity planning and management, waste disposal, environmental monitoring, disaster rescues and disaster recovery.

- The City Development and Reform Commission combined the master planning and specific planning and approved the investment plans in the above process.
- The City Land Use Bureau led geological and land disaster recovery and management, including quarry reuse, rebuilding and reuse of former industrial lands, avoiding landslides, and disaster rescue management.
- The City Environmental Protection Bureau was responsible for noise, waste, pollution, carbon and toxic emissions monitoring and management. They also have the power to move, close, and reorganize inadequate emissions or disposal and exhausted companies.
- The City Planning Bureau was required to furnish urban infrastructure planning, public services planning, public security facilities planning and underground space planning around urban resilience issues.
- The City Infrastructure Investment Corporation was to finance, invest and operate related infrastructure projects.
- The City Political Academy would organize experts to research related problems in Huangshi resilience and apply for the honor of United Nations Most Human Livable City.

Chief Resilience Officer, Dr Xia, would guide and lead the group on technical

issues. He was to advise group leads on the overall city resilience planning, development planning, focus areas, important investments and projects. He was also responsible to contact other partner cities in the 100RC network and acquire more foreign experience to innovate resilient Huangshi planning, construction and implementation. The 100RC paid the salary of the Chief Resilience Officer for the first two years based on Huangshi income level. After the first two years, Vice Mayor Zhiling Wu became the next Chief Resilience Officer and was paid by local budget, not from the 100RC or The Rockefeller Foundation.

Under the bridge of the 100RC, the Huangshi Resilience Construction Office signed an agreement with Future Cities and Infrastructure Institute of Tsinghua University (the Institute). Based on the agreement, the Institute will assign experts and groups to cooperate with Huangshi jurisdiction to support the need of technical and intellectual supports as well as local talent training. The Institute also helps Huangshi to convert its planning into implementation, which is a tough issue for the general authorities. In addition, the Institute will help Huangshi with branding with extensive reputation and images to outsiders. Indeed the Institute has a long partnership with the 100RC and is its first round ally in China.

On the one hand, such a collaborative work is one of the goals of the 100RC. According to Alan Zhuang, the assistant manager of the 100RC for Asian affairs, “the 100RC” is to publicize the conception of urban resilience on a global scale with cities, partners, academies, companies, NGOs and other organizations. The 100RC is a bridge and platform for these partners to cooperate. After all, the 100RC only has

around 100 full time staff members and limited resources and cannot implement all the projects by ourselves.”

On the other hand, although Huangshi reached out to the 100RC as an important foreign partner to deal with urban resilience issues, Huangshi did not fully trust all the 100RC partners in the network, like Microsoft Corporation (from interviews to the Huangshi Resilience Office). Rather, Huangshi relied more on domestic partners. As the Institute is one of the few Chinese partners of the 100RC, such an agreement seems to be very unlikely to be replicated with other partners. The Chinese governments have a different definition of transparency than western governments so that they show a diverse level of data publicity. Some sensitive data in China are protected by law and cannot be shared with foreign partners. Jing Li, the only one full time staff member in the Huangshi Resilience Office, told me that “...as the partnership evolves, local authority relies much more on the Institute and other domestic academies and experts. Many data are sensitive and cannot be given to the 100RC and other network partners. As you know, the basic data, coordinates, are protected by laws and need to sign a new confidentiality contract. As other foreign big corporations are skilled at technical tools and other analytical methods, such a sharing is a big threat to the public safety.”

Therefore, Huangshi refused to provide sensitive data to foreign partners. Thus in many projects, these partners could not assist Huangshi in analysis, planning and implementation. Besides, as many of the initial officials and staff members were assigned to other departments, there is only one full time staff member, Jing Li, in

Huangshi Resilience Office to deal with daily work. As the overall assessment and specific feasibility evaluation are quite tough jobs, the whole process of such collaboration has moved slowly since 2015.

However, Huangshi still achieved a great deal outside such a partnership, as there were many projects planned outside resilience but integrated into transportation, environmental protection, or other issues. Li replied that “actually the definition of sustainable development, resilient cities and healthy cities are not changing so much that the relevant authority institutions are similar.”

Such a paradox leads to a strange phenomenon that in July 2017 Huangshi authority published a new book *The Exploration of A Resilient City*, which contained the logo of the 100RC on the cover. One chapter of this book, *Huangshi City Initial Resilience Assessment Report*, reveals that there are few projects titled resilience, but many related actions are ongoing. These actions include four cases; soil and mining governing, mountain governing, air quality control, lake cleaning, and informal residency governing. Alan Zhuang told me that these efforts converted into three main topics—water security, economic and industrial reform and urban livability. In reality, Huangshi had already a long battle with all these resilience problems which were not considered resilience problems before. Thus, it is hard to say whether it is a big change introducing resilience to Huangshi. This is likely to happen again when the definition of “healthy cities” becomes popular.

The 100RC helped Huangshi to narrow down the urban resilience into water management, livability and economic reform. The role of the 100RC is a leverage,

using small efforts to encourage big movements of Huangshi. Therefore, the resilient works without the engagement of the 100RC are what the 100RC expected. Here I want to discuss two projects under the resilience framework but are totally Huangshi's own works. The first one is water management. As many people and industries discharged much polluted water into Qingshan Lake and Ci Lake during the fast urbanization and industrialization period from 1980s, the water quality in these lakes deteriorated significantly. The pollution severity has exceeded the ecological capacity and brought heavy metals, nitrogen and phosphorus into the water body. Each year these two lakes will receive about 3 million tons of sewage. These lakes have few connections with other water bodies, therefore the concentration of pollution cannot be diluted. This led to an increasing growth of aquatics and decreasing of fishes. Meanwhile, many aquiculture families do their business in the polluted water to pursue a low cost, enlarge their business scale, and fertilize with toxic feeds. These behaviors brought significant threats to the food security and many pearls died due to such misbehavior.

Huangshi started its lake planning and the New Clean Mountains and Waters Program in 2003. Huangshi loaned 100 million dollars from Asian Development Bank, and proposed to invest 209 million dollars in total in February 2013 to completely clean the polluted water. These programs aim at three major lakes, Ci Lake, Qingshan Lake and Qinggang Lake, including network constructions, pollution source investigations, pollution preventions, silt and pollutant cleaning, ecological reconstruction, silt and pollutants processing, and establish new organizations to

manage and monitor these projects. The main approaches include:

(1) Grow more cleaning aquatics. The environmental engineers experimented in Qingshan Lake and planted 120 thousand acres of aquatics. These aquatics combined with natural ones covered 80% of the water area. These plants are qualified cleaners, since they can absorb the toxics and reduce the negative effects of engineering. According to the environmental tests, nowadays the water is above the I Level of national qualification standard and keeps constant above II Level. This indicates the water is directly drinkable. The heavy polluted lake has been converted to a good environmental attractiveness and many people love to walk along the waterfront.

