



HUANGSHI

RESILIENCE STRATEGY



Contents

The mayor's Address	01
100RC President Letter	02
Chapter i ——Background Introduction	03
Chapter ii ——Resilience Development in Huangshi	11
Chapter iii ——Huangshi for the Future: A More Resilient Goal	27
Chapter iv ——A More Prosperous Huangshi: Transform Economic and Diversify Industry	35
Industrial Innovation	39
Convenient Transportation	43
Diversified Industry	45
Chapter v ——A Cleaner Huangshi: Water Restoration and Environmental Improvement	49
Water Resource Protection	53
Water Treatment	55
Infrastructure Improvement	57
Chapter vi ——A more Dynamic Huangshi: Shaping Quality and Enhancing Livability	63
Renewal of the old city	67
Development of the new town	75
Improvement of the system	79
Chapter viii ——Implementation	83
Acknowledgement	88



The Mayor's Address



WU Jin
Mayor of Huangshi City,
Hubei Province

After almost five years of hard work, the Huangshi "City Resilience Strategy" has finally been released. During this joyous occasion, I would like to congratulate the resilience team for this strategy release on behalf of the Huangshi Municipal People's Government. I would also like to express my gratitude to the diverse group of experts and friends who contributed to the development of Huangshi's resilience!

Huangshi is not only industrially robust but also ecologically rich. The city has a mining industry that dates back more than 3,000 years, and is also a garden city with graceful hills and agile lakes. Similar to other cities around the world, Huangshi is facing rapid development in the midst of other challenges brought about by climate change, natural disasters, globalization, and urbanization.

Huangshi seeks to integrate its industrial and ecological heritage with one another. In December 2014, Huangshi was selected to be a part of "100 Resilient Cities". We took this as an opportunity to pursue our goals of "prosperity, safety, health, cleanliness, livability and resilience", starting with transforming our kinetic energy, industry, function, ecology and space sectors. We will strive to create a vibrant and innovative city— an advanced manufacturing city, a modern port city, a historical and cultural city, and a city of mountains and rivers —by following a new "green growth and sustainable development" path. The city has managed to improve its development, livability, safety and resilience in a comprehensive manner. Huangshi has become one of the most dynamic, attractive and potential—holding cities in Hubei and the wider Yangtze River Economic Zone.

Resilience—building is a continual process; publishing the "Huangshi Resilience Strategy" and reflecting on the progress we've made is valuable and meaningful to advancing the high—quality development agenda of our city. Moving forward, as the Resilience Strategic release marks a new starting point, we will devote more effort towards building a resilient economic, water and livable system, making our cities more resilient to different types of risks and more inclusive and sustainable in its development. We hope that our global partners will recognize our efforts and support us in developing a "Huangshi Model" for the conception of a global resilient city. We are confident and determined that with your support and cooperation, we will be able to create a beautiful future for our homeland.

I would like to thank "100 Resilient Cities" for its help and support to Huangshi, and to all those who have worked hard to develop and implement the strategy!

100RC President Letter



Michael Berkowitz
president, 100 Resilient Cities

On behalf of the entire 100 Resilient Cities team I want to congratulate the City of Huangshi, Mayor Wu Jin, and Chief Resilience Officer/Vice Mayor Wu Zhiling on the release of Huangshi's Resilience Strategy, a major milestone for the city and our partnership. A progressive city with a rich history, Huangshi has a unique way of turning challenges into opportunities and this document draws on that talent to set forth a clear vision of a thriving resilient future for all residents.

Huangshi represents many firsts in the 100 Resilient Cities network. It was the first city in China to embark on a resilience journey and importantly, set a high bar in modeling what resilience can mean for China's urban landscape. Huangshi's commitment to and ambition for Urban Resilience was apparent early on as the city quickly appointed a full time CRO, established a senior steering committee with the Vice Mayor at the helm and created a resilience office with full time staffs. These were no small accomplishments given it was the first time this model had ever been tested in China. Thanks to these efforts, Huangshi has become not only a national leader in the field of urban resilience but a global pioneer in translating urban resilience into a meaningful local context to deliver powerful results.

Huangshi shared its experience of introducing the concept of urban resilience to China by publishing a book that detailed how the city embraced this movement and took its place in our global network through its strategy development process. This is also a first in the network. Huangshi has been an enthusiastic and proactive partner, bringing resources and partnerships to bear to build a brighter future. It is worth mentioning that Huangshi launched a formal partnership with Tsinghua University on resilience, involved them into the strategy process and invited technical experts from universities in the region to support the local and broader resilience agenda. This is just one of the ways Huangshi has demonstrated commitment to and ownership of this work across all levels and sectors, from Mayor to directors and to officers, from government to companies, academics, and to local NGOs.

Huangshi's Resilience Strategy is China's first, fully driven by and from within the city, written with a clear—eyed vision for the future and with a complete set of initiatives that highlighted resilience dividends. The city saw the strategy development process as an opportunity to reflect on its challenges and take full measure of how it had drawn on its resilience throughout history to create a common understanding of resilience among Huangshi's leaders.

This strategy builds on Huangshi's historical resilience narrative and seeks to protect the city's abundant natural gifts for future generations, create a more livable city and set in motion a dynamic transformation of its industry. We are excited to continue this next stage of our partnership to implement this ground—breaking strategy and to witness Huangshi survive, adapt and grow no matter what kind of shocks and stresses it faces in the decades to come.



CHAPTER I

BACKGROUND INTRODUCTION



100 Resilient Cities

100 Resilient Cities (100RC) is pioneered by The Rockefeller Foundation, and was launched in 2013 on their centennial anniversary, to further the exploration of Urban Resilience. 100RC catalyzes Urban Resilience by supporting a 100 cities around the world to address the increasingly pressing physical, social and economic challenges of the 21st century.

100RC defines Urban Resilience as the capability of individuals, communities, institutions, businesses and systems in cities to survive, adapt and grow no matter what kinds of acute shocks and chronic stresses they experience.

The Rockefeller Foundation, in collaboration with international consulting firms and think tanks, has found that it is often not the acute shocks themselves, such as earthquakes, tsunamis and floods, that cause huge losses and injuries to urban residents, but rather the complex problems caused by the superposition of acute shocks onto urban systems paralysed by chronic stresses. Therefore, in order to improve city resilience, we also need to consider the chronic stressseses put on urban systems, such as traffic congestion, water shortage, aging population, etc.

In the context of climate change, technological development, globalization, and urbanization, human society is rapidly changing, worsening the uncertainty and unpredictability of urban challenges. The linear thinking of "predictive prevention" is ineffective in guiding urban development, as only by linking acute shocks with chronic stresses and employing a system-based and comprehensive perspective, can we enhance the capacity of city resilience and respond to a range of uncertainties.

Having experienced a number of shocks and stresses, Huangshi has developed a deep understanding of the concept of resilience. In 2014, the municipal government applied to the second wave of the 100 Resilient Cities selection process and was selected from 331 cities around the world to become a member of the network. There are only two Chinese cities in the network—Huangshi, Hubei Province and Deyang, Sichuan Province.

In China, 100RC works with the China Centre for Urban Development to provide technical support for cities and their Chief Resilience Officers to carry out capacity-building during the strategy development process and to facilitate collaborations and exchange ideas with solution providers and other member cities.

Seven Qualities of Resilient Systems

Through years of research on resilient systems, The Rockefeller Foundation and its partners Observed seven qualities of resilient systems. Only when the urban system, their subsystems and the sub-subsystems all exhibit these qualities and capabilities, can the city be fully resilient.

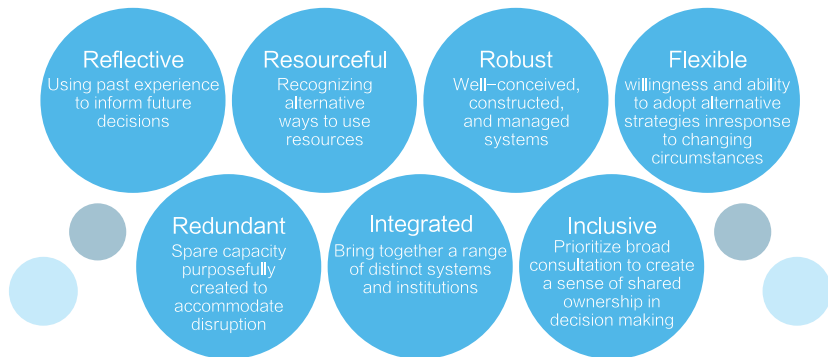


Figure 1-1 :Seven Qualities of Resilient Systems

City Resilience Framework

Through literature research and site visits in 20 cities around the world, The Rockefeller Foundation and its partners have consolidated four dimensions and twelve drivers that directly affect city resilience. Cities can improve their resilience by enhancing any of these drivers.

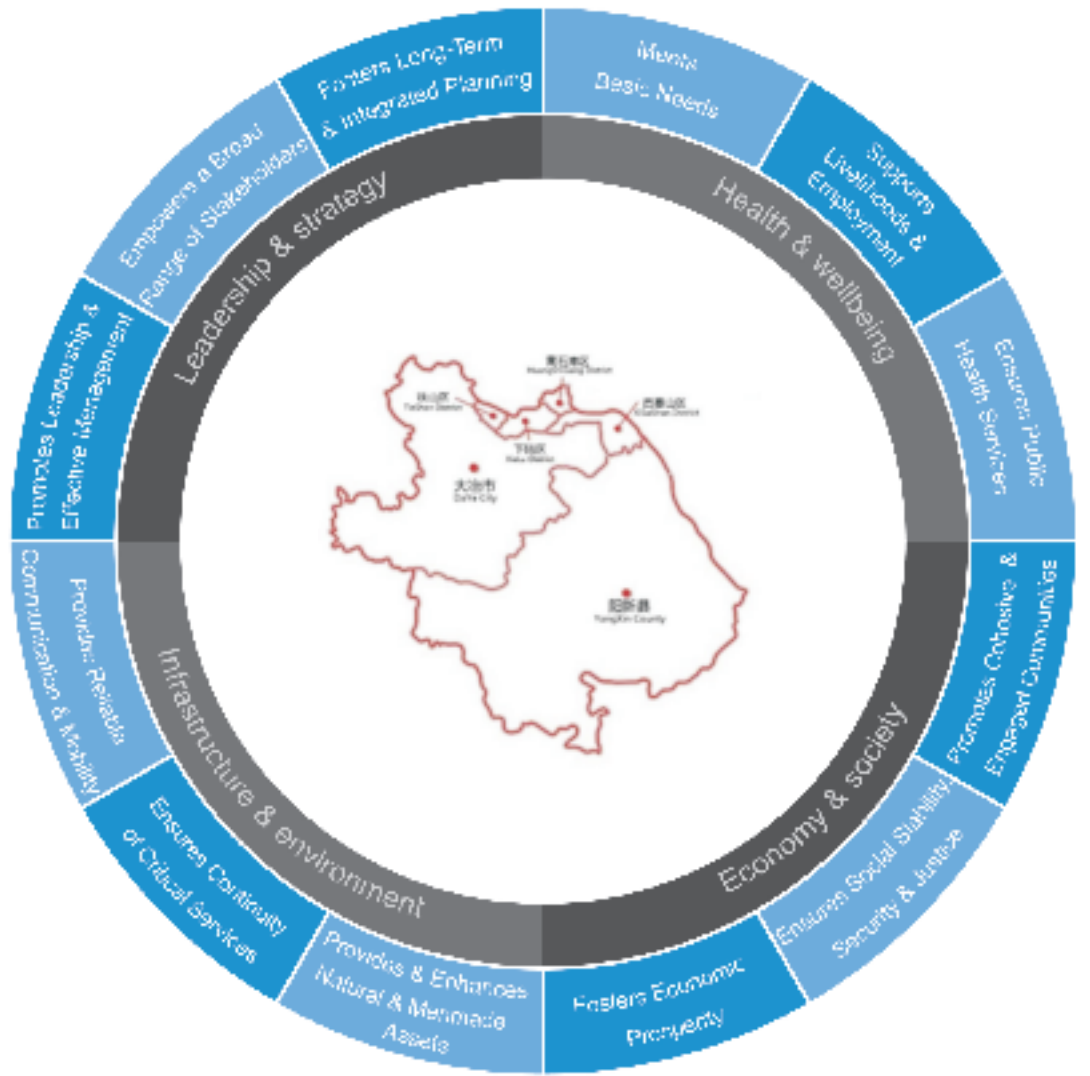


Figure 1-2: City Resilience Framework

Global City Network of 100RC



On December 3, 2014, at the "City Resilience Summit" organized by The Rockefeller Foundation in Singapore, Huangshi was selected from 331 cities worldwide and became one of the 35 member cities in the second wave of 100 Resilient Cities.

Huangshi has been an active member in the network, sharing its experience and learning about the best practices from global cities. It attended Global Resilience Summits in Mexico City and Singapore and regularly participated in online seminars. During the strategy development process, Huangshi learned from cities such as Melbourne in Australia, Manchester in the UK, and Surat in India.

