

Evaluating Employee Welfare Measures in NTPC Townships

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Abstract: Employee welfare is a crucial component of organizational effectiveness, directly influencing productivity, job satisfaction, and overall quality of life. This study evaluates employee welfare measures and HR policies in NTPC townships, focusing on township infrastructure, maintenance services, sanitation, security, and complaint redressal mechanisms. A structured questionnaire was administered to 120 employees residing in NTPC townships, collecting data on various aspects of township facilities and employee satisfaction. The research employed descriptive statistics and a Chi-square goodness-of-fit test to analyze the uniformity of employee satisfaction across different service categories.

The results indicate significant variations in satisfaction levels. While township roads (84.2%), security measures (81.7%), and water quality (79.2%) received high satisfaction ratings, civil complaint resolution (30.8%) and township building maintenance (21.7%) were the lowest-rated aspects. The Chi-square test ($\chi^2 = 70.56$, $df = 13$, $p = 0.000$) confirmed a highly significant disparity, rejecting the null hypothesis that employee satisfaction is uniformly distributed across services. Sanitation services (60.8%) and horticulture maintenance (64.2%) received moderate approval, whereas weekly market arrangements (58.3%) showed notable dissatisfaction (34.2%).

The study highlights key areas for improvement, including faster response times for maintenance complaints, stricter contractor supervision, enhanced waste management, structured building renovations, and improved security protocols. By addressing these concerns, NTPC can optimize township management, enhance employee well-being, and reinforce its commitment to sustainable workforce development.

Keywords: Employee Welfare, Township Maintenance, Infrastructure Services, Chi-Square Analysis, Employee Satisfaction, NTPC Townships

I. Introduction

Employee welfare is a crucial aspect of organizational success, directly influencing productivity, job satisfaction, and overall work culture [1]. NTPC Limited, India's largest power-generating company, has been recognized for its robust HR policies and employee-centric approach [2]. With a workforce of over 24,500 employees, NTPC has developed a comprehensive employee welfare framework, ensuring benefits such as medical facilities, housing, insurance, and educational support for employees' families. Employee welfare has been extensively studied in HR literature, emphasizing its impact on motivation, retention, and organizational efficiency [3, 4, 5, 6]. Previous studies highlight that well-structured labor welfare programs lead to better job satisfaction and reduce turnover rates [7]. In prior studies some have argued that staff development and welfare measures significantly enhance workplace productivity and engagement [8]. Additionally, another study has explored the role of cooperative unionism in strengthening employee welfare policies, ensuring fair labor practices, and fostering a more committed workforce [9]. These studies underscore the importance of comprehensive welfare policies in maintaining high morale and enhancing organizational commitment. This study aims to evaluate NTPC's human resource policies and employee welfare measures, specifically focusing on township infrastructure, maintenance services, and overall employee satisfaction.

II. Research Methodology

This study employs a structured approach to assess employee welfare measures and HR policies at NTPC. The research methodology consists of research design, data collection methods, sampling techniques, and data analysis procedures, ensuring a comprehensive evaluation of employee satisfaction and township infrastructure.

Research Design

The study follows a **descriptive research design**, as it aims to analyze employee welfare policies, benefits, and township maintenance in NTPC. The approach provides an in-depth understanding of employee perceptions, satisfaction levels, and areas requiring improvement.

III. Data Collection Methods

Both primary and secondary data sources were used for this study:

- **Primary Data:** A structured questionnaire was designed and administered to 120 employees residing in NTPC townships. The questionnaire included closed-ended and Likert-scale questions to measure employee satisfaction regarding civil maintenance, security, infrastructure, and HR policies.
- **Secondary Data:** Information was gathered from NTPC's official reports, HR policy documents, government labor laws, and previous studies on employee welfare and organizational behavior.

Sampling Design

A stratified random sampling technique was used to ensure equal representation of employees from different housing categories and townships. The sample population was divided into five NTPC townships: Krishna Vihar, Yamuna Vihar, Kaveri Vihar, Narmada Vihar, and Saraswati Vihar. Each township was further classified into four housing types (A, B, C, and D), except Saraswati Vihar, which had only D-type quarters. Equal samples were taken from each category to maintain balance in the study.

