Intelligent and Targeted Poverty Alleviation in Ethnic Areas: Taking Gansu as an Example

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Abstract: The minority areas are the areas where poverty is concentrated in China. Among the factors that cause poverty, the information asymmetry and the lag of information channels are the main reasons for poverty in the minority areas. In the context of the construction of smart cities in China, it is of great practical significance to integrate various resources, information platform, big data and other technical means in smart cities to help ethnic areas achieve smart and targeted poverty alleviation. Taking the targeted poverty alleviation (hereinafter known as TPA) work implemented in Gansu as an example, this paper analyses the framework of the intelligent TPA in Gansu province, puts forward the driving factors of the construction of smart cities for the TPA in the western ethnic areas, and analyses the quality control of smart city + TPA under the guidance of PDCA circle theory, based on the TPA six precise contents and four poverty alleviation modules put forward five poverty alleviation effects. Finally, the paper summarizes the effective TPA strategies such as the construction of big data platform in ethnic areas.

1. Introduction

Due to factors such as social economy, history and culture, and geographical environment, the per capita income, urbanization level, and industrialization level of ethnic minority areas in China are generally low, and their development is lagging behind. They belong to the areas with larger proportion of poverty and deeper degree of poverty in China. In addition, the weak ecological environment and the low level of education in ethnic areas lead to the aggravation of poverty in ethnic areas. Therefore, ethnic minority areas have become the difficulty and key point of the new round of poverty alleviation. In 2016, the poor population of ethnic minorities accounted for 71.4% of the total population, indicating that poverty in ethnic minority areas is the biggest bottleneck restricting the realization of a well-off society in China. Therefore, the task of poverty alleviation in the poverty-stricken areas of ethnic minorities is arduous. We need to take effective measures to implement TPA in ethnic minority areas and help local ethnic minorities to achieve poverty alleviation [1]. Under the background of in-depth development of smart cities, the construction of smart cities in ethnic areas has become an indispensable part of the construction of smart cities in China. Therefore, the construction of smart cities in ethnic areas must combine the most important poverty problems in the social and economic development of ethnic areas, integrate resources and technology and other smart means, and explore new models and new countermeasures for TPA in ethnic areas under the new situation.

It can be seen that there are many researches on TPA in ethnic areas by domestic scholars, but there are few researches on TPA by using information science and technology from the perspective of smart city. Under the development strategy of smart society, the development of smart villages has gradually become the continuation of smart cities. Therefore, through the construction of smart cities and towns, using the information platform of big data to carry out smart and precise poverty alleviation has important theoretical guidance and practical reference value for solving the current situation of poverty in ethnic areas and overcoming the difficulties of poverty alleviation.

2. The Promotion of Smart City Construction to TPA in Ethnic Areas

2.1TPA from the Perspective of Smart City

2.1.1 Smart City + TPA & Internet + TPA

The reason is that smart city is an intelligent response to urban service needs such as urban people's livelihood, environmental protection, public security, urban functions, business activities, etc., forming a safe, convenient, efficient and green urban form with sustainable endogenous power. It emphasizes the system and coherence of urban development. For example, smart government can provide more effective and scientific decision-making and services for the public, smart information infrastructure provides communication facilities for cities and villages, and smart city's information service platform and big data provide reliable guarantee for government decision-making. All of these have formed a virtuous circle and become a more effective booster for TPA [2]. While Internet + is just a means or method among many contents of smart city, and its research is only limited to the Internet + Internet based on a certain work content in TPA. Therefore, Internet + TPA is only a part of smart city + TPA.

2.1.2 The Goal of Smart City and TPA

TPA is the reform and innovation of poverty alleviation in the new era. Precision poverty alleviation requires the timeliness and efficiency of poverty alleviation work, the refinement and humanization of poverty alleviation work, that is, the refinement management of traditional poverty alleviation work. The smart city also needs to make the urban construction work meticulous. With the help of Internet of things, cloud computing and other technologies, optimize the way and channel of information transmission. In the process of the smart development of cities and villages, the smart grid fully covers the refined social governance system, and is driven by information to promote the formation and optimization of cross regional industrial chain and value chain. It can be seen that smart city and TPA are practical applications of refined management in urban development and social development.