Figure 1-3: 100 Resilient Cities

The Global Resilience Agenda

Globalization, urbanization, and climate change are three major global trends and are also the main drivers of 100RC's work. Countries and cities like China and Huangshi must acknowledge, understand, and respond to these issues in a proactive manner. The "Resilient Cities" concept is growing into a global movement of urban planning and governance. By using the resilience perspective and participating in the 100RC program, Huangshi was able to grasp the opportunities and challenges of urban development and identify its role and responsibilities in the region, in China and in the world.

The building of a resilient city is not just the work of a city or urban planning sector, but a global agenda that requires international and interdisciplinary collaboration involving cities, private sectors, and communities around the world.

Globalization, Urbanization and Climate Change

In the context of globalization, regions and cities geographically far from each other are still closely linked through supply chains, logistics, and communications, which brings about interconnected economic, political and even ecological impacts. For example, the floods in Bangkok, Thailand in 2011 severely affected the global supply chain of automobiles and electronic components, leading to the shutdown of some factories and spikes in commodity prices in North America, China and Japan. At the same time, globalization also gave rise to various international platforms and multilateral cooperation frameworks, such as the United Nations, the G20, APEC and the Paris Climate Agreement, which have brought global governance to a new level.

On the other hand, more than 50% of the world's population lives in cities. The World Bank estimates that more than 70% of the world's population will be urban by 2050. At present, more than 80% of global GDP is produced by cities. As global urbanization forges ahead, the size of urban land and population continues to expand, and the problems of ecological overload and environmental pollution become increasingly evident, rapid urbanization has altered the natural land and spatial environment, gradually revealing the inherent vulnerability of the urban fabric itself. Cities are not only the engines of development, but also the concentrated site of many key contradictions and conflicts.

Finally, climate change has led to a lot of extreme weather, such as tropical storms, heavy rainfall and floods, heat waves and droughts, cold waves, etc. which greatly threatens economic development and people's lives and property. According to statistics, in 2018, the world experienced 14 extreme weather events that resulted in economic losses worth more than one billion dollars.

China Sustainable Development Goals and Advocates of Addressing Climate Change

In the context of these global trends, since the 1992 United Nations Conference on Environment and Development, the Chinese Government has been taking the lead in developing "China's 21st Century Agenda – White Paper on China's Population, Environment and Development in the 21st Century". A series of country-specific policy measures have been taken, whereby China promised to reduce its carbon dioxide emissions by 60%–65% between 2005 and 2030, contributing to global climate change mitigation.

China's economic and social development is in a very decisive and opportune moment in time. China will soon implement the National Policy of Resource Conservation and Environmental Protection, develop a circular economy, protect the ecological environment, and accelerate the formation of a resource-saving and environmentally-friendly society, in order to actively fulfil the "United Nations Framework Convention on Climate Change (UNFCCC)". This is a set of international obligations that seek to control greenhouse gas emissions, enhance the ability to adapt to climate change, and promote economic development in a manner that balances population, resources and environment.

Shortly after the United Nations set the Sustainable Development Goals (SDGs) for 2030, China adopted the "13th Five-Year Plan" outline in March 2016, which integrates China's medium and long-term development plans with this sustainable development agenda. In September 2016, the Chinese Government released the "National Program for China to Implement the 2030 Agenda for Sustainable Development", which analyzes opportunities and challenges in reaching the SDGs, and elaborated on more detailed plans for China to implement the 17 SDGs and 169 specific goals within the next 15 years. And 169 specific goals in the next 15 years.



Huangshi actively prioritizes the quality of development and strives for policy opportunities and international platforms

Since 2008, Huangshi regards quality development as the main approach to promote the transformation of resource-exhausted cities. It has included quality development goals into "Huangshi's 12th Five-Year Plan Outline" and "Huangshi's Resource City Transition Development Outline". Since then, they have published many agenda documents such as "The Decision on Implementing the Strategy of Boosting the City with Quality", "The Management of the Mayor's Quality Award Evaluation", "The Outline of the Strategic Development of Boosting the City with Quality (2012–2020)", and "The Work Program for Strengthening the City with Quality". On one hand, Huangshi has applied to become a "Pilot City for the Construction of the National Public Rental Housing System" to promote the transformation of shanty towns and the old city area. On the other hand, the city has also hosted Hubei Garden Expo and Provincial Sports Games and built the New Zone of Daye Lake, stabilizing the pace of urban renewal and urbanization by prioritizing quantity development.

With regards to climate change, Huangshi is focusing on energy conservation, emission reduction and environmental quality improvement. Through the "100–Enterprise Technology Reform" project, subsidies are given to energy-intensive and highly-pollutive industries which will enable them to control their emissions and pollution more strictly. Meanwhile, a comprehensive ecological restoration is being carried out to help revive Huangshi's beautiful scenery of clean rivers and green mountains. The city was able to reach 346 days of good air quality, winning them the honor of "China's Habitat Environment Model Award" and "National Garden City".

With regards to globalization, Huangshi and Deyang were selected to be members of the second wave of 100 Resilient Cities in December 2014, sharing the same network as London, New York and many other cities. These successes were achieved at various phases of Huangshi's "Ecological City, Industrial city, and Modern City" strategy. By promoting the construction of a resilient city, the city will provide ecological and economic security for the realization of its long-term city planning vision and build a platform for foreign exchange. The resilience practices of Huangshi has presented a model of resilience-building for other cities in China. Provided a model for the resilience building in other cities of China.



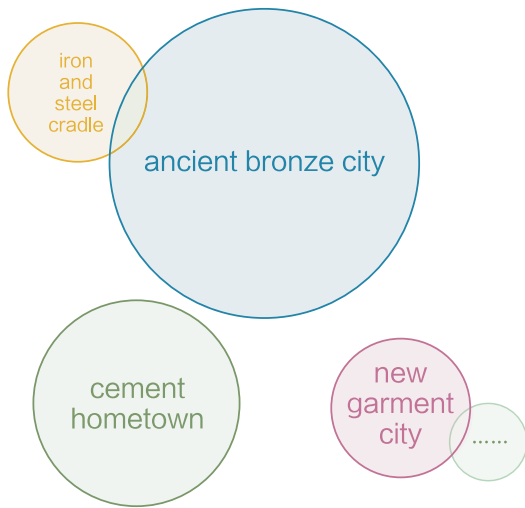
CHAPTER II

RESILIENCE DEVELOPMENT IN HUANGSHI





Huangshi Introduction



Huangshi, a city in the southeast of Hubei Province, lies along the south bank of the middle section of Yangtze River. Li Daoyuan, the geographer of 1,500 years ago, documented in the his well-known Commentary on the Waterway Classic, "There is a mountain of yellow stones on the right and south bank of the Yangtze River. So it is called Yellow Stone Strand." As the stones(which is transliterated into shi) are yellow (which is transliterated into huang), it is named Huangshi. This city is abundant with mineral resources and earns a reputation of "Gold area of one hundred miles, treasure bowl of the south of the Yangtze River". Therefore, Huangshi has an allegory of "a place piled with gold and precious stones".

Huangshi is one of the birthplaces of bronze culture in China and also the cradle to modern Chinese national industry. With profound tradition of industrial culture and foundation, it is also known as "ancient bronze city", "iron and steel cradle", "cement hometown", and "new garment city". Huangshi has already formulated 14 leading industries, including metallurgy, construction materials, textile, etc. It has set up the first bonded area of prefecture level—Huangshi (Qipanzhou) Bonded Logistics Center; Wuhan—Jiujiang railway runs through, four expressways cross here: Daqing—Guangzhou expressway, Shanghai—Chongqing expressway, Fuzhou—Yinchuan expressway, and Hangzhou—Ruili expressway. Water carriage port of national first class has been built up. Huangshi stands out from others as ancient civilization of mining and metallurgy, livable city with mountains and lakes, National Training Base of Table Tennis, and new garment city.

As an important resource-based industrial city in China, Huangshi's economic development mainly relies on industrial manufacture. The city was originally established thanks to prolific mineral resources underground, and rose by metallurgy. The mining and metallurgy civilization can date back to Shang Dynasty (more than 3,600 years ago) and thrive through to the 20th century. The time-honored mining and metallurgy culture contributes to forging Huangshi into a historical culture city with special roles in industrial civilization. Over the past more than 3,000 years' development of mining and metallurgy, Huangshi has fostered the mining-and-metallurgy-centered industrial civilization, and material and spiritual wealth. It has developed the state-of-art productivity, tools of productions and refined culture. Mining and metallurgy culture is the foundation and soul, and the urban characteristics of Huangshi.



Resilience development in Huangshi

Since the city's establishment, Huangshi has faced multiple shocks and stresses that have yet to be resolved, along with more new challenges that are continuing to surface. Huangshi has experienced seven challenges in three areas, at different stages of their development. Through continual exploration of strategies and solutions, the city has successfully improved their resilience. These measures demonstrate the seven qualities of resilient systems, laying the foundation for future development.

City Development:	Water Environment:	Livability and Housing:
Overexploitation of resources drives industrial transformation. The construction of transportation network system is incomplete and lacks connection with outside world. City industrial resources are abundant but not sufficiently explored.	City flood Water pollution	Shed reform/dangerous old houses reform undertakes high pressure. Increasing public housing demand and inadequate housing security.

To respond to the challenges above, Huangshi has been pushing its boundaries to build resilience.



Huangshi Resilience Narrative–City Development

Resilient Challenge

Over-exploitation of resources drives industrial transformation.

Huangshi was born from and thrives on its abundance of mines, like a typical resource-based city. It is the sixth largest copper mine base and the top ten iron ore base in the world. Before 1990, Huangshi had ranked second in Hubei Province in terms of the scale and value of their industrial and agricultural output. However, due to the non-renewability of mineral resources, industrial production declined as mineral raw materials depleted and enterprises ceased operations, bringing about employment and reemployment problems for people. In addition, with the decline of Huangshi's sole mining industry and the urban economy's contingency on macro situations, Huangshi was put in a tight spot especially during the financial crisis in 2008. Finally, the over-exploitative methods of the mining industry is destroying the ecological environment. The exhaustion of natural resources affects not only the economy but all aspects of Huangshi's development, thus making industrial transformation an imperative.



Figure 2–1: landslide caused by illegal digging of iron ore in the mountain around Pingshan Village, Huandiqiao County, Daye City.

• Huangshi Resilience Respond

Starting with an ideological transformation, Huangshi is pushing for the integration of resources and top-level design. From its participation in the second wave of pilot projects for resource-exhausted cities in China, to becoming one of the 4 cities in the country's 12 industrial transformation and upgrading demonstration zones, Huangshi saw this challenge as an opportunity to improve its city resilience. Within this project, three specific actions demonstrate the flexible, integrated and resourceful qualities of resilient systems.

Since 2008, Huangshi Municipal Party Committee and Huangshi Municipal Government have organized city-wide discussions on emancipating the mind, which achieved great results. In light of Huangshi's grim reality, the city realized that they can no longer rely solely on resource dependent and exhausting industries. Only early transformation and new development strategies can revive the city, otherwise, all of Huangshi's wealth will be depleted.

Strengthening collaborations and creating new industrial zones. Seeking to establish "integrated drive", "trusteeship", "co-building interaction" and other development modes to develop West Huangshi United Provincial Industrial Park and accelerate the integration into Wuahn City Circle; speed up the exploration and construction of Huangjinshan Industrial New Park; and explore joint development systems among cities and counties by establishing Qipanzhou New Port Logistics Park.

Traditional industry is not antithetical to urban transformation, but is instead very valuable to stimulate renewed growth. Huangshi is upgrading and expanding its support for the four pillar traditional industries, including ferrous metal, non-ferrous metal, building materials and energy. The city has planned 19 major projects with a total investment value of 25.28 billion yuan. Among them, the major upgrading projects of Xinye Steel 460 and 273, and the high precision copper strip plate of China Aluminum Huazhong Copper Industry have been completed and put into production.

Huangshi Resilience Narrative–City Development

• Resilience Qualities

Flexible: Willingness and ability to adopt alternative strategies in response to changing.

Integrated: Bring together a range of distinct systems and institutions.

Resourceful: Recognizing alternative ways to use resources.

Through the exploration of urban transformation in recent years, they city's economic and social development have undergone many new changes. The growth of traditional industries have broken new records, while alternative industries have continued to grow and develop. A number of famous Chinese products, such as Jinpai health wine, Dongbei refrigeration compressor, peak heat exchanger and three-ring forging and pressing CNC machine tool, have been created. At the same time, unemployment rate has decreased and the water quality of the main lakes and the Yangtze River have gradually improved. However, urban transformation is a long-term, difficult and complex process. Although this transformation work has achieved positive results, the road to resilience is still very long and strifed with difficulties.

Resilient Challenge

Insufficient Transportation Network and Weak Connectivity with the Region.

