

Problems and Strategies of Urbanization Development in Western China from the Perspective of Urban-based Society —A Case Study of Shaanxi Province

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Synopsis

Serious problems in the urbanization process of western China are raised from the perspective of urban-based society, taking Shaanxi, a typical province in natural geographical features and fast developing economy in western China as a case, and then the strategies are put forward to solve these problems.

1. Introduction

Urban-based society is a kind of social formation with urban population as the main part, human behavior and non-agricultural industries layout in urban area and residents survive in urban lifestyle. At present, whether a country or a region enter urban-based society rely on the threshold internationally that the proportion of urban population reaches 50 percent. Urbanization rate between 51% and 60% is for elementary urban society, 61% to 75% for intermediate urban society, 76% to 90% for advanced urban society and more than 90% for complete urban society (Pan and Wei, 2012). Transformation from village-dominated society to urban-based society means the great progress of agricultural modernization, industrialization, new urbanization and the fast pace of social progress, economic growth and modernization (Zhao, 2012). The achievements on urbanization in academic circles are fruitful; however, the study on urbanization from the perspective of urban-based society now is in its infancy. Among the scholars who studies on urban-based society, A recent study illustrates the urbanization strategies of Britain, America, Japan, Brazil, etc. from the perspective of urban-based society (Zhao, 2011) and challenges and choices of China (Zhao, 2012). Pan and Wei (2012), GUO *et al.* (2013) thought that there are 5 standards for urban-based society that are urban population, spatial form, life-style, social culture and relations between urban and rural areas.

China's urbanization has just reached 51.27% in 2011 (Zhao, 2012), which means China has ended the times of village-dominated society and entered urban-based society. Coastal developed regions of eastern China such as Beijing, Shanghai, Guangdong, and Jiangsu provinces have entered urban-based society many years ago. However, the concentration of large scale of migrants to the developed regions has led to series problem like population explosion, traffic congestion, environmental pollution, housing shortage, jobs crisis, etc. social contradictions are increasingly prominent under the premise that not foreseeing and avoiding these problems. Urbanization of Shaanxi reached 47.3% in 2011 (Ren *et al.*, 2013) and is about to enter urban-based society. Besides, Shaanxi develops faster than other provinces like Guizhou, Yunnan, Guangxi, etc. in western China and Hainan, Heilongjiang, Shanxi, etc. in middle part of China. Besides, GDP per Capita in Shaanxi has exceeds 5000 dollars¹ which makes Shaanxi the 3 place in western China. In this case, this paper is about to discuss the new problems and strategies in the process of Shaanxi urbanization from the following 5 aspects so as to provide experience reference for similar areas in China.

2. Problem analysis of Shaanxi urbanization from the perspective of urban-based society

2.1 Peri-urbanization is increasingly significant

2.1.1 Population peri-urbanization

Peri-urbanization population includes population moving from rural to urban area and changing from "agricultural to non-agricultural" residence registration by demolition and reconstruction. They live in city but get worse treatments on public service, employment,

social security and housing comparing to citizens (GUO *et al.*, 2013; Liao and Zhang, 2004; Chen, 2012).

As the typical representative in western China, the scale of peri-urbanization population in Shaanxi has enlarged greatly from 3.86 to 7.35 million², which has covered 43.09% of urban population and 19.64% of permanent residents (Tab.1). Among the prefecture-level cities, the peri-urban population of Xi'an, the capital city of Shaanxi, has grown to 2.18 million². Peri-urban population intended to gather in big cities like Baoji, Yulin, Hanzhong etc. rather than small cities or towns. Besides, most peri-urban population keep agricultural residence registration, living habit and neighborhoods, some of them are taking rents as their main income, which made them lack of willingness to make a living by their wisdom and efforts. All these go against the connotation of urban-based society.

Tab.1 Peri-urbanization population change of Shaanxi from 2000 to 2010

	Urban population(million)	Non-agricultural population with household registration (million)	Peri-urbanization population (million)	Percentage of peri-urbanization population(%)
The fifth population census	11.63	7.77	3.86	33.22
The sixth population census	17.06	9.71	7.35	43.09

Data source: The fifth and sixth population census.

