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Special Issue: National Experiment Zones on Sustainable Development

Overview of National Experiment Zones on Sustainable Development

I. What it's about

National Experiment Zones on Sustainable Development (hereinafter referred as "the Zones")were first launched as a pilot project at regional level by the State Science and Technology Commission (now the Ministry of Science and Technology, MOST), the State Planning Commission (now the National Development and Reform Commission, NDRC), and local governments in 1986. Aiming to achieve sustainable development, the Zones focus on urban redevelopment, township development, community management, environment protection, rational resource utilization, shift of resource-based cities' growth model, and exploitation and protection of tourism resources. The pilot project was warmly praised by the public, and it helped push forward the implementation of *China's Agenda 21* and the accumulation of government's work experiences.

At the United Nations Conference on Environment and Development in 1992 and 2012, the Zones, as an important initiative of the Chinese government to boost the sustainability of nation, were incorporated respectively two times into China's National Report on Sustainable Development, and related exhibitions were held on the sidelines during the two events. The United Nations and the EU, among others, spoke highly of the initiative. By April 2014, there has been 160 such Zones set up in 30 provinces, autonomous regions and municipalities in China. The boom of the Zones is the result of the efforts of both central and local governments.

The Zones are special areas within a certain administrative region, which serve as role models and driving forces for ecological protection and sustainable development in guiding the development of neighboring or similar areas. With long-term plans in place, government work for the Zones' development features the leading role

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of government and the participation of the public, in a manner of innovation-driven development. The government facilitates the Zones' sound development through institutional innovation, and the support of science and technology.

In order to facilitate the development of the Zones, an inter-agency approach is adopted. A leading group composed of 19 ministries and agencies under the State Council was formed for promoting and coordinating relevant work, and a multi-agency-promoted mechanism was established with the Ministry of Science and Technology as the chair and the National Development and Reform Commission and the Ministry of Environment Protection as the vice chairs.

II. Evolution: three phases

Over the past 28 years, the Zones' development has experienced three phases.

Phase I: Pilot for promoting a balanced development. Since the reform and opening-up started, economic development saw a rapid progress. And meanwhile some problems were emerging, such as relatively slow social development, lack of literacy, degradation of natural resources, increased environmental pollution, and so on. In order to slow this trend, the State Science and Technology Commission and other ministries and agencies selected two areas in Jiangsu province – one is Changzhou city, the other is Huazhuang town in Wuxi city, as the pilot areas for comprehensive regional development.

The pilot work aimed to develop a sound master plan for regional social development, including efforts to improve the health level of citizens, public social responsibility consciousness and cultural literacy, and pursuing better economic, social and ecological benefits. With the objectives, Changzhou city and Huazhuang town took the groundbreaking steps and made progerss. Based on their experience, the government proposed in 1992 to expand its work into a wider scope, including industrial structure adjustment and continuous policy reform, referring to the pilot project as a mindset-changing social reform experiment,. In the same year, the national administrative office for the comprehensive experiment zones on social development was established.

Phase II: Further progress with the theme of sustainable development. Since the 1992 United Nations Conference on Environment and Development was held, countries around the world regarded the sustainable development as a guide in their national strategies. In 1994, China's government issued *China's Agenda 21*, aiming to balance socio-economic development over population, resources and environment. In 1996, China put forward the strategy of rejuvenating the nation through science and education and realizing sustainable development. Therefore, the Zones were aiming to become the first important bases for implementing China's Agenda 21 and the sustainable development strategy. In 1997, the comprehensive experiment zones on social development were renamed as National Experiment Zones on Sustainable Development.

Phase III: Full implementation of Scientific Outlook on Development. In November 2002, the 16th CPC Congress put forward the goal of building a moderately prosperous society. In 2004, the third plenary session of the 16th CPC Congress once again proposed to put people first, establish an outlook on comprehensive, coordinated and sustainable development, and promote all-round development of economy, society and people. According to the national goals in the new era, the government has formulated administrative measures, and developed the 11th and 12th five-year plans, marking efforts to achieve new progress in the development of the Zones. Meanwhile, major national R&D programs, such as Key Technologies R&D Program, 863 Program, S&T for Public Wellbeing Program, have provided strong financial support for the Zones' development.

III. Achievements

With the focus on population, resources, and

environment, the Zones have made the following achievements over the past 28 years:

1. New growth model has been explored to replace the traditional one. Based on the goals of sustainable development, the Zones have adopted a new growth model, which focuses on the reduction and elimination of unsustainable ways in production and consumption patterns, gives full play to the role of science and technology in regional development, and underscores the harmonious development of man and nature.

