

Discussion on Sustainable Urbanization in Tibet

FAN Jie, WANG Hongyuan, CHEN Dong, ZHANG Wenzhong, WANG Chuansheng
(*Institute of Geographic Sciences and Natural Resources Research, Chinese Academy
of Sciences, Beijing 100101, China*)

Abstract: After 1995, Tibet entered the stage of accelerated urbanization. The large floating population from outside Tibet has become the driving force for urban expansion and the rising of urbanization rate. After analyzing the changes of urban functions and spatial structure of urban system in Tibet, this paper argues that before 1995 the urbanization in Tibet was mainly driven by administrative function, resulting in certain population migration, whereas in the past decade economic function has become the key factor accelerating urban expansion with the market mechanism creating large-scale inflow of population. The floating population-based urbanization and high population growth in the agricultural and pastoral areas of Tibet has promoted the regional economic prosperity, but exerted resources and environmental pressure and brought some problems for Tibetan culture protection at the same time. The conflicts and contradictions between urbanization and the sustainability of natural resources, environment and social development have been intensified. Addressing these problems, this paper proposes some countermeasures for improving the sustainability of Tibetan urbanization.

Keywords: urbanization; population; resources; environment; sustainability; Tibet

1 Introduction

Since the Democratic Reform in 1959, Tibet has made great progress in economic and social development. However, restricted by natural and economic conditions, the urbanization process in Tibet was comparatively slow. In 1995, the average urbanization rate Tibet was 12.6% (According to TBS (2008), urban population accounted for 37.5% of the total population of Tibet in 2006, while according to NBSC (2008), the proportion of urban population in Tibet, i.e. the urbanization rate, was 28.2%. Accordingly, the Tibetan urbanization rate in 1995 was obtained by multiplying the proportion of Tibet's urban population by 0.752). After 1995, with the implementation of the Western Development Campaign, it entered a rapid urbanization stage. In 2006, the urbanization rate of China was 14.9 percentage points higher than that in 1995, in the meantime, faster than the average national increasing speed, the urbanization rate of Tibet increased by 15.6 percentage points compared to that in 1995 (NBSC, 2008).

The population change in Tibetan urbanization is distinctive. During the rapid urbanization stage since 1995,

the large-scale floating population from outside Tibet has become the driving force of urban population growth, and administrative function has been substituted by economic function as an impetus to urbanization. The way of propelling urbanization through economic function has achieved remarkable economic effects, thus promoting urban and regional economic prosperity and enhancing people's living standard significantly. In 2006, the GDP per capita of Tibet exceeded 10 000 yuan (RMB).

Since the Tibetan Plateau is of distinct natural and cultural characteristics, the relationship between its urbanization mode and sustainability of eco-environmental system and social system should be highly concerned and scientifically identified, and effective approaches to sustainable urbanization of Tibet should be sought before irretrievable losses are caused to human civilization by inappropriate urbanization (Sun, 2005; Zheng, 2008).

Based on the analysis of historical statistical data of population changes in Tibet as a whole and in each of its city and town, this paper first tries to answer the following question: who contribute more to Tibetan urbanization, the floating population or local farmers and

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Corresponding author: WANG Chuansheng. E-mail: Wangcs@igsnr.ac.cn

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herdsmen? And then, the paper goes on to explore the changes in the driving forces and spatial characteristics of Tibetan urbanization in different periods according to the historical data in terms of the scales, sources and causes of population transfer, and the composition of population growth of different cities and towns, *etc.* Furthermore, the paper probes into the resources, environmental and social effects of Tibetan urbanization, and discusses the sustainability of urbanization in Tibet through conducting investigation in Tibetan assistance institutions and local urban planning and land administration departments, and analyzing the carrying capacity of natural resources and environment in Tibetan farming and pastoral areas, the cultural embedment created by floating population and external capital, *etc.* Finally, suggestions for the sustainable urbanization of Tibet are put forward according to its natural and cultural features.

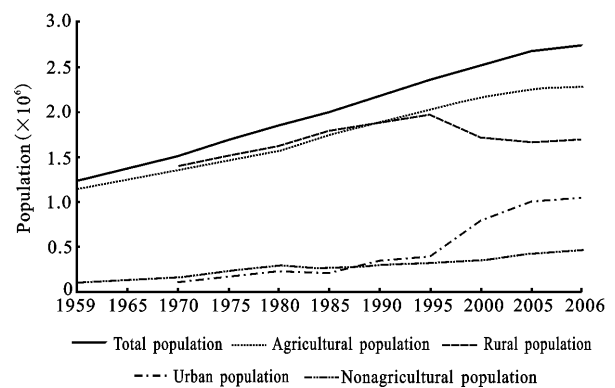
2 Demographic Analysis in Process of Urbanization

Due to the restriction of ecological system in Tibet, population expansion should be controlled within an appropriate limit (TPCTAR, 1995). During the past two decades, the natural growth rate of local farmers and herdsmen has been continuously high, and floating population has increased rapidly in cities and towns, which has brought about considerable economic growth on the one hand but exerted population pressure on the other.

