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PRIA

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Urban Governance

Participatory Planning for Slum Upgradation




Case Study of Janjgir, Chhattisgarh

PRIA is an International Centre for Learning and Promotion of Participation and Democratic Governance

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Preface

Nearly half the world's population now lives in cities. Urban centres around the world are buzzing with excitement. Urbanisation as a fact of human habitation is here to stay. Rapid urbanisation has also occurred in India over the past two decades. Nearly a third of its people—350 million—now stay in urban centres. This number is only increasing as the pace of economic growth moves on.

Yet, nearly five thousand urban habitats in India provide a picture of extreme confusion and chaos. Although cities have existed as centres of trade, monarchy and culture in the Indian sub-continent for five thousand years, official policies to support and promote urban habitation have been largely absent during the past six decades since Independence. Many well-known leaders of India's freedom struggle gained their experience of politics in municipalities of medium-sized towns in the early twentieth century, but the founders of the constitution of independent India did not provide for a democratic framework of governance of municipalities. Hence, municipal administration remained underdeveloped, almost an invalid cousin of rural development in the country.

As a result, most urban centres in the country have grown haphazardly; urban planning is non-existent; hardly any municipalities have maps of their territories; most municipalities keep their books of accounts in the single entry system; and there is no specialised cadre of trained personnel working in municipalities. A large number of city level and regional urban planning bodies have come up in recent years, without adequate rationalisation of their functions and accountabilities. That is precisely why it has been a nightmare for citizens to get any basic municipal services all these years. From birth certificate to water, sanitation and education services to getting housing plans approved, citizens of urban India have been the most harassed lot.

While some international financial institutions (like the World Bank or Asian Development Bank) have invested resources in urban infrastructure of large metropolitan cities (like Mumbai, Delhi, Chennai, etc.), the development of small and medium towns has been mostly neglected.

It is in this scenario that the amendments to the Indian Constitution (made in April 1994) related to democratising municipal bodies has to be viewed. The demand for reforming municipal governance has not since gained such a momentum as to demonstrate a 'reformed' urban governance in the country. The voices of citizens and civil society in respect of such a demand have also been largely muted. The terror attacks on Mumbai last November suddenly made urban middle class in India to wake up to the reality of urban malgovernance, though it is yet to be translated into practical and persistent actions.

In pursuit of its strategy of "Governance Where People Matter", PRIA began to undertake some interventions in reforming urban governance over the past decade. These interventions were further intensified after 2003 with direct experiments at the grassroots

level in small and medium towns of several states. While some interesting impacts have been seen, much of this period has been one of experimentation, trials and errors and steep learning curves. Much more needs to be done, by many more actors and stakeholders in the coming decade, if urban governance in India has to become democratically accountable to all its citizens.

It is with this hope that we have brought out a series of occasional papers and resource packages. We share them with you all with the hope that we can mobilise a broad coalition for reforming urban governance in India. We also hope that these lessons and insights may be useful in stimulating a wider sharing of strategies and methodologies globally, since we now are living in the 'urban' millennium.

Rajesh Tandon
President, PRIA
March 2009

Acknowledgement

The slum population in urban India is around 62 million. The urban poor in cities live in appalling conditions in these slums. Growth of slums in India is primarily due to inadequate infrastructure and housing. The preparation of slum upgrading and improvement programmes is one of the biggest challenges that communities and municipalities in developing countries are facing. Such programmes aim to overcome diverse problems such as poor housing conditions, access to water, sanitation, insecure tenure, hazard risks, missing access to employment opportunities etc. The problems regarding slums can be better tackled through implementation of slum upgradation programmes. Thus, the same was needed for Shanti Nagar of Janjgir Naila, in Chhattisgarh. The objectives of the plan were as follows:

- Providing basic services to the urban poor in the slum area. The basic services included roads, water, sewerage, public toilets and animal sheds.
- Increasing community ownership and participation in preparation of plan.
- Increasing awareness and accountability in the community for their rights and duties.
- Reduce dependency through initiative and maintenance of community services.
- Support the efforts of the Municipal Council of Naila-Janjgir to implement a more effective strategy and delivery mechanism for the financing of urban slum improvement and sanitation provision in the under-served areas.

Over the years PRIA has developed methodologies on participatory urban planning with a special focus on small and medium towns in India. This occasional paper captures the participatory methodologies that were followed in Shanti Nagar of Chhattisgarh. The planning process was primarily facilitated and documented by Navpreet Arora, Dr. Khatibullah Sheikh and Dr. Alok Pandey. We specifically acknowledge the contribution of Navpreet Arora and Vinika Kaul for preparing the draft paper. This publication would not have been possible without the support and contributions from Anwar Khan, Vipin Kumar and Rambha Tripathy.

We are deeply indebted to Dr. Rajesh Tandon, President, PRIA who provided opportunity and constant guidance to undertake these planning initiatives.

Dr. Kaustuv K Bandyopadhyay
Director, PRIA

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Abbreviations

Abbreviation	Full Form
BALCO	Bharat Aluminium Company Limited
CMO	Chief Municipal Officer
cms	Centimeter
FCI	Food Corporation of India
HH	Household
IHSDP	Integrated Housing and Slum Development Programme
kms	Kilometers
lpcd	Litre Per Capita/Daily
lts	Litres
NBC	National Building Code
NTPC	National Thermal Power Corporation
OBC	Other Backward Class
PRIA	Society for Participatory Research in Asia
Rs	Indian Rupees
SC	Scheduled Caste
sq. km	Square Kilometers
sq. mt	Square Meter
ST	Scheduled Tribe
SWM	Solid Waste Management
UDPFI	Urban Development Plan Formulation and Implementation
ULB	Urban Local Bodies
UNDP	United Nations Development Programme

Contents

Executive Summary

The slum population in urban India is around 62 million. The urban poor in cities live in appalling conditions. Slums are not at all fit for human settlements and are a danger for both the residents and the population living near by. Slums by and large are the creation of urbanization process. Growth of slums in India is primarily due to inadequate infrastructure and housing. The preparation of slum upgrading and improvement programmes is one of the biggest challenges that communities and municipalities in developing countries are facing. Such programmes aim to overcome diverse problems such as poor housing conditions, access to water, sanitation, insecure tenure, hazard risks, missing access to employment opportunities etc. The problems regarding slums can be better tackled through implementation of slum upgradation programmes.

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Shanti Nagar is located on the public land, so no land acquisition would be required. Since the project provided in-situ improvements and services, so no off-site relocation of slum residents would take place. Further, development of basic infrastructure facility was also proposed. The plan envisaged up gradation of the area, as the relocation of people to any other part of the city would directly affect their main occupation in a negative manner. The scope of the plan in relation to different components included Roads, Water Supply, Sewerage, Sanitation and Animal Shed

The slum up gradation plan of Shanti Nagar, Janjgir consisted of six stages as given below:

Stage 1: On the basis of various parameters i.e. conditions of physical infrastructure, social infrastructure facilities, topography, and needed funds etc. the site for the slum up gradation plan was selected. After the selection of the site the identification of stakeholders was the next important step. It not only increased the participation directly but it also affected the planning indirectly and effectively. Following the same procedure the stakeholders of the entire ward were identified. Subsequently meeting with the stakeholders, officials, councilor and community were organized.

Stage 2: To understand the existing situation of the slum, a preliminary survey was done. In this survey the team made rough sketch of the area. Then a meeting with the community was organized in the slum for resource mapping.

Stage 3: In addition to the location, the existing infrastructure, houses etc. the planner also needed to understand the lifestyle of the people, economic conditions, social conditions and other details of the infrastructure for proper planning of the area. So, to fulfill this need data collection through primary (socio–economic survey) and secondary survey of the area was also needed. Data compilation and analysis was also important part of third stage, which was followed by the calculation of requirements on the basis of the available data.

Stage 4: This stage consisted of meetings with the officials, councilor, stakeholders and most importantly the community. After finalizing the map, based on the existing situation it was shared with the community, with infrastructure and other facility locations marked on the map. Further, suggestions, wishes and needs of the community were considered while making the map. The same processes were repeated with the stakeholders, councilor and officials.

Stage 5: Proposed infrastructure map was prepared on the basis of the suggestions given during meetings, requirements, norms and standards, funds available, technical aspects etc., which then was shared with the community, stakeholders, councilor, municipality officials. The final plan however, was prepared only after taking the suggestions and giving due consideration to the objections given by the participants in the meeting.

Stage 6: The final plan was submitted to the municipal authorities for implementation.

PRIA's approach was focused on preparation of a participatory slum up gradation plan in Janjgir municipality with the active participation of all stakeholders. The thrust of the initiative was to understand the needs of residents of Shanti Nagar through interactive sessions and to enhance their capacities to analyze the local issues. For this purpose local people were engaged in the activities like household data collection, group discussions, resource mapping and plan sharing. From these activities community's reaction towards access to safe water, sanitation, and better housing conditions were documented. The most important element for the plan's success was commitment by all – the community, the officials, the ULB and the families. A sense of partnership was required to develop among them. Secondly, the knowledge that locals possessed about the area and their problems was brought out. Getting their input and taking their help decided the nature of the project and developed a sense of 'ownership', which in turn increased the chances for success.

The plan aims at improving basic facilities for slum dwellers in Shanti Nagar over the next five years. The plan focuses on upgradation of the basic services. It calls for commitment of the municipality and the slum dwellers. Achieving this goal requires strong leadership and their political will as well as commitment from local people. The planning process and subsequent implementation of part of it proved that things could be changed which positively impacted the lives of most marginalized slum dwellers.

The Municipal Council of Naila-Janjgir implemented the plan facilitated by PRIA in collaboration with the people and the municipality. The municipality showed interest in the slum upgradation planning and implementing the same in parts. The roads were one of the most important requirements for Shanti Nagar. Considering the resource availability with the municipality, it was first decided to construct the road. The approach roads of 400 mts were constructed and the internal roads are also under construction.

The municipality also laid 165 mts of water pipe line (main line for water supply) out of 276 mts main pipeline proposed in the plan. They have also decided to lay the internal pipeline, which will be constructed very soon. For the education of the kids a primary school was proposed in the plan, which has also been constructed by the municipality.

Right from the beginning of the planning process in Shanti Nagar regular interactions have been maintained with the leadership and decision makers in the municipality. Continuous interactions with the President, Chief Municipal Officer, Engineers and other related officials helped in sustaining their interest in the planning process and also to secure their commitment in implementation of the plan. The learning gained from different interventions was shared with municipal officials on regular basis.

A less tangible but significant benefit is that the community is now aware about their rights, entitlements and obligations. They now consider the entire slum as their own property and actively monitor the construction work of the slum. The people of the area especially the members of the Nigrani Samiti monitored the whole construction work .The programme has achieved the integrations and coordination of the important stakeholders of the area.