2.1.2 Spatial peri-urbanization

Land urbanization faster than population urbanization is a significant problem in the development of many cities in China. The extensive use of urban land will cause sharp conflicts between human and land under the background of urban-based society. It is common that urban lands expand blindly in China. Population in China grow with the annual average rate of 0.5%³, but the construction lands of municipal districts expand 10 times than that of the population speed since 2005. Shaanxi population growth rate is 0.24%¹, which is much slower than some other provinces in China (Fig.1). However, its expanding speed of construction land is 6.27%⁴, much faster than other provinces in the corresponding period, Xi'an is a typical one (Fig.2).

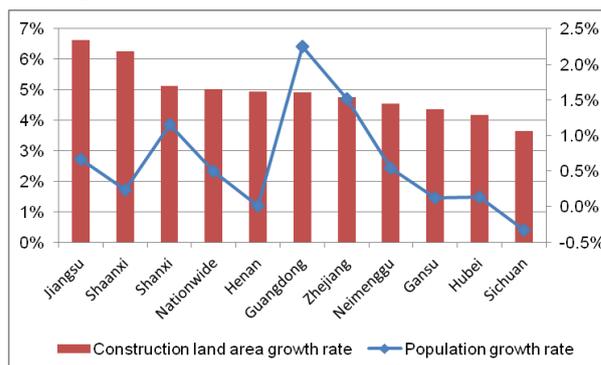


Fig.1 Construction land area and population growth rate of Shaanxi comparing to some other provinces in China since 2005

Data source: Shaanxi Statistic Yearbook.