(2) Develop and utilize the resources in multiple ways. Huangshi regards the pollutants as profitable resources and create new market institutions to encourage businesses to convert the pollutants into new products, like fertilizers. The government invests and introduced several companies to innovate and solve the technical difficulties in this process. Such an approach seems to be effective and promising according to the experiences in the past years, for all in all the government can use less money but create more values.

(3) Encourage public engagement. The Huangshi authority found it was difficult to patrol all the lakes by the government. Therefore, the government assigned the quotas into several communities. These communities organized people willingly to patrol along the lakes. These policies encouraged the people to look after their living environments and find enough labor to do the patrol every kilometer. This increases the efficiency significantly.

(4) Upgrade the techniques. The Huangshi authority increases the investment in R&D year by year. Recently, Huangshi builds a new sewage plant every two years with new advanced equipments processing the polluted water with higher efficiency. Currently Huangshi has been a noted pollution processing center in Hubei Province.

Huangshi also emphasizes the livability as an essential section of urban resilience. Huangshi is the home of many mining workers for the decades of mining in Daye. In the past decades, these mining workers lived in the housing belonging to the mining companies led by the government. However, the economic reform led many mining companies bankrupt, so the housing has been poorly maintained. As the housing quality deteriorated, it transferred into informal and dangerous settlements.

Huangshi became the only one experimental city to combine the upgrading the informal settlements and construction of new public housing in October 2009. Huangshi became another experimental city with the title of development financial support of public housing by China Development Bank. Taking the advantage of these policies and funding, Huangshi is on its way to create a new pattern of informal settlement renewal.

First, Huangshi integrates all kinds of public housing and name them “public rental housing”. Huangshi has many types of public financed housing programs, including economic adaptive housing, low rent housing, public rental housing, limited price market rate housing, urban informal settlement renewal, national mining informal settlement renewal, etc. These housing categories all have their own history and funding source led by different branch organizations or programs. However, the

root source of subsidies all comes from the government. Therefore, Huangshi integrates all these categories into one and standardize the living quality, funding scale and rent limits. This helps Huangshi manage the public rental housing in a higher efficiency.

Second, Huangshi prioritizes the public rental housing affairs as the most important welfare issue and creates Five One-Institution to enlarge the housing supply. Five One- Institution includes the No. One Welfare Program, one working baseline, one right protection approach, one political promise and one construction mode. No. one Welfare Program means the government will ensure the funding source, policy making and planning first for public rental housing among all welfare programs. One working baseline means all the renewal projects are decided by local residents. Each project must be agreed and contracted by 95% of local residents to be approved, while the renewal plan is made by the renewal committee. One right protection approach means the government will assign a lawyer to every renewal project to ensure local residents have the rights to acquire sufficient policy and law knowledge and help them build a way to seek judicial help if necessary. One political promise means the government provides multiple relocation places from the whole Huangshi to let local residents to determine. This gives the residents more choices to decrease the difficulties in the relocation process. One construction mode means the government builds a platform to integrate the investment, financing, and construction from multiple real estate developers to standardize the projects. This accelerates the renewal projects significantly.

Third, Huangshi also finds a collective framework with four sections seems to be effective and efficient with innovation potential. The first section is the government to ensure and lead the whole process with a strong political promise. The second section is to utilize Huangshi National Owned Zhongbang Urban Housing Investment Corporation as the main financial platform for all the renewal projects. The third section is to use market approach to separate the subsidies and rentals and shared rights to convert rentals to ownership. The fourth section is the final goal of the third section—to break up the barriers of conversion from affordable housing to commodity housing, especially about the financial and profitable problems to make such a development sustainable.

The livability innovation of Huangshi earns a huge success and becomes a model for the entire Hubei Province and even in a national scale. Huangshi has attracted over 130 groups to acquire lessons, was invited to give lectures to the national political authority academy, and worked together with other experts to make national Public Rental Housing Regulation. The Vice Premier Li Keqiang at that time visited Huangshi and spoke highly of such a pattern in July 2012. Such a visit is an extremely high political honor to the years of Huangshi's works.

Huangshi adopted a pragmatic world view that no matter what the concepts they were, the local authority only cared about the areas and specific issues than those abstract definitions. Li confirmed this conclusion, "Huangshi actually lacks enough experts to help them understand these concepts since they cannot attract enough talents to stay in Huangshi. From her perspective, the concepts of resilience,

sustainability and health are almost the same.”

Such two limits prevented Huangshi using new skills, expertise and techniques in a larger scale to help them build a resilient city. Currently, the whole process on the feasibility assessment of several projects is quite slow, and Huangshi still has not put the strategic planning onto the 100RC website. According to Alan Zhuang, Huangshi planned to finish the strategic planning in 2019, but it depends. All in all, from Huangshi’s perspective, such a collective framework seems to bring a new opportunity to innovate, but the local jurisdiction still thinks they currently do not have any substantial outcomes within such cooperation. “It seems like a taste from a supermarket. When the initial benefits are used up, there is no more investing in.” Jing Li said.

Such a slowing down is in the 100RC’s expectation. Alan Zhuang explained that they had foreseen such a difficulty; however, the Rockefeller Foundation still believed that the 100RC should expand more projects in Asia and especially in China. Therefore, even if it seemed to be difficult to succeed in the short term, the 100RC still decided to choose several cities in China as examples in such a political context.

The 100RC also prepared some solutions to respond to such circumstances. When a number of projects are ongoing, they will deliberately select appropriate projects with locality to ask whether they need assistance. Some projects may engage with sensitive data, but they can still get qualitative feedbacks from local stakeholders. If some projects do not need sensitive data, then Huangshi is glad to share their information and database to work.

However, this collective framework still meets with significant challenges. At the beginning there were four cities in the 100RC network, but in January 2019, there were only two remaining, Huangshi and Deyang. Deyang also had a remarkably slow pace in strategic planning with the similar reasons; Deyang even did not have any full time staff on urban resilience. Both Huangshi and Deyang had little implementation within the collective framework with the 100RC and huge problems in overall planning.