The initiative has demonstrated how empowered of local inhabitants effectively participate in decision making at the implementation stage of planned interventions which can reduce the scope of low quality work and enable mobilization of resources for effective implementation.

Some of the lessons learnt from the intervention in Shanti Nagar are as follows:

- It has shown that coordination and collaboration among government agencies, civil society groups and local people, though challenging but it is necessary for effective and sustainable urban development. For the successful plan we need to take the all stakeholders together on board. Only technical knowledge and deskwork will never be able to solve the problems of slum.
- The focus of the plan was to improve the living conditions of the slum dwellers and efforts were made to maintain this focus through out the process. In order to do so it was very much essential to make aware the residents of the slums as well as the municipal officials about the roles and responsibilities that each actor needed to play.
- Involvement of women in the process played an important role because women were the most affected and they had the understanding of the depth of the problem. The women, therefore, not only persuaded the entire family for the participation but also contributed a lot in the processes.
- There were vested interests and politically motivated patron-client relationships in the slums. These entrenched interests needed to be taken into consideration and tackled with great sensitivity and cautiously.

Chapter 1
Introduction

1.1 Background

Recent years have seen a dramatic growth in the number of slums as urban populations have increased in India and elsewhere in the world. One billion people around the world now live in city slums and their numbers are set to double over the next 25 years.

The slum population in urban India is around 62 million and the average family size is about five. About 12 million households are now living in the slums. Approximately, 68.8% of the country's slum population is concentrated in 300 class I cities and less than one third of this population resides in the remaining 330 urban centres.

A slum is defined by UN HABITAT as a run down area of a city characterized by substandard of housing and squalor and lacking in tenure security. The characteristics associated with slums vary from context to context. Although their characteristics vary between geographic regions, however, irrespective of their location slums have often been characterized as:

- Urban blight and by high rates of poverty and unemployment.
- They are usually inhabited by the very poor or socially disadvantaged.
- The area with inadequate housing, overcrowding and congestion.
- Most slums lack clean water, electricity, sanitation and other basic services

The urban poor in cities live in appalling conditions. Slums are not at all fit for human settlements, and are a danger for both residents and the population living near by.

In general slums face two major problems; one is of 'shelter' and the other is of 'infrastructure'. Both these problems need to be solved but if we prioritize then the upgradation of slum in terms of infrastructural development gets more urgent as compared to the shelter problem. The objective of the government (both central and state) is also to take initiative in order to achieve a healthy environment for the urban poor with adequate infrastructure facilities. While it may be difficult to overcome relative poverty, however through concentrated efforts its possible to ensure that the poor are provided with adequate basic services.

1.2 Need for Slum Upgradation Plan

Slums by and large are the creation of urbanization process. World Development Report of the World Bank (1994) suggests that growth of slums in India is primarily due to inadequate infrastructure. It is desirable that human settlements are provided with necessary planning and development inputs so that the orderly growth and development is ensured. This would also be necessary for ensuring efficient functioning of human settlements for their productivity and for providing desirable

quality of life to its residents in order to cater to their economic, physical and metaphysical needs.

The preparation of slum upgrading and improvement programmes is one of the biggest challenges that communities and municipalities in developing countries are facing. Such programmes aim to overcome diverse problems such as poor housing conditions, access to water, sanitation, insecure tenure, hazard risks, missing access to employment opportunities etc. The need to address these problems is reflected by the high priority within the Millennium Declaration, Goal 7 - Target 11 that aims at the improvement of the lives of 100 million slum dwellers by 2020[1].

In the present context, there is an urgent need to up-grade the infrastructure facilities in the slum areas to provide a dignified life to its residents. A plan for immediate improvement in condition of living is required because of the following reasons:

- Adequate basic services and amenities are basic human rights.
- Ensuring a better quality of lives for individuals that permits them to realize their human potential.
- While many urban poor live among better-off residents, the greatest spatial concentrations of the poor are found in slums and squatter settlements within cities and on the peri-urban fringes.
- Slum areas are susceptible to the most serious water born diseases, which result in high levels of infant mortality.
- The residents in slum areas have the highest vulnerability to natural disasters.
- Slum residents have limited access to assets, in particular any security related to land tenure.

The problems regarding slums can be better tackled through implementation of slum upgradation programmes. Thus, the same was needed for Shanti Nagar of Janjgir Naila, in Chhattisgarh.

1.3 Objectives

The objectives of the plan were as follows:

- Providing basic services to the urban poor in the slum area. The basic services included roads, water, sewerage, public toilets and animal sheds.
- Increasing community ownership and participation in preparation of plan.
- Increasing awareness and accountability in the community for their rights and duties.
- Reduce dependency through initiative and maintenance of community services.
- Support the efforts of the Municipal Council of Naila-Janjgir to implement a more effective strategy and delivery mechanism for the financing of urban slum improvement and sanitation provision in the under-served areas.

[1] UNDP, 2003

1.4 Benefits of the Plan

There are several benefits of the plan, like people obtain an improved, healthy and secure living environment without being displaced. The investments the slum dwellers have already made to their properties remain and are further enhanced. This situation is much better than removing them to costlier alternatives that are less acceptable to them. Recognizing title and security of tenure makes a positive contribution to both the economic prosperity of the poor, as well as to the national economy.

1.5 Scope

Shanti Nagar is located on the public land, so no land acquisition would be required. Since the project provided in-situ improvements and services, so no off-site relocation of llum residents would take place. Further, development of basic infrastructure facility was also proposed. The plan envisaged up gradation of the area, as the relocation of people to any other part of the city would directly affect their main occupation in a negative manner. The scope of the plan in relation to different components is given below:

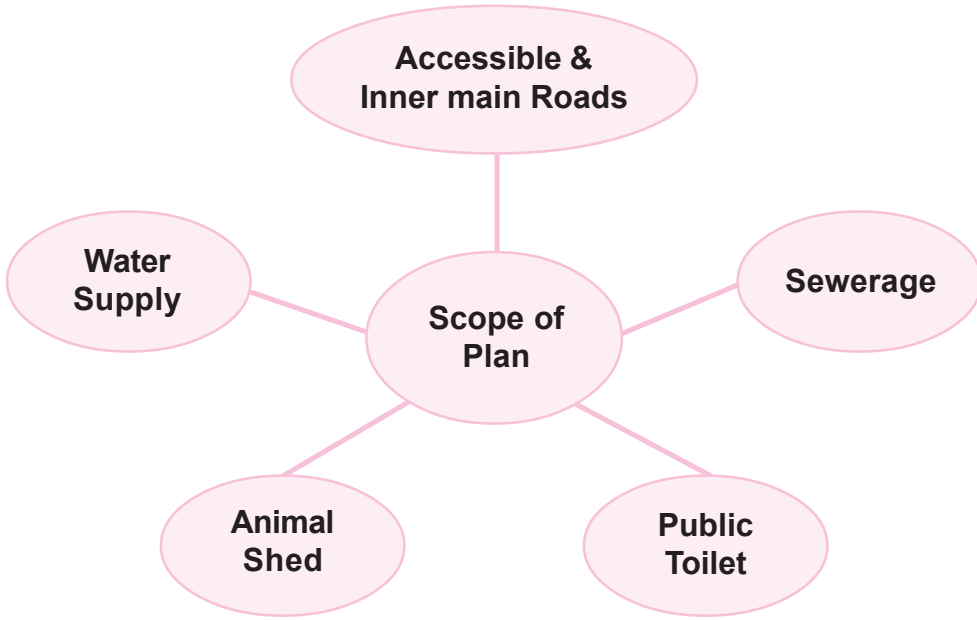
- **Roads:** Main and inner roads both were taken under the scope of the plan.
- **Water supply:** The problems related to water supply were focused upon. Provision of public taps and its maintenance were given due consideration.
- **Sewerage:** Issues related to provision of open drains and its proper disposal system was to be taken.
- **Sanitation:** Sanitation has been a neglected sector. It was given less priority by ULBs, development authorities, private agencies, city managers and citizens. To solve this problem the Community toilets were to be provided and its maintenance would be the main feature of in the whole plan.
- **Animal shed:** Many of the residents of the Shanti Nagar are fully dependant upon the animals for their income. But often these animals create problems for other slum dwellers, which leads to conflicts. To solve this problem 'animal sheds' would be proposed.

1.6 Methodology

The slum up gradation plan of Shanti Nagar, Janjgir consisted of six stages as given below (Refer Fig. 2)

Stage 1: On the basis of various parameters i.e. conditions of physical infrastructure, social infrastructure facilities, topography, and needed funds etc. the site for the slum up gradation plan was selected. After the selection of the site the identification of stakeholders was the next important step. It not only increased the participation directly but it also affected the planning indirectly and effectively. Following the same procedure the stakeholders of the entire ward were identified. Subsequently meeting with the stakeholders, officials, councilor and community were organized.

Figure 1: Scope of Plan



Stage 2: To understand the existing situation of the slum, a preliminary survey was done. In this survey the team made rough sketch of the area. Then a meeting with the community was organized in the slum for resource mapping.

Stage 3: In addition to the location, the existing infrastructure, houses etc. the planner also needed to understand the lifestyle of the people, economic conditions, social conditions and other details of the infrastructure for proper planning of the area. So, to fulfill this need data collection through primary (socio–economic survey) and secondary survey of the area was also needed. Data compilation and analysis was also important part of third stage, which was followed by the calculation of requirements on the basis of the available data.

Stage 4: This stage consisted of meetings with the officials, councilor, stakeholders and most importantly the community. After finalizing the map, based on the existing situation it was shared with the community, with infrastructure and other facility locations marked on the map. Further, suggestions, wishes and needs of the community were considered while making the map. The same processes were repeated with the stakeholders, councilor and officials.

