

# *Research and Application of Satisfaction Index System for Pu'er City Quality Work*

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**Keywords:** quality work, Index system, application and research

**Abstract:** To carry out the quality work satisfaction evaluation is one of the important ways to comprehensively evaluate the quality work effectiveness of a district and promote the local government to improve the quality work. In view of the research and application needs of the current quality work performance evaluation, this paper tries to set up the quality work satisfaction evaluation index system, combined with the quality work situation of Pu'er city, carries on the quantitative evaluation to each index, in order to find out the quality work problem and promote the overall improvement of the quality level of Pu'er City.

## 1. Introduction

Quality is a very broad concept, which includes not only the quality of products, engineering, services and other aspects, but also extends to the whole process, system and organization, covering all aspects of the production and life of the national economy. Quality improvement is a continuous process and mass satisfaction is one of the most effective means of quality performance evaluation. In view of this, according to the requirements of Outline of Quality Development (2011-2020), the industry planning key points of the 12th Five Year Plan of National Basic Public Service System, and Guidelines for Monitoring Technology of Urban Public Service Quality and other relevant documents, and combined with the characteristics of the economic and social development of Pu'er city, we designed and set up the evaluation index of quality work satisfaction of Pu'er City.

## 2. Research Methods

The quality work satisfaction evaluation of Pu'er City insists on the principle of taking the public as the core, taking the public feeling as the evaluation standard, selecting the content easy to feel and evaluate by the public as the evaluation index, and constructing the evaluation index system.

## 2.1. Design of Evaluation Index System

This evaluation content selects five major fields of product quality, engineering quality, service quality, environment quality and quality consciousness, as 5 first-class index, each of which is set with corresponding second-class index, and selects the content easy to feel by residents and closely related to the daily life as the evaluation content. The project uses 5-point Likert scales to carry on the measurement, detailed evaluation content index system and measurement method are shown in Table 1.

Table 1: Content of the third-party evaluation of Quality Work in Guizhou Province.

First-level indicator	Second-level indicator	Measurement indicator
Product quality	Food and drug quality	Drugs
		Daily food
	Quality of agricultural products	Edible agricultural products
		Fertilizer, pesticides, feed and feed additives
	Quality of consumer products	Durable consumer products
Daily consumer products		
Quality of special equipment	Elevator, large-scale amusement facilities, passenger ropeway	
Engineering quality	Construction engineering quality	Housing municipal engineering
	Traffic engineering quality	Highway and water transportation engineering
Service quality	Productive service quality	Long-distance and short-distance public transport services
		Communications and network services
		Banking service
		Insurance service
		E-commerce, logistics and express delivery services
	Living service quality	Primary and secondary school education service
		Medical service
		Old-age service
		E-commerce service
		Public service and style service
		Tourism service
		Home decoration service
Environmental quality	Water environmental quality	River and lake water quality
	Atmospheric quality	Air
Quality awareness	Quality complaint	Quality complaint satisfaction
	Information disclosure and publicity	Notification of quality and safety issues, and quality publicity
	Quality improvement	Quality improvement of product, engineering, environment and service

## 2.2. Quantitative Evaluation Method

The questionnaire is designed with a scale of 5 class levels to assign values, that is, option 1 (“very dissatisfied/very bad/very unsafe”) is assigned 20 points, option 2 (“dissatisfied/not very good/not very safe”) is assigned 40 points, option 3 (“general”) is assigned 60 points, and option 4 (“satisfied/better/safer”) is assigned 80 points. Option 5 (“Very Satisfied/Very Good/Very Safe”) is assigned 100 points.

### 1. Measurement Index

$$T = \sum_{t=1}^5 m_t \cdot s_t \quad (1)$$

Among them:  $T$  is the score of a single measurement index;

$m_t = \frac{n_t}{N}$  ( $N$ : the total number of valid samples;  $n_t$ : the number of samples selected for each level of evaluation);

$s_t$  100-point scale corresponding to each option of a 5 class levels scale.