At the end of the last century, Huangshi's transportation system was not sufficient, highways and ports were not developed, and freight mainly depended on trains. Transportation, as the skeleton of a city, is of great significance to the development of regional economy, city economy, especially logistics industry and trade, to residents'life and commute, and to evacuation and rescue in case of disasters. During the Eleventh Five-Year Plan period, the construction of transportation infrastructure in Huangshi City has accelerated significantly. The investment in fixed assets of highway and waterway transportation in Huangshi City is 11.5 billion yuan, which is nine times as much as that in the Tenth Five-Year Plan period. During the 12th Five-Year Plan and the 13th Five-Year Plan period, Huangshi continued to optimize and improve the structure and layout of transportation infrastructure through the following two countermeasures, which promoted economic development.

• Huangshi Resilience Respond

Large-scale Construction of Robust Road Network

Accelerating the construction of Xingang Shugang Railway; Accelerating the upgrading and transformation of national and provincial trunk roads and rural highways, and realizing the interconnection of expressways, national and provincial highways and rural highways into a network.

Developing Integrative Transportation in All Areas

Actively docking the Chengdu–Chongqing Economic Zone; opening up export channels to Central Asia and Europe; relying on the Yangtze River Gold Waterway to reach the Yangtze River and the sea.

Making overall use of the resources along the river and cooperating to build a comprehensive transportation system along the river.

Local railways will be opened to connect Huangshi New Port, the closest foreign trade hub in Hubei Province to the sea, and to realize the largest multi-modal freight distribution center of iron, water and water in the middle reaches of the Yangtze River.

Huangshi Resilience Narrative–City Development

• Resilience Qualities

Robust: Well-conceived, constructed, and managed systems.

Integration: Bring together a range of distinct systems and institutions.

Highway construction:
In recent years, the "three vertical, three horizontal, four bridge, two ring" highway skeleton and the "six vertical, six horizontal and three ring" national provincial trunk line network have basically formed. The whole city has realized a half-hour traffic circle and entered the "two-hour economic circle" of the middle reaches of the Yangtze River.

Water transport construction:
In 2016, Huangshi New Port was officially switched on and off, and the international container terminal was officially opened.
In 2017, Huangshi New Port was officially approved as a national multimodal transport demonstration project.

Railway construction:
In 2014, Wuhan Huangshi Intercity opened. Huangshi entered the era of high-speed rail.
In 2017, Wuhan–Jiujiang passenger special line was operated. Wuhan–Huangshi Intercity Railway entered the national trunk line.
In 2017, Shannan Railway Xingang Branch Line.
In 2018, Huangrong Railway Freight Line officially opened.
In 2018, Huangshi Intermodal Local Railway officially opened in 2018.



Figure2–2: Duguang expressway Hua Hu transportation hub

Resilient Challenge

Inadequate Development of the Rich Urban Industrial Heritage.

Huangshi is one of the birthplaces of Chinese bronze culture and one of the birthplaces of Chinese modern industry. It has many ancient mining sites and is known as "the First in Far East" Huaxin Cement Plant. However, after historical changes and industrial transformation, some industrial sites are used for public facilities construction, commercial and real estate development, and they are not effectively utilized and protected, which is a great loss of Huangshi industrial tourism industry and history and culture. The small scale of Huangshi industrial tourism industry, the low grade of scenic spots and the slow opening speed make the heritage resources not really attractive.

Huangshi Resilience Narrative–City Development

• Huangshi Resilience Respond

Regulations and Objectives for the Protection of Exquisite Design Heritage	Industrial Heritage "Golden Turn" to Develop Cultural Industry
Formulating Regulations on the Protection of Industrial Heritage in Huangshi City. Establishing the mechanism of industrial heritage protection and clarifying the division of powers and responsibilities between the government and relevant departments in the protection of industrial heritage. Developing five major brands of industrial tourism products: mining and metallurgical civilization pursuit, geological and mineral science popular tourism, Tesco leisure experience, mining and metallurgical industry research, mining and metallurgical culture root-finding, etc. .	Taking Tonglushan ancient copper mine site and intangible cultural heritage as the core, speeding up the development, protection and utilization of industrial sites. Promoting the Construction of Eight Industrial Theme Parks, such as Dongfangshan and Huangjingshan. Encouraging the rational development and utilization of industrial heritage, excavating its intrinsic value, and realizing centralized display and rational utilization.

• Resilience Qualities

Robust: Well-conceived, constructed, and managed systems.	Resourceful: Recognizing alternative ways to use resources.
--	--

In 2010, Huangshi harnessed the surrounding environment of Tonglushan Ancient Copper Mine Site and Hanyeping Coal Mine Site.

In 2010, Huangshi National Mine Park was awarded National AAAA Scenic Area.

In 2010, the first "China Huangshi International Mining and Metallurgical Culture Tourism Festival" was held.

In 2011, the Hubei Provincial Government approved the establishment of "Huangshi Industrial Heritage Area in Hubei Province: Tonglushan Ancient Copper Mine Site, Daye Iron Mine Industrial Site and Hanyeping Coal Mine Site and the Old Site of Huaxin Cement Plant".

In 2012, the Huangshi Mining and Metallurgical Industrial Heritage was included in the Preview of China's World Cultural Heritage Checklist.

In 2013, the old sites of Huaxin Cement Plant and Dalupu Sites were listed in the seventh batch of the whole country. Key Cultural Protection Units.

In 2016, China's first-class cement museum will be built.



Figure 2-3: Huangshi National Mine Park

Huangshi Resilience Narrative–Water Environment

Resilient Challenge

Urban flooding

in 1990s, Huangshi Flood Control is facing upside down, external floods, waterlogging, abdomen and back hit, extremely severe. The situation is one of the thirty-one key flood control cities in China.

In addition to natural factors, the waterlogging pressure in Huangshi City is mainly manifested in the following aspects: high level of information technology for flood control and drainage, inadequate harbor management, and weak drainage in rainy season due to the reduction of urban self-storage capacity.



Figure 2-4: Flood in Huangshi in 1998

• Huangshi Resilience Response

Actively preventing and responding to flood disasters and their derivatives to do a good job in dealing with sudden floods, to keep the disasters under control and to minimize casualties and property losses. Lost, Huangshi Municipal Government has done a series of targeted work:

Reflecting on the past, summing up experience and formulating plans Formulating the Emergency Plan for Flood Control and Waterlogging Discharge in Huangshi City. Sorting out the current situation of drainage engineering facilities in urban areas. Summarizing experiences and main problems of urban flood control and drainage question of the past years. Defining the command system and responsibility of flood control and drainage organization, operation and dispatch in flood season, general requirements of emergency response, safeguard measures and so on.	Creating a healthy city works to dredge capillaries Under the unified arrangement and deployment of the Office of Creating a Healthy City, the silt of the lake bottom and the harbour canals has been cleared, the sewer network has been dredged, and the cleaning density has been increased.	Improvement of "Old" Waterlogging Points in Project Construction The Municipal Drainage Management Office carries out facility renovation in rain-prone urban areas.
Promotion of Sponge City Construction Rainwater wetland and ecological revetment projects on the Bank of Cihu Lake will be built to increase additional storage space and alleviate the pressure of flood discharge.	Promoting the five-water co-management (flood control, water logging control, flood protection, water saving and sewage control) Cihu Lake is the largest natural waterlogging control and storage Lake in Huangshi City. Huangshi Municipal Government adopts the five-water co-management model to increase the water storage capacity.	

Huangshi Resilience Narrative–Water Environment

• Resilience Qualities

Reflective: Using past experience to inform future decisions.

Robust: Well-conceived, constructed, and managed systems.

Redundant: Spare capacity purposefully created to accommodate disruption.

Resilient Challenge

Water Pollution

In the past, environmental protection awareness was not strong, water pollution in Huangshi City was serious, lake treatment was inadequate, pipeline network transformation in the old urban area was difficult, the boundary of industrial wastewater collection and treatment was unclear, and the phenomenon of sewage direct discharge was serious.



Figure 2-5: water pollution in Huangshi

• Huangshi Resilience Response

In order to promote the comprehensive protection and treatment of water resources, water ecology and water pollution, strictly implement the main responsibility, build a synergistic mechanism for water pollution prevention and control, and implement ecological protections measure for rivers, lakes, reservoirs and ponds, and provide water environment protection for promoting the strategy of "establishing a city ecologically" and "building a city with strong industry". Huangshi Municipal Government has done a series of targeted work:

Huangshi Resilience Narrative–Water Environment

Drawing up the Implementation Plan of Urban Sewage Pipeline Network Construction in Huangshi City

Promoting the Construction of Sewage Pipeline Network and Upgrading of Sewage Treatment Plant.

Improving the rate of meeting water quality standards in an all-round way

At the end of 2017, Huangshi has built 13 sewage treatment plants with an overall capacity of 400,000 tons per day. At the beginning of 2018, all sewage treatment standards were upgraded from I-B to I-A.

Speeding up the Construction of Informatization

On the basis of Huangshi Geological Environment Monitoring Information Platform, its functions will be further expanded and perfected, and a comprehensive management platform of geological environment information including geological hazards, meteorological warning, urban geology and groundwater pollution will be established.

Enhancing the Water Quality Control of Inner Lakes

Implementing "Comprehensive Control Project of Water Pollution in Cihu Lake, Huangshi City" .

Compiling the General Plan for the Protection of Lakes in Huangshi City

Making Protection Plans for Daye Lake, Bao'an Lake and Wanghu Lake.

Formulating the Implementation Plan for the Struggle of Urban Black and Odorous Water Treatment in Huangshi City

In 2018, Huangshi City comprehensively renovated the city's black and odorous water body.

• Resilience Qualities

Robust: Well-conceived, constructed, and managed systems.

In 2016, the water quality of Huangshi's three transboundary sections (Shangchao Village, Fuchi Gate and Port Bridge connecting the Yangtze River and the Ezhou boundary) reached the "excellent" level, which was praised by the Environmental Protection Department of Hubei Province. This is an obvious result of Huangshi's implementation of the "five-water co-governance", the implementation of the river length system and vigorous efforts to prevent and control water pollution.

Huangshi Resilience Narrative—Residential Housing

Resilient Challenge

High Demand to Renovate Shanty Towns and Dilapidated Houses.

Huangshi is a typical resource-declining city. With the restructuring of industrial and mining enterprises and the decline of enterprise profits, many workers are laid off and their income level generally decreases, resulting in many low-income and poor households. At the same time, the imbalance between the rising of house price and income level leads to the increase of housing pressure on Huangshi residents, which makes it even more difficult for low-income groups to afford and to improve their living conditions.

On the other hand, due to the lagging construction of Huangshi City and large amount of historical debt, there exists wide areas, large quantities many different types of shanty towns and urban dilapidated houses. Most of the houses in shanty towns are transformed from factory and mining sheds, with low construction quality and standard, poor living conditions, and aging infrastructures, resulting in a harsh living environment. Most shantytowns are densely populated, which brings complex social problems and security risks. Renovation of shanty towns, promotion of urban resilience and improvement of housing quality have become a challenge Huangshi must overcome in this stage of development. However, the difficulties in funds, acquisition and resettlement were once the "three major difficulties" in front of the shantytown renovation.



Figure 2-6: Residential environment of the old residential areas (from the Internet)

The high pressure of shantytown renovation is mainly demonstrated as follows: on the one hand, there appear more and more "hard bone" projects during the shantytown renovation period, which makes it more difficult to acquire and remove houses; on the other hand, there exists large fund gaps in shantytown renovation, and the difficulty to access to supporting funds is also increased accordingly. Housing acquisition and renovation funds are the main factors that restrict the smooth progress of shantytown renovation.

Huangshi Resilience Narrative—Residential Housing

• Huangshi Resilience Response

In response to the "three difficulties", Huangshi boldly innovates and provides suitable remedy to the case in a resilient manner, which embodies three characteristics of resilient systems:

- Establish Zhongbang Housing Investment Company, synthesize financing channels, and build a unified financing platform for shantytown renovation in the city to solve the financing difficulties. Huangshi has won 14.78 billion yuan in special loans for shantytown renovation from China Development Bank and encouraged a number of state-owned financing platforms to participate in it.
- Fully respect public opinion and fully mobilize the enthusiasm of the masses in an inclusive manner to solve the difficulty of house acquisition. It is up to the households to collectively decide whether "to renovate or not" and the Independent Renovation Committee established by the Shantytown Renovation Project to decide how to renovate.
- Take the lead in speeding up flexible choices such as monetization to solve the difficulties of resettlement. For those who choose monetized resettlement, the compensation standard will rise by 10%; for those who look for and purchase houses through agencies from the stock commercial housing, the price will be at least 10% lower than the market price; other measures including exemption of business tax, lower down payment, and larger scope of the use of the provident fund. The masses have more individualized choices, and their enthusiasm has increased significantly.