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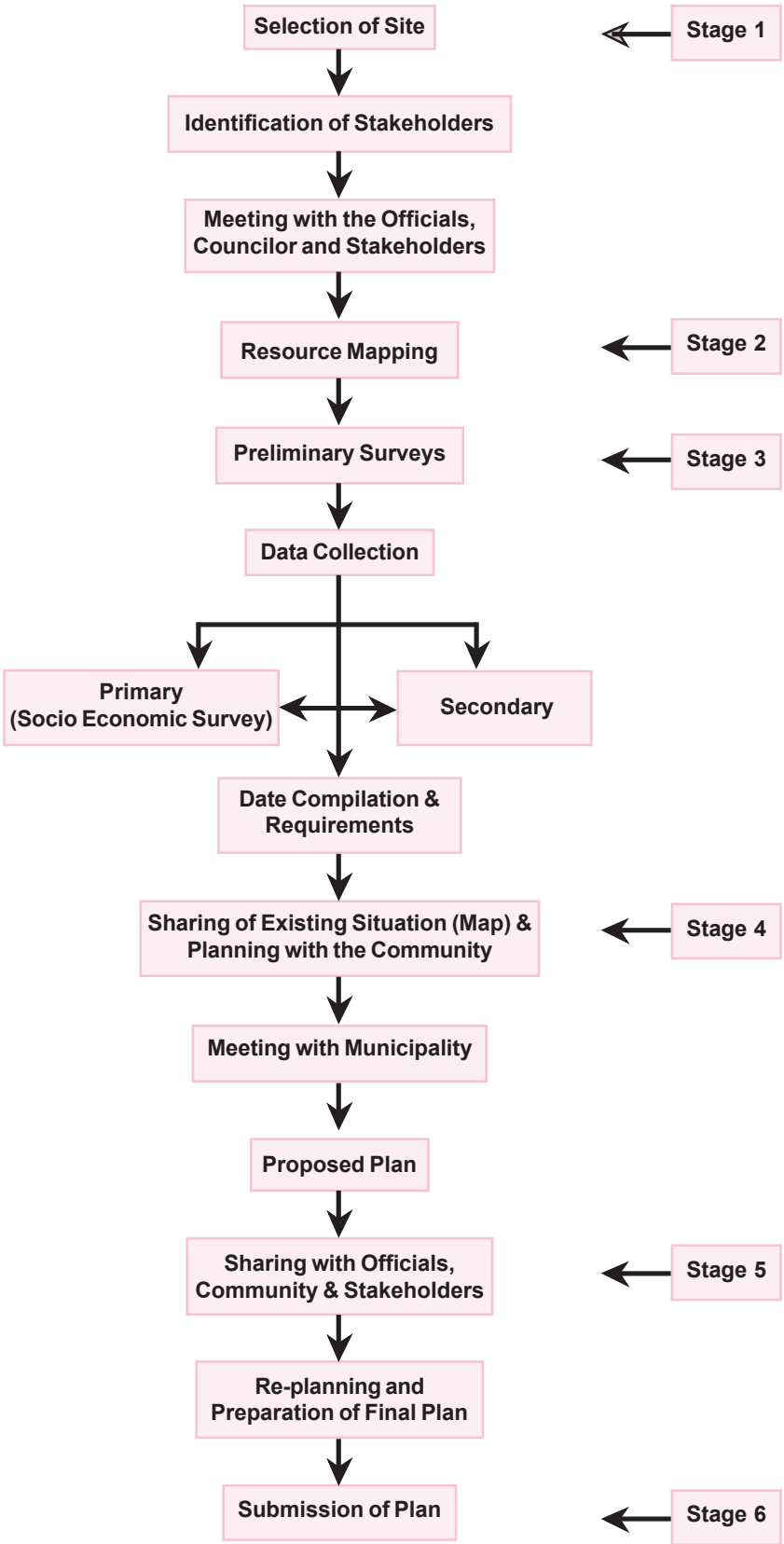
Stage 6: The final plan was submitted to the municipal authorities for implementation.

Figure 2 : Methodoloy Map



1.7 Citizen Participation In Slum Up-gradation Plan

PRIA's approach was focused on preparation of a participatory slum up gradation plan in Janjgir municipality with the active participation of all stakeholders. The thrust of the initiative was to understand the needs of residents of Shanti Nagar through interactive sessions and to enhance their capacities to analyze the local issues. For this purpose local people were engaged in the activities like household data collection, group discussions, resource mapping and plan sharing. From these activities community's reaction towards access to safe water, sanitation, and better housing conditions were documented.

The most important element for the plan's success was commitment by all – the community, the officials, the ULB and the families. A sense of partnership was required to develop among them. Secondly, the knowledge that locals possessed about the area and their problems was brought out. Getting their input and taking their help decided the nature of the project and developed a sense of 'ownership', which in turn increased the chances for success. Sustainability was another factor – without the backing of the community, the project would have faced difficulty in continuing.

Initially the team members of PRIA had detailed discussions on the steps that had to be undertaken to approach the community for the slum upgradation plan. It was decided to organize the informal meeting with citizens of Shanti Nagar and understand their issues. It has also been realized that communities had a better understanding of their issues and have the requisite capacity to solve their own problems. Initially, there was a common understanding among the team members on how to prepare a people centered slum up gradation plan and ensure peoples participation in each step. After that a common framework of the overall process was developed that included four steps to prepare a participatory slum up gradation plan.

Some of the steps taken to ensure citizen participation in the planning process included:

(a) Transect walk
(b) Meeting with citizens of Shanti Nagar
(c) Meeting with municipality
(d) Household data collection
(e) Participatory Resource Mapping
(f) Interface between municipality and citizens
(g) Sharing of existing map with citizens and including their suggestions on map
(h) Formation of Vigilance and Monitoring Committee

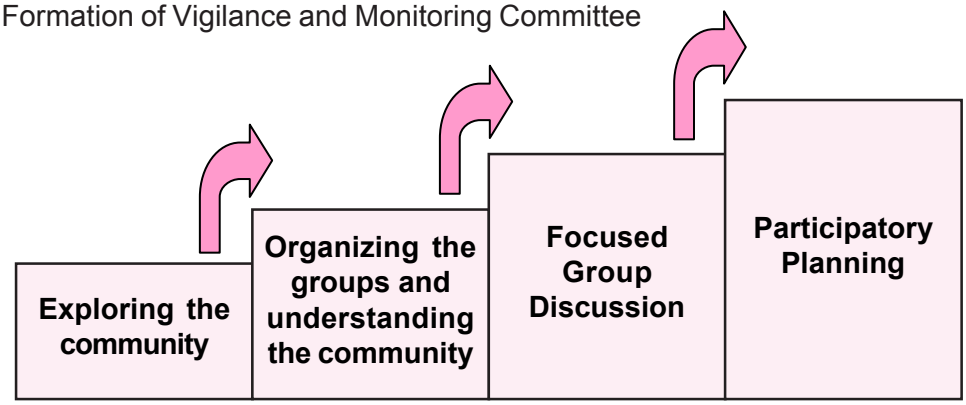


Figure 3 : Steps of Citizen Participation Followed in the Planning Process

(a) Transect walk

It was decided to prepare a slum development plan consisting of road, drainage, water supply and sanitation. To get the first hand experience of all the above-mentioned components a transect walk was undertaken. It was the best way to explore the basti as well as to evoke people's attention. This activity provided an opportunity to know the living conditions, access to water, their place of origin, the time since the basti has been in existence, occupational structures, approximate number of households etc. Some active citizens were also requested to join in for an informal meeting in Shanti Nagar so that their views could be understood.

(b) Meetings with citizens of Shanti Nagar

The second step was to initiate a discussion with the citizens of Shanti Nagar to understand them and their needs. A total of 50 citizens (13 male and 37 female) of Shanti Nagar attended the first meeting. In this meeting they shared the problems they were facing in their day-to-day lives. Presently, they were not getting any services from municipality. They were living in pathetic condition; there was no approach road, no lane road, no drainage system, no supply of safe drinking water, no place for defecation or any other sanitation facilities in the basti. Not only all these facilities were lacking but also the waste collected from entire Janjgir city used to be dumped in this basti area. At the end of the meeting all citizens of Shanti Nagar agreed to prepare an up gradation plan for betterment of Shanti Nagar.

(c) Meetings with municipality

The next step was to initiate a discussion with the Janjgir municipality in order to explain was planned to do and the process of implementation. It was realized that any effort would be less meaningful without the active involvement of the municipality. The Chief Municipal Officer and the President were informed. The details were shared with them. The President and Chief Municipal Officer agreed that PRIA should start the initiative to prepare slum up gradation plan for Shanti Nagar.

Table 1: Detail of Formal Meetings with the Community

Sl. No.	Date	Issue	Attendance
1.	06.09.07	Sharing of survey on condition of water and meeting for mobilization for Slum up gradation plan.	Total-50 Males-13 Females-37
2.	23.10.07	Resource mapping and Discussion on problems of the slum dwellers	Total-47 Males-22 Females-25
3.	14.01.08	Sharing of Existing infrastructure and Discussion on the location of proposed infrastructures	Total-61 Males-21 Females-40

(d) Household data collection

Another step was to undertake a socio-economic survey in the slum to understand the details of each family in Shanti Nagar. All the households were covered in this

survey. The survey helped to collect information on household details, economic condition, housing, sewerage, solid waste, water supply, electricity, social infrastructure near by their house and access to education, health and other services. This survey not only provided the socio economic information of each household but also helped in building rapport with citizens.

(e) Participatory resource mapping

To ensure the active involvement of citizens in the process a resource mapping activity had been done. The objectives of this process were:

- to bring ownership of the planning process among the citizens;
- to identify their needs; and
- to understand the basti from citizens' point of view.

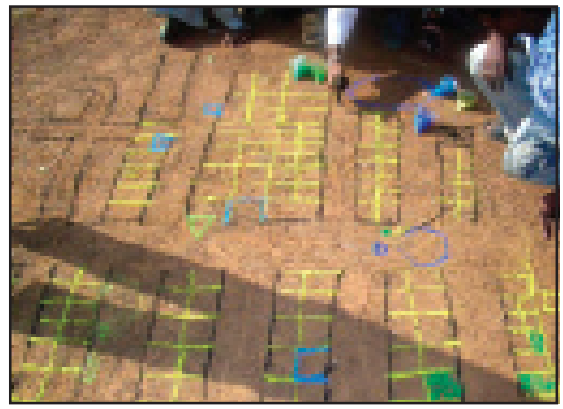


Photo 1: Map prepared by slum dwellers with colours on the ground

On the day of resource mapping people were enthusiastic and excited to draw 'Hamara Shanti Nagar Eisa Hai'. Slum dwellers drew map with the help of rangoli on the ground itself where all the resources had been depicted through different colors. The same was then replicated on a sheet of paper to have more clarity regarding the lanes and other things.

The citizens highlighted all the services and resources on the map. This included their houses, hand pumps, animal sheds, temple, electricity poles, shops, primary school, pond, lanes and other major infrastructure near the basti. After all the resources were identified, the group discussed issues related to performance, frequency of use, cost of treatment, distance for each services etc. This exercise helped us to understand their needs and the future opportunities in the basti.

(f) Interface between municipality and citizens of Shanti Nagar

Photo 2: Meeting with the municipal officials

As the Janjgir municipality was to be the implementing agency of this plan so the interfacing between municipality and the citizens was very much required. On a pre decided day the Chief Municipal Officer, the President, the President in Council members, engineers, councilors and other municipal staff visited the slum and interacted with citizens of Shanti Nagar. During the interaction the up gradation plan was shared. The team also surveyed the basti and finalized the roads and major lanes to be constructed in the coming days. The length and width of the roads and lanes were measured. The team also decided to join these lanes so that more connectivity would be given to the people.

(g) Sharing of existing map

After digitizing the existing map a sharing workshop was organized. The objectives of the workshop were:

- To share the map with existing facilities and infrastructure with the community and to incorporate their valuable suggestions which were not included at the time of preparing the map;
- to make rectification in the maps on the basis of their feedback.