2.1 Changes of total and urban population

The population changes in Tibet have gone through three stages. The first stage is the two hundred years before the Democratic Reform in 1959—the period of slow population growth. During such a long time, the population was almost at a standstill with a slight increase of 58 000 persons, and the total population in Tibet was about 1.2×10^6 in 1959 (Zhang and Huang, 1996). The second stage is from 1959 to 1995—the period of rapid population growth. In this period, the old pattern of Tibet's population growth characterized by high birth rate, high mortality rate, short life and low natural growth rate was completely changed. The average life expectancy increased from 35.5 years to above 60.0 years, and the average mortality rate dropped from

28.0‰ to 7.6‰ in the second stage. In 1995, the total population reached about 2.4×10^6 , with an annual increase of urban population of 11 600 persons from 1970 to 1995. The third stage is after the year 1995—the period of rapid urban population growth. According to the statistical standard of urban population, the number of urban population grew from 0.4×10^6 to 1.0×10^6 , with an annual increase of 55 400 persons from 1995 to 2006 (Fig. 1).



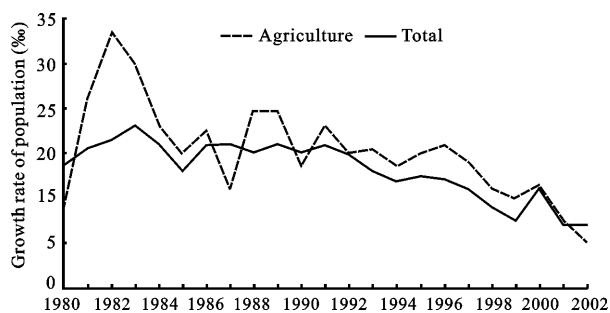
Source: TBS, 2008

Fig. 1 Population changes in Tibet from 1959 to 2006

2.2 Growth of agricultural and pastoral population

Due to the high growth rate of local Tibetan population, especially that in agricultural and pastoral areas, the total population of Tibet grows rapidly. On the one hand, the birth control policy has not been implemented in the agricultural and pastoral areas so that the birth rate has been keeping at a high level; on the other hand, the central government has made continuous efforts to improve the medical conditions and living standards there, so the mortality rate has been reduced year by year and people's life prolonged. As a result, the agricultural and pastoral areas have become the region with the highest natural growth rate of population in China. According to our investigation results, from 1980 to 2002, the average annual natural growth rate of population in these areas reached as high as 17‰, which is 3–4 permillage points higher than that in cities and towns in the same period (Fig. 2). The sample survey of 1% of the resident population in Tibet shows that the average annual natural growth rate of agricultural and pastoral population in recent years has still been around 10‰, higher than the national average. The fast natural growth of agricultural and pastoral population keeps the proportion of Tibetan

population above 90% in Tibet's total population (Liu, 1989; EBPCC, 1994).



Source: Values are calculated and organized according to the research data of Tibet Public Security Department

Fig. 2 Changes in natural growth rate of Tibet's population

2.3 Impact of floating population on urbanization

Although the natural growth rate of agricultural and pastoral population in Tibet is high, limited population can be transformed into urban population (Fan and Wang, 2005; Wang and Lu, 2007). A rough estimate can be made according to the Tibetan statistical standard (TBS, 2008) that the agricultural and pastoral population reduced by 284 100 from 1995 to 2006 while the urban population increased by 609 900 in the same period. Despite the multiple factors influencing the natural and mechanical growth of population, it still can be said that the scale of local agricultural and pastoral population moving into cities and towns is small. In other words, the urbanization of agricultural and pastoral population makes limited contribution to the overall urbanization in Tibet.

In the 1990s, the 2.38×10^{12} yuan of national investment and 62 assistance projects brought significant changes to the infrastructures and economic conditions in Tibet, which also attracted large number of floating population and promoted the progress of urbanization. (Liu *et al.*, 2007). According to the current statistical standard of China (PCOSSB, 2002), the floating population from other provinces are classified into two categories: the floating population with their *Hukou* (household registration and management system in the mainland of China) changed, who are calculated into the urban population of Tibet; the floating population with their original *Hukou* unchanged, who are referred as temporary residents and can be calculated into the urban population of Tibet when they stay in Tibetan cities and towns for at least six months. The number and impact of

the former category have reduced significantly whereas the latter one has become an increasingly important driving force for the rapid urbanization in Tibet since 1995.