In the planning stage, Huangshi had recently finished three reports of some proposed projects with general or specific suggestions. For example, Huangshi had already discussed the feasibility of cleaning Daye Lake as an important step of ensure water security, which may be a promising future step in 2019.

Although the 100RC and Huangshi City did not have any implementing projects, the past efforts of Huangshi received numerous global attentions and reputations from the peers of the 100RC network. In this way, the 100RC did help Huangshi enlarging its international reputation and impacts. In November 2015, Huangshi was invited to attend The 2015 United Nations Climate Change Conference in Paris; in December 2015, Huangshi was invited to attend EU-China Forum on Sustainable Urban Development 2015; in June 2016, Huangshi was invited to attend APEC High-Level Urbanization 2016 and introduced Huangshi resilient city lessons; in March 2017, Huangshi became a member of China International Cities Development Alliance. Two cities Toyama in Japan and Kota Semarang in Indonesia also spoke highly of Huangshi experience and used it to guide local planning. In response to global

feedback, Huangshi also promised to use 10% of city budget to build resilient projects and the 100RC promised to provide 5 million dollars to help in planning, expertise training and technical supports.

This accomplishment also received some national attention from the National Development and Reform Commission. In April 2016, officials of the National Development and Reform Commission appreciated the Huangshi efforts in the past years and encouraged Huangshi to PPP projects led by the Finance Ministry. What's more, as Huangshi was the first city to do resilient planning, there were over 10 financial organizations that were willing to cooperate with Huangshi with resilience finance platforms. In addition, many state-owned corporations had an interest to invest in projects, infrastructure improvement and new industries in Huangshi and to build new foundations for bonds, stocks, securities and other funding. National Development and Reform Commission even invited Huangshi Vice Major Zhiling Wu to a international sustainable cities forum in Chengdu in May 2017.

A brief summary of Huangshi City Case

The collaborative working framework between Huangshi jurisdiction and the 100RC did bring an indispensable impact on Huangshi resilience construction, even if the 100RC is in a secondary role. From a conceptual perspective, the 100RC gave Huangshi an opportunity to engage in an international network of collaboration and understanding of resilience. Such a new concept brings some new ideas, techniques and methods to help Huangshi analyze its own priorities. However, as Huangshi is still a traditional Chinese city in a top down political structure, such cooperation with

a foreign organization and its partners still lacks robust trust. Therefore the sharing of sensitive data and some analysis of projects go quite slow. Currently Huangshi only finished some assessment reports and has not published the final strategic planning.

On the other hand, such a collective work does encourage other cities to do more experiments with foreign organizations to look for international assistance, funding and technical support. A non-ignorable influence is that Huangshi enhanced its global reputation and impacts significantly through such a work and increased its attractiveness for global and domestic investments. Some other international cities also acquired some valuable lesson from Huangshi to guide them future planning. Such a change will definitely reward Huangshi in the long run on planning, important investment projects, local environment, economic reforms, and urban livability.

Such a work can also be a textbook for other Chinese cities. Currently resilient city construction model is still opaque for China and needs some qualified examples to illustrate. As Huangshi and Deyang are the first round cities to try a collaborative working framework with foreign organizations, such a model can be learned by other counterparts. Besides, in this process, some of domestic partners of the 100RC, like Future Cities and Infrastructure Institute of Tsinghua University, enlarges its political and technical impacts and can export their concepts and techniques into more cities. This is also a good step for China to reconsider how to face multiple challenges in an increasingly complex period of urban transformation.

As for the 100RC and the Rockefeller Foundation, although such a work seems not so surprising compared to its overall network and some successful cases in other

countries, it does succeed in increasing the acceptance of foreign NGOs by the Chinese governments. As water security, economic reform and urban livability are all covered by healthy city concepts, such a collaborative political framework is obviously a prototype for future cooperation in such a field. On the one hand, the current priority of The Rockefeller Foundation is on energy projects, such a case can promote its collaboration with Huangshi and other similar cities in China; on the other hand, as The Rockefeller Foundation has a long tradition on health issues from 1900s, it seems to be more competent in such an area, especially when China has little success in the past two decades, yet some new challenges and concerns will emerge. This case also gives The Rockefeller Foundation a window on how to collaborate with local governments together in a Chinese context. Generally speaking, the 100RC and The Rockefeller Foundation achieved its primary goals to select several Chinese cities to collect more attention for cities, governments, corporations and academies on urban resilience through such an effort.

Therefore, it seems a little bit promising for The Rockefeller Foundation and the similar types of charitable organizations to collaborate with Chinese governments in healthy city issues. However, building a robust trust seems to be a long term challenge for both of them. As China is surely cannot entirely accept western democracy and its own political styles, such a collective framework will mainly focus on technical supports, expertise training, outside funding, international reputation and network establishment.

Such a prediction is pragmatic, since there are some Chinese academies that are

the pioneers of new conceptual urbanization, like Future Cities and Infrastructure Institute of Tsinghua University. Although current domestic partners are only a few for the 100RC and The Rockefeller Foundation, Alan Zhuang says they do have a plan to enlarge its Chinese partnership network in the following years. Such a trend will also promote the upgrading of Chinese technical level in the new period to replace their outmoded methods in analyzing the data and feasibility assessment. As such a updating is in accordance with some western standards, this action will be likely to enhance the technical cooperation level in the following generation, as well as incentives for increasing investment. For example, some German companies have expressed their interest in Huangshi new resilient tourism development in the next decade. This reveals the extension of these efforts is also economically attractive.

● **Xiashan District, Weifang City Case Study**

Weifang City is a coastal city of Shandong Province. The total population of Weifang in 2017 was 9.36 million, significantly larger than Huangshi City. Xiashan District is a comparatively new district formed in 2008. Such a district focuses on new economics such as ecological development, aging services and disease recovery since it has the Xiashan Reservoir with clean air, qualified water supply, beautiful scenery and high forest coverage—about 45%. Xiashan District is quite small, with only 230,000 people in 2017, about a tenth of Huangshi City, a fortieth of Weifang City. Therefore Xiashan District is a good model with lower population density. Xiashan District covers 491 square kilometers and 277 villages.

I suggest the contrast with Xiashan District with Huangshi is rational, though the

population varies significantly. The primary reason is that I want to uncover the unique significance of the engagement of The Rockefeller Foundation from an involved case and a non-involved case. Xiashan District is a waterfront region with a focus on water management and flooding disaster control like Huangshi City, while Xiashan District is in a typical top down political structure with some planned economics marks. In reality, the Xiashan Reservoir is a huge accomplishment in the late 1950s.