Photo 3: Sharing of map with existing facilities and infrastructures

As the sharing workshop proceeded further, citizens discussed all the possible issues so that the same could be incorporated in the map. Some of the participants put forward their suggestions as follows:

- two approach roads must be constructed one from Khokhra to Shanti Nagar and, second from from Kishan Rice Mill to Shanti Nagar;
- al lanes should be cement concreted;
- sand post or water tap in each lane is required but the taps should be installed on the basis of genuine requirement or population of the households;
- at east 15 electricity poles would be required; the points of installment were highlighted on the map as well;
- one animal shed should be constructed;
- two community toilets and the suitable locations for their construction were highlighted on the map;
- one more pond was required; keeping in mind the population of the area, a suitable location for it was highlighted in the map.

(h) Formation of vigilance and monitoring committee

The residents of Shanti Nagar formed a vigilance and Monitoring Committee in order to monitor the implementation of the plan. The members of the committee not only engaged with the municipality to ensure that the proposed work in plan is implemented but also improved the quality of materials used by the contractors in various construction works.

Chapter 2
Existing Situation of the Slum Location

2.1 Naila-Janjgir At A Glance

(a) General Information

Janjgir is situated at the center of the state of Chhatisgarh, so it is considered as 'Heart of Chhattisgarh'. Naila-Janjgir is district headquarter of Janjgir-Champa district situated in the north eastern part of the state. Janjgir Champa district covers an area of 4015 sq.km and is the third smallest district of Chhattisgarh state. It is situated north of river Mahanadi and is surrounded by Raipur, Raigarh, Korba and Bilaspur districts.

Photo 4: Naila-Janjgir – At a Glance

The district mainly forms a part of Mahanadi plain, only some part of northern fringe adjacent to Korba district forms a part of northern hills of Chhattisgarh state. Mahanadi forms the southern boundary of the district. Hasdeo the branch of river Mahanadi bisects the district into eastern and western parts.

Total 889 sq.km area of the district is covered by forest. Agriculture is the main occupation of the district. Net sown area was 2645.59 sq.km (2000 data) with only 672.02 sq.km that was doubly cropped area. Principal crop of the region is rice sown in 2605.62 sq.km area i.e. as high as 98.34 % of the total sown area. About 99.66 % villages have access to drinking water, where almost 90% of drinking water supply is based on ground water. Total number of hand pumps are 5776 where, power pumps are 3153 that tap the available ground water. There are 84 water supply schemes that are tapping ground water in the district.

The total population of the district as per census 2001 was 13,16,140 and, it also had the highest population density (342) within the state. The district is administratively divided into 9 development blocks out of which 12 have total of 913 villages and 8 townships. The Janjgir-Naila is considered as the twin town of Janjgir-Champa and both are well connected with railways and road. SE Railways Mumbai-Nagpur-Howrah line passes through these towns and National Highway No. 200 connects these towns with rest of India.

The town has elected the local body for civic administration, for carrying out developmental activities and amenities in order to improve life of the people. After the creation of Janjgir Champa district on May 25, 1998, and the designation of Janjgir as a district capital, the rate of growth in this city has accelerated. This growth has extended to all the spheres like public and semi public, residential, commercial and industrial sector.

(b) Location of the Town

The geographical co-ordinates of the town are 22' north latitude and 82'-35' east longitude with an elevation of about 266 meters above mean sea level. The town is well linked by two modes of transportation i.e. rail and road. The state highway No. 200 connects it with the important towns of Champa, Korba and Raigarh on the eastern side while Bilaspur and Raipur towns on western side. Being situated on Nagpur-Kolkatta trunk route of southeastern railway the town has convenient direct links with major cities on the eastern and western part of the center. Janjgir is about 160 km. away from Raipur, the state capital and 60 km from Bilaspur, the zonal headquarter of railways.

Map 1: Location of Janjgir-Naila

(c) Janjgir-Naila Municipal Area

Janjgir municipal area has been divided into two halves, 'Naila' and 'Janjgir'. The economic profile of the city does not portray a healthy picture. The economic map is represented in the form of dots that represent selected food processing industries and small-scale business that exist in the town. Though a large portion of the town still possesses the village characteristics and rural culture. The proximity of industrial towns like Raigarh, Korba and Bilaspur has acted as restraint for development of the town despite excellent connectivity with railways and state highway providing centrality to the city. Administration is the core function and driving force of the town. It was in 1891 that the tehsil headquarter was relocated in Janjgir from Shivri Narayan and finally became the district headquarter in 1998.

Historically, the city was developed by Maharaja Jajawalya Dev of Kulchury dynasty namely Jajalwapuri. The name Janjgir was derived from this root. The Vishnu Mandir of Janjgir district reflects the golden past of the city, which is an ancient artistic sample of Vaishnav community. Tourists from across the state often visit the temple in large numbers round the year.

(d) Demographic Profile

i Population Growth

The town is classified as Class III town with the population of 32,504 persons as per 2001 census. The population growth trend indicates that the town is growing steadily since 1971. Earlier in 1971 the growth rate was just 11.7 %, which was even lower than the national average. However, growth rate in the last few decades have increased and it was 14.52 % in 2007 (refer Table 2).

Table 2: Population and Decadal Growth

Sl. No.	Year	Population (municipality)	Decadel Growth Rate (%)
1	1961	12431	—-
2	1971	13885	11.70
3	1981	17885	28.80
4	1991	24754	25.36
5	2001	32495	11.96
6	2007	37235	14.52
7	2011	42000	30.00
8	2017	46678	25.36
9	2022	52262	11.96

From the above table it is clearly visible that while the population for the city has doubled from 1981-2001, the rate of growth may now be slowing down and may stabilize at around 25-30% for the next ten years. The slowing down is attributed to the fact that Korba, which is about 50 kms away from Janjgir, has grown at an astronomical rate of 153% during 1991-2001. Korba is an industrial town with many big industries like NTPC-Korba super thermal power station, BALCO and other power plants.

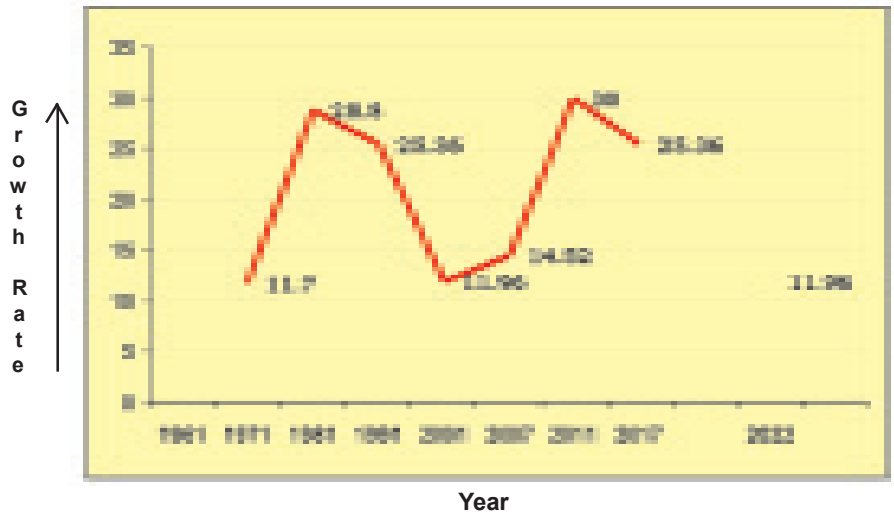


Figure 4: Growth Rate in Municipality

The density of population shows a much higher density (four times higher) in the municipal limits as compared to the surrounding area (Table 3).

Table 3: Area and Present Population of District

Area	Area (ha)	% of total area	Population	% of total population	Density (pp/ha)
Area excluding municipal area	9030.48	82	34,264	51	4
Municipal area	1936	18	32,495	49	17
Total	**10,966**		**66,768**		

Source : *Draft Development Plan, Janjgir Naila, 2006*

ii Topography of Town

The town is situated in the central plain between Korba hills in the north and river Mahanadi on the south. The River Hasdeo, which is 12 km long, flows from north to south on the eastern side of the town. Other topographical features are explained below:

- **Slope:** The general slope of the town is from north-west towards south with an altitude of 266 meters above mean sea level.

- **Soil:** The soil cover consists of varied matas (yellow soil) and kanhar(soil area generally found with in Bhata land red soil) that predominates the region.

- **Water bodies:** Town has many tanks and ponds. Most of these have been formed while constructing earthen dams across the gentle slope of the land. However, some of the tanks have outlived their utility.

iii Growth of the Town

The town was originally a small settlement around Bhima and Rani Tanks which was known as Purani basti. This small settlement has flourished into a township due to the advantage of communication network provided by railway line, the State highway and rich hinterland. The developments have taken place all along the State highway, which passes through the town. The roads in Purani basti area are very narrow and do not have proper and convenient accessibility.

iv Infrastructure

- **Physical:** The town does not have any underground sewerage system. The old area is still under served while new developed area of the town has their own septic tanks. The town has piped water supply system. The capacity of overhead tank is 6.00 lacks liters. In addition to this a number of tube wells and overhead water tanks with totaling to the capacity 9.00 lacks liters have been constructed for supply of water to the town.

- **Social:** The Social infrastructure is very poor and needs to be upgraded.

v. Slum Profile of the Town

The total Slum population of Janjgir-Naila is 8200, that covers 24.8% of total population of the town. The table given reveals that total 1078 households reside in the notified slums, which comprise of 6266 population of the town.

Table 4: Notified Slums of Janjgir –Naila

Ward No.	Population	Number of Households	Area
02	1491	195	171.87
10	1521	164	147.09
19	1531	384	112.3
21	1723	335	196.23
Total	**6266**	**1078**	**627.49**

***Source**: Municipal Council Naila-Janjgir*

In the Un-notified slums of Janjgir about 673 households reside, but the condition of these slums in terms of availability of services and general environmental conditions is very bad.

Table 5: Un-notified Slums of the Janjgir-Naila

Ward No.	Habitat name	No. of Household
04	Naila Basti, Marghatti Talab	15
04	Naila Basti, Juna Talab	20
06	Near by Nahar	20
09	Bajrangi para	35
14	Kahra para	40
02	Bhatapara-Darri para	150
08	Bonga para	20
16	Subhash Chandra Bose Ward	223
18	Ambedkar bhatapara	150
Total		**673**

Most of these slums require improvement of basic services like road, water supply, sewerage, public toilets etc. Out of 1078 slums (notified slums) about 480 slums with the total population of 2160 have been rehabilitated under the IHSDP scheme. Presently 100 units are under construction under Atal Awash Yojana which will be completed in very short period.