2.3.1 Weakening impact of migrant population with *Hukou* changed on urbanization

There are two upsurges of migration in which the migrants have their *Hukou* changed into a Tibetan one. One took place in 1965–1980 (Liu, 1989) with the administrative service industry as the main destination of the large-scale population in-flow. The floating population reached 175 200 during this period with most of the migrants working in administrative and government public service industries under government arrangement. The other appeared in 1990 and has been further strengthened since 1995, the motivating force of which was completely different from that of the former one. The migrants moved to Tibet voluntarily this time for profit-making in the tertiary industry.

Cities and towns are the main destinations for this group of migrants. The Fifth National Census in 2000 shows that business service workers, production and transportation equipment operators and technical professionals account for 51%, 22% and 11% of the total number of migrant population respectively (PCOSSB, 2002), which manifests that working in the tertiary industry is the main reason for their migrating into Tibet. However, since the scale of such kind of migration shows an obvious decreasing tendency, its impacts on urbanization weaken rapidly. In 2000, its contribution rate to urbanization dropped to 0.6% and lingered at this level thereafter.

2.3.2 Enhancing impact of migrant population with *Hukou* unchanged on urbanization

The number of temporary residents in Tibet has increased a lot in recent years. According to our 2003 field investigation in six different types of cities and towns, namely, Lhasa, Xigazê, Qamdo, Bayi, Zêdang and Nagqu, it is estimated that the temporary residents may account for about half of the urban population in Tibet, who have thus become an important impetus to current Tibetan urbanization. Compared with the number of 108 700 temporary residents in Tibet derived from the Fifth National Census in 2000, the actual data yielded by our field investigation is approximately twice that number. Taking Lhasa as an example, according to our investigation, there were 160 000 temporary residents among the

total population of 300 000 persons in the urban district, while the number of temporary residents from the fifth census was less than 80 000. Based on the number of our investigation, the urbanization rate in Tibet might reach as high as 27% in 2000.

The temporary residents from outside Tibet account for about 80% of its total, most of them come from peripheral provinces and municipalities such as Sichuan, Chongqing, Gansu, Qinghai, *etc.*, and agglomerate in cities and towns, especially in Lhasa and other prefectural centers. Lhasa, in particular, accommodates 51% of the total temporary residents of Tibet. The temporary residents in Lhasa share the hopes of getting better employment opportunities and economic benefits. The occupational structure of this group of people is quite similar to that of the migrants who already had Tibetan *Hukou* (Fu, 2000), with more than 70% of them working in the tertiary industry. And there are also some temporary residents engaged in suburban agriculture (mainly in vegetable cultivation) on the outskirts of Lhasa in recent years (Jiang, 2002).

3 Function and Spatial Pattern of Urban System

In 1950, Tibet had only one city and five towns, and in 2007 the numbers increased to two cities (one prefecture-level city and one county-level city) and 140 towns^①. Tibet stepped into the rapid urbanization stage after 1995, reflected in the springing up of new small towns and the large-scale expansion of existing key cities and towns. The main cause for Tibet entering rapid urbanization stage is the fundamental change of urban functions from administration-orientated to economy-based function. Since 1995, under the combined influence of government and market mechanisms, the urbanization and economic growth in Tibet has entered a new stage of benign interaction and rapid development.

3.1 Before 1995: Administrative function being fundamental drive for urbanization

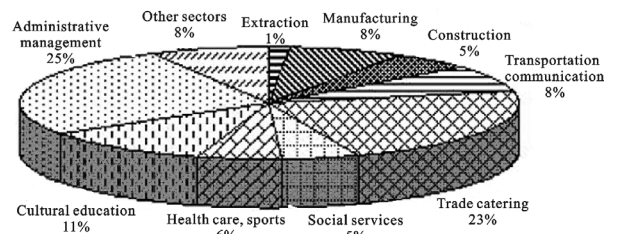
Before 1995, the basic service function of administra-

tion was the main function performed by most of the cities and towns in Tibet (Jiangcunluobu, 1999). According to the data of 1990, almost all the cities and towns there were the seats of local governments (Table 1). The administrative function had promoted the development of social undertakings in cities and towns, and those cities and towns thus became the centers providing basic services for the surrounding areas, including administrative management, business service, cultural service, medical treatment, *etc.* Therefore, until 2000, the proportion of people engaged in the administrative industry and local public services was as high as 86% (Fig. 3).