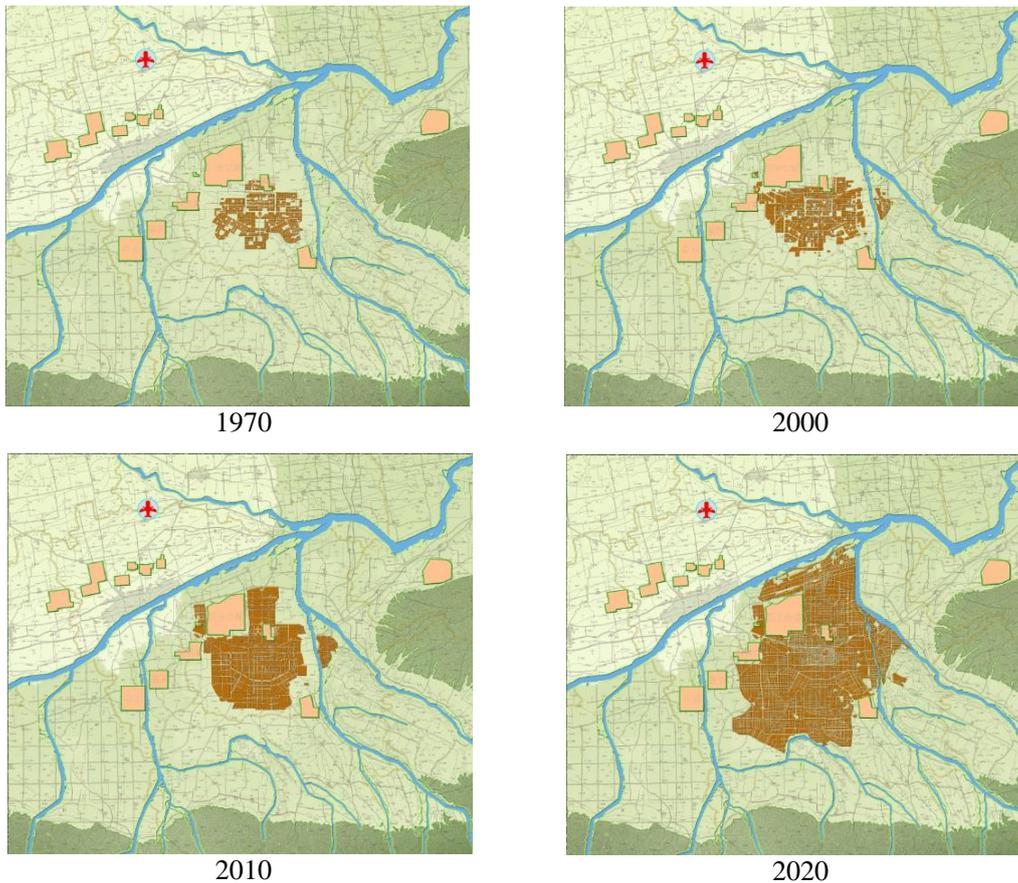


Fig.2 Spatial expansion diagrammatic sketch of Xi'an main city

Data source: Xi'an Urban Master Plan (2004-2020).

Landscape of towns are much alike rural areas and rural area are alike towns are the true portraiture for peri-urbanization area. On one hand, urban constructions always bypass the peri-area because the residents living there don't want to give up the rents of their houses, which lead to urban villages. Landscapes in such area always change rapidly affected by multi-influence of urban construction and environment, and its instability is stronger than both urban and rural area. On the other hand, convenient location, low living expenditure makes the area the first choice of the rural migrants. However, such area has always been the blind area for city management, making it bad accommodation, bad security area to live. This unique landscape is due to the double lags that are the increase of urbanization lagging behind the rate of both non-agricultural employment and industrialization.

2.2 Unreasonable spatial layouts of cities and towns

2.2.1 Big cities develops surpassingly while small towns are underdevelopment

First, metropolis and big cities developing surpassingly is a significant phenomenon in the process of Shaanxi urbanization. The concentration of population to big and metro cities is due to its economic, facilities, transportation, living expenditures and civilization superiority than small cities and towns. And the gathering of population will enhance the renewal and perfection of the conditions to attract more people, which will raise their position in lager regions (Zheng *et al.*, 2003; Pan, 2005). In 2000, there is 1 metropolis, 4 medium-sized cities and 5 small cities while no big cities, making a unstable urban system. But till 2011, Baoji, Xianyang have grown up to big cities and Yan'an, Ankang have ranked in medium-sized cities (Fig.3). So Shaanxi has formed a urban system with a structure of 1 metropolis, 2 big cities, 5 medium-sized cities and 3 small cities. We can tell from the changes that though the number of big cities has increased, but the number and scale of small cities declined, making the urban system still unstable and unreasonable (Tab.2).

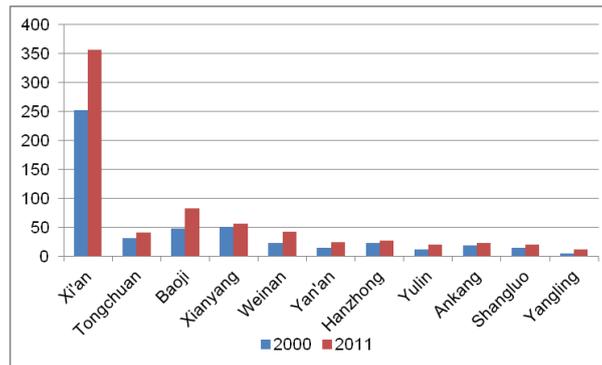


Fig.3 Urban scale change in prefecture-level cities of Shaanxi

Data source: Shaanxi Statistic Yearbook.

Tab.2 Change of city size of Shaanxi

Urban scale	Number		Proportion (%)		Population scale (million)		Proportion (%)	
	2000	2011	2000	2011	2000	2011	2000	2011
>1 million	1	1	9%	9%	2.53	3.57	52%	51%
0.5-1 million	0	2	0%	18.2%	0	1.39	0%	20%
0.2-0.5 million	5	5	45.5%	45.5%	1.73	1.55	35%	22%
<0.2 million	5	3	45.5%	27.3%	0.62	0.50	13%	7%

Data source: Shaanxi Urban Construction Statistics Report.