Xiashan District also suffered from flooding significantly since Shandong Province and Weifang City are both frequently hit by flooding. In July 2008, the first year of Xiashan District, Typhoon Phoenix hit Shandong Province, and caused severe flooding, affecting 281,500 people, and bringing the total loss of 20 million dollars and led to a water supply shortage. Xiashan District was the most severely hit area. It had gone through extreme heavy rains for two weeks from July 18 to July 31, 2008, with a total rainfall of 340 mm. This caused flooding in 221 villages (of 277 in total) of Xiashan District, affected 81,500 people including 7,306 emergent replaced, led water supply shortage of 1,483 people, and brought the total loss of 15.4 million dollars, including 10.29 million dollars of agricultural products, constituting 74% of the overall damages in this typhoon. In August 2018, Tropical Storm Yagi and Typhoon Rumbia together hit Weifang City and caused huge damage. The total loss was 1.35 billion dollars, 13 deaths, 3 missing, 170,000 people relocated, 9,999 houses collapsed, and 200,000 green houses damaged.

Flooding is not a new issue of Weifang City and Xiashan District. In August 1950,

a continuous rainfall hit Wei River for forty days which caused a hundred year flooding to the Wei River downstream area. The dykes of Wei River were destroyed by the flooding with 69 breakthroughs, with the biggest width of 1,200 meters. There were 262 villages that suffered severe loss. The agricultural loss was drastic with most of arable land at zero production.

Wei River is an ancient river from Wei Mountain. The main stream is 246 kilometers in length. The downstream areas of Wei River are all plain farmlands. These plain areas had a weak protection by dykes which might be broken during flooding years since the silt carried by the river raised the riverbank year by year with poor maintenance in the continuous war period. Therefore, these plain farmlands were remarkably vulnerable during flooding or drought years. Based on the records of Changyi County Chorography, from 1881 to 1960, there were 12 flooding incidents recorded. From 1949 to 1958, there were totally 1.21 million acres of farmland hit by flooding, with the overall agricultural production loss of 60 thousand tons.

As the water management was ineffective from 1949 to 1958, the officials of Weifang City decided to build a new reservoir to solve the flooding and irrigation problems completely. Weifang City invited water conservancy experts from Shandong Province and Beijing to investigate the proper locations of the proposed reservoir. Xiashan, a natural basin in the middle part of Wei River came to be the best place for such a reservoir. Xiashan is on the common boundaries of Changyi, Wei County, An Qiu and Gaomi four counties. In addition, there were two other branches, Wu River and Qu River, went by this region. Therefore, if Xiashan had a big reservoir, such a

water project would benefit a huge area of the Wei River downstream providing enough water for drinking and irrigation.

The construction of Xiashan Reservoir was a historical outcome. China started the Great Leap Forward and People's Commune political campaigns in 1958, which stimulated the aggregation of people. Hence, it was quite easy to gather enough labor without any payment for salaries and food supply to build such a megaproject. Under such political circumstances, people were inspired and strong willingly to work together without any rewards to build it—they even brought food by themselves. There were 100,000 laborers involved in such a megaproject. They struggled to fight against the rigor natural environment and finished the construction in just two years in October 1960.



Fig. Xiashan Reservoir Construction 1 (Data Source: Sohu News)



Fig. Xiashan Reservoir Construction 1 (Data Source: Sohu News)

Xiashan Reservoir worked immediately even when the construction had not entirely finished. A huge flooding hit Wei River on August 12, 1960, with an input of water of 6,830 cube meters per second to the reservoir, without any threat to the people and properties of Wei River downstream. On August 13, 1974, a drastic flooding with a volume speed of 10,400 cube meters per second hit Wei River again, but still caused no damage to the downstream. Xiashan Reservoir is also a critical player during the recent flooding. In August 2018, Xiashan Reservoir started to sluice on August 21 with a volume speed of 400 cube meters per second, which reduced the damages in downstream areas significantly.

Currently, Xiashan Reservoir serves 4,210 square kilometers of land along Wei River and a total capacity of 1.41 billion cube meters, working capacity of 550 million cube meters and an overall 144 square kilometers water area. The main project of the reservoir includes a main dyke, a secondary dyke, a spillway, a spillway gate, a water release tunnel and a hydropower station. The total length of dykes is 32.91 kilometers,

including the main dyke of 2.75 kilometers and 21 meters in height; the secondary dyke's length is 30.16 kilometers, and the height is 14 meters. The spillway gate's length is 268 meters, with 15 holes and a maximum sluice capacity of 15,853 cube meters per second.



Fig.2 Xiashan Reservoir (Data Source: Sina Blog)

Such a megaproject now is the primary anti-flooding infrastructure in Weifang City and Shandong Province, which protected three million people in the downtown of Weifang City, Changyi, Hanting, Gaomi, Fangzi, and Pingdu counties, 4 million acres of farmland, Jiaoji and Dalailong Railway, and Jiqing, Weilai, Rongwu, 206 and 309 Highway.

The authority of Xiashan Reservoir started to work in July 1961. Nowadays the authority is responsible for the flooding prevention, project managements, water source protection, urban and rural water supply, hydropower generation, and fishing.

The authority has eight offices, including administrative office, political office,

financial office, technical office, water supply management office, fishing office, water quality management office, and disciplinary inspection office. The authority also has eight village branches for irrigation, water supply, water power generation, a water project construction company, a fishing company, and dyke management.

Due to the long time threats of flooding, Xiashan District also emphasizes the importance of disaster prevention, monitoring and reaction. Xiashan District creates its own standard for the disaster prevention—with systematic prevention institution, with effective authorities, with sufficient funding, with monitoring, with assessments, with keeping away from disasters, with propaganda, with imitation and with effective outcomes. Xiashan District established a lead group to manage the disaster prevention and loss reduction activities. Xiashan District funds the group 45 thousand dollars monitor the disasters, purchase necessary equipments and print public education booklets. The lead group passed *Xiashan District Emergent Reactions Scheme to the Bursting Disasters Act* and *High Risk influenced Points of Bursting Disasters Emergent Reactions Scheme*. These schemes require the establishment of fixed and temporary safe locations preventing the disasters and have regular practices of dispersal of the massive each year. The villagers, officials and monitors are particularly required to receive professional training.