For instance in agricultural development, the Zones such as Zhengding county of Hebei province, Muping district of Shandong province, and Yanling county of Henan province put the emphasis on developing a land-saving, water- and energy-efficient, and eco-friendly agricultural production system, aiming to improve local eco-environment. Flagship enterprises have been fostered to form a system for recycling agricultural resources including by-products and wastes. The industrial Zones such as Wu'an city of Hebei province, Daqing city of Heilongjiang province, and Shuozhou district of Shanxi province focus on developing a clean industrial production system. They have built eco-friendly industrial parks, increased the technological content of the industry and restrained pollution-processes and products within the parks. They have developed a processing chain for efficient use of resource and waste recycling, introduced minimum-emission communities, and advocated circular economy. All this offers valuable experience for lowering resource consumption and minimizing environmental pollution.

2. A balanced economic and social development has been promoted, and more public services have been provided.

In order to solve the problems related to economy, society, resources, population and environment, the Zones have studied local practices and measures, and explored a new mechanism for balancing economic and social development with more emphasis on providing public services. The new mechanism aims to cut the size of population and make people healthier, improve their living conditions, ensure public safety and social stability, and promote all-round progress in public services. In this respect, the role of science and technology as the primary productive forces is brought into full play by launching e-government networks, which obviously improve the government efficiency. Central districts of big cities such as Xicheng district of Beijing, Xuhui district of Shanghai, Jinniu district of Chendu city have also put in place an online city management information platform and 110 emergency call system, boosting the ability in comprehensive city management.

3. A new urbanization path featuring balanced urban-rural development has been developed. Driven by industrialization, the Zones have been more urbanized by adopting a new path featuring sound and coordinated development and rational planning. Maoji Experiment Zone in Anhui province, for example, has explored feasible ways to relocate residents in flood-prone areas to newly developed towns. By improving industrial structure and increasing investment in technology, the Zone has set up an industrial system in light with the local conditions, serving as a role model for urbanization process of disaster-prone areas. Zezhou Experiment Zone in Shanxi province has adopted site-specific approaches in city and township planning. The urbanization model takes diverse forms, such as township enterprise-dominated model, agricultural industrialization-driven model, tourism-centric model, and the model of relocating small villages to be merged with bigger ones, offering valuable experience for urbanization of agriculture-dominated counties in the central and western regions.

4. Environment protection and resource conservation have been highlighted. The Zones have been seeking solutions to the problems in environment degradation and low efficiency of resource utilization arising from the process of industrialization, with a systematic view involving technology, policy and management. The Zones

have followed the principles of exploiting ecological resources while preserving the eco-environment. Take Dafeng Experiment Zone in Yancheng city of Jiangsu province as an example, there China's biggest wild deer reserve has been developed while the tidal flats has been preserved, serving as a good demonstration for wetland and biodiversity protection. Qilin Experiment Zone in Qujing city of Yunnan province, which boasts abundant solar energy and biomass resource, has made solar panels available to 92 percent of urban households. It thus becomes a clean energy pilot city.

5. The Zones have attracted world attention by boosting international cooperation in the field of sustainable development. International cooperation and exchange run through the 28 years' history of the Zones. On one hand, the government has learned advanced management experience, ways of development, and technologies from developed countries, and on the other, by carrying out *China's Agenda 21* and implementing the national strategy of sustainable development, local people created practices in the Zones with vision on sustainable development, and enabled the international community to know China's efforts in this regard. At the 2002 World Summit on Sustainable Development, known as Rio+10, China summarized the experience of the Experiment Zone model, attracting world interest. Many countries have used China's experience as refrence in pushing forward Agenda 21, driving ever-increasing cooperation between China and the outside world and China in sustainable development.

Fujian Longyan National Experiment Zones on Sustainable Development

Situated in western Fujian Province, Longyan city, or Minxi, comprises five counties, with a total population of 2.977 million and land area of 19,000 square km. With outstanding ecosystem and rich natural resources, Longyan is an important mining and forest area. Its forest coverage stood at 73.1 percent, ranking the top in the province.