2.1.3 The Promotion of Smart City to TPA

In China, smart city + TPA is to integrate TPA with smart infrastructure, realize information integration, and enhance data collection and sharing in the construction process of smart city and smart village, Through the establishment of the information platform and system for TPA, the use of big data and other technologies to extract and analyze poverty information, the implementation of real identification and evaluation of the poor, the refined intelligent management of the TPA process, and the human-oriented intelligent poverty alleviation mode to provide information help for the poor. The promotion of smart cities to TPA is mainly reflected in four aspects [3].

The first smart city provides technical support and effective information communication mode for TPA. Smart city is a new type of city based on Internet thinking, with the help of information technology and data connectivity technology to improve urban development difficulties. It has smooth information communication and multiple channels, effective data-driven, multi-dimensional urban services and inclusive development. It provides new means and methods for poverty alleviation in ethnic areas in China, and creates a new situation for poverty alleviation concept and work mode. At the same time, the application of new technology will also strengthen the effect of urban planning as a public policy in poverty alleviation. For ethnic minority areas, we should help the poor families across the information gap, master and understand the main causes of poverty. Through the construction of smart city, we can achieve the pertinence and effectiveness of information release, so that funds and technology can flow to the poverty-stricken areas accurately, industrial construction can drive the income of farmers and herdsmen, and fundamentally help the ethnic minority areas to truly get rid of poverty.

3. Poverty and TPA in Gansu

3.1 The Current Situation and Causes of Poverty in Gansu

In China, the total number of key counties for poverty alleviation and development in the eight ethnic provinces and regions is 306, accounting for 45.95% of the whole country (including Tibet) and 68.08% of the western region. The incidence of poverty in these provinces and regions is far higher than the national average level in the same period. According to the survey of the National Bureau of statistics, from 2011 to 2016, the incidence of poverty in the eight provinces and regions of ethnic minorities decreased year by year, from 26.5% in 2011 to 9.4% in 2017, down by 15.1% [4]. However, compared with the national average level in the same period, the incidence of poverty in the ethnic regions was still at a higher level. Between 2011 and 2016, the incidence of poverty in the ethnic regions was higher than that in the whole country 13.8, 10.9, 86, 7.5, 6.6 and 4.9 percent [5].

It can be seen from the analysis that in view of the poverty alleviation in ethnic areas in China, we must combine the two functions of blood transfusion and blood production of self-reliance. However, for the poor farmers and herdsmen to become rich, we must give corresponding help and support in policy and funds. Economic development planning in ethnic areas should provide a guarantee mechanism for the production and life of farmers and herdsmen. This guarantee mechanism is the main problem to be solved and the goal of development in the construction of new urbanization. The purpose of building a smart city is to provide necessary information communication and data sharing for TPA in China and improve the efficiency of domestic poverty alleviation.

3.2 The development and promotion of TPA

According to the survey of household income and expenditure and living conditions of the whole province issued by the Gansu survey team of the National Bureau of statistics at the end of 2017, according to the current rural poverty standard, the National Bureau of Statistics estimates and verifies that from 2012 to 2017, the rural poor population in Gansu Province decreased from 820000 to 310000, and the incidence of poverty decreased from 21.6% to 8.1%. At the end of 2016, the rural poor population in Gansu province was 420000, and poverty occurred rate was 10.9%. The rural poverty population decreased by 100000 compared with the end of 2015, and the incidence of poverty decreased by 2.8 percent on each year [6].

The research found that the poverty alleviation work in Gansu province follows the idea of supporting industrial projects to drive the income of poor farmers and herdsmen, and develops characteristic planting industry in combination with the advantages of characteristic agricultural and animal husbandry resources in the recipient area, which provides a demonstration and reference for the industrial development in China's poor areas. Relying on the diversified new modes of poverty alleviation, such as characteristic agricultural poverty alleviation, industrial poverty alleviation, health poverty alleviation, education poverty alleviation and e-commerce poverty alleviation, Xining city comprehensively promotes the TPA work, carries out the TPA action of 100 enterprises help 100 villages, 100 enterprises unite 100 households in the whole city, and 84 enterprises, chambers of Commerce and associations help 105 poor villages in pairs [7]. At the same time, the local government pays attention to enhancing the sense of participation and acquisition of the poor people in poverty alleviation work, from the traditional material level of poverty alleviation to the spiritual level of wisdom.

