

STANDARD OF LIVING OF PEOPLE AND ENVIRONMENTAL POLLUTION IN SLUM: A CASE STUDY OF SELECTED HOUSEHOLDS IN CUTTACK DISTRICT OF ODISHA

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Abstract: The investigator has tried to explore standard of living of households and environmental pollution in Jay Mangala slum of Cuttack district. In the present research study, the standard of living is confined to economic condition, educational qualification, health and sanitation facilities, private infrastructure facilities and public infrastructure facilities in slum of Cuttack district. The findings of the study are as such: annual income of the households of Jay Mangala slum ranges between 30,000 rupees to 1,20,000 rupees. Mainly people are engaged in unorganized and informal sector. No one of them are in government job. Hundred percent male households are literate only whereas 82.60% females are literates. Similarly 91.1% households are literates only. But none of them get higher education/technical education/professional education. Cold, cough, fever, malaria and skin infection are the main disease of the households living in Jay Mangala slum. They go to government hospital. They buy medicine from private medical stores. Most of the households have no toilet facilities living in Jay Mangala slum. The households live in thatched house, hut etc. Food is cooked by tripod stove, gas stove, kerosene stove. The source of drinking water is common tube well, common hand pumps. The roads to the home in slum are not solidified, enlarged and concreted. There is pipe line system for water supply. There is no street light in the slum. There is no electricity supply to their home. There is no proper drainage system in the Jay Mangala slum. Public infrastructure facility in Jay Mangala slum is very poor. The Jay Mangala slum lacks reliable sanitation services, supply of clean water, reliable electricity, timely law enforcement and other basic services. It is densely populated. The growing population in the study area puts pressure on land, leading to poor quality of productivity deforestation.

Index Terms - Environmental pollution, standard of living and slum household

I. INTRODUCTION

Environment pollution is a phenomenon where natural ingredients are replaced or damaged by presence of dangerous unnatural ingredients - which have potentiality to cause imbalance to the system and to create number of health hazards to animals and human beings. Such unnatural ingredients may be gases (causing air pollution), solids / liquids (causing water, food and land pollution) or sound (causing sound pollution). All of them cause imbalance in ecosystem directly or indirectly and have potentiality to cause health hazards to human beings and animals (OMICS International 2008-1018). A standard of living is the level of wealth, comfort, material goods and necessities available to a certain socioeconomic class or a certain geographic area. The standard of living includes factors such as income, gross domestic product, national economic growth, economic and political stability, political and religious freedom, environmental quality, climate, and safety. The standard of living is closely related to quality of life (Investopedia, 2018). In this present research study, the standard of living is confined to economic condition, educational qualification, health and sanitation facilities, private infrastructure facilities and public infrastructure facilities in slum of Cuttack district. The word "slum" is often used to describe informal settlements within cities that have inadequate housing and neglected, miserable living conditions. They are often overcrowded, with many people crammed into very small living spaces (Agrawal, 2014). UN-HABITAT defines a slum household as a group of individuals living under the same roof in an urban area who lack one or more of the characteristics such as durable housing of a permanent nature that protects against extreme climate conditions, sufficient living space, which means not more than three people sharing the same room, easy access to safe water in sufficient amounts at an affordable price, access to adequate sanitation in the form of a private or public toilet shared by a reasonable number of people and security of tenure that prevents forced evictions (UN-HABITAT, 2007). (Slum Dwellers to double by 2030: United Nations Human Settlements Programme (UN-HABITAT) report, April 2007). According to the Global Report on Human Settlements (United Nations Human Settlements Program, 2003) 924 million people in 2001 or almost 32 percent of the world's urban population lived in slums, the majority of them in the developing world. The proportion of the urban population living in slums is about seven times as high in less developed countries (43 percent) and in more developed countries (6 percent). Although the concentration of slum dwellers is highest in African cities, in numbers alone in Asia accounts for about 60 percent of urban slum residents in the world. The United Nations report estimates that if no serious action is taken, the number of slum dwellers worldwide will increase to about two billion over the next 30 years. Globally, the slum population is set to grow at the rate of 27 million per year during the period 2000-2020. In response to these projections, the Millennium Development

Goals established a target to significantly improve the lives of at least 100 million slum dwellers by the year 2020. Cuttack, the nerve centre of commerce and art, the millennium city, is famous for its uniqueness in location, physiographic structure and historical perspective. It is situated between 20.27 to 20.29N latitude and 85.50 to 85.55E longitude .With a limited land of 87.175 square kilometers, the growing populations has resulted in congestion, insanitary and unhealthy environment and the establishment of the slum pockets on the natural levees, open government land and canal embankment. In the present study the investigator has tried to explore standard of living of households and environmental pollution in Jay Mangala slum of Cuttack district.