The group also made up rules of *Flooding Season on Duty Institution*, *Disaster Dynamic Checking Institution* and *Fast Reporting in the Disasters Institution*. *Flooding Season on Duty Institution* asks the responsible agencies to be on duty and contactable for 24 hours every day. These agencies should collect and report the

instant checking, monitoring, prevention and rescue information in time. Also, these agencies should accurately record and implement the orders from higher hierarchies. If some orders cannot be implemented, or some emergent things happened exceeding their capacity, these events should be reported immediately to their direct upper hierarchy. What's more, the duty staff should be familiar with the disaster prevention basic knowledge, the emergent reaction plan and the disaster network group.

These institutions and policies prove to be effective and were awarded by the Ministry of Natural Resources of the People's Republic of China agencies (MNR). The administrative office of MNR spoke highly of the outcomes of Xiashan District and granted the honor of "Ten Having County" for Xiashan District's high standard of disaster prevention in 2016.

As the water management has been proved effective during the past six decades, there is a growing need for external benefits from the reservoir. Nowadays Xiashan District has a high impetus to develop tourism, aged care industries and organic agriculture taking the advantage of beautiful scenery and a high concentration of negative oxygen ions. According to the vice director of Xiashan District Committee, the concentration of Xiashan's negative oxygen ions is higher than 3000 per cubic centimeter. He mentioned that such a high concentration is good for elderly and injured people to recovery.

Therefore, Xiashan District also plans to utilize the air quality to attract people to seasonally settle down in Xiashan District. The government decides to improve local livability by upgrading the infrastructure and renew local aging services. Aging

industry is still immature in a national scale, and Weifang City is struggling to find its own way. There are three main categories of aging service organizations in Xiashan District—Xiashan District Aging Service Industry Aggregation, Xiashan District People’s Hospitals, and Social Welfare Centers.

Xiashan District has given priority to the aging services business for many years. Xiashan District zoned a total area of 3,384 acres of land to develop aging service business at the north side of Xiashan downtown, Xiashan Island. Currently, there are three main developers in such an aggregation, and one of them is Weifang Legang Inc. Weifang Legang Inc. joined in 2013, helped to attract more business into this aggregation and started construction of all kinds of facilities.

One of the megaprojects in these developments is Xiashan Lake Aging Services Business. Such a business locates in the downtown of Xiashan District and has a perfect sight to the nearby Xia Mountain and Wei River. It is at the west of Xiashan Spillway and north of the main road of Xiashan Island so it can avoid flooding threats. The business plans to be a complex development with tourism, entertainment, aging services, physical exercise facilities, and conferences holding. The business occupies 1,129 acres of land and has a total area of 800 thousand square meters of construction area. The business announces to invest 716 million dollars in six years in several phases. The first phase will develop 100 acres of land and build the total construction area of 65,140 square meters, including aging service training centers, high standard bead houses and qualified aging or injuries recovering apartments. Such a development is supposed to accommodate 14 thousand elders and provide a variety

of services for them including day care, nursery, psychological pacification, fundamental medical treatments, entertainments, and physical exercises. The construction phase of three aging service apartment buildings has finished, and it is do the greening works at present.

I investigated one of these bead houses called Lvshengyuan. The owner planned to invest 2.2 million dollars to develop such a project. The designed service capacity was 400 beds. Such a bead house had a temperature control system which could maintain a cozy feeling constantly no matter in winter or summer. The bead house would provide elementary medical services including physicians, Chinese medical care and massage. In addition, the bead house was adjacent to Xiashan District People's Hospital, which could provide timely medical help if some patient had emergencies. Besides, the bead house could provide the elders with physical exercise equipments and entertainment facilities, like the chess, intellectual mapping, Majong, playing cards and other kinds of activities. Moreover, since the temperature and humidity were proper, many elderly people loved to plan some flowers and vegetables to decorate their lives with much green. This also improved the air quality and brought more vigor to the daily life. The products of such plantation were also eatable without using pesticides and chemicals.

However, in 2015, such a bead house had a comparatively low occupancy rate—only 15 elderly people lived in. Some of them were sick people who needed two or more relatives or nurses to take care. The reasons of low occupancy rate were complex. First, generally speaking, if an elderly people can take care by himself or

herself, the month cost would be 220 dollars; while if an elder people is heavily sick and could not take care by himself or herself, the cost would increase twice to 660 dollars per month. Such a cost is unaffordable for a middle class couple who need to look after their children and two pairs of parents. This might be even much more rigor—if they were facing elders with extreme diseases like stroke, paralysis, coma, etc, these diseases needed more people to take care in a long term, but they could neither afford nor have enough labors. Second, some elder people at the beginning of their 60s still felt they were young and should enjoy a wonderful life. They did not want be restricted by these care services. These “young” elderly people might even have parents in their 80s or 90s. Most of the elders in this age interval did not want to live in these bead houses—they preferred to stay at home until death. Third, nowadays the primary taking care of aged people is still the home pattern. Many couples and parents do not trust the bead houses for the poor management and some violent cases. Safety is still their concern to prevent a high occupancy rate.

Based on global experiences and current Chinese situations, it seems having five beds for every hundred elders are enough since over 85% of the elders live at home and some of poor aged people still need to work like a salesman, small business man or cleaner to make their livings. Therefore, bead houses perhaps are a secondary choice when elders are facing diseases. They need much more professional medical care from the hospital.

Another type of aging care is the social welfare centers. There is a social welfare center locating on the east of Roxia Road, occupying 93.3 acres of land, with the total

construction area of 35 thousand square meters. The proposed invest is 10 million dollars by Weifang City Xiashan District Urban Development Construction Company. The core area of the social welfare project occupies 33.9 acres of land and has construction area of 12.4 thousand square meters. The overall green rate is 40%. The inner design is mixed used with aging apartment buildings, comprehensive buildings, other residential buildings and commercial places. The first phase of construction started in May 2013 and finished in 2015. This project was planned to be a core social welfare center in the south part of Weifang City.

In Weifang City, these social welfare centers are facing to the elders without livability, income source or children support. The primary services of these social welfare centers are daily, medical care and recovery. Therefore, these centers also provide some elementary medical services and duty doctors.

There is another type of aging care in Weifang City but not existing in Xiashan District. It is called Community Aging Service. Such a service is popular in Zhucheng District, which ensures the day care, elementary medical services and healthy education services all provided by the community. This is different from the business model of aging services nor the social welfare model covered by the government. The government pays part of the money, while the residents also pay part of the cost. Besides, these residents can take the advantage of such near services without going to the hospitals far away and enjoy their family life at home. As Zhucheng District has so many successful experiences, perhaps Xiashan District will also develop such a pattern in a couple of years to complement their service pool.