3.3 The Difficulties and Challenges of Poverty Alleviation

First, the poverty alleviation work is huge and the data is complex. In 2017, there were 310000 poor households in Gansu province, with a poverty incidence rate of 8.1%, exceeding the average level of 4.3% in China. There are 38 poverty-stricken counties, 1622 poverty-stricken villages and 2 national key poverty-stricken counties in the province. It is found that the poverty alleviation work in Gansu province has the characteristics of large coverage area, large number of poor households and large workload [8]. At the same time, the data about the causes of poverty, poverty alleviation and return to poverty of each poor household are complex and dynamic, which makes the statistical

work of relevant data very difficult.

Second, there is a lack of effective communication in the overall poverty alleviation system. The survey found that in the local poverty alleviation work, two-way interaction is limited and communication efficiency is low. First of all, there is a lack of interactive communication platform between the help cadres and the poor households. Because of the traditional ways of communication between the help cadres and the poor households, it is difficult for the poverty alleviation cadres to fully understand the real demands of the poor households and communicate in a timely and effective manner. On the one hand, poor households are limited by their own knowledge level and economic conditions, and have limited access to policy information, poor communication and difficult to get rid of the lack of information. On the other hand, the social poverty alleviation forces lack of effective channels to know the information and demands of the poor households, which leads to the dilemma that they are willing to help but are unable to find suitable help objects, highlighting the information asymmetry between the poor households and the helpers in the aspects of platform participation and path building.

3.4 The Framework of the Intelligent TPA Model

In the implementation of TPA, Gansu Province has established an information service platform for TPA and a comprehensive information service platform for rural areas in Gansu. By using big data technology to collect and compare internal and external data, the poor are identified and evaluated, laying a solid foundation for the planning and implementation of poverty alleviation and development [9]. The information service platform for TPA in Gansu province is composed of four precision of precise identification, precise service, precise management and precise evaluation. Among them, information service platform + precision service is the intelligent innovation of the work content of precision poverty alleviation.