Table 1 Number of administrative centers in towns in 1990

Population scale (person)	Number of towns	Number of administrative centers	
		Prefecture level	County level
1–2000	8	0	7
2001–5000	14	1	12
5001–8000	4	1	3
8001–15000	2	1	2
15001–25000	3	3	3

Source: Values are calculated and organized according to the research data of Tibet Public Security Department and Construction Department



Source: Values are calculated and organized according to the research data of Tibet Public Security Department and Construction Department

Fig. 3 Composition of nonagricultural population in towns by sector in 2000

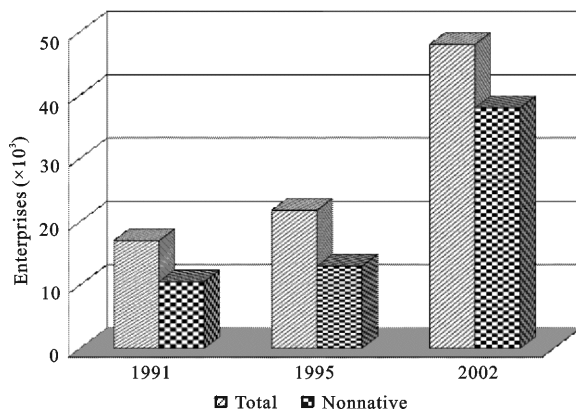
3.2 After 1995: Economic function being fundamental drive for urbanization

Since 1995, the economic development in some of the key cities and towns in Tibet has been accelerated, their

① In 2003, in-depth investigation and research were conducted on Tibetan urbanization issue. During this process, a series of materials and data of the year 2002 and major years before that were retrieved, including the number of cities and towns, the population scale and employment structure of each city and town, the data of natural and mechanical population growth, the causes of population flow, *etc.* The present study on the urban functions and the spatial distribution of urban system are carried out based on this set of data, the original findings of which still stand today.

economic function has been strengthened significantly, the number of cities and towns has continuously increased, and their scales have been expanded constantly. All of these changes have given a strong push to the urbanization in Tibet.

In 1995, the output value of non-agricultural industries accounted for 52% of GDP, while the figure increased to 84% in 2007. The self-employed and private industrial and commercial enterprises in cities and towns had made remarkable contribution. The number of them doubled in the short seven years from 1995 to 2002. In 2007, the employees of urban self-employed and private enterprises accounted for 57% of the total urban employees, many of whom came from outside Tibet for profit-making in the tertiary industry and other non-agricultural industries. From 1995 to 2002, the proportion of self-employed enterprises from outside Tibet rose from 58% to 80% (Fig. 4), whose role in strengthening the economic function of Tibetan cities and towns became more and more important. This also conforms to the characteristics of occupational orientation in the second round of net migration into Tibet, which started in 1990 and was gradually reinforced after 1995.



Sources: Data of 1990 and 1995 were derived from the field survey of Tibetan Bureau of Industry and Commerce, Data of 2002 from NBSC, 2004

Fig. 4 Changes in number of self-employed industrial and commercial enterprises

3.3 Changes of spatial pattern of urban system

Tibet boasts a vast territory of 1 220 000 km², yet its population and urban density are low. By the end of 2002, there had been only 0.02 cities, 0.60 counties and 1.20 towns per ten thousand square kilometers, and such