A brief summary of Xiashan District, Weifang City Case

All in all, although the livability is considerably high in Xiashan District, within no matter the bead houses or aging apartments, Chinese people still do not prefer such a market option. It is understandable that many local officials focus primarily on the economic growth by much investment and starting up more business, yet such a pattern may not be welcomed by local residents; home aging pattern is still the mainstream in China. It still needs time to examine such a choice is good or not. On the other hand, as the political officials still want to concentrate on water and environmental benefits rather than fast real estate and industrial development, they take the healthy city development into an integrated consideration from both economic and medical ways.

From an environmental perspective, Xiashan Reservoir is still a dominant contribution to both Xiashan District and Weifang City. Xiashan Reservoir is responsible for the city water supply, fishing resources and flooding prevention. Therefore, Xiashan District must prevent all other potential risk factors like pollution or fast development which are detrimental to the reservoir.

Xiashan Reservoir is a critical part in the water body protection planning. Therefore, the master planning of Xiashan District must obey the requirement from Weifang City and Shandong Province. The benefits of Xiashan Reservoir are extensive and distributive to all the downstream areas including Hanting, Gaomi, Fangzi counties, etc by irrigation and flooding prevention. Although Xiashan District is only a small district with only 230 thousand people, the risks of fast speed

development may be harmful to all the Weifang City.

In this way, Xiashan District chose a light intensive approach of developing aging services industry. Aging services are in a great demand since China is going through an aged society that the percentage of population over 60 is 17.3% including the 11.4% over 65. A national report predicted that the overall Chinese aged population will be 248 million with 30.67 million over 80 in 2020; the population over 60 would be 300 million in 2025. Such a prediction revealed the emergency of aging services, which constitutes the rationale of Xiashan District development.

However, such a goal is still challengeable since many Chinese still have a big and rooted family value. They prefer to stay with their family rather than the peers to enjoy social life. More than 85% of aged people still choose to stay at home. Also, if a child would not support their parents when they were old, he or she would be considered impiety among their friends and colleagues since many Chinese like to chat about their family life with nearby people. Consequently, even if the construction quality, the service standard and the overall livability is high, most of people still do not prefer the market choice of aging services. On the other hand, as China is facing an increasing difficult task to cover the medical costs, the social welfare system is unavoidable to be a marginal choice for only small portion of aged people.

In addition, Chinese officials tend to use the “megaproject” method to achieve their goals. They tend to separate the water management from an urban design perspective and just regard it as a water issue. This leads to the reservoir management is regulated by water departments. The authority of the reservoir also has its own

information system to collect and analyze the data. As many new institutions came up in recent years, the authority also showed its adaptability to the new challenges, which ensures the reservoir to be an essential part to enhance the urban resilience against flooding. Therefore, from a utility perspective, the development of Xiashan District is not it lacks resilience or health development, but how to match the available skills and tools to an increasing hard demographic dilemma. This maybe a problem of public education, propaganda, or some events to guide the promotion of choosing market aging services value, but only time will tell.

● Discussion

I compare the difference between Huangshi City Case and Xiashan District Case in the following chart.

As both of these cases come from China, they all obey a top down political structure. Huangshi City needs to follow the commands from the provincial level, and Xiashan District has to follow the orders from Weifang City and Shandong Province. In this way, both Huangshi and Xiashan need approvals on many important issues. Xiashan District has the Xiashan Reservoir which is essential to the Weifang City water supply and flooding control to the Shandong Province. Therefore the development of Xiashan District is highly controlled by upper hierarchies to eliminate the environmental risks to the reservoir. Huangshi City is on a higher political position than Xiashan District, so Huangshi City has more flexibility to deal with its own issues. Huangshi chose to cooperate with the 100RC on the urban resilience without a provincial permission. The reasons of such a phenomenon are complicated—on the

one hand, Hubei Province also wanted to experiment some new planning ideas through Huangshi City; on the other hand, if the experiment proved to be detrimental, the provincial leads did not want to be responsible of such a risk; from the perspective of Huangshi City, it faced an increasing pressure from the exhaustion of resources and heavy pollution. Therefore, the Hubei Province is acquiescent to Huangshi City's decision without a formal approval. The 100RC helped Huangshi City find a trustable domestic partner, Tsinghua University, while Xiashan District had a traditional relationship with Peking University. Therefore, both cases had outside intellectual support, while only Huangshi had foreign supports from the Rockefeller Foundation.

The funding source primarily came from the budget for both cases, yet Huangshi City seemed to have a variety of choices. The 100RC promised to provide 5 million dollars to start new programs and initiatives, but only 1 million was donated. To fulfill the resilient goals, Huangshi City loaned 100 million dollars on water cleaning from ADB, which was also an important source. As for Xiashan District, the budget covered most costs of social enterprises, especially for the Xiashan Reservoir.

Huangshi City and Xiashan District were both focus on urban sustainability and resilience. Huangshi City chose water management, livability and economic reform as its primary resilient goals; Xiashan District chose water management and livability as well, but also emphasized the significance of health promotion and aging services. Huangshi City and Xiashan District had different issues in the water management and the livability. Huangshi City focused on water body cleaning to control the pollution, while Xiashan District stressed the control of flooding and the safe water supply

through the Xiashan Reservoir. They both emphasized the importance of facilities. As for urban livability, Huangshi City created new financial methods to upgrade the informal settlements of mining workers, while Xiashan District hoped that new real estate developers could build more aging service apartments and bead houses. In this way, Huangshi had many innovative methods on urban resilience and attracted more attentions from the 100RC network and upper political authorities. However, such an innovation was costly, which might be replicable to only small scaled cities. In contrast, the Xiashan Reservoir represented a megaproject strategy to provide public services to a wider area which were highly duplicable in China elsewhere. In addition, Xiashan pattern started from 1950s and proved to be effective for decades, but Huangshi pattern was a new style and needed time to test. Therefore, in a foreseeable future, the Xiashan pattern will still be the dominant model, but increasing innovative cases will emerge for China needs creative planning ideas to support a further and sustainable growth.