Second, the phenomenon of weak small towns is getting series. Average population of 10 municipal districts is 1.26 million¹; the population of only 32 counties out of 83 as the intermediate level of urban system has exceed 100 thousand⁴; the percentage of small towns with less than 10 thousand people covers 88.6% of the total number 1011⁵. However, small towns are the key carriers to develop non-agricultural industries and hold rural migrants. So we can confer that weak base and insufficient development power are the main shackles for Shaanxi urbanization.

2.2.2 Population density and population change differs greatly in different regions

Population density in a certain time can reflect its static population distribution. The population density of Shaanxi is of great difference, which differs from 18 to 5000 people¹ per square kilometers. Fig.4 shows that population density in Guanzhong area of Shaanxi is the highest, which is 400 people per square kilometers, and most population is gathering along the Weihe River. Xi'an is the most densely populated city with 2000 people per square kilometers. Southern part is the second densely populated part with 100-500 people per square kilometers and northern part with the density under 100 people per square kilometers. Comparing with 2000, the population weights of Guanzhong and northern part have raised 2.37 and 0.24 percentage¹ points separately (Fig.5), which have close relationship with the construction of Xi'an metropolis and energy development. However, population weight of southern part of Shaanxi has decreased 2.6 percentage¹ points; the reason for this is that its development is confined by available lands, environmental protection and capital shortage. We can infer that people intend to move to fast-growing cities like Xi'an, Yan'an, etc., especially to those municipal districts of metro and big cities.

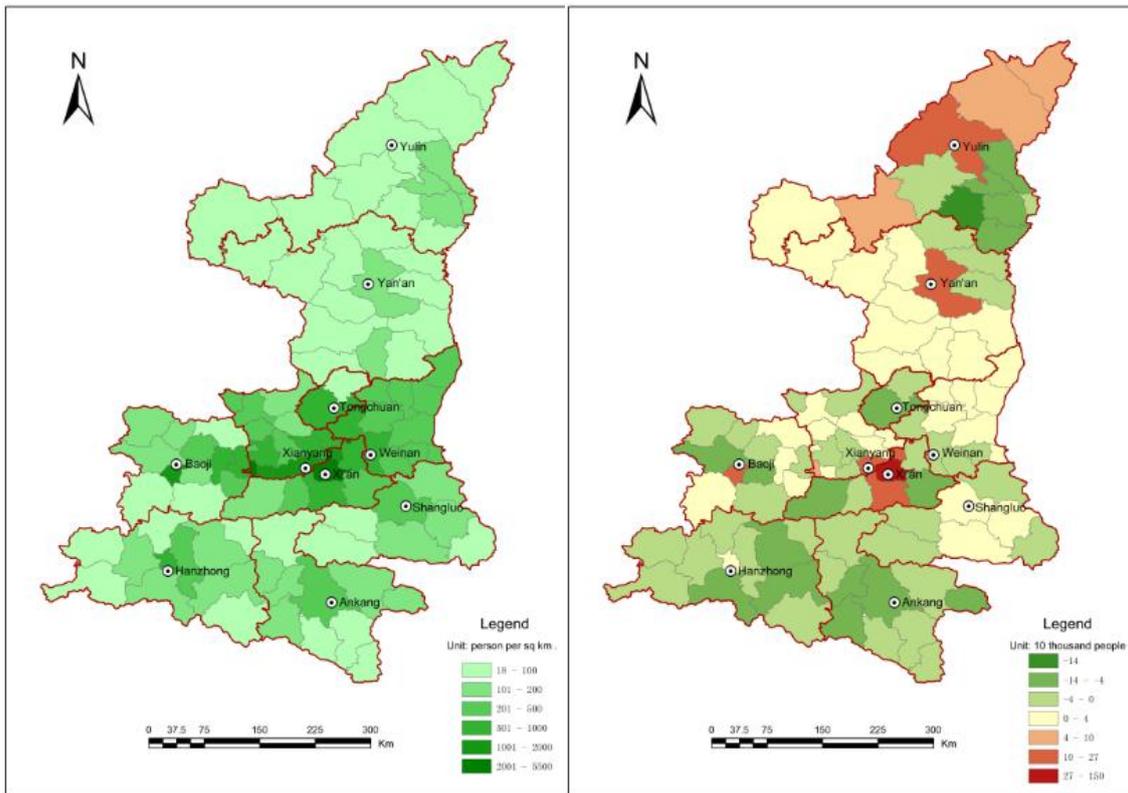


Fig.4 Population density of Shaanxi

Fig.5 Population change from 2000 to 2010

Data source: Shaanxi Statistic Yearbook.