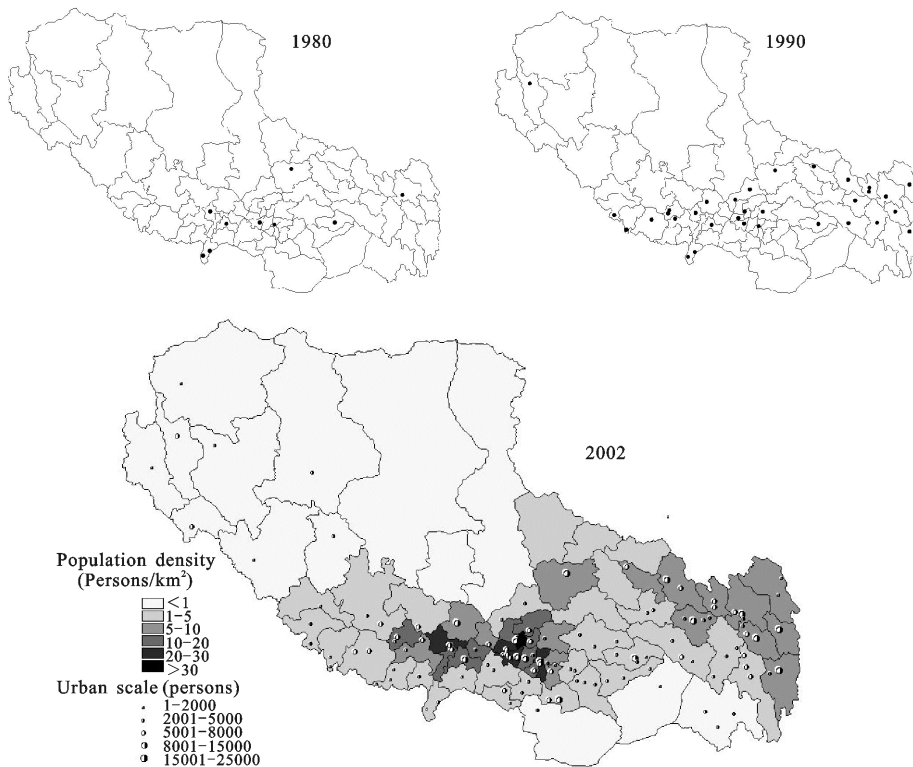
a spatial distribution pattern has been kept until now. Restricted by natural conditions, cities and towns have been concentrated in river valley areas over the past 20 years (Fig. 5). The middle reaches of the Yarlung Zangbo River and its two tributaries in Tibet remained to be the most concentrated region of cities and towns with relatively rapid economic development and urbanization. The region had had two cities (Lhasa and Xigazê), the only two in Tibet, 16 counties and 24 towns by the end of 2002. Covering merely 5.5% of Tibet's area, the region housed 35% of its total population and more than 60% of its urban population, moreover, the urbanization rate there was about 10% higher than the average level of Tibet.

As stated above, the distribution of floating population is closely correlated with the economic development and population expansion in cities and towns. The agglomeration of a large number of floating population in few key cities and towns is a distinct characteristic of the population flow of Tibet. The floating population mainly agglomerate in the urban area of Lhasa, Xigazê and Nyinchri, which account for more than 60% of the total floating population in Tibet. As a result, these regions have developed into key cities and towns with the fastest population growth, the most prosperous individual and private businesses, and the strongest socio-economic power in recent years.

4 Urbanization and Sustainability of Resources and Environment

In January 2010, the central government held the Fifth Tibet Work Forum, and proposed that more efforts should be made to improve the living conditions of farmers and herdsmen, and to pay more attention to the coordinated development of economy and society. The important ways of improving farmers and herdsmen's living conditions are to reduce the dependency of their living and development on farming and pastoral lands, relieve the pressure on the overloading grasslands, and implement moderate urbanization strategy. Nevertheless, at present the local farmers and herdsmen are weaker than the floating population from outside Tibet in the competition of limited urban job opportunities.

Moreover, the limited construction space in Tibet will result in the contradictions between the increasing de-



Source: Values are calculated and organized according to the research data of Tibet Public Security Department and Construction Department

Fig. 5 Changes of Tibetan urban spatial distribution in 1980–2002 and population density and urban scale in 2002

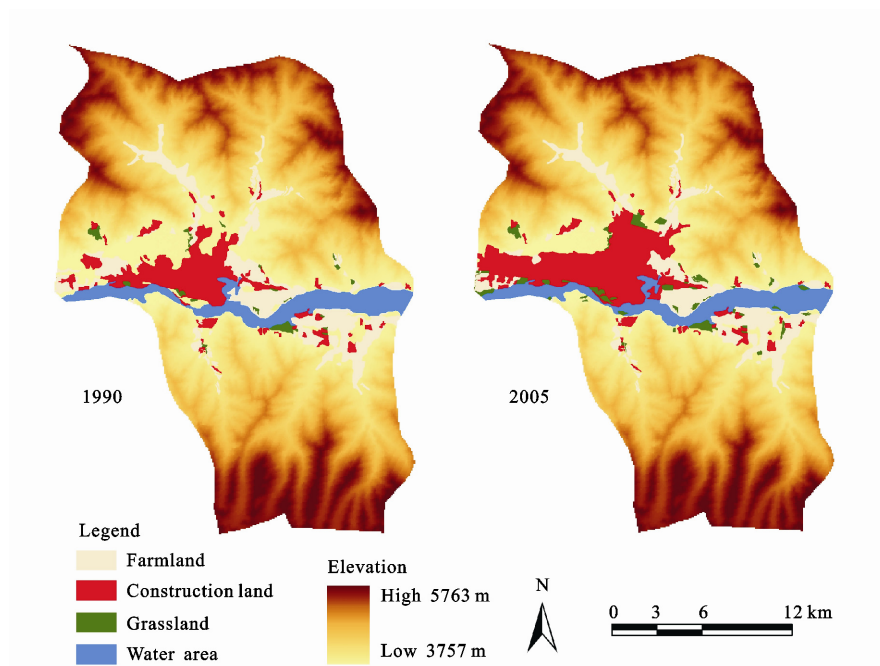
mand of farmers and herdsmen for city life and the inadequate space for urban construction.