• Resilient Qualities

- Integrated:** Bring together a range of distinct systems and institutions.
- Inclusive:** Prioritize broad consultation to create a sense of shared ownership in decision making.
- Flexible:** Willingness and ability to adopt alternative strategies in response to changing circumstances.

Since 2009, Huangshi has been carrying out shantytown renovation. By March 2015, Huangshi has completed 214,400 households of renovation. From March to the end of 2015, Huangshi municipal level alone started 54 shantytown renovation projects, involving 38,470 households, and completed the contract signing of about 26,302 households, of which 13,228 households were resettled in monetization.

Huangshi Resilience Narrative—Residential Housing

Resilient Challenge

High Demand for Public Housing and Inadequate Housing Security.

In 2015, the government of Huangshi Municipal invested 227.41 million yuan in the construction of indemnificatory housing. With the state financial support, 270,725 m² could be built. However, in 2015, the new construction area of indemnificatory housing reached 1,437,600 m², resulting in a large fund gap.

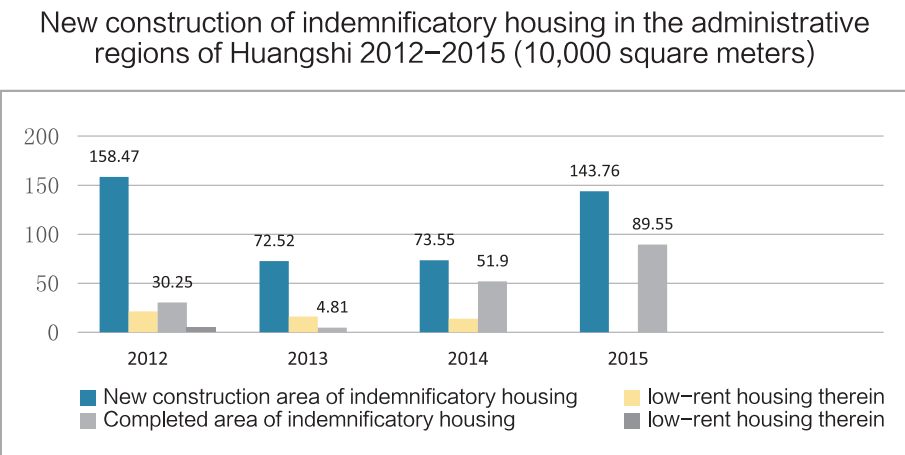


Figure 2–1: New construction of indemnificatory housing in the administrative regions of Huangshi



Huangshi Resilience Narrative—Residential Housing

• Huangshi Resilience Response

Aiming at the problem of being "unable to afford and subsidize", Huangshi has put forward the triple guarantee of "taking the lead in unification, marketization of livelihood projects and shared property rights", innovated the design of public rental housing system, and improved the housing security system.

Adopt "shared property rights" to solve endogenous defects.

The shared property rights of compensation public rental housing; after five years of use, the public rental house can be sold to the tenant according to the annual sale plan and adopt the form of common property rights.

Adopt "fat and thin collocation" to solve the financial problem.

All ommercial housing development projects in the city need to build at least 5% of the public rental housing, and public rental housing projects need to build 10% of the commercial housing.

"Take the lead in unification" to address "payroll finance".

In 2009, Huangshi Municipal Government began to explore the reconstruction of housing security system with public rental housing as the core. The original state-owned directly managed houses, low-rent houses delivered, economically affordable houses unallocated, self-managed houses of administrative institutions and state-owned enterprises were all checked up and put into unified management.

• Resilient Qualities

Integrated:

Bring together a range of distinct systems and institutions.

Robust:

Well-conceived, constructed, and managed systems.

Flexible:

Willingness and ability to adopt alternative strategies in response to changing circumstances.

In 2018, the mode of housing security in Huangshi was divided into three types: rental subsidy, in-kind rent allocation and rent relief. The local per capita housing security area in Huangshi has increased to 16, with an increase of 2 m² compared with that of last year.



CHAPTER III

HUANGSHI FOR THE FUTURE:
A MORE RESILIENT GOAL



Strategy Development Proces

From joining the 100RC Network to releasing its City Resilient Strategy, Huangshi has adopted many new tools and explored new mechanisms of collective efforts.

New mechanisms: the Huangshi Resilient Steering Committee and Expert Committee was set up and is headed by the Vice Mayor; an expert was hired to be the first Chief Resilience Officer (CRO) to facilitate the rapid localization of international projects. At the end of the CRO's first term, the post was taken over by the Vice Mayor to better mobilize resources and accelerate progress; the Resilient Office was set up, with the Director of the Municipal Construction Commission serving as the Office Director, and the Chairperson of the Association for Friendship and Exchange with Foreign Countries serving as assistant CRO, along with other full-time staff.

New tools: The Resilient Action Inventory, Resilience Perception Assessment, Assets and Risks Tool and Opportunity Assessment Tool provided by 100RC were adopted to assess the contributions of Huangshi's existing plans and projects to resilience, to collect stakeholders' evaluation of the 12 dimensions of the Urban Resilience Framework, to identify the strengths and weaknesses of resilience in Huangshi, and to prioritize the city's 18 initiatives accordingly.

Collective efforts: Huangshi signed a Strategic Cooperation Framework Agreement with the Research Institute of Future Urban and Infrastructure of Tsinghua University to advance Urban Resilience together. It has also invited Huazhong University of Science and Technology (HUST) and Wuhan University (WU) to participate in research, and actively established networks with 100RC Platform Partners such as Digital Globe, Swiss Re, and Arcadis. This effort involved 15 relevant authorities, 4 districts, 1 county and 1 county-level city communities, local enterprises and university expertsuniversity experts.



On September 22, 2015, Mayor of Huangshi (first right) accepted the plaque commending Huangshi's achievement in resilience building from President of 100RC (second right), Xia Yunlong, Chief Resilience Officer of Huangshi (first left).



On September 22, 2015, Then-Mayor Dong Weimin of Huangshi City jointly organized the Agenda Setting Workshop, marking Huangshi's entry into the Innovative Global City Resilience Initiative.

Working Time Nodes

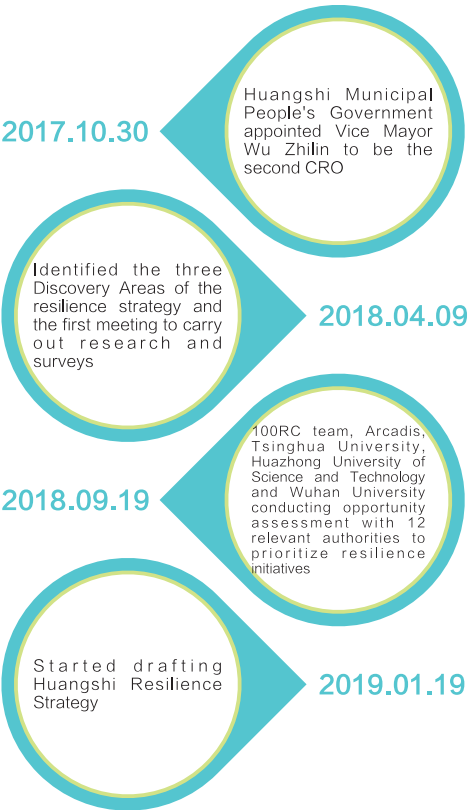


On April 9, 2018, the three Discovery Areas of the first meeting to carry out.



On July 9, 2018, a discussion on the remaining issues of research on the three Discovery Areas.

Working Time Nodes



On July 10, 2018, interviews with residents on the remaining issues of research the three Discovery Areas.



On September 19, 2018, the meeting between 100RC and three DA research departments of the Huangshi government.

Shocks and Stresses Faced by Huangshi

A series of workshops and researches were conducted, from the Preliminary Resilience Assessment to the final prioritization of Huangshi's five key shocks and stresses, which are urban flooding, water pollution and water shortage, aging infrastructure, economic downturn and environmental degradation.



Acute Shock: urban floods

Chronic Stresses: water pollution and water shortage, aging infrastructure, economic downturn and environmental degradation

Urban floods: The biggest acute shock Huangshi faces is urban flooding, which is at its worst in Summer. It brings about a series of problems, including sudden rises in the water level of rivers and lakes and frequent dam breaches. Some villages become "isolated islands" and geological disasters such as mudslides and landslides occur frequently, as a result, peoples' safety, livelihood and property are greatly impacted.

Water pollution and water shortage: Pollution is widespread in Huangshi's rivers and lakes , such as Dayehu Lake, Wanghu Lake, Cihu Lake, Qingshanhu Lake and Qingganghu Lake, where water eutrophication also occurs frequently.

Aging infrastructure: Infrastructure construction often prioritizes quantity over quality, and is therefore unable to meet the basic needs of modern livable cities.

Economic downturn: There is the possibility of an economic downturn in the foreseeable future which will negatively impact all aspects of the city.

Environmental degradation: Huangshi lacks the effective tools to utilize and protect its natural ecological resources, whereby extensive development and construction have deteriorated the original ecological environment of the city.



Acute shocks faced by Huangshi
—urban floods



Chronic stresses faced by Huangshi
—water pollution and water shortage



Chronic stresses faced by Huangshi
—Aging infrastructure



Chronic stresses faced by Huangshi
—economic downturn



Chronic stresses faced by Huangshi
—Environmental degradation

Resilience Challenges, City Visions, Goals and Action Plans

Based on the city's existing resilience actions, stakeholders' perceptions, acute shocks and chronic stresses, urban context and assets, Huangshi's resilience strategy was devised with three thematic areas, nine goals and eighteen initiatives. This also includes the action plan for Huangshi's further development for 2019–2025. Each thematic area is composed of goals and initiatives. Figure 3–1 shows the action plans formulated based on policy implementations, resilience challenges and city visions. Figure 3–2 shows the composition of Huangshi's three thematic areas, nine goals and eighteen initiatives.

Figure 3-1: Policy Implementation, Resilience Challenges, and Resilience Visions

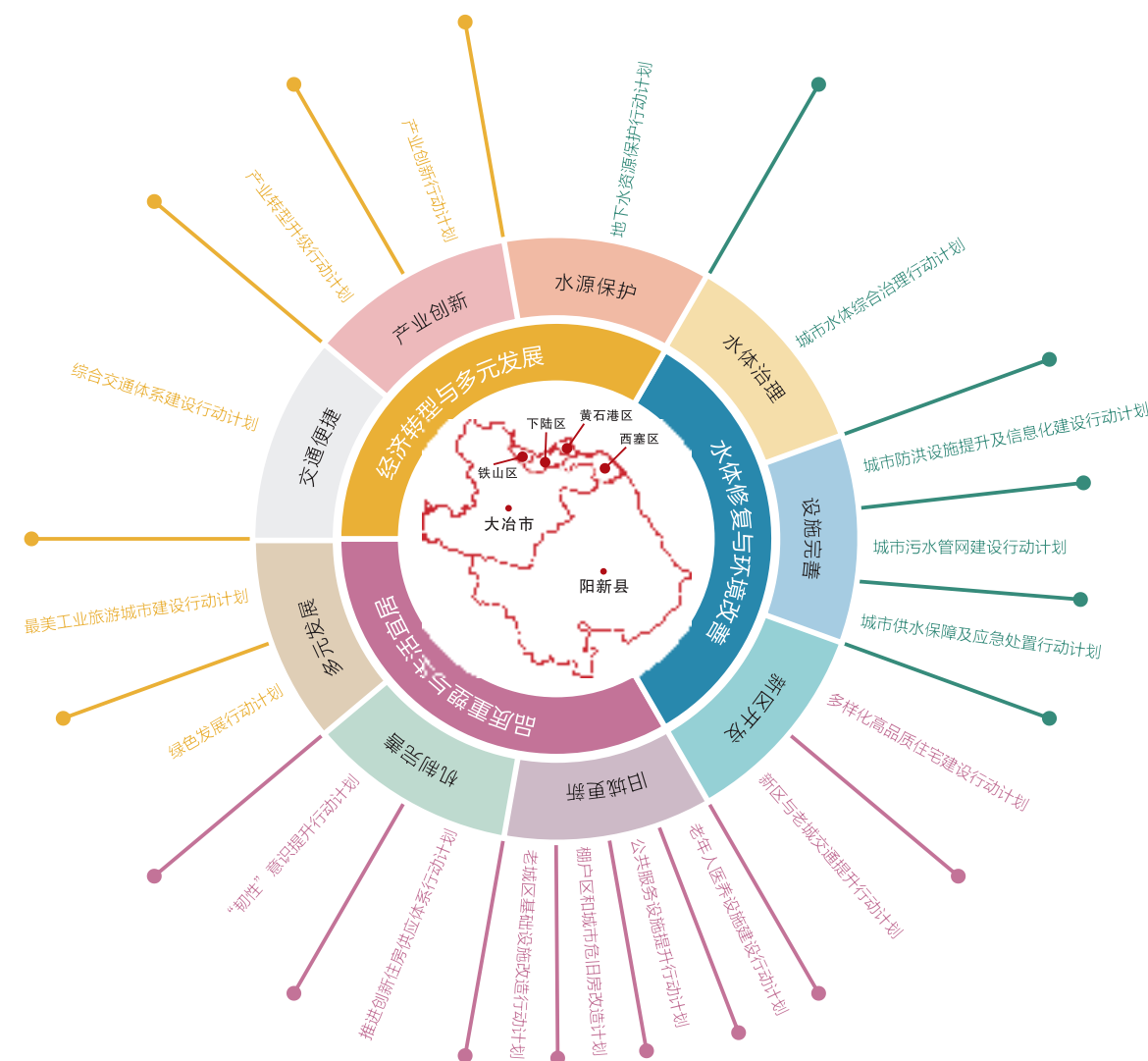


Figure 3-2: DAs, small goals, and action plans for the Huangshi Resilience Action



CHAPTER IV

A MORE PROSPEROUS HUANGSHI:
TRANSFORM ECONOMIC AND
DIVERSIFY INDUSTRY





Goals for Establishing Resilient Economic System in Huangshi

Huangshi will endeavor to diversify its development with innovative concepts as the driving force, coordination as the focus, green environment as the method, openness as the breakthrough, and the sharing economy as the target to speed up the establishment of a "five-in-one" resilient economic system, which integrates the promotion of a stable economic growth and structural diversification, the increase of development efficiency and innovation capability, and the improvement of inclusiveness.