Research Instrument

A structured questionnaire (**Table 1**) was used as the primary research instrument. The questionnaire was divided into the following sections:

- Demographic details (age, designation, years of service)
- Employee satisfaction with HR benefits and welfare measures
- Assessment of township facilities, including housing, sanitation, and security
- Feedback on complaint redressal mechanisms
- Suggestions for improvements

Table 1. NTPC Township Employee Satisfaction Questionnaire Table

Section	Question No.	Question	Response Options
Section 1: Demographic characteristics	1	Age	Open-ended
	2	Designation	Open-ended
	3	Years of Service in NTPC	Open-ended
	4	Type of Quarter	A / B / C / D
	5	Township Name	Krishna Vihar / Yamuna Vihar / Kaveri Vihar / Narmada Vihar / Saraswati Vihar
Section 2: Township Maintenance & Civil Services	6	Are civil complaints properly registered?	Yes / No / Can't Say
	7	Are civil complaints attended in time?	Yes / No / Can't Say
	8	Is the quality of civil maintenance good?	Yes / No / Can't Say
	9	Are painting and distempering of quarters done well?	Yes / No / Can't Say
	10	Are electrical complaints registered properly?	Yes / No / Can't Say
	11	Are electrical complaints attended in time?	Yes / No / Can't Say
	12	Is the quality of electrical maintenance good?	Yes / No / Can't Say
	13	Is the work of contractors in quarters inspected by NTPC?	Yes / No / Can't Say
	14	Are debris removed properly and on time?	Yes / No / Can't Say
	15	Are staircases and roofs cleaned properly?	Yes / No / Can't Say
Section 3: Public Services & Infrastructure	16	Is grass cutting in the township done on time?	Yes / No / Can't Say
	17	Is pruning of trees done in time?	Yes / No / Can't Say
	18	Are overhead tanks cleaned and maintained properly?	Yes / No / Can't Say

	19	Are drains well maintained during rains?	Yes / No / Can't Say
	20	Are roads in the township in good condition?	Yes / No / Can't Say
	21	Are parks in the township well maintained?	Yes / No / Can't Say
	22	Are public buildings in the township well maintained?	Yes / No / Can't Say
	23	Are clubs in the township well maintained?	Yes / No / Can't Say
Section 4: Sanitation & Security	24	Are you satisfied with the sanitation work in the township?	Yes / No / Can't Say
	25	Is the quality of water supplied in the township good?	Yes / No / Can't Say
	26	Is traffic control in the township sufficient?	Yes / No / Can't Say
	27	Do you agree that more stringent security checks are needed?	Yes / No / Can't Say
Section 5: Complaint Redressal & Employee Welfare	28	Are shops in the township sufficient?	Yes / No / Can't Say
	29	Are arrangements in the weekly market sufficient?	Yes / No / Can't Say
	30	Are you satisfied with the behavior of maintenance staff?	Yes / No / Can't Say
	31	Do you feel good about the horticulture work in the township?	Yes / No / Can't Say
	32	Do you think the painting and maintenance of township buildings need improvement?	Yes / No / Can't Say
Section 6: Suggestions for Improvement	33	What improvements would you suggest for better township maintenance?	Open-ended
	34	Any additional comments regarding township facilities and HR policies?	Open-ended

Hypothesis Statement

- *Null Hypothesis (H_0):* Employee satisfaction with NTPC township maintenance and services is uniformly distributed, meaning that employees are equally satisfied across all service categories.
- *Alternative Hypothesis (H_1):* Employee satisfaction with NTPC township maintenance and services is not uniformly distributed, meaning that there are significant differences in satisfaction levels across different service categories.

Data Analysis

The collected data was analyzed using descriptive statistics and frequency distribution to evaluate key trends and employee perceptions. Responses were coded and processed using SPSS software, ensuring accuracy in data interpretation. A Chi-square goodness-of-fit test was used to determine whether employee satisfaction levels were evenly distributed across different service categories.