In April 2009, the Ministry of Science and Technology (MOST) approved the building of Longyan National Experiment Zones on Sustainable Development, which is an experiment zone at the level of small- and medium-sized city. In 2010, MOST chose Longyan as the city for building China's first industrial demonstration base of sustainable development. In order to develop economy, realize social harmony, build a sound ecosystem, and ensure an abundant life for the people, the local government has been striving to steer a scientific development path of green economy and eco home.

The highlights of building the experiment zone in Longyan are as follows:

First, map out development plans in advance. The local government and research institutions have jointly compiled the overall plan for building Longyan experiment zone, which confirmed 33 general development goals, 10 priority areas and 59 prioritized demonstration projects. Moreover, the leaders' work group and office with the participation of municipal leaders have been set up, and the persons in charge of specific tasks have been confirmed.

Second, facilitate industrial restructuring and optimization. On the one hand, Longyan has developed modern agriculture by popularizing large-scale, standardized and ecological agriculture and promoting plantation and cultivation technologies. On the other hand, Longyan has focused on developing emerging

industries like environmentally-friendly equipment, advanced manufacturing, auto machinery, new material and new energy.

Third, facilitate economic development through science, technology and innovation (STI). The government has allocated a special fund of 80 million yuan for initiating the hi-tech industry promotion plan. The industrial added value has seen an annual average increase rate of over 20 percent. Emerging enterprises devoted to the development of environmental protection and new energy have a rapid grown there.

Fourth, stress ecosystem protection. The government has strengthened the accountability system of energy conservation, aiming to control environmental pollution and conserve resources. The municipal budget has allocated an annual fund of 150 million yuan for developing circular economy. Some of the companies in cement and coal production have been restructured and some weary-pollution enterprises have been shut down.

Fifth, balance urban and rural development and better people's livelihood. Longyan has accelerated urban and total integration and improve infrastructure building and public services in rural areas. More energy, finance and public resources have been used for improving people's livelihood, with the focus on resolving the problems of employment, housing, education and health care. Longyan has led the whole province in launching farmland infrastructure projects from county to county, built Fujian's first migrant workers' hospital, and improved the social security system by introducing the supplement insurance of major illness under the New Rural Cooperative Medical Care System and the comprehensive insurance concerning agriculture, rural areas and farmers.

Sixth, promote scientific government management. Longyan has designed evaluation indicators of government's objective management in a scientific manner. New indicators dealt with non-resource industry development, high-tech industry development, energy conservation and emission reduction as well as people's livelihood. The decision-making and administrative management have both served for the goal of sustainable development.

Zhejiang Hangzhou Xiacheng District National Experiment Zones on Sustainable Development

Established in 1949, Xiacheng District of Hangzhou covers a total area of 31.46 square km. It has a permanent population of 530,000, with 8 streets and 74 communities under its jurisdiction.

In 2012, Xiacheng District realized an output value of 59.88 billion yuan. From 2007 to 2012, the output value grew at an annual average rate of 12 over percent. It has won a number of honorary titles for its S&T advances, commercial success and strong modern service industry.

In February 2008, Xiacheng District was approved by MOST as National Experiment Zones on Sustainable Development, which is to be a role model at the level of major city. In order to enrich the people and build a prosperous community, the zone is exploring a path of civilized development featuring well-developed production, abundant living and sound environment.

Thanks to six years' efforts, Xiacheng District has completed the tasks set out in its plan of the experiment zone and made the following achievements:

First, transform and upgrade for greater comprehensive competitiveness. Oriented to the strategy of developing service industry, local government has been focusing on trade and commerce, finance, cultural innovation and exhibition industries. As a district known for its commercial success and robust service industry, Xiacheng District reached a service industry added value of 54.315 billion yuan in 2012, more than 90 percent of the district's GDP, an annual increase of over 14 percent, which ranks the top among all the 90 districts in Zhejiang province.

Second, build a sound ecosystem and improve the ecological carrying capacity. With ecological building at the core of its development plan, Xiacheng has stepped up the urban renewal, accelerated the implementation of green projects, strengthened comprehensive and long-term management of urban environment, created a low-carbon urban development model and striven to build the most clean and tidy district of Hangzhou. In 2012, the district was evaluated as ecologically "excellent", with the per capita park green area reaching 4.64 square meter and the green coverage reaching 19 percent.

Third, adjust development pattern and facilitate coordinated development. In line with the strategy of pooling resources in south Xiacheng and speeding up development in north Xiacheng, the district has accelerated the renewal of communities and the building of roads and commercial facilities in its north. In 2012, the commercial areas within the district made huge profit, generating a total tax of 6.7 billion yuan. Population in the north increased by over 42 percent more than the figure in 2006, and retail sales of social consumer goods soared by over 260 percent.