Based on existed evidence, both Huangshi City and

	Huangshi City Case	Xiashan District Case
Working framework	<ul style="list-style-type: none"> The political framework is top down, and the 100RC is a critical player in such a partnership. Besides, the 100RC helps Huangshi to find available other technical help sources. 	<ul style="list-style-type: none"> The political framework is top down. Xiashan District is a part of Weifang City, and must obey the upper level planning from Weifang City and Shandong Province. Xiashan also has some outside helps, but

		most domestically.
Funding source	<ul style="list-style-type: none"> ● Most of the funding is from the governmental investments. ● the 100RC promised to invest about 5 million dollars, but currently there was only 1 million used. ● Huangshi also borrowed from ADB about 100 million dollars to clean the water body. 	<ul style="list-style-type: none"> ● Most of the funding is from governmental investments, including the finance of the reservoir.
Economic development Pattern	<ul style="list-style-type: none"> ● resilient development ● sustainable development ● economic and industrial reform 	<ul style="list-style-type: none"> ● sustainable development ● limited development to ensure the safety of the reservoir ● focusing on health and aging
Water management	<ul style="list-style-type: none"> ● focusing on the pollution reduction ● It started from 2003, only about 16 years. ● The 100RC helped Huangshi choose water management as an essential issue, yet the 100RC did not have any projects engaging in reality. ● Water benefits emerged only in recent years. ● Huangshi is increasing the technical investment on water management and build advanced facilities frequently. ● A good model for lower scale cities. 	<ul style="list-style-type: none"> ● focusing on the reservoir ● It started from 1958, over 60 years. ● Primary issues are to control the flooding, providing enough water supply and irrigation. ● To be eco-friendly and attractive to people. ● Water benefits have been very huge for decades. ● A good model for a huge region.
Livability	<ul style="list-style-type: none"> ● Focusing on the 	<ul style="list-style-type: none"> ● Focusing on providing

	<p>upgrading of informal settlements of original mining workers.</p> <ul style="list-style-type: none"> ● A flexible and innovative framework with governance, professional platform, marketing and sustainable development. ● Using high efficiency governance and effective institution to ensure the welfare for the people. ● A successful model in a national scale. ● Standardized designs. 	<p>apartments and services for aged and sick people.</p> <ul style="list-style-type: none"> ● Such a design is mixed for both commercial and social welfare. ● Utilize the clean air, beautiful scenery to attract. ● Aged people still prefer mostly at home, so the growth of entire aging services is much lower than medical services. ● Flexible designs among different projects.
Outside assistance	<ul style="list-style-type: none"> ● The 100RC's network ● Tsinghua University 	<ul style="list-style-type: none"> ● Peking University
Advantages	<ul style="list-style-type: none"> ● Huangshi acquires much global reputation with the help of the 100RC. ● Huangshi illustrates the significance of innovation on institutional reform. Such an innovation brings higher efficiency and new opportunities to Huangshi. ● Huangshi receives much national attention and can have better funding sources later. 	<ul style="list-style-type: none"> ● Xiashan District has a long period of water management and an eco-friendly development pattern. ● Xiashan particularly emphasizes the health issues, which means Xiashan is a good place to help people maintain fitness. ● The aging services industry is still immature nationally so Xiashan can try hard to provide new services.
Disadvantages	<ul style="list-style-type: none"> ● Huangshi still lacks enough intellectual support. This is due to the intellectuals cannot make an 	<ul style="list-style-type: none"> ● The overall population is only 230,000, and in a limited growth pattern, Xiashan District will face

	<p>overall good living in Huangshi.</p> <ul style="list-style-type: none"> ● The trust between Huangshi and the 100RC and foreign partners is still weak. ● The overall pollution to be cleaned is still in a huge amount. ● Huangshi lacks upper political supports in such a collective framework. 	<p>difficulties in a foreseeable future.</p> <ul style="list-style-type: none"> ● It's hard to alter Chinese elders' values. ● Most of the governance in Xiashan District is still in the traditional top down mode. Xiashan still needs delicate governance. ● Some of the master planning is contradictory to the officials' dreams. ● Weifang City is a harbor city, yet the harbor competitiveness is much lower than nearby cities like Qingdao.
<p>Potential to be healthy cities</p>	<ul style="list-style-type: none"> ● Huangshi has a high potential to be healthy cities. The current outcomes of Huangshi are promising. However, the framework with the 100RC or The Rockefeller Foundation still needs to be improved and proved effective so that Huangshi can gain much upper level political support. 	<ul style="list-style-type: none"> ● Xiashan also has a high potential to be healthy cities, since China currently still emphasizes health and sanitary issues in healthy cities issues. However, Xiashan District is only a district/county level so that the sources put into Xiashan are limited. Besides, Xiashan Reservoir is a critical part to Weifang City and Shandong Province, so they have to face a limited development situation.

Under such a comparison, there are still some questions need answers. First, the

Rockefeller Foundation has many branch organizations and the 100RC is only one of them. I just detailedly discuss the engagement of the 100RC in the Huangshi City Case. Can the 100RC represent all the engagement efforts of the Rockefeller Foundation? The Rockefeller Foundation has many other options rather than the 100RC to engage in the Chinese healthy cities programs, like the public health initiatives.

It is true that the Rockefeller Foundation has many options to engage in the Chinese healthy programs, including its public health initiatives. That's the reason why I especially focus the aging and health services in the Xiashan Case. Due to the limitation of data, there is no available case about the current public health engagement of the Rockefeller Foundation in China. Therefore I have to predict the future working pattern based on the observations upon the 100RC from the existed and available Huangshi City Case. Such a choice may not be perfect, but can take a picture of the attitudes and working pattern through the interaction between the local government and the 100RC. It is foreseeable that other sub-branches of the Rockefeller Foundation will face strict regulations—the public health initiative is questionable since the public health information including the blood, the genetic issues, and big data researches are also sensitive to the Chinese government; the agricultural involvement is also challenging, since Chinese people do not trust GMO food and researches; and the energy transition is a fatal issue to China, so the energy programs must need robust political support. An emerging challenge also brings new risks for such cooperation that the Rockefeller Foundation is going to shut down the

100RC program from July 2019 but still have the presence in urban resilience (Bliss, 2019). What will happen thereafter, who is the successor and how will the network change still keep uncertain. The withdrawal of the 100RC also indicates that Chinese governments cannot rely on the collective framework with private funds, though Chinese governments do not have such an inclination from the very beginning. It is obvious that the 100RC will not be the final answer of the engagement of the Rockefeller Foundation, but it is a useful lens to understand such a framework. As the Rockefeller Foundation still has a strong impetus to engage in Chinese projects, some new models are likely to emerge but hard to predict at such a time point.