### 2. Second-class Index

$$B_{ij} = \sum_{k=1}^{n_{ij}} r_{ijk} \cdot T_{ijk} \quad (2)$$

Among them:  $B_{ij}$  is the score of a single second-class index;

$r_{ijk}$  is the weight of measurement index, which is set as the equal weight, and the weight is satisfied as follows:  $\sum_{k=1}^{n_{ij}} r_{ijk} = 1$

$T_{ijk}$  is the score of each problem under a single second-class index;  $n_{ij}$  is the number of problems contained in a single second-class index.

### 3. First-class index

$$A_i = \sum_{j=1}^{n_i} q_{ij} \cdot B_{ij} \quad (3)$$

Among them:  $A_i$  is the score of a single first-class index;

$q_{ij}$  is weight of the second-class index, which is set as equal weight, and the weight is satisfied as follows:  $\sum_{j=1}^{n_i} q_{ij} = 1$

$B_{ij}$  is the score of each second-class index under a single first-class index;  $n_i$  is number of second-class index contained in a single first-class index.

### 4. Overall Score

$$S = \sum_{i=1}^5 p_i \cdot A_i \quad (4)$$

Among them:  $s$  is the total score of quality work satisfaction;

$P_i$  is the weight of each first-class index, which is set as equal weight, and the weight is satisfied as follows:  $\sum_{i=1}^5 p_i = 1$

$A_i$  is the score of each first-class index.

### 2.3. Data ollection

In 2019, the Public Satisfaction Questionnaire for Quality Work in Pu'er City covers 10 districts and counties in the city. A total of 2,460 valid samples are collected. The interviewees covered three groups: youth, middle age and elderly. The educational level covers junior high school, senior high school, junior college, undergraduate, master and above, and covers rural and urban groups. The sample size distribution is shown in Figure 1:

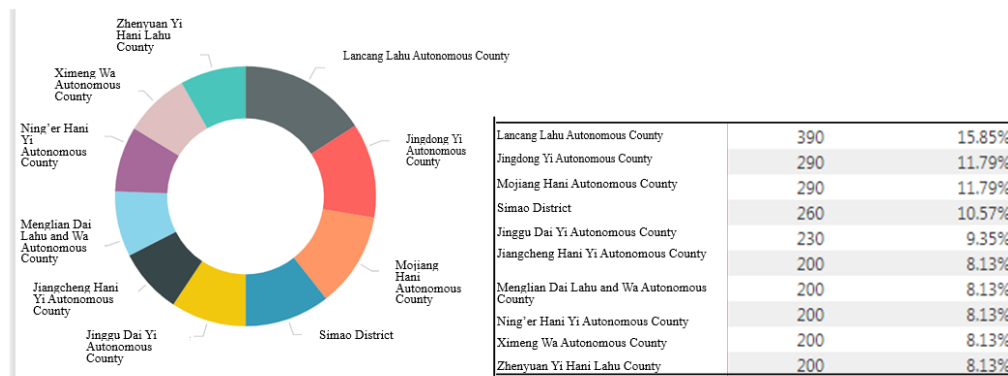


Figure 1: Distribution of investigation sample size.

## 3. Evaluation results

### 3.1. Overall Situation of Satisfaction in Pu'er City

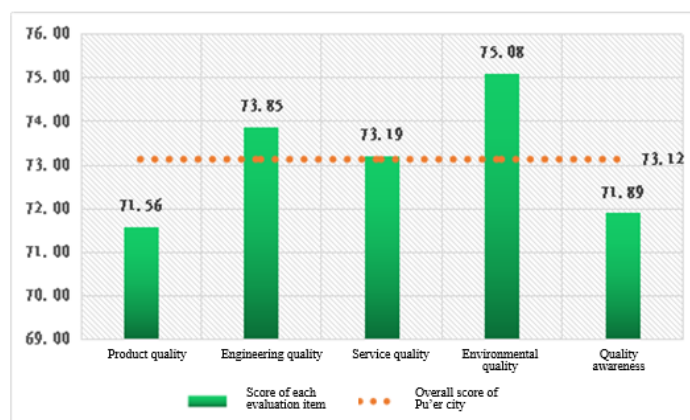


Figure 2: Social Public Satisfaction Score of Quality Work in Pu'er City in 2019.