IV. Results and Discussions

Demographic characteristics

The demographic analysis (**Table 2**) of NTPC employees residing in the township reveals key insights into their age distribution, designation, years of service, housing type, and township representation. The survey sample was well-balanced, ensuring an unbiased representation across different employment levels and housing categories.

The age distribution of respondents indicates that the majority of employees fall within the 36–45 years age group (35.0%), followed by 28.3% in the 25–35 years category. Employees aged 46–55 years accounted for 25.0%, while only 11.7% were above 56 years. These figures suggest that township housing is primarily occupied by younger and mid-career employees, while senior employees might have alternative housing arrangements.

An analysis of employee designation highlights that 40.0% of respondents were junior-level staff, while 35.0% were mid-level executives. Senior executives and managerial personnel made up 15.0% and 10.0%, respectively, suggesting that township housing is predominantly utilized by lower and mid-level staff, who are more dependent on company-provided accommodations.

Examining the years of service, a large proportion of respondents (57.5%) had been working at NTPC for 6–20 years, with 30.0% in the 6–10 year range and 27.5% in the 11–20 year range. This reflects that township residents are mostly long-term employees, rather than recently recruited staff. Employees with less than 5 years of service comprised 22.5%, while 20.0% had over 20 years of experience, indicating that newer employees still have some access to company housing, though in a smaller proportion.

Table 2. Demographic analysis Table

Category	Sub-Category	Percentage of Respondents
Age Group	25 - 35 years	28.30%
	36 - 45 years	35.00%
	46 - 55 years	25.00%
	56 and above	11.70%
Designation	Junior-Level Staff	40.00%
	Mid-Level Executives	35.00%
	Senior Executives	15.00%
	Managerial Level	10.00%
Years of Service	0 - 5 years	22.50%
	6 - 10 years	30.00%
	11 - 20 years	27.50%
	Above 20 years	20.00%
Housing Type	A-Type	25.00%
	B-Type	25.00%
	C-Type	25.00%
	D-Type	25.00%
Township Name	Krishna Vihar	20.00%
	Yamuna Vihar	20.00%
	Kaveri Vihar	20.00%
	Narmada Vihar	20.00%
	Saraswati Vihar	20.00%

Regarding housing type, the survey ensured equal representation across A, B, C, and D-Type quarters (25.0% each), allowing for an unbiased evaluation of maintenance and infrastructure services. Similarly, the distribution of respondents across NTPC townships was equal (20% each for Krishna Vihar, Yamuna Vihar, Kaveri Vihar, Narmada Vihar, and Saraswati Vihar), ensuring that feedback is not skewed toward any single township.

Overall, the findings indicate that NTPC’s township facilities primarily serve mid-career employees and junior-level staff, with a relatively small proportion of senior executives residing in these quarters. The equal distribution of responses across housing types and townships enables a comprehensive and objective assessment of infrastructure quality, maintenance efficiency, and employee satisfaction in subsequent sections of the study.

Township maintenance and civil services

The analysis of township maintenance and civil services at NTPC townships (**Table 3**) revealed both strengths and critical areas for improvement. While employees acknowledged effective complaint registration processes, there were significant delays in resolving civil maintenance issues, dissatisfaction with contractor work supervision, and concerns regarding cleanliness and debris removal.

In terms of civil maintenance, 83.3% of employees confirmed that complaints were properly registered, indicating an efficient lodging system. However, 68.3% of employees reported delays in complaint resolution, with only 30.8% agreeing that issues were attended to on time. The quality of civil maintenance was rated positively by 55.8% of respondents, though a considerable 40.0% expressed dissatisfaction, citing slow repairs and inconsistent maintenance work. Painting and distemping received the

lowest approval rating, with only 34.2% satisfied, while 45.8% were dissatisfied, and 20.0% remained neutral, indicating poor material quality and irregular repainting schedules.