2.2 Brief Background of Shanti Nagar

(a) General Information

Shanti Nagar was selected for the community based slum up gradation plan after conducting a rapid assessment. Thus, this report summarizes the outcome of the series of community consultations, field surveys, meeting and interviews with the officials and also, the secondary data collection. The objective was to better understand the existing conditions of the slum, the need and aspirations of the people.

Photo 5: Shanti Nagar, Janjgir

Shanti Nagar is a notified slum area, which is in ward number 21 of Janjgir municipality. It is located in the south-east of Janjgir city. In the north of Shanti Nagar, there is Kishan Rice Mill and FCI Godown, and in the east Chhattisgarh Armed Force headquarter and the government college.

The slum dwellers mostly work as daily laborers, rickshaw puller, pan shopkeepers, rag pickers, beggars etc. Most of these families mainly belong to Janjgir and Bilaspur districts. They had migrated here in search of some permanent residence and to gain better livelihood opportunities.

Shanti Nagar was administered by the district administration under the District Collector till the year 1997. The history of Shanti Nagar clearly shows that initially, most of the families were illegally residing in the surrounding area of “Bhima Talab”. In the wake of beautification of the pond they were asked to leave the place. These people were also offered permanent settlement at Shanti Nagar. However, the citizens had declined the offer of administration as the area was located far from the city and, there was lack of infrastructure facilities as well. Hence, the people kept a condition that they should be provided with the basic facilities in the area like sanitation, water supply, road and electricity etc. and then only they would agree to shift. On their demand, administration installed one hand pump in that location and ensured them to provide other facilities as soon as possible.

Ms. Savitri Devi an active citizen leader came forward and insisted the households to move from that area. Her efforts led to the shifting of 87 families to Shanti Nagar. Some other families followed the suit and gradually the number rose to 187. Out of these 187 only 94 families were legal owners of land in which they resided whereas, 93 families did not get legal ‘patta’.

However, the present scenario clearly states that though 10 years have passed, but in the name of basic amenities there are only 5 hand pumps and 10 electric poles. The citizens of Shanti Nagar are still far away from well-furnished houses, approach road, lanes, sufficient electricity poles, safe drinking water, community toilets, drainage and proper sanitation facilities etc.

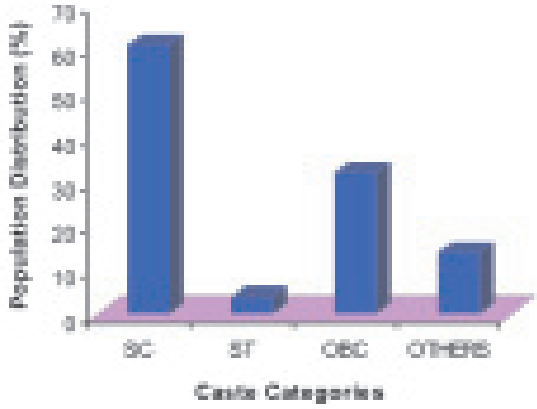
Table 6: Salient Features of Shanti Nagar

Sl. No.	Salient Features	Information
1.	Ward No	21
2.	Total Area	16 acres
3.	Total Population	730 Persons

Source: *Primary Survey, 2008 & Municipal Council Naila - Janjgir*

(b) Demographic Information

Figure 5: Caste Distribution of Population



The Slum predominately had individuals who followed the Hindu religion whereas only 4% out of total population followed the Christian religion. Figure 5 depicts that the area was inhabited almost by all castes. About 59% population belonged to the SC category, 26% belonged to the OBC and about 10% belonged to the other category. The lowest number of people belonged to the ST category i.e. only about 4% of the total population. The proportion of males was 49.31% (360) where as of the females was 50.68 % (370). The total population of Shanti Nagar is 613 out of which 70% of the population was literate and knew how to write their name. The level of education of these people varied from primary to the post graduation as shown in 0. The proportion of population decreased from primary level towards the higher levels of education. Only one person out of total population was a post graduate. About 37% popu-lation of the basti was illiterate. The presence of such high illiteracy levels could also be because of the non-availability of any government school in the area.

Figure 6: Religious Distribution

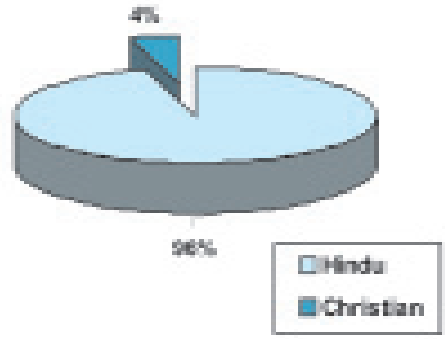
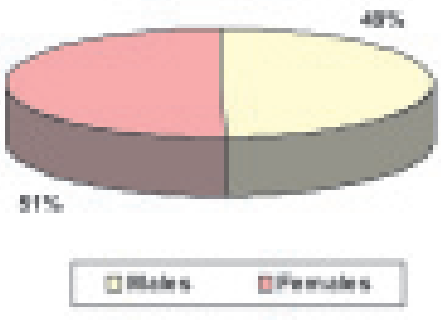
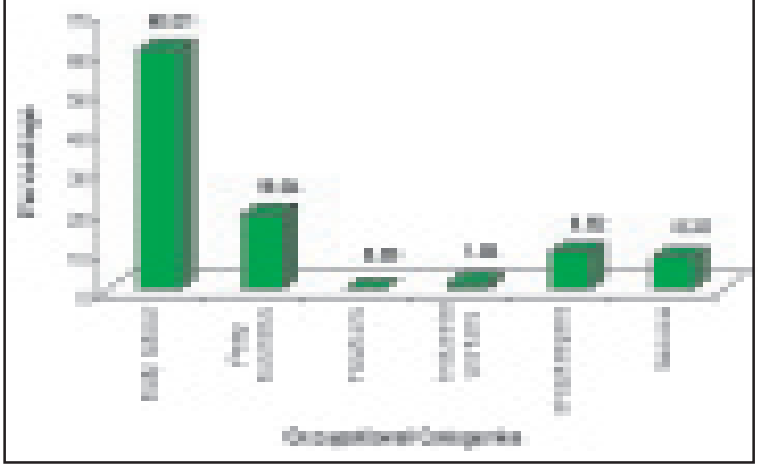


Figure 7: Sex Distribution



Under socio economic parameters, economic status of the population holds an important relevance. It provides a picture about the economic capacity of population living there. The data regarding economic status reflects the category of population residing there. The

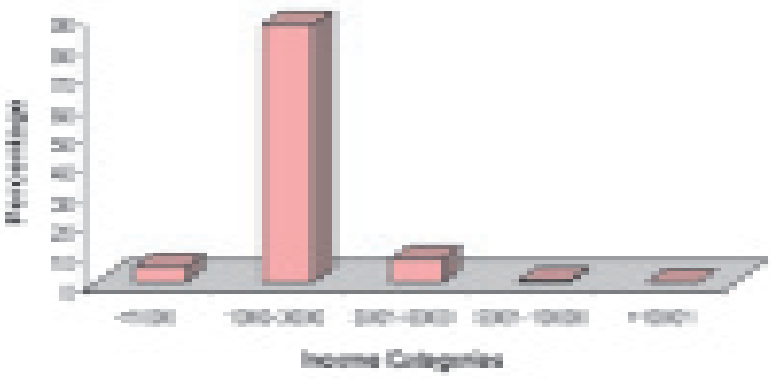
Figure 8: Occupational Structure



occupational structure depicts the number of persons engaged in particular work. It suggests the dominance of a particular activity and accordingly it helps in analyzing economic status of the population.

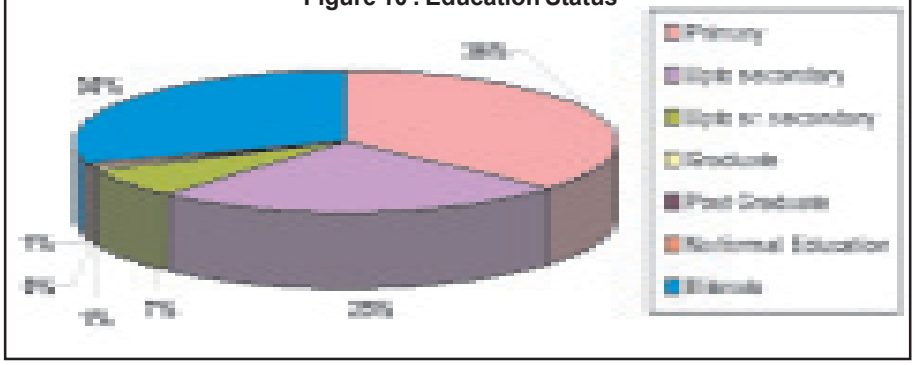
Figure 8 represents the occupational structure of the locality. The occupational structure of the basti gave a typical picture of the people engaged in different vocations that were generally found in the slum areas. The economic activities of slum dwellers were mostly associated with such occupations that had low-income levels. The majority of workers worked as daily wagers who constituted to 60.31% of the total service class of Shanti Nagar. Other significant occupations were petty business (19.04 %) and of shop keepers (9.52 %).

Figure 9 : Distribution of Household Income



Division of families in various income groups was done on the basis of monthly income. The available data of the slum indicated that the household income of the population ranged between Rs.10,000 to even less than Rs.1000 per month. Majority of households (86.85 %) belonged to the range of Rs.1000 to Rs.3000. Only 1% households earned Rs.5001 to Rs.10,000 per month. On the other hand 5% families had monthly income less than Rs.1000. Hence, the economic status of the people residing in this slum gave a picture that majority of families were very poor as their levels of monthly income were quite low.

Figure 10 : Education Status



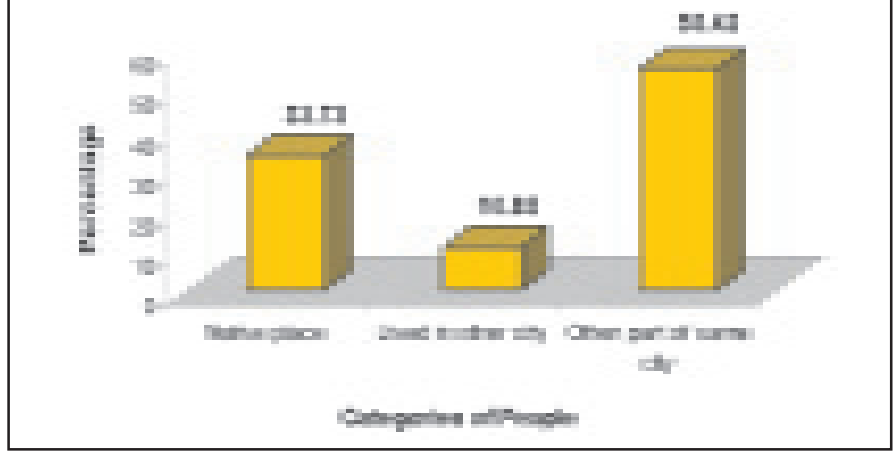
(c) Housing

History of the basti tells that the people who initially resided on the bank of the pond were shifted to the present place and named it as Shanti Nagar. Though now the area was resided by not only the original occupants but, also many others who had come from different places and settled at this place.