2.3 Urban characteristics are missing

Urban-based society asks the urban area should have distinctive characteristics which can embody its cultural deposits and landscape characteristics. Urban characteristics have been a judging standard for a long time. Xi'an is a typical city of significant characteristics with clear functions and division in different blocks. The northern part of Xi'an is a typical label of modern industry in Shaanxi taking economic and technical development zone as its carrier and undertaking advanced equipment manufacturing as its leading industry. The southern part of Xi'an takes Qujiang New District as its carrier with traditional architectural style and increasingly prosperous cultural industry. The western part of Xi'an has solid foundation on emerging industry, hi-tech industry, information industry and creative industry relying on Xi'an High-tech Industrial Development Zone which reflects the advantages of sci-tech talents, creation and modern city characters. The eastern part of Xi'an exerts itself to forge green lung of Xi'an to reappear water and ecological landscape with Chanba Ecological Zone as its carrier. However, other cities in Shaanxi don't have significant characteristics like Xi'an. These cities have similar architectural style with more and more slab-type apartment building, similar road label and landscape opusculum in public space, and long overshadowed buildings. The feeling of "thousands cities with same face" and "somewhere in time" is stronger than ever before, which make the city recognition discount heavily.

2.4 Distance between urban and rural area is enlarging

One of the characters of urban-based society is harmonious co-prosperity and advancing as a whole. But the distance between urban and rural area in Shaanxi is enlarging (Tab.3), which still has a long distance to meet the basic demand for urban-based society.

In income and expense aspect, the income balance between urban and rural residents enlarges from 3680 Yuan in 2000 to 13217 Yuan¹ in 2011, the urban/rural consumption ratio is 3.5:1, urban living condition is superior to rural significantly on indexes of living quality like number of computer per 100 households and percentage of household expenditure on education, culture and entertainment. But percentage of resident expenditure on health care

in rural area is increasing, which means inadequate rural medical insurance system and no proportionately change between rural resident expenditure on health care and the income.

In investment in fixed assets aspect, urban area accounts for the vast proportion of the investment, the proportion even reached 95%¹ in 2011. The widening investment distance between urban and rural area make the rural environment improve sluggishly. So the survival and development distance between urban and rural area is getting even large.

In landscape aspect, urban area is a regional integrated system containing physical features like rivers, hills and artificial scenic such as cultural relics and historic sites, buildings and structures, public facilities and streets. However, rural landscape is featured by messy layout and style of architecture, mixed function of land use, extensive way of land use and appalling sanitary conditions.

In living condition aspect, urban area is facilitated by complete public facilities such as education, medical care, sports, recreational facilities and municipal facilities like road and pipe networks. But in rural area, road hardening rate is too low; configuration of reading room, activity rooms for old people, sports and recreational facilities is not complete at all. The efficiency of many facilities is too low because they are layout near village committee making them not convenient for those who live far away from the committee to use. Environmental pollution in rural area is getting serious, sewage depending on evaporation and rubbish on wind blows are the true portraiture. Proportion of elderly people relying on pension in rural area is only 4.6% (Han and Wei, 2012), covering less than urban proportion (Zheng *et al.*, 2003). Besides, rural schools are lack of educational resources; some school buildings have serious security threats.