GOAL 1 Industrial Innovation

To incorporate innovative elements including capital, technology and talents; to cultivate innovative entities, such as innovative enterprises and R&D institutions; to strengthen the protection of intellectual property rights; to improve the building of innovative platforms such as development zone; to construct an innovative ecosystem with technological, financial and transport services, and a conducive business environment as its core.

GOAL 2 Convenient Transportation

To advance the accessibility, synergy and efficiency of the city's transportation network through connecting harbors, airports, highway transportation and railway transportation as a "four ports linkage" to promote the integration of Huangshi into the core area of the Wuhan-Ezhou-Huangshi-Huanggang City Circle. To promote the establishment of economic zones adjacent to the harbors and airports and to give new impetus to develop Huangshi as a modern harbor city.

GOAL 3 Diversified Industry

To boost the development of high-quality industrial tourism and build a "historical and cultural city" mainly through the protection, development and utilization of Huangshi's industrial heritage. To accelerate the construction of Yangtse River's shelterbelt system, the treatment of soil erosion, the connectivity of river and lake water systems, the protection and restoration of wetland ecosystems, the reclamation of land discarded by factories and mines, and the construction of Huangshi as a "landscapable city". To achieve the integrated development of industrial tourism and ecological environment protection.

Industrial Innovation

Shocks

Stresses



Economic Downturn

4.1 Technological Innovation Action Plan

Background	A series of regional development strategies created new opportunities for technological innovation in Huangshi, these included the national innovation-drive development strategy, the Belt and Road Initiative, the development of city clusters along the middle reaches of the Yangtze River, the rise of central China, and the "two type" construction of the reformation pilot zone in Wuhan City Circle. Taking the construction of the innovative city as an opportunity, Huangshi actively made "Made in China 2025" and "Internet Plus" action plans and implemented innovation-driven strategies, deepened the supply-side structural reform, and advance the "two integrations" and "three chains". "Integration" works to assimilate the key links of the industry chain, value chain and production chain, to promote the transformation of "made in Huangshi" into "created in Huangshi" and "Invented in Huangshi" in order to accelerate the shaping of a modern industrial system with sustained competitiveness and the development of local industries, and to grow towards mid-to-high end markets.
Description	To boost the construction of research and development platforms; to push forward the talent-introduction projects. Vigorously promote the development of the new economic modes with new technologies, new products, new industrial forms and new modes as the core. To create innovation platforms focused on electronic information and high-end manufacturing. Accelerate the transformation of scientific and technological achievements

Resilience Dividends	(1) Employment policy. The talent-introduction project will maximize the contribution talents have made to the economic development in Huangshi, building a mode of sharing human resources to create a win-win situation in different regions and enterprises. (2) Local economy. It will make innovation the new engine for economic development in Huangshi, providing strong momentum for sustainable economic growth. (3) The expansion of economic contact. It will create an innovative system combining government, universities and institutes to improve the efficiency of innovation and the effects of technological transformation. (4) The transfer and the best practice of knowledge. It will upgrade the industrial chain and value chain in Huangshi and expand its economic scale. The establishment of a platform will encourage the parties involved to grow and innovate together.
----------------------	--

Implementation Timeline	Medium term goals (2020)
Action Type	Existing Action
Shocks and Stresses	Economic Downturn
Leading Department	Commission of Economic and Information
Supporting Departments	Office of Science and Technology, Huangshi Municipal Finance Bureau, the Development and Reform Commission of Huangshi, Huangshi Municipal Commercial Affairs Bureau, Huangshi Municipal Transportation Bureau, Huangshi Culture and Tourism Bureau, counties(cities) and districts (development zone) at different levels.





4.2 Industrial Upgrading Action Plan

Background	In recent years, Huangshi has forged ahead with the succession of the old and emerging industries centering on the upgrading of industrial transformation and the industrial value chain. The large-scale technical innovation in the traditional industries has shown the development trend of the blowout and brought about Wild Goose Queue effect in emerging industries. By seizing the important opportunity arising from the overall implementation of the "Made in China in 2025" strategy and the selection as one of the first transformation demonstration areas, Huangshi has been committed to increasing the development of "four types of new economic modes" that includes the transformation from resource-dependent industry to innovation-driven industry, the transformation from low-cost competition to quality-effective competition, the transformation from extensive manufacturing to environmental friendly manufacturing and the transformation from production-based manufacturing to service-based manufacturing, and made great efforts to build itself into the industry capital.	Description	To propel the transformation and upgrading of traditional industries. To advance the cultivation of emerging industry. Highlight the upgrading of production and life services in financial service industry and information service industry. To expand energy conservation and environment protection industry, clean production industry and clean energy industry and establish an economic system based on green and low-carbon development.
------------	---	-------------	---

Resilience Dividends	(1) Domestic investment. The gradual increase of investments on technical reform will motivate the transformation from the traditional industry to the emerging industry in Huangshi. The implementation of major technical reform will raise the quality and efficiency of the traditional industry. (2) Local economy. The upgrading of transformation in the traditional industry will speed up its structural adjustment. The advantages derived from the reconstruction of the traditional industry will provide sustainable driving force to the economic growth in Huangshi. (3) Strategies and Plans. The development quality and efficiency of the traditional industry will be greatly improved in the traditional industry focusing on "quality innovation and efficiency improvement" .	Implementation Timeline	Long-term goal (2025)
		Action Type	Existing Action
		Shocks and Stresses	Economic Downturn
		Leading Department	Commission of Economic and Information
		Supporting Departments	Office of Science and Technology, Huangshi Municipal Finance Bureau, the Development and Reform Commission of Huangshi, Huangshi Municipal Commercial Affairs Bureau, Huangshi Municipal Transportation Bureau, Huangshi Culture and Tourism Bureau, counties (cities) and districts (development zone) at different levels.



Convenient Transportation

Shocks

Stresses



Aging Infrastructure



Economic Downturn

4.3 Integrated Transportation System Action Plan

Background	In recent years, with the guideline of "supporting the development of Hubei Province and Radiating to the middle reaches of the Yangtze River with the east of Hubei Province with the east of Hubei Province as the base", Huangshi has taken good advantage of the great opportunity that the government carried out the strategy of building Yangtze River Economic Zone and city clusters along middle reaches of the Yangtze River to speed up the construction of a modernized comprehensive transportation system integrating the transportation hub with highway, railway, airport and river ports, convenient passenger transport and smart logistic transport. It has also striven to build itself as an integrated transportation hub in the middle reaches of the Yangtze River, a modern logistic base and a multi-modal transportation center. At present, Huangshi has basically completed the construction of an expressway network with "three vertical expressways, three horizontal expressways, two interconnected expressways and two expressway loops" and the construction of a national and provincial arterial network with "six vertical expressways, six horizontal expressways and three expressway loops, which make it possible to travel around the city within half an hour and a member of "two-hour Economic Zone" in the city clusters along middle reaches of the Yangtze River. The establishment of "a major river port with a throughput of ten million tons" has begun to take shape, and the multi-modal railway system has officially opened, forming a interlinked port logistic mode with railway, highway and waterway.
Description	It aim to smooth the logistic channel, speed up the construction of Shannan Railway, the second phase of Xingang Railway, actively joint to Hubei International Logistic hub and realize the connectivity of a transportation network with river port, airport, bus stations and railway stations. It aims to accelerate the construction of Qipanzhou Highway Bridge and Wuxue Yangtze River Bridge to plan the construction of the railway along the Yangtze River. It aims to speed up the development of multi-modal transport to build a multi-modal transportation hub along middle reaches of the Yangtze River with seamless connection of the highways, railways and the airport.

Resilience Dividends	(1) Transportation network. It will shorten the geographical distance within the city and provide convenient transportation to explore the potential to realize urbanization. (2) Freight and logistic transportation. It will greatly increase the transportation cost efficiency and shorten the transportation. (3) The coordination of the interested parties. It will be helpful to cross the administrative restriction at the geographic level and push the development of regional integration forward. (4) Redundant and diversified infrastructure. Perfect transportation network will improve transportation accessibility.
----------------------	---

Action Type	Medium to Long-term goal (2020–2025)
Shocks and Stresses	Existing Action
Leading Department	Economic downturn/ Aging infrastructure
Supporting Departments	Huangshi Municipal Transportation Bureau
	Xingang Logistic (Industrial) Park, Huangshi Municipal Maritime and Port Bureau, Huangshi Municipal Transportation Investment Corporation, Huangshi Municipal Transportation Co.,Ltd. The Development and Reform Commission of Huangshi, Huangshi Municipal Commission of Planning and Natural Resources, Huangshi Customs, counties(cities) and districts (development zone) at different levels.



Diversified Industry

Shocks

Stresses



Aging infrastructure



Economic downturn



Environmental Degradation

4.4 Beautiful Tourism City Action Plan

Background

In recent years, the execution of a series important strategies, including the Yangtze River Economic Zone, city clusters along middle reaches of the Yangtze River, rural revitalization, "One Central City, Two Second-tier Cities and Multiple Growth Poles" in Hubei Province, the integration of Wuhan City, Ezhou City, Huangshi City and Huanggang City, Building an Ecological City and rejuvenating the city by developing the industry in Huangshi, the Construction of "five cities" and the promotion of high quality development, Huangshi has enjoyed a precious opportunity for the urban development and construction.

With tourist industry as the new engine to push the economic and social transformation, Huangshi has formed a development pattern for tourist industry with industrial civilization and geological culture tourism as the lead and the integration of industrial tourism resources, rural ecological tourism resources, landscape tourism resources, religious tourism resources and red tourism resources, which will accelerate a new leap in the tourist industry in Huangshi.

Description

With the application of Tonglushan Mining and Metallurgy Ancient Site and the intangible cultural heritage as the major task, it aims to speed up the construction of eight major industrial theme parks including Dongfang Mountain Theme Park and Huangjingshan Theme Park, and explore the five major tourist industrial bands ranging from the trace of the mining and metallurgy civilization, the mining science sightseeing, shopping and leisure entertainment, the researching and learning project in the mining industry to the root-searching of mining industry so as make Huangshi world-renowned mining science city and the most beautiful tourist cities.



Resilience Dividends

(1) The development and innovation of local business. Industrial tourism will stimulate the sales of products with local historical and cultural features, elevate the recognition of industrial enterprises and increase the order.

(2) The internal investment. Investment will be channeled to reconstruct the infrastructure in regions around the tourist circle, including the architectures with historical and cultural features, such as streets, squares, museums and exhibition centers.

(3) Local economy. The rapid development of the catering industry, the lodging industry and the retail industry turn to stable economic growth points.

Implementation Timeline	Medium-term Goal(2020)
Action Type	Existing Action
Shocks and Stresses	Economic downturn aging infrastructure and environmental degradation
Leading Department	Huangshi Culture and Tourism Bureau
Supporting Departments	Huangshi Cultural Relics Bureau, the Development and Reform Commission of Huangshi, Commission of Economic and Information of Huangshi, Huangshi Education Bureau, Huangshi Municipal Commercial Affairs Bureau, Huangshi Municipal Finance Bureau, Huangshi Municipal Commission on State-Owned Assets Supervision and Administration, Huangshi Municipal Agriculture and Rural Bureau, Huangshi Municipal Development Corporation and counties(cities) and districts (development zone) at different levels.