4.1 Urban construction space reaching saturation

The urban construction space in Tibet is affected by two factors, i.e., land for urban construction and environmental capacity. Although 27% of land area (329 000 km²) in Tibet is suitable for human activities (Zhu, 2004), the utilizable space for urbanization is very limited (Zhong *et al.*, 2005). It is found in the research of National Major Function Oriented Zoning that there are 577 km² of land available for urban construction such as industrial and mining construction, *etc.*, but little in the river valley areas of the Yarlung Zangbo River and its two tributaries where the per capita usable land is only 0.02 ha. In the areas, there have already been 2.4 counties and 3.6 towns per ten thousand square kilometers, and the population density has been 13.6 person/km², exceeding the maximum carrying capacity of 13.2 person/km² of the areas (Yang, 1995). Lhasa, for example, according to our GIS spatial analysis and overlay analysis of the remote sensing interpretation data of land use and the DEM basic data provided by the Data Center for Re-

sources and Environmental Sciences of the Chinese Academy of Sciences, has experienced rapid expansion of construction land along the Lhasa River valley where the conditions are very desirable for development since 1990 (Fig. 6). Restricted by both natural conditions and *Regulations on the Protection of Basic Farmland*, quite limited space is left for future urban construction. What's more, Lhasa now has already housed about 4×10^5 – 5×10^5 urban residents, which has approximated its appropriate urban scale.

On the other hand, the space for future development and urban expansion has been shrinking continuously as a result of environmental degradation and pollution in the existing cities and towns. The discharge of a large amount of the "three wastes" (waste water, waste gas and waste residue), due to the comparatively low level of industrial structure and weak management ability, are jeopardizing the environment. The amount of the "three wastes" discharged in Lhasa accounts for more than 90% of that in the whole Tibet, with about 1×10^6 t of untreated industrial wastewater and 5.5×10^6 t of domestic sewage discharged into the Lhasa River and about 4 000 t of industrial waste residue and 6.6×10^5 t of hou-



Source: The data were provided by Data Center for Resources and Environmental Sciences of the Chinese Academy of Sciences

Fig. 6 Changes of land utilization in cities and towns of Lhasa

shold garbage piled up along the Lhasa riverside every year. Thus the environmental quality of the least-affected area by pollution in China is deteriorating as well.

4.2 Agricultural and pastoral areas facing increasing pressure on natural resources and environment

Since the space for urban construction is very limited, the agricultural and pastoral population with a high natural growth rate has long been stranded in the countryside, which may confront the sustainable development of the already over-loaded agricultural and pastoral areas with severe challenges (Wang and Zheng, 1999; Hasbagen *et al.*, 2008). According to our field study and statistical data, the recent floating population from outside Tibet has become the main force for Tibetan urbanization for their higher educational and cultural qualities and stronger competitiveness in working in the non-agriculture sectors compared with local farmers and herdsmen^① (Table 2). Consequently, the urbanization of local agricultural and pastoral population progresses slowly. In the long run, for the reasons that the space for Tibetan urban construction is limited and its urban scale

is reaching saturation, the future urbanization of local farmers and herdsmen might become more difficult.

Due to the double-interest drive of both survival- and development-orientated consumption demands of local farmers and herdsmen, their exploitation on land resources is being intensified. The total area of utilizable natural grasslands has basically remained unchanged whereas the amount of livestock has increased greatly. By 2002, the amount of cattle and sheep had been 1.59 and 1.62 times more than that in 1964, respectively, resulting in continuous and intensified overloading of grasslands. And one of the direct consequences of grassland overload is the degradation and desertification of grasslands in varying degrees (Zhao *et al.*, 2006).

At present, 1/3 of the grasslands in Tibet have degraded, and nearly 10% of them have been desertified. Moreover, there have been 20.474×10^6 ha, i.e. 17.0 % of the total land area of Tibet, suffering from desertification (LMBTAR, 1994). However, the unique ecosystem in Tibet, once destroyed, can not be restored swiftly and easily, which will in turn impede the further reproduction expansion and income increase of farmers and

① In order to ensure the working rights of agricultural and pastoral population, a new regulation has been formulated and promulgated by the People's Government of Tibet Autonomous Region recently that the proportion of farmers and herdsmen in government investment construction projects cannot be lower than 1/3

Table 2 Comparison of educational levels between local Tibet population and floating population in 2002

	Illiterate and semi-illiterate	Elementary school	Junior high school	Senior high school	Technical secondary school	Junior college and above
Floating population	7%	25%	45%	12%	4%	7%
Local population (Six years old and above)	30%	41%	16%	5%	4%	4%

Source: Values are calculated and organized according to the research data of Tibet Public Security Department and Education Department

herdsmen. Consequently, the vicious cycle may be formed between the poverty of local agricultural and pastoral population and the degradation of natural resources and environment (Wang, 1998; Min and Cheng, 2001; Bao *et al.*, 2007).