Tab.3 The distance between urban and rural residence in Shaanxi province

Year	2000		2005		2011	
	Urban	Rural	Urban	Rural	Urban	Rural
Per capita income(Yuan)	5124	1443.9	8272	2052	18245	5028
Per capita expenditure(Yuan)	4277	1251	6656	1896	13783	4496
Investment in fixed assets(Billion)	64.4	10.1	184.1	14.1	816.7	39.3
Number of computer per 100 households	7.03	0.18	27.9	0.5	82.4	16.6
Percentage of household expenditure on education, culture and entertainment (%)	12.8	14.5	16.3	15.7	13.5	9.0
Engel coefficient	35.8	43.5	36.1	42.9	36.6	30.0
Percentage of resident expenditure on health care (%)	7.9	7.3	9.1	8.7	8.0	11.9

Data source: Shaanxi Statistic Yearbook.

2.5 Resources and environmental problems are standing out

Urbanization is the concentration of population and industries. However, the concentration also means the gathering of production and living pollution. So the quality of urban ecological environment is the important index of urbanization and has got more and more attention. Urbanization reaching 50% not only mean the great change of social structure, but also means the transformation of industry from the second industry to the third industry. Complex non-agriculture industry demands diverse production and consumption, which makes the urban system even complex. Resources and environmental problems are standing out in the cases of limited urban environmental capacity.

The problems are expressed on the following aspects. First, urban expending has occupied a great number of cultivated lands; cultivated land in Shaanxi has reduced sharply from 3114 to 2861 thousand hectares¹. Second, air are polluted in every level of Shaanxi cities, and the more advanced of economy developing, the serious pollution it has; in much time of a year, PM2.5 in Xi'an has exceed 100⁶, making Xi'an a national heavily polluted city many times. The reason for this can be explained by more than 70%¹ coal consumption out of energy consumption, coal consumption can discharge waste gas and water, which are the main sources of pollution; besides, raise dust and automobile exhaust are other reasons for air pollution. Third, inappropriate or under-standard deposition of "three wastes" will also lead to environmental degradation, insufficient processing capacity of facilities and lagging infrastructure construction than population concentration can account for this.

Comprehensive utilization of industrial solid waste of Shaanxi is only 60%⁴ in 2011, Shangluo, a small city in Shaanxi, is less than 7%⁴. Shaanxi urban sewage treatment rate is just 82%⁴.

3. Strategies to meet urban-based society

3.1 Innovating social security system

The key to solve the problems of peri-urbanization is reforming a series of supporting system which are residence registration system-centered. Explore new way to reform residence registration system draw on the practical experience of Shanghai, by adopting the residence registration system of identity cards and residence permits which are taken as certification to participate in production and living activities in the city, and audit regularly. Meanwhile, take transient population's social security, medical and health care, children education, occupation introduction, employment training, legal aids and so on into the management categories of residence permit. The insurance scope of security housing which is another main content of social security should be extended reasonably from housing difficult family having urban residence registration to those holding residence permit living above a certain year, referring to the corresponding type of housing security aiming at housing difficult family according to income level. By these means to set up the fair and equal security network system within a certain area (such as provincial area) and release anxiety caused by population migration. In addition, rural residents who don't want to live in the countryside are able to live in the town comfortable and realize complete urbanization gradually through switching the homestead to security housing and social security.

3.2 Optimizing urban developing space

It is necessary for Shaanxi to implement the strategy regarding local conditions of urbanization and realize regional coordinated development. It suggests taking metro and big city as the center node to build networked spatial pattern of urban system which is multiple, multipolar, and connected by traffic corridor (Fig. 6). Networked spatial pattern of urban system takes Xi'an international metropolis as regional development core, Yulin, Baoji and Weinan, Hanzhong particularly as the growth pole of northern, Guanzhong and southern area separately of Shaanxi province, Yan'an, Tongchuan, Ankang, Shangluo, Hancheng, Yangling as regional central cities. The urbanization of center node should focus on mining development potential, improving quality, and promoting the transformation to senior urban social. The cities of regional growth poles should turn to improve urban development environment, guide the aggregation of population and industry, expand city scale, enhance influence, and transfer into the primary city society. The urbanization of regional central cities should focus on stronghold spatial development strategies which can speed up the urbanization process through enhancing the ability of aggregation and influence of regional central cities on the premise of ecological protection. The development of small cities should be paid more attention with the rapid development of big cities. Since small cities have the potential to develop into regional growth poles that can absorb rural population and has strong radiation ability.