4.5 Green Development Action Plan

Background	In recent years, Huangshi has consolidated the concept of Green Development and coordinate the comprehensive treatment of "the mountain, the water problem, air pollution and soil erosion" to transform "a grey city" to "a livable city".	Description	It aims to launch Four main tasks of purifying water, afforestating the river bank, disposing the wastes and dredging the watercourse and forge ahead with the "five treatment projects" of treating the water pollution, the the mountain and the soil erosion.	Resilience Dividends	(1) Environmental Policy. It will ensure the major sources of drinking water in Huangshi, continuously improve the air quality and reduce the occurrence of landslide in the mines to provide more ecological space to enhance the life quality of the residents.	Implementation Timeline	Medium-term goal (2020)	
							Action Type	Existing Action
							Shocks and Stresses	Economic downturn aging Infrastructure and environmental degradation
							Leading Department	The Ecological Environment Bureau
							Supporting Departments	Huangshi Municipal Water Conservancy and Lake Bureau, Huangshi Municipal Natural Resource and Urban&Rural Planning Bureau, Huangshi Municipal Bureau of Parks and Woods, Huangshi Development and Reform Commission, Commission of Economic and Information of Huangshi and counties(cities) and districts(development zone) at different levels.
	Meanwhile, the construction system of ecological civilization and the appraisal and incentive mechanism on Green Development has been perfected and succeeded in building the one of first national pilot cities transforming to green industry, the national demonstration city for the circular economy, the national garden city, the national forest city and the national sanitary city.		It aims to fulfill the construction of Yangtze River shelter-forest system, the control of soil erosion, the construction of water network, the restoration of wetland ecological protection and the reclamation and use of land discarded by factories and mines.		(2) Ecosystem Management. It will improve the governance efficiency, create more ecological space and improve the capability to manage the ecological resources.			
	In the new era, with the ecological protection in the Yangtze Rive Economic Zone as the guideline, Huangshi will make substantial efforts to carry out the three major tasks in environmental protection, ecological restoration and green development and implement Four "three major ecological projects" to promote the high-quality development in city industries, city functions, the society and the power through ecological construction.							



CHAPTER V

A CLEANER HUANGSHI:
WATER RESTORATION AND
ENVIRONMENTAL IMPROVEMENT





The small goals for the construction of resilient water system in Huangshi

The governance of "water", namely the upgrade to a resilient water system, is the key to promoting the overall urban resilience of Huangshi. Its ultimate goal is to resolve various forms of water-related issues by solving the "water" problem and creating a sound urban water system that separates clean water and sewage, and promotes water wellbeing.

GOAL 4 Water Resource Protection

The quantity, quality and storage capacity of groundwater are the main factors that affect water security in Huangshi. Presently, there exists many issues with the protection of groundwater resources mainly due to severe contamination and an inadequate surveying of Huangshi's groundwater.

GOAL 5 Water Treatment

It aims to improve water quality by implementing the black and odorous water treatment project, the Daye Lake water pollution treatment project, and the construction of rainwater collection and treatment facilities.

It aims to improve the water quality through the Huangshi Urban Environmental Emergency Disposal Project, the Huangshi City Green Ecological Corridor Construction Project, and the management of mining resources, in order to improve Huangshi's water quality.

GOAL 6 Infrastructure Improvement

It aims to raise the resilience of water system in Huangshi by upgrading the city's facilities including the urban sewage pipe network project, the urban flood control facilities, urban water supply security and emergency response, to help cope with emergencies and mitigate negative factors on the water environment.

GOAL 4

Water Resource Protection

Shocks

Stresses



Water pollution and water resource shortage

5.1 The Action Plan to Protect Underground Water Resource

Background	The quantity, quality and storage capacity of groundwater are the main factors that affect the safety of drinking water in Huangshi. Presently, there exists many issues with the protection of groundwater resources mainly due to severe contamination, inadequate surveying of groundwater, and the high arsenic content of pore water in the areas of Yangtze River, Fushui bank, Jinniu, Longgang and Sanxikou. Mining activities is another factor that influences the quality of Huangshi's entire water system. In response to the above problems, a special geological exploration team was set up to survey groundwater and produce an extensive groundwater database. However, the prevention and control of the groundwater pollution still needs to be strengthened.
Description	It aims to create a comprehensive survey of the groundwater in Huangshi by delineating the groundwater pollution controlled areas, prevention and control areas and ordinary protection areas using Geographic Information Systems (GIS), and establishing a groundwater database for Huangshi. It aims to tighten regulations for groundwater pollution and implement anti-seepage management in the key areas including petrochemical production enterprises and industrial parks. It also aims to promote the deodorize waste transfer station project and create percolation and disposal projects.

Resilience Dividends	(1) Environmental Policy. It will reduce water pollution and improve water quality in Huangshi. It will also help petrochemical enterprises to produce, store and sell petrochemicals, and help industrial parks to meet anti-seepage standards. (2) Asset maintenance. It aims to complete the assessment, upgrading and construction of percolation and anti-seepage treatment in waste landfills. It also aims to seal and refill abandoned mines, boreholes and water intake, as well as, ban all dry pit latrines and encourage the construction of public toilets that uses recycled water.	Implementation Timeline	Medium term goals (2020)
		Action Type	Action Planned
		Shocks and Stresses	Water pollution and water resource shortage
		Leading Department	Huangshi Municipal Ecological Environmental Bureau
		Supporting Departments	Huangshi Municipal Water Conservancy and Lake Bureau, Huangshi Municipal Natural Resource and Urban&Rural Planning Bureau, Huangshi Municipal Bureau of Parks and Woods, Huangshi Development and Reform Commission, Huangshi Health Commission and counties(cities) and districts (development zone) at different levels.



Water Treatment

Shocks

Stresses



Water pollution and water resource shortage



Environmental degradation

5.2 The Action Plan to Comprehensively Treat Urban Water Bodies

Background	The black and odorous water problem in the urban area is a strong environment issue broadly reflected by the citizens, which not only damages the living environment of urban residents but also seriously affects the image of the city. In recent years, the government in Huangshi City has taken many remedial actions to solve the problem. Killing algae with medication and double checks on the coastal sewage outlets are well organized and the ecological restoration project aimed to eliminate the risk that Wuyi Lake and Qiyi Lake will become black and odorous again has been carried out since April, 2018. Consequentially, the comprehensive renovation project of the black and odorous water problem in Yegang Port has been completed while the preliminary designing plans of the other projects with the same problems in five places including the new East Port, the new West Port, Pengjiaqian Port, Tiejin Port and Xinzha Port have also been essentially finished. At the meantime, part of the renovation projects are being promoted simultaneously.
Description	It aims to work out assessment methods to examine the control of sewage and black and odorous water body. It aims to guide the acceleration of the black and odorous water treatment in different areas by carrying out instruction, training and assessment. It aims to strengthen the disposal of wastes in water bodies and banks and clean up and salvage the wastes and floating objects in water bodies. Also, it aims to ban a series practices damaging the ecological environment, such as reclaim lake land to fishing breeding and the private reclamation of vegetable fields. In addition, it aims to completely eradicate the discharge of sewage generated in the process of breeding and planting to the rivers or lakes.



Resilience Dividends	Environmental Policy. It will enforce the rectification system by the treatment of black and odorous water body. Until 2020, Huangshi will basically eradicate the black and odorous water body. Daye City and Yangxin County will fulfill the targets that there are no large areas of floating objects in the river, no wastes on the river banks and no illegal discharging outlets.	Implementation Timeline	Medium term goals (2020)
		Action Type	Action Planned
		Shocks and Stresses	Water pollution and water resource shortage
		Leading Department	Huangshi Municipal Water Conservancy and Lake Bureau
		Supporting Departments	Huangshi Municipal Ecological Environmental Bureau, Huangshi Municipal Water Conservancy and Lake Bureau, Huangshi Municipal Natural Resource and Urban&Rural Planning Bureau, Huangshi Municipal Bureau of Parks and Woods, Huangshi Development and Reform Commission, Huangshi Health Commission and counties(cities) and districts (development zone) at different levels.

Infrastructure Improvement

Shocks



Urban flood

Stresses



Aging infrastructure

5.3 The Action Plan to Upgrade FloodControl Facilitiesand Construct the informatization in Huangshi

Background

Huangshi's insufficient capability to drain flooded fields can be shown in the following aspects: the negative influence of its mountainous landscape, its lack of ability to construct a sound drainage network, the poor ability of the rivers and channels to drain the flood, the insufficient control and maintenance and the mixed pollution caused by the rain and sewage.

At present, Huangshi is a littler slower in the acquisition of information on flood disaster and its informatization is at a lower level. Firstly, in terms of information acquisition, information acquired by the Huangshi government mainly rely on human being, which is identified and verified based on experience and of low efficiency. Secondly, in terms of disaster prediction, it is difficult to predict the disaster. To solve all these problems, it is necessary to establish a sound informatization system to prevent and drain the flood, which can realize the intelligent identification and prediction of the disaster to provide basis for the government or drainage control department to formulate effective preventive measures.

Description

The project to enhance the drainage capability can be implemented in the following aspects: the first one is to increase the channels to drain urban flood.

Then it comes to the construction of rainwater regulation facilities in Huangshi. It will take good use of urban wetland, parks, low elevation greenbelts and low elevation squares as the makeshift rainwater regulation space. And it will also to install specialized facilities to regulate the rainwater.

The last one is to develop waterlogging prediction platform and automatic hydrological forecast systems.

Resilience Dividends

(1) The maintenance of key infrastructure. It will upgrade aging pipelines, reduce the occurrence of urban water logging and increase urban safety by implementing projects to improve the drainage capability in the rainy season.

(2) Emergency information system. It will carry out timely prediction on flood disaster and efficiently spread and control the disaster by perfecting the emergency information system.

Implementation Timeline	Medium term goals (2020)
Action Type	Action Planned
Shocks and Stresses	Urban Flood, Aging Infrastructure
Leading Department	Huangshi Municipal Commission of Housing and Urban–Rural Development
Supporting Departments	Huangshi Municipal Water Conservancy and Lake Bureau, Huangshi Municipal Ecological Environmental Bureau, Huangshi Municipal Natural Resource and Urban&Rural Planning Bureau, Huangshi Municipal Bureau of Parks and Woods, Huangshi Development and Reform Commission, Huangshi Health Commission and counties(cities) and districts (development zone) at different levels.



5.4 The Action Plan to Construct the Sewage Control Network in Huangshi

Background	Urban infrastructure is becoming obsolete, such as aging roads, cluttered electric lines and poor drainage. At present, the pipeline network in the old urban areas of Huangshi is being upgraded and the slowness and difficulty of the program mainly lie in the following aspects: Firstly, the inability to figure out the specific location of the existing drainage network in the old urban areas and the lack of standards in its planning make it more difficult to conduct a thorough search and reasonable arrangement of the underground pipeline network. Secondly, due to space limitation, it is also difficult to find out the right space to lay pipelines in the transformation stage, as a set of drainage pipe network has already taken the place. At the social level, it is hard for the residents in the old areas to aware of the long-term benefits brought by the transformation of the pipeline network. At the meantime, it is also a little unacceptable for some residents to stand up the suffering caused by the restructuring of this pipeline network as this will cause some inconvenience in their daily life. However, infrastructure reconstruction is an important channel to improve the quality of a city, so it is still quite necessary to upgrade the urban infrastructure in a scientific and reasonable manner.	Description	The current situation in Huangshi is that in the old urban area a combined closure system has been adopted in Shengyang Port while diversion systems are used in other parts of the city. Regarding the areas of Tieshan and Xialu where the combination of rainwater and sewage is put into practice, urban construction and old city reconstruction should be combined together to accelerate the transformation of rainwater and sewage diversion. As for Shengyang Port, an old urban area not suitable for carrying out restructuring, it should increase the times of closure from 1.0 to a degree between 2.0 and 3.0.
------------	--	-------------	--

Resilience Dividends	The maintenance of key infrastructure. The transformation of rain and sewage pipeline network in old urban areas will be upgraded and the construction of sewage collection pipeline network system will also be improved. Meanwhile, urban functions will be enhanced and residents' awareness of participating in urban construction and ecological protection will also be well promoted.	Implementation Timeline	Medium term goals (2020)
		Action Type	Action Planned
		Shocks and Stresses	Aging Infrastructure
		Leading Department	Huangshi Municipal Commission of Housing and Urban-Rural Development
		Supporting Departments	Huangshi Municipal Water Conservancy and Lake Bureau, Huangshi Municipal Ecological Environmental Bureau, Huangshi Municipal Natural Resource and Urban & Rural Planning Bureau, Huangshi Municipal Bureau of Parks and Woods, Huangshi Development and Reform Commission, Huangshi Health Commission and counties (cities) and districts (development zone) at different levels.