Table 3. Results of Township maintenance and civil services

Aspect	Yes (%)	No (%)	Can't Say (%)
Civil Maintenance			
<i>Are civil complaints properly registered?</i>	83.30%	15.00%	1.70%
<i>Are civil complaints attended in time?</i>	30.80%	68.30%	0.80%
<i>Is the quality of civil maintenance good?</i>	55.80%	40.00%	4.20%
<i>Are painting and distempering done well?</i>	34.20%	45.80%	20.00%
Electrical Maintenance			
<i>Are electrical complaints registered properly?</i>	78.30%	20.00%	1.70%
<i>Are electrical complaints attended in time?</i>	78.30%	20.00%	1.70%
<i>Is the quality of electrical maintenance good?</i>	70.80%	23.30%	5.90%
Inspection & Contractor Work			
<i>Is contractor work inspected by NTPC?</i>	45.80%	54.20%	0.00%
Cleanliness & Waste Disposal			
<i>Are debris removed properly and on time?</i>	66.70%	31.70%	1.70%
<i>Are staircases and roofs cleaned properly?</i>	60.80%	37.50%	1.70%

Electrical maintenance services received comparatively better feedback, with 78.3% of employees confirming that electrical complaints were properly registered. A similar 78.3% agreed that complaints were attended to on time, showing better responsiveness in electrical maintenance compared to civil repairs. The overall quality of electrical maintenance was rated as good by 70.8% of employees, though 23.3% reported issues with recurring faults and delayed repairs.

One of the major concerns raised in the survey was the lack of proper supervision over contractor work. Only 45.8% of employees agreed that NTPC inspects the work of contractors, while 54.2% reported inadequate oversight, leading to poor-quality repairs and maintenance issues persisting even after work was completed. Employees suggested implementing stricter monitoring and performance evaluation mechanisms for contractors to ensure higher-quality maintenance work.

Regarding cleanliness and waste disposal, 66.7% of employees were satisfied with the timely removal of debris, while 31.7% noted delays. The cleaning of staircases and roofs was rated positively by 60.8% of respondents, but 37.5% expressed dissatisfaction, pointing to inconsistent cleaning schedules and a lack of proper supervision.

Key Takeaways & Areas for Improvement

1. Improve the resolution of civil maintenance complaints, as only 30.8% of employees were satisfied with the response time, and 68.3% reported delays.
2. Enhance the quality of painting and distempering by ensuring better materials and regular repainting schedules, as only 34.2% were satisfied.
3. Maintain the efficiency of electrical complaint handling, which was rated positively by 78.3% of employees, but address the 23.3% dissatisfaction with repair quality.
4. Strengthen contractor work inspections, as 54.2% of employees believed there was inadequate supervision, leading to substandard repairs.
5. Improve waste management and cleaning services, especially staircase and roof cleaning, where 37.5% of employees were dissatisfied.

Public services and infrastructure

The evaluation of public services and infrastructure in NTPC townships revealed mixed levels of satisfaction among employees (**Table 4**). While road conditions and water storage systems were rated positively, significant dissatisfaction was observed in landscaping maintenance, drainage systems, and public recreational facilities.

In terms of landscaping and green space maintenance, the survey indicated widespread dissatisfaction with grass cutting and tree pruning schedules. Only 42.5% of employees agreed that grass cutting was done on time, while 44.2% expressed dissatisfaction, citing overgrown areas and delays in maintenance. Similarly, tree pruning received even lower ratings, with only 37.5% of respondents satisfied, while 50.8% reported delays. These findings suggest a lack of proper scheduling and manpower allocation for routine landscaping work, requiring more frequent and timely interventions.

Table 4. Results of Public services and infrastructure

Aspect	Yes (%)	No (%)	Can't Say (%)
Landscaping & Green Space Maintenance			
<i>Is grass cutting done on time?</i>	42.50%	44.20%	12.50%
<i>Is pruning of trees done in time?</i>	37.50%	50.80%	11.70%
Water Storage & Drainage System Maintenance			
<i>Are overhead tanks cleaned and maintained?</i>	71.70%	23.30%	5.00%
<i>Are drains well maintained during rains?</i>	65.80%	27.50%	6.70%
Road & Public Space Maintenance			
<i>Are township roads in good condition?</i>	84.20%	14.20%	1.60%
<i>Are parks well maintained?</i>	61.70%	30.00%	8.30%
<i>Are public buildings well maintained?</i>	62.50%	27.50%	10.00%
<i>Are clubs well maintained?</i>	60.80%	21.70%	17.50%

Water storage and drainage maintenance showed moderate satisfaction levels. Overhead tanks were reported to be cleaned and maintained adequately by 71.7% of employees, indicating that water quality and storage facilities are generally well-maintained. However, 23.3% of respondents reported concerns about inconsistent cleaning schedules. Drainage maintenance during the rainy season was rated satisfactory by 65.8% of employees, but 27.5% reported frequent waterlogging issues, highlighting the need for better drainage management before monsoon periods.