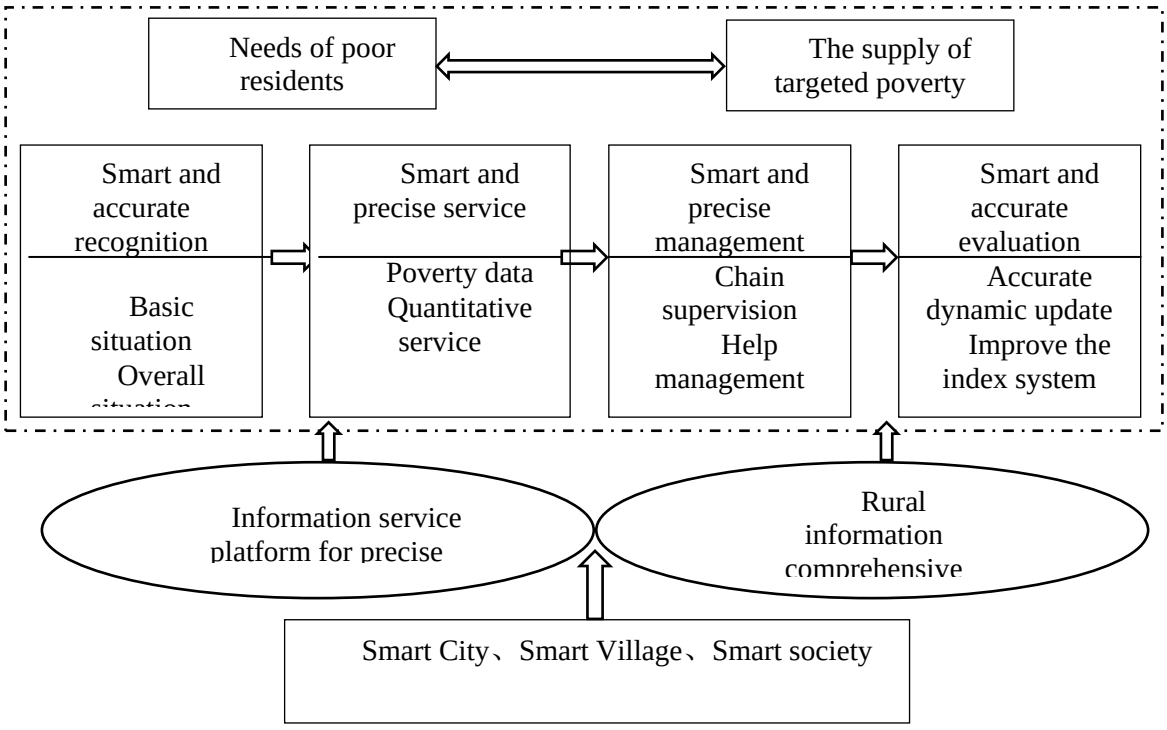

Figure 1. Intelligent TPA framework

Intelligent and accurate identification is reflected in the accurate collection and real-time grasp of basic information of poor households, including average household income, causes of poverty, cultivated land area and infrastructure, and the formation of data. Through the comprehensive analysis of the distribution of the poor households and the poor population, the causes of poverty, health status, education level, etc., to achieve intelligent and accurate identification.

Intelligent and precise management is reflected in that the intelligent information platform realizes the value chain supervision and assistance management mode. At the government level, we

should regularly and actively push the industrial guidance information, track and trace the production process of agricultural products, and then give help from the perspective of product sales and market. Through the Internet and e-commerce, we can effectively solve the market of products and help the poor households in need of planting, production and sales.

The intelligent and accurate evaluation shows that the evaluation indicators have changed from the past inquiry and subjective judgment to the accurate and dynamic update form to consider the effectiveness of assistance, and six indicators have been systematically designed for poor households. Only when the weight score reaches 80, can the poverty be estimated to be lifted out of poverty. The per capita disposable income and whether there is safe and stable housing are one vote veto system. As long as one of them fails to meet the standard, all the poor households are evaluated as not lifted out of poverty.

4. The Implementation of Smart TPA Strategy in the Construction of Smart City

4.1 The Strategic Model of Intelligent TPA

In the new era, the realization of poverty alleviation strategic objectives in ethnic areas needs to be based on the existing experience in poverty alleviation and development, with the help of the information platform of smart cities and Internet big data technology, and the use of management theory to build a new strategy of TPA and development. At the same time, in operation, we should be good at carrying out effective technical control over the quality of TPA, and implementing effective poverty alleviation and poverty alleviation assistance. By adopting PDCA mode to ensure the effect and results of TPA, the smart city+TPA will be included in the PDCA quality management circle, that is, through the plan of TPA, the implementation of TPA mode and strategy, the check of TPA effect, and the action of problems To improve the effect of TPA, the specific operations are as follows.

4.2 Implementation Mode of Smart TPA strategy

On the basis of the six precision of the TPA strategy, the information science and technology of smart city will be integrated with the poverty alleviation work, the information service project will be implemented, and the network poverty alleviation information service system will be established. Four modules have been formed for the six accuracies [10]. They are as follows: first, use the information platform of smart city to accurately collect citizens' information, so as to realize the accuracy of poverty alleviation objects; second, in terms of project arrangement and fund use, analyze and match the accurate data, and determine the effective information of industry information, industry information, market supply and demand information for poverty alleviation, Third, through the analysis of the tracing and feedback information of the help information, we can judge by the way of performance evaluation, so that measures can be sent to households and villages; fourth, according to the effect of poverty alleviation, we can judge the effect of poverty alleviation by mining dynamic data.

In addition, through the construction of smart city, the following five effects can be achieved, namely, precise poverty alleviation, smart poverty alleviation, characteristic poverty alleviation and effective poverty alleviation, as well as the publicity, demonstration and information sharing after poverty alleviation through the network platform, and through the unique poverty alleviation and poverty alleviation driving effect of big data poverty alleviation platform, the economic and social value can be radiated to other fields, so as to promote poverty alleviation The comprehensive development of the industry will help other people who are not out of poverty.