5.5 The Action Plan to Ensure Water Supply and Cope with Emergencies in Huangshi

Background	Contingency plan refers to emergency management, guidance and the rescuing strategies to cope with the incidents, such as natural disaster, major accidents and human-caused destruction. At present, the emergency source of water is under construction in Huangshi, which haven't worked out a whole set of contingency plan to cope with emergencies. During the expansion of water supply system, the construction of coordinated system to ensure the safety of water supply will involve a large-scale construction of infrastructure, which requires the cooperation of various government bodies, including the Transport Agency, Water Conservancy Bureau and the Environmental Protection Department.	Description	It aims to set up the emergency response office to cope with the incidents occurring the process of water supply and determine the principal person responsible for the office. Also it will verify and evaluate the emergency after receiving related information and identify the type of the incident to make a specific plan based on different types of time. Then, it aims to identify the core task. For the contingency plan to cope with incidents in urban water supply, the core task should comprise the starting time, the ending time, the output, of the scope, the route and the order of water supply.
------------	--	-------------	---

Resilience Dividends	(1) The emergency response capability and coordination. The construction of the contingency plan to ensure water supply in Huangshi will take timely and efficient action in facing emergencies and raise the efficiency to respond disaster emergencies and ensure the normal life of the residents. (2) The coordination of interested parties. High involvement of the residents and relevant departments and the collective wisdom and joint efforts of interested parties is the only optimal solution for all these problems.	Implementation Timeline	Medium term goals (2020)
		Action Type	Action Planned
		Shocks and Stresses	Urban Flood, Aging Infrastructure
		Leading Department	Huangshi Municipal Commission of Housing and Urban-Rural Development
		Supporting Departments	Huangshi Municipal Water Conservancy and Lake Bureau, Huangshi Municipal Ecological Environmental Bureau, Huangshi Municipal Natural Resource and Urban&rural Planning Bureau, Huangshi Municipal Bureau of Parks and Woods, Huangshi Development and Reform Commission, Huangshi Health Commission and counties (cities) and districts (development zone) at different levels.





CHAPTER VI

A MORE DYNAMIC HUANGSHI:
SHAPING QUALITY AND
ENHANCING LIVABILITY



Goals for Building a Resilient Living System



Enhancing the livability of a resilient system will help to develop a more dynamic city. By building an ecologically advanced urban system and redeveloping shantytowns, the urban living environment is improved and citizens are able to enjoy a more resilient lifestyle and harmonious community.

Goal 7 Renewal of the old city

With continuous development and expansion, the city's functions have been diversified from residence, business and trade, culture, to entertainment, which produced a more complex pattern of living in the 'old city'. In order to improve the quality of living in this area, civic space must be reorganized by relocating industries to build parks, cultural and sports facilities, amongst other environmental improvements. In addition, shantytowns must also be quickly renovated to enhance the landscape of the old city.

Goal 8 Development of the new town

Learning from mistakes in the old city, construction of the new district should work to create a livable, safe and healthy living environment for all citizens by integrating the concept of "resiliency" and providing comprehensive services. This can also involve shifting public services to not-for-profit entities to not only deal with the basic issues regarding work and residence, but also focus on resolving issues of education, medical care and employment.

Goal 9 Improvement of the system

First, guide social capital into housing security; second, relieve housing pressure through innovative housing policies, and rent-and-purchase and rent-and-sell housing systems with equal rights; third, speed up the construction of public housing which also includes existing housing stock ; lastly, improve community management rules. These four points will help to promote the development of a resilient residential system in terms of housing security.

Renewal of the old city

Shocks

Stresses



The infrastructure is old and decrepit.

6.1 Old City Infrastructure Upgrading Plan

Background	Background: Reconstructing the old city's infrastructure is fundamental in building a "regional central city" and a necessary step for an "ecological civilization model". In the future, Huangshi seeks to be the regional central city in the mid Yangtze River region. In order to fulfill this role, it has to upgrade infrastructure construction in the old city and improve the distribution and connection of various infrastructures like roads, municipal facilities and public services in urban districts, urban-rural areas and functional areas for all communities, to push the city to develop in all aspects.
Description	Reconstruction of municipal infrastructure: improve and popularize the sewage, power network and the supply of gas and heating. Reconstruction of roads and traffic infrastructure: upgrade the reconstruction of roads and traffic infrastructure. Reconstruction of disaster resistance and emergency response infrastructure: fortify the disaster resistance capacity of civic buildings and infrastructure. Full coverage plan of emergency lighting system: replace the uncovered street lamps and old street lamps in urban areas with LED street lamps.

Resilience Dividends	(1) Maintenance of key infrastructure; improvement of the municipal infrastructure; improvement of disaster resistance capacity of urban buildings and infrastructure; improvement of the safety level of crowded places such as schools and hospitals. (2) Traffic network. The reconstruction of road traffic facilities improves the accessibility of transportation and the basic road and pavement conditions of the old city.	Implementation Timeline	Medium term goals (2020)
		Action Type	Existing Action
		Shocks and Stresses	Aging Infrastructure
		Leading Department	Housing and Urban-Rural Development Bureau
		Supporting Departments	Civil Protection Bureau, Water Supply, Power Supply, Communication, Urban Development Group, Urban Government, Street, Community, Natural Resources and Planning Bureau, Finance Bureau.





6.2 Shanty Towns and Dilapidated Buildings Redevelopment Plan

Background

Huangshi city has put forward in the 13th five-year plan of urban-rural construction to strengthen the two-wheel drive: to persist in the new area development while grasping old city renewal and reconstruction. According to the expansion demand, it will strongly promote the quality construction of Daye Lake new district and the old city transformation. By 2020, it plans to complete the goal of transformation of dilapidated house of existing urban villages and urban shantytowns, fully implement Huangshi City Shantytowns Transformation Plan, finish the reconstruction task in the major urban shantytowns, state-owned mining shantytowns and reclamation area which add up to 75000 households, thereby promoting the city center urban village reconstruction.

Description

Description: continue to promote the 2018-2020 shantytown reform plan: first, innovate the housing expropriation mechanism; second, expand financing channels for the renovation of shantytowns; third, adapt measures to local conditions and improve supporting facilities.

In specific areas replace the demolition and reconstruction with micro transformation: for old residential areas with poor living environment and aging facilities that have little impact on the overall pattern in the city, the improvement of its living environment can be realized through micro transformation.

Resilience Dividends

(1)Strategies and Plans. By advancing reconstruction plan of shantytowns, the government will work out the local state-owned land house acquisition rules to provide perfect laws and regulations for the urban renewal and upgradation.

(2)Redundant and diversified infrastructure. Better the municipal infrastructure and public service facilities in the new resettlement residential area for the improvement ofurban infrastructure.

Implementation Timeline

Medium term goals (2020)

Action Type

Existing Action

Shocks and Stresses

Aging Infrastructure

Leading Department

Housing and Urban-Rural Development Bureau

Supporting Departments

Finance Bureau, Urban Government, Local Investment and Financing Platform, Municipal Development and Reform Commission, Municipal Natural Resources and Planning Bureau, Municipal Ecological Environment Bureau.



Resilience Dividends

(1) Optimization of critical infrastructure. Improve the public service facilities in the old city, provide residents with the basic service functions and public activities space for life, and form a safe, friendly and comfortable basic social life platform.

(2) Emergency plan for crucial services. Service facilities are open to share, providing shelters for those who have difficulties in returning to their homes.

Implementation Timeline

Existing Action

Action Type

Medium term goals (2020)

Shocks and Stresses

Aging Infrastructure

Leading Department

Housing and Urban-Rural Development Bureau

Supporting Departments

Municipal Development and Reform Commission, Municipal Cultural Bureau, Municipal Education Bureau, Municipal Science and Technology Bureau, Municipal Finance Bureau, Huangshi Urban Development Investment Group Co., Ltd(Bus Company), Municipal Natural Resources and Planning Bureau.

6.3 Public Service Facilities Enhancement Action Plan

Background

Hubei Provincial Plan on New Type of Urbanization(2014–2020) positions Huangshi as the sub-center city of Wuhan City Circle and the central city of East Hubei. The positioning of Two Central Cities will definitely bring tremendous development opportunities to the infrastructure, public service facilities and residential construction as well as other related industries of Huangshi, especially as the development of Huangshi is entering an era from the Cihu Lakeside to Daye Lakeside, the supporting development and utilization of underground space and the construction of integrated pipe corridors within 450 square kilometers of Daye Lakeside Ecological New District core area construction, a large number of major projects, will surely lay a solid foundation for Huangshi's urban development.

Description

Improve the public service facilities in the old city: upgrade and renovate the original service positions in the community, and build public facilities to meet the functions of the integrated urban residential area. Open service sharing: reach an agreement with commercial hotels and railway system; open the hotel lobby, station facilities to accommodate home-stayers, open government facilities, and public schools for such personnel as a shelter.





6.4 Elderly Health Care Facilities Action Plan

Background

The economic and social development of Huangshi has brought new opportunities for the construction of medical facilities. As the total economic volume of Huangshi increases and the residents' income increases, the proportion of social public health care and other service consumption has increased significantly, thus forming a multi-level and diversified demand for health services pattern.

With the new opportunities brought about by the aging population, the proportion of elderly people over the age of 60 in Huangshi has reached more than 15.4%. The demand for life care, rehabilitation care and medical care for the elderly will increase sharply. The combination of health care for the elderly needs more health resources.

The construction of regional medical center brings new opportunities. The strategy put forward during the 13th Five-Year Plan period—Medical Health Centers in Six Regions, thus to built the hospitals of Regional Medical Center in East-Hubei Province, pioneered by Huangshi Central Hospital, Huangshi Hospital of Traditional Chinese Medicine, and Huangshi Maternal and Child Health Hospital, with county-level medical institutions as the backbone and based on grassroots medical and health institutions.

Description

Improve the combination of medical care and rational planning and layout.

Tax and fee concessions and financial support are provided for the combination of medical and nursing institutions. Provide necessary housing and land, and reserve space when building an aged care center or elderly community activity center. Cultivate industry and community services for the elderly: build a pension service system focusing Four Elements; encourage Self-supporting community model.

Resilience Dividends

(1) Access to basic medical services. Address the living of the elderly, social security issues, health care issues and old-age care issues to protect their lives.

(2) Medical facilities and first-aid workers. Through the implementation of medical integration, it provides assistance to a large number of vulnerable groups in Huangshi.

Implementation Timeline

Medium term goals (2020)

Action Type

Existing Action

Shocks and Stresses

Aging Infrastructure

Leading Department

Municipal Health Commission of Huangshi

Supporting Departments

Municipal Civil Affairs Bureau, Municipal Human Resources and Social Security Bureau, Huangshi Urban Development Investment Group Co., Ltd (Medical Care Group), other enterprises, Municipal Development and Reform Commission, Municipal Finance Bureau, Municipal Natural Resources and Planning Bureau.

Development of new town

Shocks

Stresses



The infrastructure is old and decrepit.



Economic Downturn

6.5 Traffic Improvement between Old and New Districts Action Plan

Background	In recent years, Huangshi has built a strategic development plan for the backbone road network of Fast and Convenient Inner Ring, Fast Inner Ring, High Speed Outer Ring, Three Rings and Seven Shots. The Comprehensive Transportation Planning and Recent Implementation Plan on Central City of Huangshi were released. However, there currently hasn't formed a convenient passage in the city to adapt to the urban system. Huangshi promote the construction of urban roads in accordance with the general idea of Expanding Skeletons, Passing Meridians, and Upgrading Standards. Efforts will be made to open the mega-city road grid bureau, through the river along the river, and build the outer ring of the central city to realize the rapid connection of Daye City and Yangxin County with Huangshi Urban District.
Description	Strengthen the transportation links between the new district and other districts: Focus on strengthening the traffic links between the Daye Lake New District and the Tuancheng Mountain Area, the Lower Land Area, the Huangshi Port Area and the Shengyang Port Area. Initiate the construction of a smart transportation system, increase the frequency of bus shifts and extend the operation time: In order to promote the simultaneous construction of new and old districts, it is necessary to strengthen the setting of the corresponding bus stations, strengthen the density of shifts, and extend the operation time.

Resilience Dividends	(1) Transportation network. Strengthen the transportation links between new district and other districts by implementing the new district and the old city traffic improvement action plan. (2) Using communication technology by launching the construction of a smart transportation system, thus to realize bus intelligent networking and intelligent services, and improve the intelligent bus service in new district.	Implementation Timeline	Medium term goals (2020)
		Action Type	Existing Action
		Shocks and Stresses	Aging Infrastructure
		Leading Department	Municipal Housing and Urban –Rural Development Bureau
		Supporting Departments	Huangshi Urban Development Investment Group Co., Ltd(Bus Group), Economic Development Zone Management Committee, all departments and development zones of Huangshi.





Resilience Dividends

Housing. Form a reasonable housing structure to meet the needs of different groups of people, provide a comfortable place for the elderly, and build a dynamic shared residential environment and comfortable residential buildings to enhance community resilience.