Township roads received the highest satisfaction ratings, with 84.2% of employees agreeing that roads were in good condition. This indicates efficient road maintenance and infrastructure planning in NTPC townships. However, dissatisfaction was noted in public space maintenance, particularly in parks, public buildings, and clubs. While 61.7% of employees found township parks well-maintained, 30.0% expressed dissatisfaction, citing poor landscaping and lack of proper recreational facilities. Similarly, public buildings (62.5%) and clubs (60.8%) received moderate ratings, though some employees pointed out aging infrastructure and inadequate maintenance.

Key Areas for Improvement

1. Enhance landscaping maintenance schedules, as over 50% of employees reported delays in grass cutting and tree pruning, leading to overgrown areas and potential safety concerns.
2. Improve drainage system maintenance before monsoon seasons, addressing 27.5% dissatisfaction with waterlogging issues.
3. Ensure more frequent cleaning of overhead tanks, as 23.3% of employees reported concerns about maintenance gaps.
4. Upgrade parks and recreational spaces, as 30.0% of employees found them poorly maintained, with a need for better landscaping and play equipment maintenance.
5. Continue road maintenance efforts, particularly in older township areas, to address the 14.2% dissatisfaction rate.

Sanitation & Security

The assessment of sanitation, water quality, traffic control, and security in NTPC townships reveals moderate satisfaction levels, with notable concerns regarding sanitation efficiency and township security (**Table 5**). While water quality and traffic control were rated positively, a strong demand for stricter security measures emerged as a key finding.

Sanitation services received a moderate satisfaction rating, with 60.8% of employees expressing approval, indicating that basic cleanliness is maintained. However, 31.7% of respondents were dissatisfied, pointing to inconsistent cleaning schedules and inefficient waste disposal mechanisms in some areas. Employees suggested increasing the frequency of waste collection, improving drainage cleaning schedules, and ensuring better supervision of sanitation staff to enhance overall hygiene standards.

Water quality was rated favorably, with 79.2% of employees confirming that the water supplied in the township was of good quality. However, 16.7% expressed concerns about occasional contamination and inadequate filtration in certain areas, highlighting the need for regular monitoring and improved purification systems to ensure consistent water quality.

Table 5. Results of Sanitation & Security

Aspect	Yes (%)	No (%)	Can't Say (%)
Sanitation & Water Supply			
<i>Are you satisfied with the sanitation work in the township?</i>	60.80%	31.70%	7.50%
<i>Is the quality of water supplied in the township good?</i>	79.20%	16.70%	4.20%
Traffic Control & Security			
<i>Is traffic control in the township sufficient?</i>	67.50%	30.80%	1.70%
<i>Do you agree that more stringent security checks are needed?</i>	81.70%	17.50%	0.80%

Traffic control within the township was considered adequate by 67.5% of employees, indicating that basic traffic regulations are in place. However, 30.8% of respondents felt that improvements were necessary, citing issues such as unauthorized parking, traffic congestion during peak hours, and a lack of proper speed control measures. Employees recommended better enforcement of parking regulations, stricter speed monitoring, and designated pedestrian zones to enhance road safety.

Security emerged as the most significant concern, with 81.7% of employees strongly advocating for more stringent security checks at township entry points. Employees emphasized the need for enhanced surveillance, stricter visitor verification, and better-trained security personnel to prevent unauthorized access and improve overall township safety.

Key Areas for Improvement

1. Enhance sanitation services, as 31.7% of employees reported dissatisfaction, suggesting the need for more efficient waste collection and cleaning schedules.
2. Ensure consistent water quality monitoring, as 16.7% of employees raised concerns about occasional contamination and filtration issues.
3. Improve traffic management measures, addressing 30.8% dissatisfaction with parking violations, congestion, and speed control.
4. Strengthen township security, as 81.7% of employees demanded stricter security measures, emphasizing better surveillance, visitor verification, and trained security personnel.