II. OBJECTIVES OF THE STUDY

- To study the standard of living of households in slum of the study area i.e. Cuttack district
- To study the environmental pollution in slum of the study area i.e. Cuttack district

III. RESEARCH QUESTIONS

- What is the standard of living(economic condition, educational qualification, health and sanitation facilities and status, private infrastructure facilities, public infrastructure facilities) of households in slum of the study area i.e. Cuttack district
- What are the environmental pollutions occurring in slum of the study area i.e. Cuttack district

IV. RESEARCH METHODOLOGY

Case study research design (Merriam, 1988) was employed in carrying out the study. The details of research methodology are discussed as follows under selection of the case, tools and techniques used for collection of data, variable of the study, and techniques of data analysis.

4.1 Selection of the Case

For the purpose of the present study, households of Jay Mangala slum of Ranihat, Cuttack districts constitute the case; and that is the unit of the study. Ten such slum households were selected employing incidental sampling. Thus, each of the 10 slum households studied here are in fact 10 independent studies.

4.2 Tools and Techniques Used for Collection of Data

The tools of qualitative research such as, family information schedule, semi-structured interviews, observation schedule, and Focus Group Discussions (FGDs) are employed to collect data from multiple sources. Family information schedule has been developed with ten statements, whereas semi structured interview has been developed with 39 questions, observation schedule has been finalized with ten statements keeping in view all necessary points for observation and FGD has been developed with 15 discussion points in depth. The investigator used various methods of collecting data, i.e. combining dissimilar methods to collect the data from the same unit so as to establish/ascertain the validity and credibility of the research data. In practice, data are collected by the investigator through personal visits to the field and personal contact with the respondents using a checklist of observations and questions addressed to key informants and situation. Extensive field notes are made, photographs are taken, and interviews with key informants were conducted.

4.3 Variables of the Study

The study sought mainly to study the standard of living of households in slum particularly with reference to the: economic condition, educational qualification, health and sanitation facilities, private infrastructure facilities, public infrastructure facilities and environmental problems which the slum households are facing in their day to day lives.

4.4 Techniques of Data Analysis

The data collected through the family information schedule were put to the qualitative analysis of thick descriptions. In addition, the data collected through discussions, interviews, observation, and field notes in respect of the case were used to supplement and/or substantiate the qualitative analysis of thick descriptions.

4.5 Profile of the Study Area

The study was conducted in Jay Mangala Slum of Cuttack District, Odisha. Ten slum households were selected incidentally. For the purpose of primary source information this study was concentrated in 10 slum households of Cuttack District. All the ten households selected mainly constitute slum households.

V. RESULT OF CASE STUDIES

The results presented about ten cases about standard of living and environmental pollution in slum as follows:

5.1 Analysis of Objective 1:- standard of living of households in slum of the study area i.e. Jay Mangala Slum of Cuttack district

Table1:-Case Study of Kuni Dai

<u>Family No.1.</u>	
Name – Kuni Dai	
Size of Family – 3	
Male-1, Female-2	
Economic Condition-	In their family, there is only one female earning member. Their annual household income is 30,000.
Educational Qualification -	There is no educated adult present in their family. One male member is 7 th pass and two female members are 10 th and 5 th pass respectively.
Health and Sanitation Facilities and Status –	Cold and cough is the main disease which mainly affecting this family. All family members go to government hospital. They buy medicine from private stores.
Private Infrastructure Facilities -	There is no toilet in their home. The family live in thatched house. Food is cooked by tripod stove. The source of drinking water is common tube well.

Table 2:-Case Study of Sikhar Nayak

<u>Family No.2.</u>
Name – Sikhar Nayak
Size of Family – 8
Male-2, Female-4, Children-2
Economic Condition-There is two male earning members in the family. Their annual household income is 80,000.
Educational Qualification -There are only 4 literate members in their family. Two male members are 10 th and +2 pass and two female members are 7 th and 8 th pass respectively.
Health and Sanitation-This family is mainly affected by skin disease. They go to government hospital. They buy medicine from private stores.
Private Infrastructure-There is no toilet in their home. They live in thatched house.
Food is not cooked by kerosene stove. The source of drinking water is common hand pumps.