Table 7: Total Years of Stay at Shanti Nagar

Years	No. of Households	Percentage
0 - 1	11	6.28
1 - 2	3	1.71
2 - 3	23	13.14
3 - 5	44	25.14
5 -10	90	51.42
> 10	4	02.28
Total	**175**	**100**

Figure 11 : Places Where People Lived Earlier



Source: *Primary Survey, 2008*

The survey regarding the place from where the slum dwellers shifted at Shanti Nagar showed that about 46 % of the population had settled here by their own choice where as, about 54 % households were settled by the government (Figure11). Most of the people had shifted from other parts of the city whereas, 11% of households had shifted from the other cities too in search of better job prospects etc.

Table 7 represents the data on the total years of stay by various households at Shanti Nagar. The highest percentage of households (51.42%) had been staying here for as long as 5–10 years. There were also a large percentage of households (25.14%) who had been staying in Shanti Nagar for 3–5 years. However, the least percentage of households (1.71 %) was those who had been living in this area from 1–2 years.

Figure 12: Ownership Status of the Households

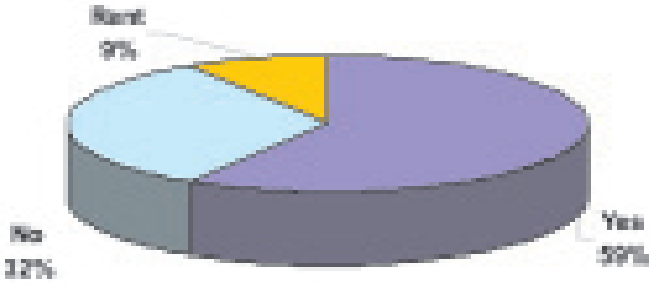


Figure 12 represents the data on the status of the slum. The slum dwellers of Shanti Nagar had a varied kind of land status. Only 59% out of the total had Patta (authorization) whereas 41% slum dwellers were those who did not have the legal ownership of this land. Due to this reason the slum dwellers had to face a lot of problem, as the municipality was not providing any basic services.

In the slum cluster 90% houses were in worst condition and all houses needed up-gradation. Poor housing is also a reflection of a poor and inappropriate urban planning system, a lack of public investment and restrictions in the land and rental housing market. It also shows the failure of the authorities to cope with the urban poor.

Photo 6: Inadequate housing condition of Shanti Nagar

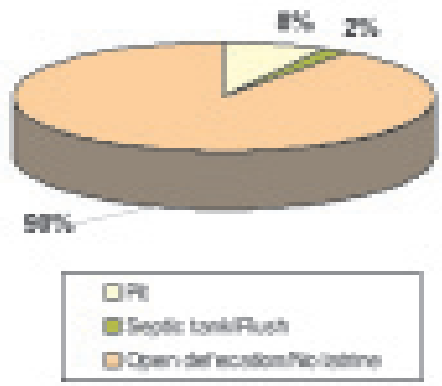
(d) Physical Infrastructure

Water supply system, sewerage, drainage and electricity are the components that are included in the physical infrastructure of a place. This constitutes to be one of the basic needs of the people.

i. Sanitation, Drainage and Sewerage Systems

The status on sanitation facility is presented in Figure 13 which shows that this facility was in a bad condition. Only 10% of residents has the facility of personal latrine in their own house, where the sewage disposal was made possible only through the soak pit or septic tanks. In the absence of any facility of latrines, as high as 90% of the slum dwellers have been practicing open defecation in parks or on roadsides.

Figure 13: Sanitation Facility



The survey was also conducted to know the opinion of the slum dwellers regarding the safety of women when they went to use community latrine at night. Majority people (88%) responded and said that it was not safe for the women to use the community latrine at night.

The drainage system of the slum is in very deteriorated state. About 97% of the households of the slum did not have any drains whereas only 3% of households had facilities of open kutcha drains. Even these existing kutcha drains were in bad condition. The

problem of water logging inside and around the houses was a common scene, mostly during rains.

The data collected through the survey clearly showed the urgent need for the authorities to pay attention to the area for its betterment. The existing drainage was not only in a miserable condition but also created problems while disposal of wastewater, which is a highly potential health hazard.

Photo 7 : Temporary arrangement for defecation

ii. Solid Waste Disposal

The system of garbage disposal was generally practiced on open ground near by the slum. Garbage disposal was mostly localized near people's own house and sometimes covered with mud. The collection point for the whole Janjgir was the open ground at its west entrance. The clearing of the collected garbage was undertaken once in a year or so. This creates foul smell and increases the chances of disease spread in the area.

iii. Water Supply

Inadequate water supply facilities and poor sanitary conditions can have a deleterious impact on household productivity. The water supply was quite inadequate as, women and girls spent a considerable amount of time standing in queue to fetch and store water. This adversely affected the decision of the letting the girl child to go to school. It also reduced the likelihood of women participation in other economic activities.

Table 8 : Drainage System

Type	No. of Households	Percentage
No Drain	171	97
Open Kutcha Drain	4	3
Total	175	100

There was no storm water or open wastewater drainage system. Water flowed along the terrain from higher levels of slum to the lower ones. The slum had in the past experienced the problem of water logging to a height of 2 feet or more. Such water logging was also experienced by the area lying between the two main roads that often accelerated the existence of diseases in the slum. The problem however, gets aggravated with the absence of a proper drainage system.

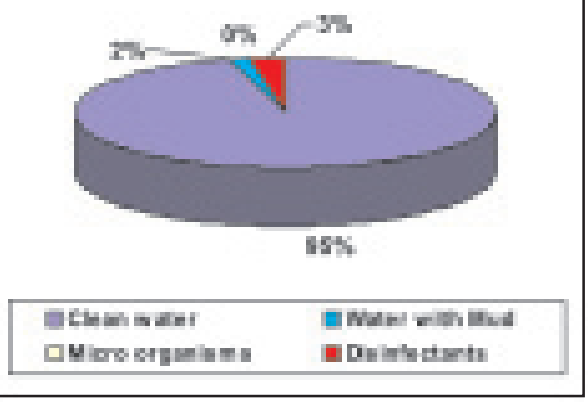
Table 9: Solid Waste Disposal Methods

Ways of disposal	No. of Households
Road Side Disposal	93
Burning	0
Burying	18

Photo 8 : Waste dumped on the side of the road

Shanti Nagar had no access to safe drinking water facility. The only source of water was five (5) boring tube wells located at different locations of the slum from which all the 175 households fulfilled their need of water. In the slums the main source of water was through boring hand pumps that literally ran for whole day. The water in the houses was stored mostly in 'matkas' and buckets by a few slum dwellers. There were five hand pumps in total, of which four were inside the colony and one was in front of the slum near the rice mill, on the main road of the slum. The hand pumps were installed by the municipality after shifting the people to this area in 1997.There was no water pipeline in the area. As the slum dwellers had to fetch water from far away places.

Figure 14: Quality of Water



As high as 95.4% households (167) were satisfied with the quality of water and were able to get clean water. Where as, according to 1.71 % households (3) the water was muddy and around 2.85 % households (5) claimed that the water had infectants. By and large the people of the slum were satisfied with the water they received for daily uses as earlier the water that they had to use was of the near by pond, which was in a bad condition and was quite muddy.

iv. Electricity

The data collected on electricity revealed that all the households did not have connection to electricity. Near about 93% households had electricity in their houses but the connections given to all these are not legal. Only 20% out of the total households had metered connections. The supply of electricity was quite erratic and irregular.

v. Transportation and Access Roads

People commute everyday to work either by walking or by bicycles, which seemed like a congregation of daily wage earners who worked in the quarries. Private transport like buses and tempo ran on regular basis on Kera road that connected to the city and other work centers.

Photo 9 : Condition of roads in Shanti Nagar

Shanti Nagar, however, des not have any access road. It is situated in-between the two main roads of Janjgir-Naila i.e. Kera and Kokhara road which has cement tops and a carriage way of about 10 feet. There are a few alleys that extend from the central spine to access a row of houses on the eastern side. The slum cluster is not covered with proper roads / paving as it is unplanned and the lanes are very narrow.

(e) Social Infrastructure

Through intensive community consultation, location of community services were mapped and issues of availability, quality and its appropriate distance were discussed. It consisted of mapping the transportation nodes, commercial centers, primary education centers and healthcare facilities.

i. Health and Hospital Services

Poor water and sanitary conditions led to adverse health conditions in the households living in the slums. Health seeking behavior is lower in the slums as compared to the non-slum urban areas. The main hospital in the city, the government hospital was located at a distance of about 8 km from the slum. It was open 7 days a week, had two doctors and provided free medicines. Additionally, it provided family planning services, immunization for mother and child. Some patients also traveled to the health center of the Kokhra, which was 4 km from the Shanti Nagar and health center of the Janjgir–Naila, which was 3 km away from the site. The area however had no history of water borne diseases or major epidemics.

ii. Ration Shop

The ration shop for Ward 21 was located in the Ward 19 which was about 20 minutes walking distance from the locality. The information about the arrival of goods was however, poor, distance to the shop was inconvenient and most of the time goods were sold out of the area. Therefore, this led to fulfilling the basic needs of only few people within the area, whereas, other had to go to other shops.

iii. Grocery Stores and Vegetables Markets

There were four home-based grocery stores in the Shanti Nagar where daily use items like rice, lentils, wheat flour, soaps, sweets, milk, mouth fresheners etc. were sold. Most people purchased daily usable goods and vegetables on their way back from work, which was a normal trend that could be seen in any part of the city.

iv. Availability of Schools

A look at the availability of schools within the slums revealed that over 90 percent of the slum had a primary school within one kilometer. However, in the state of Chhattisgarh, only 37 percent of slums had a primary school within a distance of one kilometer.

In the basti, initially, one person had given a room space to the government on rent to run a primary school for Class I-V with one teacher. But due to non-payment of his rent he had taken his room back and now, the school was running in one room space for the Atal Awas Yojana. However, the primary school was under construction in the slum.

There were two middle level schools from Class 1-VIII within 3 to 4 kilometer from the basti, one is in Janjgir (a private institution) and the other was a government institution in Kokhara village with three teachers and equipped with two rooms and toilet facilities. A secondary school from Class I-X was situated at a distance of 4 kms in Kokhara village; most of the students from the slum have been going there. Around 50% of the children in the area went to the primary school in the basti. The reason for low school

attendance was linked to the lack of inclination towards studies and the burden of responsibility of the household chores in the absence of parents who went to work. The slum also had a Government college near about 25 steps away but ironically, no one of the basti went there to study.

v. Postal Services, Bank, Police Station

The post office and police station were located at a distance of 3 kms north of the basti, on the Kera road. The postman used to deliver the mail at the doorsteps. The nearest bank was the 'State Bank of India' and 'Co-operative Bank ' located near the post office and Naveen Middle School. However, most of the residents were not use any banking services nor they had any accounts there.