Complaint Redressal & Employee Welfare

The evaluation of complaint redressal mechanisms and employee welfare in NTPC townships highlights moderate to high satisfaction levels in essential services such as availability of shops, maintenance staff behavior, and horticulture work (**Table 6**). However, significant concerns were raised regarding the sufficiency of weekly market arrangements and the need for improved painting and maintenance of township buildings.

The availability of shops within the township received strong approval, with 84.2% of employees agreeing that the number of shops was sufficient, indicating easy access to essential goods and services. However, 15.8% of employees expressed the need for more variety in products and competitive pricing. In contrast, weekly market arrangements received lower satisfaction levels, with only 58.3% agreeing that they were adequate, while 34.2% were dissatisfied, citing limited vendor participation, space constraints, and crowd management issues. Employees suggested expanding the weekly market, increasing vendor participation, and improving its overall organization.

Regarding maintenance staff behavior, 71.7% of employees expressed satisfaction, acknowledging responsive and cooperative service. However, 23.3% of employees reported dissatisfaction, particularly concerning delays in complaint resolution and lack of professionalism. Employees recommended customer service training for maintenance staff to improve their communication and efficiency.

Horticulture work, including landscaping and greenery management, received a moderate approval rating of 64.2%, with 25.0% of employees dissatisfied due to irregular tree pruning, delayed garden maintenance, and uneven distribution of horticulture services across different township sectors. Employees suggested more frequent maintenance schedules and improved resource allocation for township greenery.

One of the most pressing concerns was the poor maintenance and painting of township buildings, with 74.2% of employees stating that improvements were needed. Only 21.7% of employees were satisfied, while 4.2% were uncertain. The primary issues

included peeling paint, lack of timely renovations, and poor-quality maintenance work. Employees strongly recommended a systematic maintenance plan, the use of better-quality materials, and regular supervision of painting and repair work.

Table 6. Results of Complaint Redressal & Employee Welfare

Aspect	Yes (%)	No (%)	Can't Say (%)
Shops & Market Arrangements			
<i>Are shops in the township sufficient?</i>	84.20%	15.80%	0.00%
<i>Are arrangements in the weekly market sufficient?</i>	58.30%	34.20%	7.50%
Maintenance Staff & Horticulture Work			
<i>Are you satisfied with the behavior of maintenance staff?</i>	71.70%	23.30%	5.00%
<i>Do you feel good about the horticulture work in the township?</i>	64.20%	25.00%	10.80%
Township Building Maintenance			
<i>Do you think the painting and maintenance of township buildings need improvement?</i>	74.20%	21.70%	4.20%

Key Areas for Improvement

1. Enhance weekly market arrangements, as 34.2% of employees found them insufficient, recommending better vendor participation, increased space, and improved organization.
2. Improve maintenance staff efficiency and responsiveness, as 23.3% of employees were dissatisfied, suggesting the need for customer service training.
3. Expand horticulture maintenance schedules, as 25.0% of employees expressed concerns over inconsistent landscaping services.
4. Implement a structured maintenance plan for township buildings, as 74.2% of employees reported issues with painting and overall upkeep, calling for higher-quality materials and routine inspections.

Chi-Square Analysis and hypothesis testing

To assess whether employee satisfaction with township services is uniformly distributed, a Chi-square goodness-of-fit test was conducted using satisfaction percentages from various service categories (**Table 7A**). The analysis aimed to determine if there were significant variations in satisfaction levels across different township services. The test results (**Table 7B**) showed a Chi-square statistic (χ^2) of 70.56 with 13 degrees of freedom and a highly significant p-value of 0.000 ($p < 0.001$). Since the p-value is far below 0.05, we reject the null hypothesis (H_0) and conclude that employee satisfaction is not evenly distributed across township services, meaning that some services perform significantly better than others.