In 2019, the overall score of public satisfaction evaluation of quality work in Pu'er city is 73.12, and which is at a relatively satisfactory level as a whole. The satisfaction evaluation of each evaluation items is ranked from high to low in order of environmental quality, engineering quality,

service quality, quality consciousness and product quality. The scores are 75.08, 73.85, 73.19, 71.89 and 71.56 respectively. Compared with the evaluation results in 2018, the overall score of Pu'er City in 2019 increases by 0.23, with a year-on-year increase of 0.31%; the evaluation items and the overall score are shown in Figure 2.

In terms of product quality, consumer goods quality score is the highest with 73.22; Agricultural products quality and special equipment quality score is 71.66 and 71.03 respectively; Food and medicine quality score is the lowest with 70.35. Medicine quality is Pu'er city's weak items, and the public has reported that there are unclear specifications, fake medicine, false publicity, poor efficacy and so on.

In terms of project quality, construction engineering quality score is higher with 75.38; traffic engineering score is lower with 72.33. Among them, the housing quality score is higher with 75.38, and the government measure to improve the rural residential environment has been widely accepted by the public. The unreasonable construction of traffic engineering design, unclear indication signs and poor quality of main structure are the main reasons for the low satisfaction evaluation of traffic engineering quality.

In terms of service quality, the score of productive and living services is 73.36 and 73.02, respectively. Tourism service is a weak item in Pu'er city, which is affected by the lack of service integrity of travel agencies and the poor experience of tourist shopping.

### 3.2. Evaluation Scores of Districts and Counties

According to the evaluation results of public satisfaction of quality work in every district and county of Pu'er city in 2019, k-means cluster analysis method is used to divide different regions into three categories according to the scores of 5 fields indexes such as product quality, engineering quality, service quality, environmental quality and quality consciousness, so as to observe the characteristics of different categories of districts and counties, as shown in Table 2.

Table 2: Cluster analysis results.

Final cluster center				Number of observations per cluster		
	Cluster			Cluster		
	1	2	3			
Product quality	62.77	75.96	62.62	1	881.000	
Engineering quality	60.90	79.60	64.90	2	984.000	
Service Quality	67.77	71.92	63.70	3	595.000	
Environmental quality	80.70	71.30	54.40	Valid	2460.000	
Consciousness	64.95	70.05	59.32	Omit	.000	

According to the k-means cluster analysis results in Table 2-2, 10 districts and counties can be basically divided into three categories. The social satisfaction evaluation of the first category is at the middle level in the comprehensive index, the second category is at the higher level, and the third category is at the lower level. In terms of the first category, there are 4 districts with a large number of occurrences: Lancang Lahu Autonomous County, Jiangcheng Hani Yi Autonomous County, Ximeng Wa Autonomous County and Mojiang Hani Autonomous County. In terms of the second category, the 5 districts with the most frequent occurrence are Mojiang Hani Autonomous County, Jinggu Dai Yi Autonomous County, Zhenyuan Yi Hani Lahu Autonomous County, Simao District and Ning'er Hani Yi Autonomous County. In terms of the third category, the 2 districts with the

most frequent occurrence are Menglian Dai Lahu Wa Autonomous County and Jingdong Yi Autonomous County.

### **3.3. Analysis of the Factors Influencing the Evaluation Results**

#### **3.3.1. Evaluation of Different Age Groups**

The respondents of different age groups have different social experience, participation degree of quality work, expectation value of quality work, and satisfaction evaluation. Among the three age groups, the elderly group has the highest overall evaluation of quality work, with a satisfaction score of 75.05, the middle age group has a relatively low evaluation, with a score of 72.87, which is 2.18 points different from the elderly group evaluation. The difference in quality work evaluation of different age groups is more obvious, the difference between the young and middle-aged group is small, and the difference between the young, middle-aged group and the old group is large. In addition, with the increase of age, the satisfaction evaluation score basically shows an upward trend.

#### **3.3.2. Quality Evaluation of Different Educational Background Groups**

According to the known data obtained, there is no significant difference in the scores of satisfaction evaluation among different education background groups, and with the improvement of education level, the scores of satisfaction evaluation show an upward trend. Among the six education background groups, the respondents with a bachelor's degree have higher satisfaction with quality work, which is 74.46, and those with a primary school education or below has lower satisfaction with quality work, which is 71.94, 2.52 lower than those with a bachelor's degree.