Table 3:- Case Study of Sudam Nayak

<u>Family No.3.</u>
Name – Sudam Nayak
Size of Family – 5
Male-4, Female-1
Economic Condition-There is two male and one female earning member in the family. Their annual household income is 84,000.
Educational Qualification -There are three literate male adults in the family.
Health and Sanitation-Cold and cough are the main disease which affect this family. The family uses government hospital for medication purpose. But they buy medicine from private stores.
Private Infrastructure-There is toilet facility in their home. They live in thatched house. They cook food by kerosene stove. The source of drinking water is common tube well.

Table 3:-Case Study of Muna Nayak

<u>Family No.4.</u>
Name – Muna Nayak
Size of Family – 5
Male-3, Female-2
Economic Condition-There is one male and one female earning member in the family. Their annual household income is 90000 and saving is 20000.
Educational Qualification -Three male members are 7 th , +2, 10 th pass and two female members are 10 th and +3 pass respectively.
Health and Sanitation-Cold& cough are the main disease which affect this family. They go to government hospital. They buy medicine from private stores.
Private Infrastructure-There is toilet in their home. They live in thatched house. They cook food by kerosene stove. The source of drinking water is common hand pump.

Table5:-Case Study of Baikunta Nayak

<u>Family No.5.</u>
Name – Baikuntha Nayak
Size of Family – 6
Male-2, Female-4
Economic Condition-There is one male and one female earning member in the family. Their annual household income is 96000 and saving is 24000.
Educational Qualification -Two male members are 7 th , +2 pass and three female members are class 1, 6 th , 8 th pass out respectively.
Health and Sanitation-Malaria is the main disease which is mainly affecting this family. They go to government hospital. They buy medicine from private stores.
Private Infrastructure-There is toilet in their home. They live in thatched house. The food is cooked in tripod stove. The source of drinking water is common tube well.

Table 6:-Case Study of Pradesh Nayak

<u>Family No.6</u>
Name – Pradesh Nayak
Size of Family – 4
Male-2, Female-2
Economic Condition-There is only one male earning member in the family. Their annual household income is 72000 and saving is 12000.
Educational Qualification -Two male members are 9 th , class1 pass out and one female member is 4 th class pass out respectively.
Health and Sanitation-Malaria is the main disease which mainly affecting this family. They go to government hospital. They buy medicine from private medical stores. Private Infrastructure-There is no toilet in their home. They live in hut. They cook food by kerosene stove. The source of drinking water is common hand pumps.

Table 7:- Case Study of Santana Dei

<u>Family No.7</u>
Name-Santana Dei
Size OF Family-4
Male-2,Female-2
Economic Condition:-There are only 2 male earning members in the family .The annual house hold income is Rs -50,000/-.
Educational Qualification:-There are only 2 literate members in their family.
Health And Sanitation:-This family is mainly affected by skin disease. They go the government hospital. They buy medicine from private medical stores.
Private Infrastructure:-There is toilet in their home. They live in thatched house. The food is cooked in tripod stove. Source of drinking water is community tube well.

Table 8:-Case Study of Bichitra Nayak

<u>Family No.8</u>
Name- Bichitra Nayak
Size of Family-03
Male-1,Female-2
Economic condition:-There is only one male earning member in the family .The annual house holds income is 48,000.
Educational Qualification:-One male member is 10 th pass out and two female members are 4 th and class 2 pass out respectively.
Health and Sanitation:-Cold and fever are the main disease which is mainly affecting this family. They go the government hospital. They buy medicine from private medical store. Private Infrastructure:-There is no toilet in their home. They live in hut. They cook food by kerosene stove. The source of drink water is community tube well.

Table 9:-Case Study of Boeita Nayak

<u>Family No.9</u>
Name – Boeita Nayak
Size of Family – 5
Male-2, Female-3
Economic Condition- There is one male and one female earning member in the family. Their annual household income is 120000.
Educational Qualification -One male member is 7 th pass and one female member is 10 th pass respectively.
Health and Sanitation-This family is mainly affected by skin disease. They go to government hospital. They buy medicine from private medical stores.
Private Infrastructure-There is no toilet in their home. They live in thatched house. They cook food by gas stove. The source of drinking water is common tube well.

Table 10-Case Study of Gajendra Nayak

Family No.10	
Name – Gajendra Nayak	
Size of Family – 4	
Male-3, Female-1	
Economic Condition-	In their family, there are one male and one female earning member. Their annual household income is 96,000.
Educational Qualification -	Three male members are 6 th , 10 th , class 2 pass out and one female member is class 3 pass out respectively.
Health and Sanitation-	Cold and fever are the main disease which mainly affecting this family. They go to government hospital. They buy medicine from private stores.
Private Infrastructure-	There is no toilet in their home. They live in hut. They cook food by kerosene stove. The source of drinking water is common tube well.