Table 7. Chi-Square Analysis and hypothesis testing: (A) Various service categories taken into consideration for Chi-Square Analysis (B) Results of Chi-Square Analysis

(A)		
Category	Observed Satisfaction (%)	Dissatisfied (%)
Civil Maintenance (Complaint Resolution)	30.80%	68.30%
Electrical Maintenance	78.30%	20.00%
Sanitation Services	60.80%	31.70%
Water Quality	79.20%	16.70%
Traffic Control	67.50%	30.80%
Security Measures (Need for More Stringent Checks)	81.70%	17.50%
Township Roads	84.20%	14.20%
Parks Maintenance	61.70%	30.00%
Public Buildings Maintenance	62.50%	27.50%

Shops Availability	84.20%	15.80%
Weekly Market Arrangements	58.30%	34.20%
Maintenance Staff Behavior	71.70%	23.30%
Horticulture Work	64.20%	25.00%
Township Building Painting & Maintenance	21.70%	74.20%

(B)				
Test	Chi-Square (χ^2)	df	p-value	Significance
Goodness-of-Fit Test	70.56	13	0.000	Significant

For this analysis, only "Yes" (Satisfied) and "No" (Dissatisfied) responses were considered, while "Can't Say" responses were excluded. This decision was made to ensure that the analysis focused on definitive employee opinions rather than neutral or uncertain responses, which could have introduced ambiguity in the interpretation of satisfaction levels. The "Can't Say" category might reflect a lack of awareness or experience with a particular service, rather than an actual evaluation, making it unsuitable for a direct satisfaction-dissatisfaction comparison.

The findings indicate that certain services show considerable dissatisfaction, particularly township building maintenance (21.7%) and civil complaint resolution (30.8%), which received the lowest satisfaction ratings. Additionally, weekly market arrangements (58.3%) had a high dissatisfaction rate (34.2%), highlighting concerns about vendor participation and space allocation. In contrast, township roads (84.2%), security measures (81.7%), and water quality (79.2%) were among the highest-rated services, indicating that employees are generally satisfied with infrastructure and basic utilities. Electrical maintenance (78.3%) also received favorable ratings, reflecting efficient handling of power-related issues. The large disparity in satisfaction levels across township services justifies the need for immediate intervention in areas such as civil complaint handling, township building renovations, and weekly market improvements.

Based on these findings, the key areas for improvement include enhancing civil maintenance response times, implementing a structured renovation plan for township buildings, improving vendor participation in weekly markets, strengthening landscaping and horticulture maintenance, and ensuring fair pricing in township shops. Addressing these concerns will significantly improve employee well-being and create a more sustainable and well-maintained township environment. The Chi-square analysis confirms that employee satisfaction levels vary significantly across different township services, reinforcing the need for targeted improvements in low-performing areas to enhance overall township livability.

Suggestions for Improvement

Employee feedback on township maintenance, infrastructure, and HR policies highlights several key areas requiring improvement to enhance overall living conditions in NTPC townships. A common concern among employees was the delayed resolution of maintenance complaints, particularly related to painting, plumbing, and electrical repairs. Many suggested implementing faster response times, better tracking mechanisms, and stricter supervision of contractor work to ensure higher-quality maintenance services. Additionally, sanitation and waste management emerged as a priority, with employees recommending more frequent garbage collection, improved drain cleaning, and additional waste bins in public areas.

Another major area of concern was landscaping and public amenities, where employees emphasized the need for timely grass cutting, tree pruning, and park maintenance, especially before the monsoon season. Suggestions were also made for modernizing parks, clubs, and recreational spaces by adding better seating, lighting, and sports equipment to improve employee well-being. Security enhancements were strongly recommended, with employees advocating for stricter ID verification, increased CCTV surveillance, and better-trained security personnel to prevent unauthorized access and ensure a safer township environment.

Regarding HR policies and township facilities, employees highlighted the need for regular painting and structural maintenance of buildings, along with better regulation of pricing in township shops to ensure affordability and product variety. Several employees also called for improved welfare schemes, including expanded medical benefits, flexible work policies, and professional training programs to enhance job satisfaction and career development.