Fourth, improve people's livelihood and promote social harmony. Xiacheng has dedicated itself to building harmonious communities, improved public service systems in communities and developed new home care for senior citizens. With the focus on developing medical care and building a healthy district, Xiacheng has become the national demonstration district of traditional Chinese medicine (TCM) community service and a provincial healthy district. A safe Xiacheng has been built. It has for six consecutive years ranked the top in Hangzhou in terms of urban management.

Fifth, facilitate S&T advances and improve innovation capacity. In line with the strategy of reinvigorating the district through human resources, Xiacheng has strengthened talent development. By building industrial parks with local characteristics, Xiacheng has developed high-tech industries. In 2012, there were over 120,000 talented people. The high-tech industrial value of enterprises above designated size exceeded 4.3 billion yuan, accounting for 52 percent of the total industrial value above designated size. Xiacheng has also become Zhejiang's IPR demonstration zone by setting up IPR public service platform as well as science input and financing platform.

Zhongwei Shapotou District National Experiment Zones on Sustainable Development

Located in the mid-west of Ningxia Autonomous Region, the Shapotou District of Zhongwei city covers a total area of 5,922 square km and has a permanent population of 387,200. In Shapotou District, sand land covers 19.3 percent, mountain area 45.5 percent, and other area 35.2 percent. Shapotou District enjoys

rich tourism resources, boasting a world top 500 environmentally-friendly 5A scenic spot – Shapotou.

Originally named Zhongwei Urban Sustainable Development Zone by MOST in 2006, Zhongwei Shapotou National Experiment Zones on Sustainable Development is an experiment zone at the level of small- and medium- sized city. Since its establishment, the Zone has won numerous honorary titles such as Dubai International Award for Best Practices, China Best Practices of human settlements and China's Best Eco City.

Since the establishment of the Zone, regional economic and social development has been boosted and the people's living standards has been improved. It is becoming the fastest growing economy across the Autonomous Region. The achievements made by the Zone are as follows:

First, the economy has developed steadily and rapidly. Over the 6 years since the establishment of the Zone, regional GDP jumped from 3.35 billion yuan in 2005 to 11.818 billion yuan in 2012, an increase of over 250 percent, accounting for 47.2 percent of the city's GDP. The per capita GDP of district stood at 30,689 yuan.

Second, industries have developed with salient features. Shapotou has given full play to regional advantages by building Zhongwei Industrial Park on Gobi desert, wasteland, hills and slopes. The Park has then served as the platform for the transfer of industries and regional investment. Agricultural industries with local characteristics have become pillar industries for increasing farmers' incomes. Zhongning Wolfberry, Xiangshan Melon and greenhouse vegetable have become the green farm products known around the country. A regional tourism industry system has taken shape initially.

Third, urban and rural environment has been developed constantly. With the focus on the Yellow River and desert culture, the Zone has integrated regional development with investment attraction, tourism development and balanced urban and rural development. Relevant projects have been successively implemented, such as the renewal of alleys and five major rural projects, which include dilapidated house renovation, garbage treatment, fire control system and natural gas for rural use. The Zone has won honorary titles like China's best eco-city and garden city in Ningxia.

Fourth, social causes have developed comprehensively. The popularization of the 12-year compulsory education has helped develop national vocational schools and elevated the overall education level of the region. The implementation of the one million people poverty reduction strategy and the immigrants' employment plan has improved the education and living conditions of the locals.

Fifth, the ecosystem has been well protected. In order to build a new eco-security pattern, the Zone has prevented, controlled and used 256 square km of sand, implemented the integration of papermaking and forestation, restored 4,133 hectare of wetland, established industrial parks on deserts and developed a desert tourism industry. The Zone has effectively improved the urban ecosystem by building an urban water landscape and Tengri wetland garden as well as restoring the Yellow River ecosystem.

Sixth, science and technology has played an increasingly important role. Since its establishment, the Zone has implemented water-saving agricultural projects concerning melon planting and greenhouse vegetable cultivation, introduced over 120 new crop varieties as well as demonstrated and promoted more than 30 technologies. Moreover, a group of R&D projects has been launched in new energy, new material, advanced manufacturing and bio-engineering, and 10 industrial R&D projects have been covered under the National S&T Program. Science and technology has been playing important role to boost regional economic development.