Chapter 3
Infrastructure Projections and Citizen's Requirements

3.1 Introduction

A settlement of 200 households, Shanti Nagar is not unique from other slums. It lacked infrastructure facilities like roads, water supply, drainage, sewerage, sanitation, solid waste management, school, park and playground. The haphazard growth of Shanti Nagar compounded the problem further. Therefore, a participatory slum upgradtion plan was sought as a solution to this problem. Information dissemination, consultation and joint decision-making with the stakeholders was the strength of this plan.

The requirement of the basti was calculated on the basis of:

- Norms and standards: Norms and standard given by the State Government of Chhattisgarh for the slum area was adopted for the calculation of the requirement of the basti;
- Community meetings: The requirements were also assessed based on the public meetings and public consultations;
- Socio economic household survey: This survey findings helped to provide a clear picture of the present scenario, which was also taken into consideration in calculating requirements for the area.

3.2 Projections

(a) Population

The surveyed 175 households of Shanti Nagar represented the existing population of 730 persons. On the other hand willingness of the residents for in-situ house with infrastructure facilities required proper site plan. Hence, existing and projected population was taken into consideration for infrastructure planning of this site. With the existing population the future needs of the slum was also take care of so that the same situation would not arise again.

- **Projected population (2013) :**

Total Population in 2008	= 730 Persons
P2013	= P2008*(1+R/100) n
Projected Total Population (2013)	= 730*(1+5/100) 5 = 730*(1+0.05) 5 = 730*1.34
Total projected population in 2013	= 978 persons

- Projected families (2013) :

Average family size = 04

Number of households = 1000 Persons
= 1000/04

Total projected families in 2013 = 250 Families

(b) Infrastructure Requirement

The requirement of infrastructure like water supply, drainage, roads, sanitation, solid waste management (SWM), school, park and playground was based on the population projection for the year 2013.

i. Water supply

The requirement of water was calculated on the basis of standards .The two standards are given below:

Table 10 : Water Supply Standards as per National Building Code (NBC) & Indian Standards

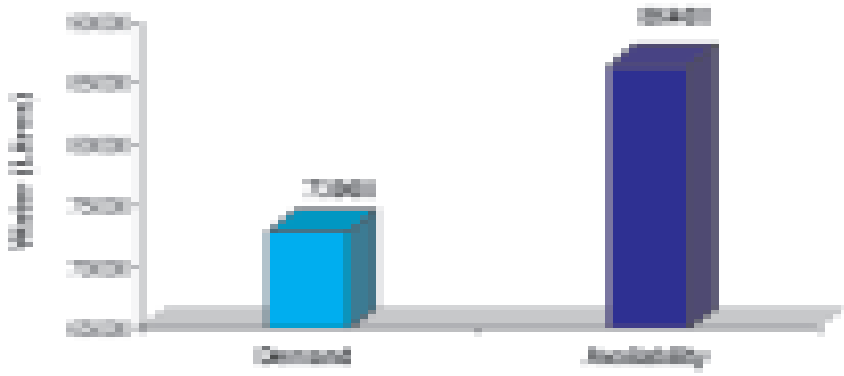
Sl. No.	Purpose	Water Required (lpcd)
1	Drinking	05
2	Cooking	10
3	Ablution	10
4	Cleaning utensils and Houses	10
5	Washing clothes	25
6	Flushing water closets	45
7	Bathing	30
8	Public Purposes	35
Total		**170**

Table 11: Water Supply Norms as per UDPFI Guidelines (for Domestic Supply)

	Small Cities (<50,000)	Medium Cities (>50,000 – 100,000)	Large Cities & Metros (>100,000)
Absolute minimum	70 lpcd	40-100 lpcd	135 lpcd (can be reduced to 70 lpcd)
Desirable	100 lpcd	135-150 lpcd	150-200 lpcd

On the basis of above given standards we adopted 100 LPCD as standard for the slum area.

Figure 15 : Present Demand and Supply of Water



- **Demand of water** = 73000 lts (calculated on the basis of standards)

- **Availability of Water**

1 Hand pump =12 liters per minute (Standard)
Total no of proposed hand pumps = 5
Total availability of water = 86400 Liters

- **Number of Public Taps**

According to the standards one (1) tap needed for twenty (20) families.
Total No of households = 175
= 175/20
= 8.66
So, as per current requirement about nine (9) public taps are required for fulfilling the need of the residents.
Number of taps needed up to 2013 = HH/20
= 250/20
= 12.5
So, needed taps (2013) = 13

- **Hours for Supply of Water**

According to the norms one tap provided twelve (12) liters water per minute.
Needed water per person =100 liters
Total population =730 Persons
Required supply of water =730*100=73000 liters
Hours for supply of water =73000/12
= 6083.33 minutes
= 101.38 hours
Supply of water per tap or stand post (2008) = 11 hours

Required supply of water (2013) = 1000 * 100 =100000 liters
=100000/12
= 8333.33 minutes
= 138.88 hours

- Public parks

Public park =1.4 lts per sq.mt per day
= 12144.98 sq.mt*1.4
= 17002.97 lts

- School

School = 45 lts per day

- Total requirement of water supply = 73000 + 17002.97 +45
= 90047.97 lts per day

ii. Sewerage

Sewerage to be designed for 80% of water supply requirement = 72038.376 lts

(c) Projection for SWM

Total no of households (2008) = 175
Total number of households (2013) = 250
1 bin for = 20 households
So, presently about nine (9) containers or bins are required for fulfilling the need of the residents.

Number of bins needed up to 2013 = 1250/20 =12.5
So, needed bins 2013 = 13

(d) Projection for School

Currently no primary school is available in Shanti Nagar.
According to TCPO norms and standards = 1 primary school needed for 2000 to 4000 population.

(e) Parks

Total parks provided = Two (2)
Total area for one park = 12144.98 sq.mts
Total area for parks = 12144.98 +12144.98
= 24289.96 sq.mts

Chapter 4
Proposals and Phasing Plans

A. PROPOSALS

Drawing from the previous chapters on problem identification and need analysis, this chapter seeks to propose the infrastructure facilities in the Shanti Nagar. On the basis of the requirements and demand of the slum dwellers the following proposals were proposed in the plan.

1. Roads

Through construction of improved roads including main and internal in the slum, it will be easier for slum residents to access nearby areas and other services on a regular basis.

(a) Considerations

- The roads should be provided according to the existing space.
- If required then the illegal encroached land by the slum dwellers can be covered for the road construction.
- The sufficient width of road will be provided.
- It should be constructed by taking care drainage pattern of the area.

(b) Proposal

- In this plan two kinds of roads are proposed. One is 'main road' and another is 'internal road'.
- Maximum 9 meters width of road has been proposed where as, 4.5 meters is the minimum width of the road proposed in the Shanti Nagar.
- CC road is proposed which will be constructed under two phases.

Table 12: Proposed Length of Roads

Sl. No.	Width (in meters)	Length (in meters)
1	4.5	456
2	6.0	780
3	9.0	120

(c) Benefits

- The needs of the residents would be served.
- Encroachments were proposed to be removed as and when road width is needed to be increased. This will help to maintain the character of the area. Construction of roads will reduce dust, dirt and air pollution as well as soil erosion.
- The roads provide aesthetic benefits to the area and the city as a whole.

2. Water Supply

Water is a vital basic need used for multiple purposes such as drinking, food, sanitation, etc. The provision of water solves lot of problems of the slum.

(a) Considerations

- There should be efficient and effective water distribution facility, creating safe, potable and reliable supply of water.
- Easily accessible to users.
- Public tap should be located near as many houses as possible
- The public tap should be at the ratio of one (1) tap for every twenty (20) families.
- The taps should be within the 100 meters distance
- At least 100 lpcd should be assured to the residents.
- Time of water supply depends upon the standard water requirement i.e. 100 lpcd.
- A tap should consist of a platform with the drainage facility.
- The location of the water taps are given according to the public consultation and by considering the location of the existing hand pumps.

(b) Proposal

- The water pipe will be laid down.
- The supply of the water will be from the boring that is located on the FCI road.
- The diameter of pipes will be
  - 6' from the bore to the main line.
  - 2' from main to branch line.
  - And 1.5' width of the branch lines.
- 10 number of public taps will be provided.
- The location of the water taps are according to the public consultation and by considering the location of the existing hand pumps.
- The maintenance of the public taps etc will be the responsibility of the Mohalla committee or samitti.

Table 13: Proposed Length of Water Pipes

Sl. No	Water pipe width	Length (in meters)
1	6'	276
2	2'	401
3	1.5'	616

(c) Benefits

- The requirement of the water will be fulfilled by implementing these proposals as well as the extra time and energy consumed in this activity will be reduced which could be used for other productive activities.
- Improving water conditions within the slum will improve resident's ability to maintain good health. Incidence of water borne diseases is expected to minimize.

3. Drainage

For the safe environment and health of the residents in the area, a drainage system is proposed under this plan. The proposal is given below with the considerations and benefits.

(a) Considerations

- To provide efficient and effective sewerage collection to achieve public health protection, a pleasant environment and water quality protection.
- To minimize the generation of odours.
- The width and length of drains should be provided by taking care of the requirement of area.

(b) Proposal

- Open drains along the road will be provided.
- The drains will be of different width and depth. They are:
  - 60 cm in depth and 45 cm in width in the internal drains;
  - The main drains will vary from 75-80 cm in depth and 55-60 cm in width;
- The drains will be RCC made and in 'U' shape.
- The drains of Shanti Nagar will be connected to the main drain of the Atal Awas that will be eventually drained out in the near by nala.
- The responsibility of maintenance should be of committee consisting of residents of Shanti Nagar.

Table 14: Proposed size of Drains

S.No.	Width (in cms)	Depth (in cms)	Length (in meters)
1	45	60	1865
2	55-60	75-80	602

(c) Benefits

- It will not only solve the problems of water logging but also save the slum dwellers from many dangerous diseases.
- Drainage facility will reduce the incidence of standing water and resulting diseases.
- It will also increase the life of roads and infrastructure by reducing rainwater intrusion that damages roads, pipes and other structures.