The second question is how far it is from the urban resilience to a broader urban health. If urban planners only focus on the water management and the livability, these two areas are homogenous; if urban planners focus on the energy supply, such a topic may be more “resilient” rather than “healthy”; while if the urban planners emphasize the public health, it is the profession of healthy city planning. There is neither any evidence to show that the 100RC also engages in the narrowed definition of urban health issues nor any available case to illustrate the narrowed health engagement of the Rockefeller Foundation in China. Therefore in the next stage of healthy city planning, there must be new agencies including the public health department involved in this issue with new regulations. As these new regulations are still under-planning, how these rules will impact on such a collective framework is also unknown.

The third question is whether the Rockefeller Foundation will keep interests and donations to China. Current evidence suggests that the Rockefeller Foundation is

going to enlarge its energy programs in China with deliberative proposals and more funding. However, will the Rockefeller Foundation keep this plan? How will these urban energy programs influence the human health? These questions need more observations to answer.

The fourth question is what lessons can be learned to other global cities from the engagement of the 100RC. Not all the cities in the 100RC network have a strong budget like Chinese cities, for example, Accra, Ghana. The 100RC is a critical player of Accra urban resilience issues providing expertise training, necessary funding and strategies making. The sudden withdrawal of the 100RC will completely disrupt the plan of Accra. Such a case will downgrade the reliability of private funds and deteriorate the vulnerable trust with locals. Although it is a great pity of the shuttering of the 100RC, the responsibility of the Chief Resilience Officer is a wonderful idea to help global cities through a network experience sharing and expanding funding. In addition, as the 100RC is only a proponent of the urban resilience with limited sources, global cities cannot fully rely on a single partnership. These cities should enrich their partnership networks and leverage more sources through the engagement of the 100RC or the Rockefeller Foundation.

● **Conclusion**

This research aims to uncover the feasibility and potential of foreign foundations or NGOs to engage in the future Chinese healthy cities developments. Based on a general analysis from the categories and other NGOs or foundations activities, the Rockefeller Foundation is a common type facing increasing standardized regulations

and more reliable acceptance under the requirements of Chinese laws. This is good news for the Rockefeller Foundation since it reduces the uncertainty and risks of their events and activities. Besides, the Rockefeller Foundation had a comparatively high reputation and expertise in the past decades. Moreover, the Rockefeller Foundation particularly good at providing health related suggestions. These advantages can promote the Rockefeller Foundation's engagement in Chinese healthy cities programs. However, such a result needs to be tested by some real cases to look into the hidden problems under the data.

As there was no real case occurring in China, I use two cases to explain—one with (Huangshi City Case) and one without (Xiashan District Case) the assistance of the Rockefeller Foundation. The rationale of choosing these two cases is that Huangshi is in a resilient development pattern and the resilient city overlaps with healthy city concept in a great deal, especially for water management and livability; while for Xiashan District is that it prioritizes the reservoir and aged people livability, which also matches the topics in Huangshi and healthy cities but without foreign assistance. The comparison between these two cases can be a powerful and potential evidence to predict how far the Rockefeller Foundation is from the future engagement.

The results suggest that the biggest barrier of such a collective framework is distrust. On the one hand, the Rockefeller Foundation (the 100RC) can help Huangshi with some charitable funding, provide expertise training services, look for some reliable partners and enhance global reputation; on the other hand, Huangshi is

significantly cautious to share some sensitive data to foreign organizations. This problem is challenging, but still can be partially solved by the 100RC connecting Huangshi with domestic reliable partners like Tsinghua University. However, as some data cannot be shared and Huangshi has only one full time staff on resilient issues, they work very slowly on specific projects.

Currently Huangshi has some big achievements without the assistance of the 100RC and some resilient issues have already done just without the title of “resilience”, so Huangshi does not have an impetus to accelerate the collaboration in a full effort. Huangshi can still find other partners and conduct researches by itself, since the government is always the leader in planning and development issues in China. However as the 100RC is still experienced in many planning cases with skillful techniques, whether the government is willing to try something new is hard to predict. China still has a big gap on some digital analysis and design techniques with the United States, yet many Chinese companies are struggling to develop new and advanced tools. It is really hard to predict what political decisions will be made and what technical innovation will happen in the next fifteen to twenty years.

The 100RC helped Huangshi find their most important resilient issues in water management, economic reform and livability. The compared case study, Xiashan District, also did these things and had even longer experience. This indicates that Chinese governments have already dealt with resilient and health issues just without a title. Such a situation also prevents Chinese cities necessarily to accept western concepts, since they have own experiences and can create their own concepts.

Moreover, as the Rockefeller Foundation planned to end up the 100RC program, it is unclear about who would be the successor. Will the Rockefeller Foundation still focus on the Chinese urban resilience issues? Or will the Rockefeller Foundation invest more on the built environment and the expertise training? Will the Rockefeller Foundation continue the framework of the 100RC? There is no answer for these questions at this time point.

But the case of the 100RC is still beneficial and instructive. The 100RC helps Huangshi to be globally famous and receive numerous attention. This can help Huangshi to gain more experience from a global view and output Huangshi own stories to abroad.

What's more, the Rockefeller Foundation is still welcomed in health, education and other fields; for example the Rockefeller Foundation is proposing new energy projects in China. The Rockefeller Foundation can take the lessons of the 100RC and set up a subsidiary working on these issues to contact the Chinese government instead of the Asian office in Singapore.

Therefore, the engagement of foreign NGOs and foundations in Chinese healthy cities construction and development is still promising. An opener worldview is surely beneficial to Chinese cities to acquire more successful and advanced lessons from the outside world and input Chinese understanding to the human knowledge pool. Such a process is dynamic, and much more need to be observed to conduct a further analysis.

This research has some limitations. First, whether the results of The Rockefeller Foundation are replicable to other foundations or NGOs keeps uncertain. Although

The Rockefeller Foundation is a typical charity among international foundations, other foundations may have different funding sources and expertise which may impact on local trust. Second, the political priority of Huangshi City and Xiashan District are low in the related provinces respectively. Huangshi City does not gain a higher political support of the engagement with the 100RC and Xiashan District is a limited developing area. Therefore, other higher hierarchal cities like Beijing, Shanghai and Guangzhou may perform significantly differently from these two cases. The lessons from these two cases may be only useful for small scaled cities.

Many localized healthy city programs are in process and current evidences show that most of them focus merely on human health issues. Do these policies limit the engagement of urban planning organizations? How to consolidate the trust between foreign entities and local governments? Will Chinese domestic NGOs or foundations become strong competitors of foreign charities? These questions remain unsolved and wait for future researches.

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