In order to change the situation that urban primary index of primate city is too high and small and medium-sized cities lag behind, it is necessary to strengthen the interaction between cities and towns on the basis of existing urban system, taking urban agglomerations as the primary form in Guanzhong area which has stronger resource and environmental capacity (Zhang and Liu, 2012; Wan and Zhu, 2010). From the perspective of urban economics, polycentric structure of urban agglomeration is helpful for preventing city disease caused by excessive concentration of urban functions as well as redundant construction and waste caused by excessive dispersion. So taking urban agglomerations as the primary form of urban system is the main direction of improving regional competitiveness and attracting population to gather to promote urbanization (Zhang and Liu, 2012; Li, 2008).

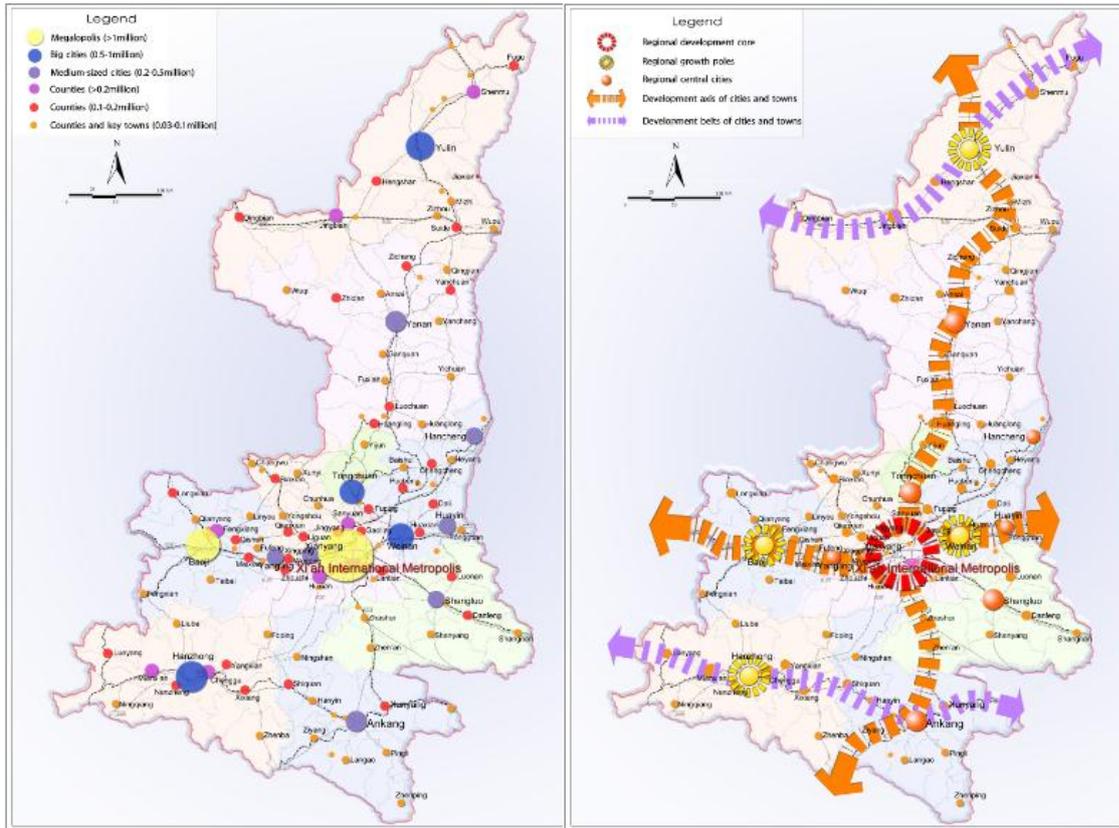


Fig.6 Shaanxi urbanization planning

Data source: The twelfth five-year urbanization plan of Shaanxi province.