5 Urbanization and Sustainability of Social Development

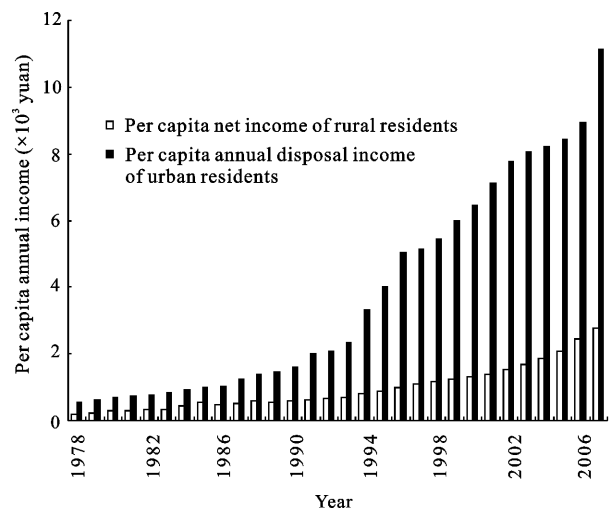
Under the existing urbanization mode, the sustainability of social development in Tibet is confronted with two major problems: the disparities in living standards between urban and rural residents and the challenges facing Tibetan culture protection (Fan, 2000).

5.1 Great income gap between urban and rural residents

In the rapid urbanization process in Tibet, the living conditions in the agricultural and pastoral areas have been constantly improved with the steady increase of local residents income. The per capita net income of local farmers and herdsmen increased from 878 yuan in 1995 to 2 788 yuan in 2007. The population under the poverty line in these areas had decreased from 480 000 in 1995 to 70 000 in 2007, with the poverty incidence dropping from 23% to under 10% (CTRC, 2009). The proportion of population engaged in agricultural production in the total working population had also gone down from 78% to 56% during this period.

However, the contribution of Tibetan urbanization to the improvement of farmers and herdsmen income is still limited. In 2007, their income from non-agricultural industries only accounted for 29% of the total income. Even though the government transfer accounted for 1/3 of the total for more than half of the rural residents, and for the poor, nearly 50% of their income came from government transfer payment, the income level and living standards of local farmers and herdsmen were still

comparatively low. In 2007, the income level of Tibetan farmers and herdsmen was 32.2% lower than the national average, and Tibet thus became the region with the widest urban-rural gap in China. The urban-rural income ratio was 4.0:1.0 in 2007, much higher than the national level of 3.3:1.0 (Fig. 7).



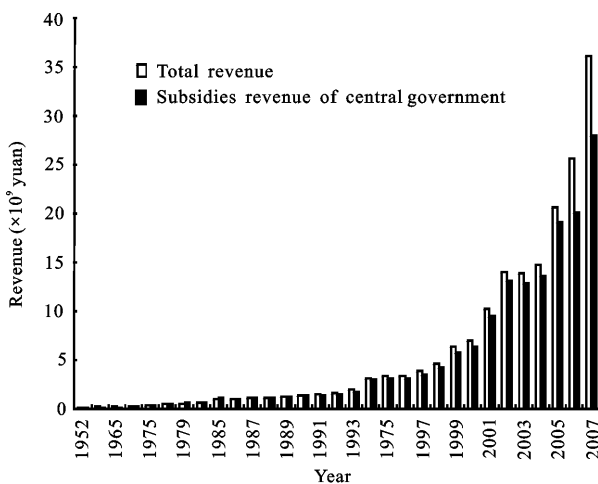
Source: TBS, 2009

Fig. 7 Changes of urban-rural income gap

5.2 High administrative costs hindering improvement of urbanization quality

Not only do Tibetan farmers and herdsmen have a strong dependency on national finance for their income, Tibet, as a whole, also depends greatly on national fiscal investment. In 2000, 92% of the total fiscal revenue of Tibet came from central government financial aid. From 2001 to 2007, the amount of financial aid had reached over 154.1×10^9 yuan, accounting for 93.7% of the total revenue of Tibet during that period of time (Fig. 8). Thus, Tibet has always been the region with the highest per capita amount of national fiscal assistance in China. As stated above, the administrative function in public services has played an important role in Tibetan urbanization. Due to the large number of administrative offi-

cial as well as the complicated institutions, the administration expenditure is relatively high (Zou *et al.*, 2002), making up 1/3 of the annual fiscal expenditure. Consequently, the urban planning and construction in Tibet can not be well funded, which considerably hinders the improvement of its urbanization quality. Up until five years ago, there was no necessary regulatory or detailed planning in Lhasa, and in the capitals of some prefectures, the municipal districts of most counties, and almost all the towns of Tibet, there were even no overall planning at all. As a result, the urban construction in Tibet lacks scientific guidance.