#### **3.3.3. Quality Evaluation of Different Income Groups**

Among the people whose average monthly income is revealed in this evaluation, the people's satisfaction evaluation of urban families with income between 2,001 and 4,000 yuan is the highest, with a score of 74.54; the people whose average monthly income is more than 20,001 yuan is the lowest, with a score of 68.43. Among the people with average monthly income of the rural family, the people's satisfaction evaluation with income between 4,001 and 6,000 yuan is the highest, with a score of 75.19; the people's satisfaction evaluation with income between 6,001 and 10,000 is the lowest, with a score of 68.11.

## **4. Suggestions on Quality Work in Pu'er City**

According to the results of the evaluation, the unbalanced quality development, and quality and safety supervision, quality awareness and other aspects need to be further strengthened. In order to further strengthen the quality supply, improve the level of quality in an all-round way, we offer the following Suggestions.

### **4.1. Focus on the Public's Quality Needs and Benefit People's Livelihood with Precision**

Guaranteeing and improving people's livelihood is the fundamental task of social construction and is also the fundamental way to improve the quality of work. According to the results of quality work satisfaction evaluation, the public's satisfaction with quality work in such fields as information disclosure and publicity, medicine, tourism services, communications and network services and elderly care services is generally low. Governments at all levels should focus on the "demand points" and "concerns" of the masses for quality work, with emphasis on strengthening supervision in the areas of medicine quality, tourism services, communications and network services, elderly

care services, etc. Strengthen quality social supervision and public opinion supervision, establish a sound quality signal transmission feedback mechanism, improve the quality inspection governance mechanism, open up the quality and safety appeal channels, promote the reform of the rights protection mechanism, and establish the quality liability insurance system, optimize the quality quarantine inspection system, strengthen the comprehensive quality management, guarantee the quality rights and interests of the people in a multi-dimensional and all-round way.

#### **4.2. Carry out Overall Quality Improvement and Promote Regional Coordinated Development**

According to the test results, the development of regional quality is uneven, and there is still a gap between the improvement of products and service quality and the increasing demand of the people. It is suggested that we should adhere to the concept of “quality makes people’s life better” and always take quality as the core concept and value orientation of development, carry out quality promotion in an all-round way, and accelerate the development of regional coordination. First, strengthen the construction of advanced standards, focus on upgrading the standard level, adhere to the regional quality development characteristics, promote the improvement of standardization capacity, and vigorously promote industry standards and quality level through the implementation of standard file upgrading and improving certification and accreditation rate. Second, pay attention to the cultivation and creation of brands, firmly establish the concept of “brand is competitiveness”, strengthen brand protection publicity, and strive to create “heaven-sent Pu’er, world tea source” city brand and the world-class “three famous brands”.

#### **4.3. Strengthen Quality and Safety Supervision and Strictly Abide by the Bottom Line of Quality and Safety**

Quality safety is related to the safety of people’s lives and property and the stability of economic and social development. It is urgent to strengthen quality safety supervision. On the one hand, it is necessary to further strengthen the supervision of quality law enforcement, build the system of quality safety responsibility, strengthen the supervision during and after the event, and keep the bottom line of quality safety. On the other hand, it is necessary to implement the main responsibility of enterprises, strengthen the sense of quality responsibility of enterprises, guide enterprises to integrate advanced quality management concepts, standards and methods into production, operation and service and other links, implement quality breakthrough, speed up quality innovation, and effectively improve quality assurance capabilities. Third, firmly promote the creation of quality management system certification upgrade, make full use of the Internet, big data and other new technologies, change the traditional certification technology and supervision methods, and create high-end quality certification services.

#### **4.4. Consolidate Quality Infrastructure and Boost High-Quality Development**

Consolidating the quality infrastructure is the fundamental guarantee to promote the development of high quality. It is suggested that Pu’er city should strengthen the construction of quality technical infrastructure, such as metrology, standards, certification, accreditation and inspection, etc., vigorously promote the “Internet + NQI” mode, strengthen the chain design and integration application of “metrology + standard + inspection + certification”, promote the deep integration of all elements of quality infrastructure, and give play to the important role of quality infrastructure in promoting supply-side structural reform, promoting industrial transformation and upgrading, and serving economic development.

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