Key Areas for Improvement

Based on employee suggestions, the following improvements are urgently needed:

- Faster response to civil and electrical maintenance complaints to reduce service delays.
- Stricter supervision of contractor work to ensure higher-quality repairs.
- More frequent sanitation, landscaping, and waste management efforts to maintain hygiene and cleanliness.

- Upgradation of parks, clubs, and recreational spaces for better employee engagement and well-being.
- Enhanced security measures, including stricter visitor verification and surveillance systems.
- Regular painting and maintenance schedules for township residential and office buildings.
- Better price regulation and increased vendor diversity in township shops and weekly markets.
- Enhanced employee welfare policies, with better medical benefits and professional training opportunities.

V. Conclusion

The evaluation of employee welfare measures and HR policies at NTPC townships highlights both strengths and areas requiring improvement. The study assessed various aspects of township infrastructure, maintenance services, sanitation, security, and complaint redressal mechanisms, revealing significant disparities in employee satisfaction across different service categories. While NTPC provides essential welfare benefits such as housing, healthcare, insurance, and recreational facilities, the research identified critical gaps in areas like civil complaint resolution, township building maintenance, and weekly market arrangements. The Chi-square analysis confirmed that employee satisfaction is not uniformly distributed, with services such as township roads (84.2%), security measures (81.7%), and water quality (79.2%) receiving high satisfaction ratings, while civil maintenance (30.8%) and building upkeep (21.7%) were among the lowest-rated aspects.

A major area of concern was the delay in maintenance work, where 68.3% of employees expressed dissatisfaction with the timeliness of complaint resolution. Similarly, 74.2% of employees believed that township buildings required urgent painting and structural maintenance. Additionally, sanitation services (60.8% satisfied) and landscaping efforts (only 42.5% satisfaction for grass cutting and 37.5% for tree pruning) require better scheduling and supervision.

Security measures emerged as a pressing issue, with 81.7% of employees supporting stricter checks and improved surveillance to prevent unauthorized access. Similarly, traffic control (67.5% satisfied) showed moderate approval, with 30.8% of employees suggesting improvements in speed control and parking regulations. Based on the findings, the study recommends several key improvements, including faster maintenance response times, stricter supervision of contractor work, better waste management, and more structured township building renovations. Strengthening security protocols, expanding vendor participation in weekly markets, and improving employee welfare schemes were also highlighted as critical areas for development.

By implementing these recommendations, NTPC can further enhance employee well-being, optimize township management, and reinforce its position as a top employer in India. Addressing infrastructure gaps, improving complaint redressal mechanisms, and maintaining a high standard of township services will lead to greater employee satisfaction and long-term sustainability in NTPC's residential facilities.

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References

1. **Paais, M., & Pattiruhu, J. R. (2020).** Effect of motivation, leadership, and organizational culture on satisfaction and employee performance. *The journal of asian finance, economics and business*, 7(8), 577-588.
2. **Gangakhedkar, R., & Mishra, R. K. (2014).** Does NTPC Have a Dominant Position? A Critical Analysis. *Journal of Infrastructure Development*, 6(2), 167-183.
3. **Ramlall, S. (2004).** A review of employee motivation theories and their implications for employee retention within organizations. *Journal of American academy of business*, 5(1/2), 52-63.
4. **Guest, D. (2002).** Human resource management, corporate performance and employee wellbeing: Building the worker into HRM. *The journal of industrial relations*, 44(3), 335-358.
5. **Pandita, D., & Ray, S. (2018).** Talent management and employee engagement—a meta-analysis of their impact on talent retention. *Industrial and commercial training*, 50(4), 185-199.
6. **Amping, I. (2024).** Assessing the effect of employee welfare and compensation on organizational performance: a case of Sahel Sahara Bank Ghana limited. *Cogent Business & Management*, 11(1), 2315690.
7. **Marković, S., & Raspor Janković, S. (2013).** Exploring the relationship between service quality and customer satisfaction in Croatian hotel industry. *Tourism and hospitality management*, 19(2), 149-164.
8. **Rao, V. S. P. (2007).** Human resources management: text and cases. Excel Books India.
9. **White, M. (2005).** Cooperative unionism and employee welfare. *Industrial Relations Journal*, 36(5), 348-366.