Source: TBS, 2009

Fig. 8 Changes of proportion of state financial subsidies in total fiscal revenue of Tibet

5.3 Economic benefit-driven urbanization posing threat to protection of Tibetan culture

In 2007, 75.9% of Tibet's total investment in fixed assets came from national budget, and state-owned enterprises as well as governments of other provinces. And the central government of China has also put large amounts of funds into the protection of Tibetan culture, e.g. more than 200×10^6 yuan in the restoration of Potala Palace. Nevertheless, the coordination between construction of assistance projects and inheritance of local culture has been neglected sometimes, which may exert certain negative effects on the protection of Tibetan culture. The traditional Tibetan settlements are of unique cultural characteristics. The urban landscape and architectural style in Tibet have already been important components of Tibetan culture, and also the indispensable foundation of the tourism-based cultural industry.

However, the assistance projects usually provide a full range of design, engineering and construction services, which more often than not have the cultural colors of the source areas or the unified patterns of corresponding branches with inadequate reflection of the local Tibetan culture. Moreover, local designers and relevant government departments seldom put forward constructive and influential suggestions on the protection of Tibetan architectural and engineering culture as well. For instance, the architectural design in Bayi is totally a copy of that in the coastal cities and towns of Guangdong Province, and the architectural style of some of the typical Lhasa buildings, banks and post offices, for example, is exactly the same with those in inland China. As a result, Tibetan cities appear more and more similar to the inland cities and towns. If this tendency goes unchecked, the consequences might be extremely difficult to make up.

6 Suggestions for Sustainable Urbanization

Tibet is a plateau with unique natural and cultural characteristics. In the process of the urbanization driven by the tertiary industry-based economic function and mainly supported by central and provincial governments' assistance, it is crucial to coordinate the mutual promotion relationship between the prosperity of floating population and that of local farmers and herdsmen, the development of foreign culture and Tibetan culture, and to deal with the saturation of urban construction space and the ecological deterioration of agricultural and pastoral areas for the sustainability of urbanization in Tibet. And the sustainable urbanization has two important indicators: First, the urbanization should promote the coordination between Tibetan economic development, eco-environmental protection, and the inheritance of social culture. Secondly, the urbanization should keep pace with the non-agricultural transformation of local rural residents and contribute to the improvement of local peoples' living standards. Therefore, this paper suggests that the government mechanism-dominated and market mechanism-supplemented approach should be adopted for pushing forward the sustainable urbanization in Tibet. To be specific, improvements can be made in the following aspects:

(1) Work out overall planning for Tibetan development, determine the appropriate path of Tibetan urbanization, draw up urban planning for major cities and

towns, and scientifically identify the nature and reasonable capacity of these cities and towns.

(2) Establish rational management mechanism of floating population, strictly control the admittance qualifications for population migration, set up restricting thresholds for floating population, and adjust the scale of population in-flow and the spatial distribution of floating population.

(3) Gradually implement the birth control policy in the agricultural and pastoral areas, and make efforts to enhance the competitiveness of local population and their working capability in non-agricultural industries. On the one hand, reserve opportunities and introduce flexible policies for local farmers and herdsmen migrating to cities for working or doing business in the process of urbanization, and insist on the policy that government investment projects must recruit a certain proportion of local rural residents; on the other hand, encourage local farmers and herdsmen to take up temporary or permanent jobs in other provinces for the sake of bidirectional flow of population, with the general objective of improving local residents' living standards and reducing the eco-environmental pressure of agricultural and pastoral areas.

(4) Continue to raise subsidies for farmers and herdsmen, especially for those living in poor areas. Take feasible measures to guarantee their energy consumption for daily life and food security, and ultimately reduce their dependence on the exploitation and utilization of land resources.

(5) Reserve a certain amount of national financial aids for urban planning and infrastructure construction in order to guarantee the improvement of the urbanization quality.

(6) Show respect for and reflect local Tibetan cultures in urban construction projects, especially the assistance projects. Carry out comprehensive evaluation on the environmental, cultural and economic effects of those projects, and fulfill their due contribution to the sustainable development of Tibetan urbanization.

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