4.3 Strategy of Smart City + TPA

4.3.1 Build a Big Data Platform

The big data platform can realize the dynamic management of TPA, establish a comprehensive information service platform for poverty alleviation based on the urban poverty alleviation and development portal, exchange data resources, reduce information barriers, improve the efficiency of

poverty alleviation administration, accurately integrate the relevant information of poor villages, poor households and poverty alleviation project funds into the platform, carry out information collection and dynamic management of poverty alleviation objects, and achieve poverty alleviation Target accurate identification, accurate help and accurate poverty alleviation.

Relying on the construction of smart city and through the unified sharing and exchange platform of big data of local government, data sharing between special poverty alleviation and industry poverty alleviation departments will be realized, and industry poverty alleviation resources will be collected to poverty-stricken areas. In addition, we should establish dynamic data and information of poor households, further improve the electronic archives of poor households, and provide reliable intelligent guarantee for TPA and poverty alleviation.

4.3.2 To Determine the Precise Mechanism

Establish the electronic archives of timely updating and dynamic monitoring of poor households, which should include basic information such as the causes of poverty, income status, production and living conditions, family members, etc., and update this information in real time to the national poverty alleviation and development information platform, forming the whole process management of the role of identification, assistance, tracking and demonstration. In addition, in the specific implementation process, we should find a worry person for poverty alleviation work, drive poor households to participate in network poverty alleviation activities, help poor households develop characteristic industries, increase production and operation knowledge, master market information, expand sales channels, and increase income of farmers and herdsmen.

We will gradually promote TPA to the market with the help of the government, and realize the data exchange of poverty information collection, poverty household demand research, financial institutions assistance, enterprise investment and information sharing among groups of poverty-stricken households, so as to make poverty alleviation work an open system of information exchange. Optimize the intelligent and TPA communication system, realize intelligent and convenient communication between government departments, the public, poverty alleviation institutions and poor households through the TPA information platform, strengthen the construction of openness and interaction, and form an effective communication mechanism.

4.3.3 To Build and Exchange Blood for Poverty Alleviation

We will vigorously develop smart agriculture and smart tourism, and use smart information technology to provide new ideas and models for the development of agricultural production and operation, tourism system and tourism industry. Smart tourism applies new technologies such as cloud computing and Internet of things to tourism experience, tourism management, tourism service and tourism marketing. Smart agriculture is to promote the income of farmers and herdsmen through online sales of agricultural products, establishment and improvement of service systems This new thinking and model will continue to transform the poverty alleviation mode in ethnic areas from blood transfusion to hematopoiesis, and at the same time, improve the traditional hematopoiesis function by means of new technology, so as to achieve the blood exchange of poverty alleviation in ethnic areas.

4.3.4 To Combine Innovation and Entrepreneurship with TPA

By combining Internet innovation and entrepreneurship achievements with poverty alleviation, through mass entrepreneurship, mass innovation, entrepreneurship driven employment, and employment driven poverty alleviation, we can truly achieve stable income increase for urban and rural low-income groups, and enable qualified rural poor people to get rid of poverty and get multiple guarantees. The driving force of innovation and development is also the fundamental driving force to lead the development of poor areas. In the new development period and under the new poverty alleviation strategy, how to cultivate sustainable new growth point lies in innovation. Leading the development of characteristic modern agriculture with innovation, driving the economic development of underdeveloped ethnic areas, so as to realize the poverty-stricken farmers to get rid of poverty and become rich. For example, in terms of the innovation of agricultural

industrialization management mode, we should try to establish various forms of agricultural integration interest alliance and distribution mechanism, and form a modern agricultural industrialization management system with four in one family management, cooperative management, company management and industry organization, resource mutual use and organic combination.

Conclusions

At present, the information service platform for TPA launched by Gansu Province and the comprehensive service platform for rural information in Gansu Province provide effective technical support for TPA in the whole province. However, in order to achieve the goal of TPA in the whole province, we must consider it as a whole, start from the top-level design, and do a good job in government planning. At the same time, it is necessary to comprehensively investigate and understand the actual situation of poor households in the province, and incorporate relevant information into the information and data platform. In addition, it is also necessary to realize the information co construction and sharing among relevant government departments, maximize the marginal effect of data sharing, dredge the top-down and bottom-up poverty alleviation channels, and achieve accurate delivery and TPA.

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