Implementation Timeline

Medium term goals (2020)

Action Type

Existing Action

Shocks and Stresses

Aging Infrastructure

Leading Department

Municipal Housing and Urban-Rural Development Bureau

Supporting Departments

Municipal Urban Natural Resources and Planning Bureau

6.6 Diversified Quality Housing Action Plan

Background

In the 13th Five-Year Plan for Urban and Rural Construction in Huangshi, it is proposed to optimize the road network structure of the block, strengthen the planning and construction of the block, and clearly define the area of the newly built block, and build a living block with convenient opening, appropriate scale, complete facilities and harmonious neighborhood. New residential buildings should promote the block system instead of building closed residential quarters, and support the construction of public service facilities, vigorously promote the construction of barrier-free facilities, create a convenient and fast living circle, strengthen the function of green space to serve the daily activities of residents, and clean up the illegal use of the public space within a time limit.

Description

Advocate the diversity of housing types to meet the needs of different types of people with their reasonable housing needs.

Advocate a mixed and inclusive residential layout: guide the moderate mix and harmonious coexistence of different types of residents.

Create a dynamic and shared residential environment: build a humane neighborhood scale and promote social vitality sharing.

Comfortable residential buildings: Build high-quality residential products that provide a comfortable and healthy indoor environment.



Improvement of the system

Shocks

Stresses



The infrastructure is old and decrepit.



Economic Downturn

6.7 Innovative Housing Supply Action Plan

Background

In the 13th five-year plan for urban and rural development in Huangshi city, it is proposed to innovate the system and mechanism for shantytown reconstruction, encourage the government to purchase shantytown reconstruction services, promote the PPP model of cooperation between the government and social capitals, and actively push the monetized resettlement of shantytown reconstruction.

Innovative financing mechanisms, broaden the financing channels, to speed up the urban construction investment and financing system reform, improve the mechanism of the quasi operational project management and benefits, the public welfare project financing and repayment mechanism, public products and service price compensation mechanism, actively guide foreign investment, private and individual capital and other social capitals to participate in housing construction, therefore to form a diversified investment and financing mechanism to further expand the PPP mode participation in housing construction and management of business.

Description

Description: Construction of "PPP model" housing policy financing platform: enterprises and public institutions, state-owned platform companies and social capital jointly participate in the construction of affordable housing.

Accelerate the development of a housing system that combines renting and purchasing, and accelerate institutional innovation.

Guide real estate enterprises to build rental housing: mobilize the enthusiasm of enterprises, and raise housing resources through leasing, purchase and other channels, so as to form a pattern of coordinated development of large, medium and small housing rental enterprises.

Resilience Dividends

(1) A series of measures, including the construction of a housing policy financing platform based on the "PPP model", the construction of a housing system that combines renting and purchasing, institutional innovation and the construction of rental housing by real estate enterprises, have been taken to provide diversified affordable housing for the diverse population.

(2) Multi-stakeholders coordination. Through government-enterprise cooperation and targeted procurement, the government can innovate financing models, expand financing channels, bring social forces into the construction of resettlement houses, and effectively alleviate the problem of insufficient government financial resources.

Implementation Timeline	Medium term goals (2020)
Action Type	Existing Action
Shocks and Stresses	Aging Infrastructure, Economic Downturn
Leading Department	Municipal Housing and Urban -Rural Development Bureau
Supporting Departments	Municipal Investment and Financing Platform, Urban Government, Municipal Development and Reform Commission, Municipal Natural Resources and Planning Bureau, Municipal Finance Bureau and Tax Departments.





Resilience Dividends

Community social ties. Through the establishment of Huangshi resilient living system coordination expert group, strengthen community publicity and education and grassroots autonomous disaster prevention measures to enhance the resilience awareness of residents, and give play to the public self-saving ability to win the "golden rescue time".

Implementation Timeline

Medium term goals (2020)

Action Type

Existing Action

Shocks and Stresses

Urban flooding, water pollution and water shortages, aging infrastructure, environment degradation

Leading Department

Resilience Office

Supporting Departments

Disaster Prevention Bureau, Municipal Human Resources and Social Security Bureau, Urban Government, Streets and Communities.

6.8 Resilience Awareness Action Plan

Background

In the new era, the society is faced with the crisis of traditional and non-traditional overlapping, and the urban disaster resistance and management system is also faced with a new challenge. According to the report of the 19th national congress of the communist party of China, the principal contradiction in Chinese society has been transformed into the contradiction between the people's growing need for a better life and unbalanced and inadequate development, among which "disaster resistance and security" has become an important indicator of the people's present better life and put forward higher requirements for Chinese urban disaster risk management.

The government needs to change and cultivate the public awareness from disaster response to disaster prevention, mitigation and preparedness, raise the public awareness of risk, and promote the orderly and effective participation of the citizens.

Description

A group of experts is established to coordinate Huangshi resilient living system, and expert lectures on resilient cities are to be held regularly.

Strengthen community communication and education: the government will establish and operate a multifunctional community communication system and network, and adopt various media and channels to reach all levels from individual families to neighbors, communities and regions.

Grassroots autonomous disaster prevention: giving full play to public ability of disaster prevention and self-rescue, actively organizing social rescue forces, and strengthening the construction of emergency rescue volunteer team are also important means to improve resilience.





CHAPTER VII

IMPLEMENTATION





Part 1: Prerequisites for Full Implementation

The uniqueness of Huangshi's Resilience Strategy is its system-based and comprehensive perspective that pays special attention to improving the city's capabilities to deal with acute shocks, chronic stresses and uncertainty. It requires all levels of governance and all sectors of society to fully understand the concept of resilience, to recognize the connections between different initiatives, to change management and operation, and to consciously realize the Resilience Dividends of various initiatives.

Part 2: Municipal Government Commits to Implement

The Resilience of Huangshi will continue to be led by the Chief Resilience Officer and guided by the Resilience Steering Committee and the Expert Committee, focusing on the Resilience vision which involves the three thematic areas, nine goals, and eighteen initiatives. Incorporating new ideas into daily practices requires strong collaboration and determination. The Municipal Government of Huangshi will uphold Huangshi's spirit to encourage multiple stakeholder engagement, to continue to refine the model of resilience-building, and to provide experience for other Chinese cities.

Part 3: Resilience Office to Coordinate and Monitor

The Huangshi Resilient Office will continue to work with 100RC and other platforms to connect opportunities and partners, to help the community understand the concept of resilience, and to monitor, coordinate and collaborate with the leading departments of the eighteen initiatives.

Part 4: Implementations of Each Department

Huangshi Municipal Transportation Bureau

1. Unblock the logistics channel, actively connect with Hubei International Logistics Core Hub, thus to realize the connectivity of four ports among harbour, airport, highway and railway.
2. Accelerate the construction of Qipanzhou Highway Bridge and Wuxue Yangtze River Bridge, plan to implement the railway construction along the Yangtze River, promote the joint development of Huangshi New Port, Wuhan Port and Jiujiang Port, and accelerate the integration into the core functional area of the Wuhan-Ehou-Huangshi Metropolitan Circle and the Greater Wuhan Industrial Cluster.
3. Accelerate the development of multi-modal transport, promote the transformation of Huangshi New Port to Transit Port and Hub Port, and build a multi-modal transport center in the middle reaches of the Yangtze River with seamless connection of public railways and water pipes, and accelerate the construction of One-Step international port among harbour, airport, highway and railway.

Huangshi Municipal Ecology and Environment Bureau

1. Launch Four main tasks of Purifying Water, Afforesting the River Bank, Disposing the Wastes and Dredging the Watercourse, promote the Five Treatment Projects of water, lake, gas, mountain and soil management, and fully organize the following projects consisting: the construction of the Yangtze River shelter forest system, soil erosion control, the connectivity of river and lake system, wetland ecological protection and restoration, industrial and mining wasteland reclamation and other projects.
2. Delimit the groundwater pollution control area, prevention and control area and general protection area. Establish a database of groundwater information of Huangshi.
3. Carry out the necessary anti-seepage treatment for key areas such as petrochemical production storage and sales enterprises, industrial parks,

non-ferrous metal smelters, mining areas, chromium slag landfills, and landfills.

4. Promote the deodorization project of the garbage transfer station, comprehensively rectify the percolation solution of the waste transfer station, and construct a leachate collection and disposal project.

Huangshi Municipal Water Resources and Lakes Bureau

1. Intensify the guidance and assessment of the dirty and odor water remediation work, organize relevant urban areas to study the dirty odor water remediation work experience, and introduce the corresponding assessment methods for sewage treatment and dirty odor water remediation.
2. Through the guidance, training and assessment measures to further strengthen the importance and systematic understanding of the dirty and odor water remediation work in various urban areas.
3. Strengthen the treatment of waters and shoreline garbage, clean up and dispose of garbage and floating objects in the waters, ban the breeding of lakes and private leeks, and prevent the cultivation and planting of sewage into the river (lake).

Huangshi Municipal Economic and Information Technology Bureau

1. Accelerate the construction of the R&D platform and vigorously promote the Four New Economic Development Projects with new technologies, new products, new formats and new models as the core.
2. Promote the construction of innovative platforms such as technology business incubators, Mass Entrepreneurship and Innovation Demonstration Bases, Maker Space, Modern Agriculture Maker Space, SME public service demonstration platform, and small micro enterprise innovation demonstration base.
3. Promote the transformation of traditional industries into intelligence, digitization, networking, greening and service-oriented.
4. Accelerate the cultivation of emerging industries, focusing on the development of financial services, modern logistics and shipping services, information services, and other production and service oriented industries.

Huangshi Municipal Culture and Tourism Bureau

1. Actively develop industrial heritage tourism, and vigorously promote the comprehensive cultural and tourism complex of Donggang Industrial Site,the former site of Huaxin Cement PlantCentral Cultural District and the second phase of the Huangshi Tourist Train.

2. Continue to hold the China (Huangshi) conference on Geology Popularization, and promote the declaration of World Cultural HeritagewithHuangshi Mining and Metallurgy Industry Relics including Tonglushan Bronze Mine Site, Hanyeping Coal–Iron Plant Relics, Former Site of Huaxin Cement Plant, and the east open pit of Daye Iron Mineas the core, thus to construct the world famous mineral city and the most beautiful industrial tourism city in China.

Huangshi Municipal Health Commission

1. When planning a new nursing home or hospital, it should be laid out in advance and rationally planned, so that there is a hospital corresponding to each newly built nursing home.

2. Implement tax incentives and financial support for medical institutions.

3. When planning residential areas, space and placeshould be reserved to provide necessary support for grassroots community health service organizations to carry out medical and nursing work.

4. Cultivate industry and community services for the elderly: build a pension service system with Four Main Elements; encourage Self–Supporting community models.

Huangshi Municipal Housing and Urban–Rural Development Bureau

1. Increase the urban drainage channel and the construction of urban rainwater storage facilities. Take visual measures to understand the water accumulation in urban areas and the future trends, and then quickly identify the occurrence of guilt, and take timely measures.

2. Construct an automatic measuring and reporting system of water and rain, connect it with the provincial flood monitoring system, realize information sharing and set up a special communication module. Through the calculation of the calculation, the reconstruction of the sewage pipe network is carried out according to different situations.

3. Establish an emergency office for water supply emergencies and identify the main person in charge of the emergency office.

4. Carry out the transformation of municipal infrastructure (hydropower network pipeline). Carry out renovation of disaster prevention emergency facilities. Carry out a full coverage plan for emergency lighting systems.

5. Innovate the house expropriation mechanism, further deepen the new mode of negotiation, relocation, value compensation, first construction and post–moving; expand the financing channels for shantytowns transformation, establish a variety of shantytown reconstruction construction models, and select special shantytown projects to build PPP projects; adapt to local conditions and improve the supporting facilities.

6. Improve the public service facilities in the old city to meet the functions of the integrated urban living area.

7. To reach an agreement with commercial hotels and railway systems, open the hotel lobby, station facilities to accommodatehome–stayers, open government facilities, public schools for such personnel as a shelter.

8. Strengthen the traffic links between Daye Lake New Area and Tuancheng Mountain Area,Xialu District, Huangshigang District and Shengyang Port Area, and optimize the traffic quality of key areas.

9. Start the construction of a smart transportation system, increase the frequency of bus shifts and extend operating hours.

10. Advocate the diversity of housing types to meet the needs of different types of people with reasonable housing needs and advocate a mixed and inclusive residential layout.Promote the construction of the PPP model housing policy financing platform; accelerate the construction of a housing system that is concurrently renting and purchasing, accelerate institutional innovation; and guide real estate enterprises to build rental housing.

Acknowledgement

Our sincere thanks go to ,100 Resilience City–Pioneered by The Rockefeller Foundation
China Center for Urban Development (CCUD)
Hubei Association For Science & Technology
Huangshi Municipal Development and Reform Commission
Huangshi Municipal Housing and Urban–Rural Construction Bureau
Tsinghua University
Huazhong University of Science and Technology
Wuhan University

Huangshi Urban Planning and Design Institute and other institutions for the guidance and support on this program, which provided us with the opportunity for this strategy and a platform for mutual exchange, so that we can fully and confidently participate in developing the Resilience Strategy.

Some photos are from the Internet and the author is anonymous. Huangshi Municipal Resilience City Office has no intention to offend copyright, please contact us via 86–0714–6260986.