4. Community Toilets

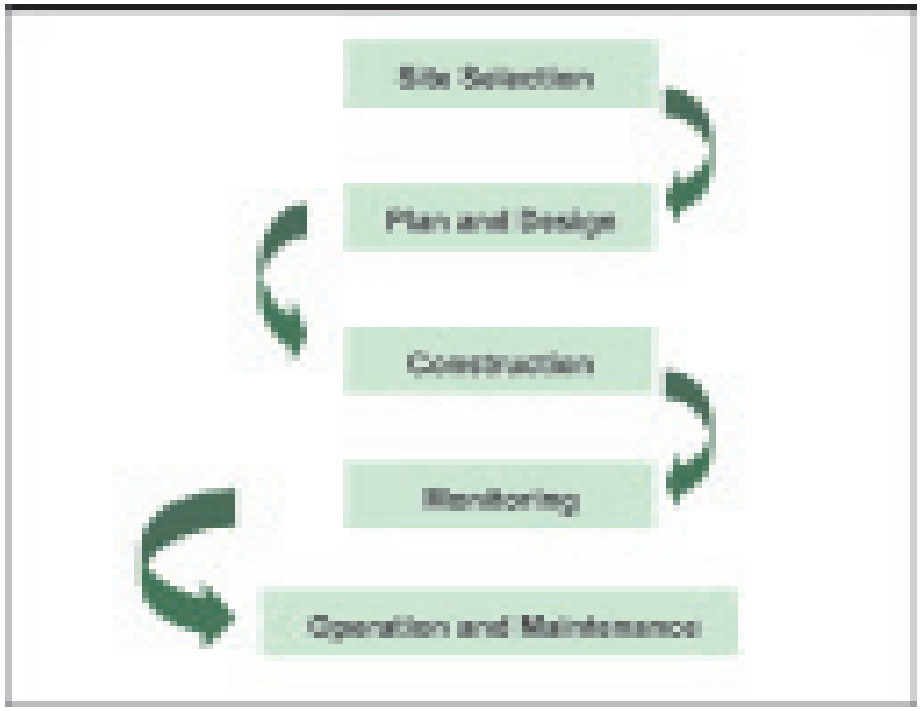
(a) Considerations

- Public toilets should be easily accessible and well located.
- The site selection should be based upon the availability of land, environment public's view etc.
- The maintenance factor should be well considered.

(b) Proposal

- Two public toilets will be provided. This will follow the steps given in Figure 16.
- The separate toilet for women and men are proposed.
- The operation and maintenance will be through community participation. A committee will be made especially for this purpose.

Figure 16: Steps for Community Toilet Construction



- Care-taker will be employed. Residence will be provided on terrace of toilet and entrance to care-taker room will be through courtyard of toilet blocks, which is another provision of this plan. Compulsion of caretaker to have his family with him is also right decision because it forces him to keep toilet complex clean.
- Similarly for the maintenance of the toilets the minimal charges will be collected from the users on the monthly basis. Provision of monthly pass system for user family at the cost of Rs. 20 per month can work well. Apart from this user charge of Rs 1 for by passer (who is not having pass) can make the sanitation facility financially feasible.

(c) Benefits

- Construction of public toilets will not only benefit directly by fulfilling the need of toilets but also helps to provides good and clean environment.

5. Parks

There is no park or open space in the area and so for recreational purpose it should be proposed in the area.

(a) Considerations

- Accessibility should be taken care.
- It should be located where it can be useful to more number of people.

(b) Proposal

- Two parks will be provided in the vicinity of slum to serve the recreational needs of population in vacant plots.
- Residents will do the maintenance of the park.

(c) Benefits

- Parks will improve the aesthetics of the area and provide a recreational place to slum.
- It will provide a place to every age group where they can enjoy.
- It will be helpful in the growth of the children.

6. Garbage Disposal

(a) Considerations

- The environment of the area should be clean.
- The waste disposal should be properly managed.

(b) Proposal

- Provision of separate community bins for the storage of dry and wet waste in the slum where people can throw waste everyday.
- The Municipality will transport the waste from the bins up to the composting or disposal sites everyday.
- It is proposed that the present disposal site(near Shanti nagar) of city will be clear and the garbage of city will be disposed at proposed disposal site given in the DPR of solid waste management.

(c) Benefits

- Aesthetics of the area will also improve due to this effort.
- It will improve the environment which reduces the health problems and indirectly improvement in garbage disposal strong the financial condition of residents.

7. Animal Shed

(a) Considerations

- It should be outside the residential area, so that the animals cannot disturb the residents in anyway.

- Proper and sufficient space will be provided.
- The proposed area should have easy accessibility of water and ground should be near to the animal shed.

(b) Proposal

- The Animal shed is proposed on the north-east front of the area, where water and open ground is available for the animals.
- The animal shed will be constructed by the municipality but will be taken care by the owners of the animals.
- Joint committee of owners will be made who will manage and take care of the animals.

(c) Benefits

- It will decrease the fights in the area and will be helpful in creating the friendly environment.
- The construction of animal shed also increases the aesthetics of the area.
- The committee of owners can also think of more benefits by collective efforts.

B. PHASING PLANS

Based on the interaction with stakeholders and analysis of data collected, certain projects have been identified. These projects are supposed to be implemented by the Janjgir Municipal Council over a period of three years. Looking at the municipal's budget for the last few years, it looks difficult for them to raise all resources internally. They can also arrange resources from the state and central schemes or by undertaking reforms like increased property tax collection, water tax and other related initiatives. Even then municipality is not able to implement the whole plan together. So, PRIA divided the implementation of the plan into two phases and each plan is of one and a half year period.

1. Water Supply

The water pipe will be laid down and ten (10) numbers of public taps will be provided.

Total pipeline will be laid -1293 mts
Water pipe line in phase I – 576 mts
Water pipeline in phase II – 717 mts

In phase I, 5 taps will be constructed and in phase II another 5 taps will be constructed.

Table 15: Details on Water Pipe

Water pipe width	Length (in meters)	Phase
6'	276	I
2'	300	I
2'	101	II
1.5'	616	II

2. Drainage

The open drains are proposed under this plan.

Total open drains to be provided -2467 meters
Open drains provided in phase I - 1602
Open drains provided in phase II – 865

Table 16: Details of Drains to be Constructed

Width (in cms)	Depth (in cms)	Length (in meters)	Phase
45	60	1000	I
45	60	865	II
55-60	75-80	602	I

3. Roads

In this plan two kinds of roads are proposed. One is 'main road' and another is 'internal road'. CC road is proposed which will be constructed in two phases.

Total road to be constructed - 1356 mts
Roads to be constructed in phase I - 620 mts
Roads to be constructed in phase II - 736 mts

Table 17: Details of Roads Proposed

Sl. No.	Width (in meters)	Length (in meters)	Phase
1	9.0	120	I
2	6.0	500	I
3	6.0	280	II
4	4.5	456	II

4. Public Toilets

- Two Public toilets will be provided.
- One toilet will be constructed in first phase and another in the second phase.

5. Parks

- Two parks will be provided in the vicinity of slum to serve the recreational needs of population in vacant plot.
- One park will be provided in phase one and another park will be provided in phase II.

6. Garbage Disposal

The management of the garbage is very important so present disposal site of the city near Shanti Nagar) will be cleaned and the provision of community bin and transportation of the garbage will start in the first phase.

7. Animal Shed

- The Animal shed is proposed in the plan.
- In phase one this will be constructed by municipality with the help of residents of Shanti Nagar.

Chapter 5
Outcome of Slum Upgradation Plan in Shanti Nagar

The plan aims at improving basic facilities for slum dwellers in Shanti Nagar over the next five years. The plan focuses on upgradation of the basic services. It calls for commitment of the municipality and the slum dwellers. Achieving this goal requires strong leadership and their political will as well as commitment from local people. The planning process and subsequent implementation of part of it proved that things can be changed which positively impacted the lives of most marginalized slum dwellers.

The Municipal Council of Naila-Janjgir implemented the plan facilitated by PRIA in collaboration with the people and the municipality. The municipality showed interest in the slum upgradation planning and implementing the same in parts. The roads were one of the most important requirements for Shanti Nagar. Considering the resource availability with the municipality, it was first decided to construct the road. The approach roads of 400 mts were constructed and the internal roads are also under construction.

Photo 10 : Construction of road in Shanti Nagar

The municipality also laid 165 mts of water pipe line (main line for water supply) out of 276 mts main pipeline proposed in the plan. They have also decided to lay the internal pipeline, which will be constructed very soon. For the education of the kids a primary school was proposed in the plan, which has also been constructed by the municipality.

Right from the beginning of the planning process in Shanti Nagar regular interactions have been maintained with the leadership and decision makers in the municipality. Continuous interactions with the President, Chief Municipal Officer, Engineers and other related officials helped in sustaining their interest in the planning process and also to secure their commitment in implementation of the plan. The learning gained from different interventions was shared with municipal officials on regular basis.

A less tangible but significant benefit is that the community is now aware about their rights, entitlements and obligations. They now consider the entire slum as their own property and actively monitor the construction work of the slum. The people of the area especially the members of the Nigrani Samiti monitored the whole construction work .The programme has achieved the integrations and coordination of the important stakeholders of the area.

During the construction of the road the contractor was using sub-standard materials. The *Nigrani Samiti* members noticed this and they immediately went to the municipality and informed the CMO. Within no time CMO called the contractor and asked him to use the good quality materials. However, the next day *Nigrani Samiti* members again noticed that the contractor was using same materials. After that all members of the Nigrani Samiti had a meeting and decided to change the contractor. They again talked to the municipal officials and municipality cancelled the contract. Later, some other contractor completed the entire work.

Photo 11 : Before implementation

Photo 12 : After implementation

The initiative has demonstrated how empowered of local inhabitants effectively participate in decision making at the implementation stage of planned interventions which can reduce the scope of low quality work and enable mobilization of resources for effective implementation.

Some of the lessons learnt from the intervention in Shanti Nagar are as follows:

- It has shown that coordination and collaboration among government agencies, civil society groups and local people, though challenging but it is necessary for effective and sustainable urban development. For the successful plan we need to take the all stakeholders together on board. Only technical knowledge and deskwork will never be able to solve the problems of slum.
- The focus of the plan was to improve the living conditions of the slum dwellers and efforts were made to maintain this focus through out the process. In order to do so it was very much essential to make aware the residents of the slums as well as the municipal officials about the roles and responsibilities that each actor needed to play.
- Involvement of women in the process played an important role because women were the most affected and they had the understanding of the depth of the problem. The women, therefore, not only persuaded the entire family for the participation but also contributed a lot in the processes.
- There were vested interests and politically motivated patron-client relationships in the slums. These entrenched interests needed to be taken into consideration and tackled with great sensitivity and cautiously.

The key to the better future for slums lies in the kinds of planning that was prepared in Janjgir. It was realized that slum upgradation is far better option for the towns and people living in the slums as compared to slum relocation. The plan prepared for

Shanti Nagar not only provided the basic necessities of the life in the same place but also strengthen the community so that they can fulfil their own requirements and fight for the bright future. The success of the slum upgradation plan was evident from the faces of the slum dwellers that now got some relief from the inhumane living conditions and lack of dignity.

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