3.3 Figuring clear urban characteristics

The establish of urban characteristics should be done with city culture as the foothold, with city history as extension, city feature as starting point to show the integration of city characteristics by urban planning, architectural design, landscape design and construction in it. Urban road named after historical figures and streets can reflect the integration with local culture. Architecture design also can reflect the local culture like architectural style of rural community, such as Pingli county in Ankang (Fig.7). From the perspective of different cities in Shaanxi, Xi’an and Xianyang can highlight city characteristics based on the long sequence and thick accumulation of Qin, Han, Tang history and culture. Baoji, Weinan, Yanan, Yulin should grasp their local culture elements to highlight city characteristics, such as the promotion of Xifu culture of Baoji, the inheritance of traditional opera of Weinan, the red culture of Yanan, the earth construction of Yulin. Ankang , Hanzhong, Shangluo can create urban leisure culture based on their typical natural scenery to realize integration of urban planning and mountain as well as water; at the same time, the historic town as architectural feature should be attached more importance.



Fig.7 New rural communities in Pingli county, Ankang city, Shaanxi province

Data source: Taking by author.

3.4 Overall planning for urban-rural development

After recognizing the importance of harmonization between urban and rural area, Shaanxi has put strategic focus on government-subsidized housing, issues of agriculture, farmer and rural area, equalization of basic public service, energy-saving and emission reduction, coordinated development of regions etc. We can tell that formerly thoughts of emphasizing urban but ignoring rural area have been broken and the development of rural area has been raised on an important position. The primary task is to narrow the gap between urban and rural area.

First, narrow the public service gap to realize equalization (Hong, 2008). In the premise that drafting a unified accessory standard for public service in the circle of province, governments who is capable of providing the basic service can solve their own, and other governments without sufficient finance can use financing mode like BOT to get the basic money to provide service. On education aspect, build a rotating mechanism of teachers from urban and rural schools to balance the teaching resources and avoid too much concentration of teachers in urban area by awards or performance; increase input on education in backward areas and improve the quality of educational facilities to realize educational opportunity and process equally. On medical care aspect, compile regional medical plans guided by demand difference and adjust medical resources layout by population distribution and migration trend. Second, narrow the infrastructure gap. Build convenient transportation linking nearby towns or cities to improve external traffic; villages near towns or cities can extend the water pipes to rural houses while other villages can build central drinking-water source; improve sewage pipes to end the current sewage crosscurrent situation; advocate designated collection, sorting collection and processes together of household waste to improve rural living conditions. Further extend the electricity, communication and network to rural houses to make the rural residents get the same access with outer world as urban residents do.

Third, narrow the income gap. On one hand, strengthen the base of urban non-agricultural industry to provide more working opportunities and raise the income level of migrants; on the other hand, it is necessary to develop rural characteristic economy, villages near cities can develop modern agriculture like rural tourism, experience farming and picking garden while villages far from cities can improve agricultural efficiency by enhancing the level of agricultural modernization and large scale production; improve agricultural management to raise the income level.

3.5 Strengthening the environmental protection

Confined by lag ecological construction, old manage concept, level and matures, a series of problems has broken through the capacity of resources and environment and actions should be taken immediately. Taking Shaanxi as an example, firstly, metropolis and big cities should develop around the concept of compact development and smart growth, advocating compact mix land use pattern to raise land use efficiency. Secondly, increase the investment scale on pollution treatment by improving energetic consumption structure, advocate clean energy,

build multi-scale green belts, hoard construction in process and raise vehicle fuel efficiency to prevent the air quality from declining. Third, increase investment on construction and operation of infrastructures, especially for refuse and sewage treatment plants to end the embarrassing situation that facilities in some counties stop working due to expensive operation costs. Forth, environment is a king of public goods that every can own, its maintaining and improvement can't go without every resident. So public participation not only reflects on the participation of decision-making, but also on obligations to enhance everyone's environmental awareness and protection actions starting from our own.

Endnotes:

1. *Shaanxi Statistical Yearbook*.
2. *The fifth and sixth population census*.
3. *China Statistical Yearbook*.
4. *Shaanxi Urban Construction Statistics Report*.
5. *The sixth population census*.
6. <http://www.pm25.in/xian>.

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