Table 11-Family Income of Slum Households

Family No.	Income (Per Annum)				
	Rs.20,000-40,000/-	Rs. 40,000-60,000/-	Rs.60,000-80,000/-	Rs.80,000-1,00,000/-	Rs.1,00,000-1,20,000/-
01	Yes				
02				Yes	
03				Yes	
04				Yes	
05				Yes	
06			Yes		
07		Yes			
08		Yes			
09					Yes
10				Yes	

As per the table most of the households’ annual income range between Rs.80,000 rupees to Rs.1,00,000 rupees and only one household’s annual income range is in between Rs.1,00,000 rupees to Rs.1,20,000 rupees.

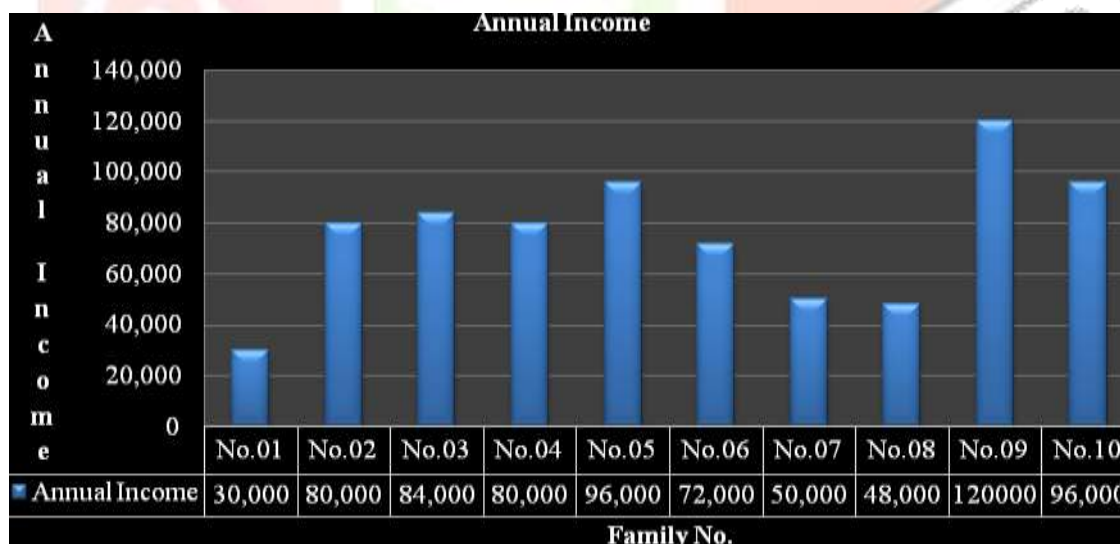


Figure 1:- Family Income of Slum Households

The above chart shows that the economic condition of the households of the slum area. Annual income of the people of this slum ranges between 30,000 rupees to 1,20,000 rupees. Mainly people are engaged in unorganized and informal sector. No one of them is in government job. In most of the families earning members are male.

Table 12:- Status of Literates in Households

Type of Literates	Status of Literates in Households										Total Number
	Data in Number	Data in Number	Data in Number	Data in Number	Data in Number	Data in Number	Data in Number	Data in Number	Data in Number	Data in Number	
No. of Male literates	1	2	4	3	2	2	2	1	2	3	22
No. of Female literates	2	2	1	2	3	1	2	2	3	1	19
Total No. of Literates	3	4	5	5	5	3	4	3	5	4	41

As per the table all families are literate. But none of them get higher education/technical education/professional education. The below table indicates that 100% male households are literate whereas 82.60% females are literates. Similarly 91.1% households are literates.

Table 13:- Percentage of Literates in Households

Type of Literates	Total Number of Male literates	Total Number Female literates	Total No. of Literates
Number of Literates	22	19	41
Total Number of Literates	22	23	45
Percentage of Literates	100%	82.60%	91.1%

TableNo-14Consume of Tobacco/Alcohol in Households

Family No.	Consumes Tobacco/Alcohol
01	Yes
02	Yes
03	Yes
04	Yes
05	No
06	No
07	Yes
08	Yes
09	No
10	No

As per the above table, six households (60%) consume tobacco/alcohol. It promotes directly and indirectly crime and uncivilized activities in their home and in their surroundings.

Public Infrastructure Facilities - The roads to the home in slum are not solidified, enlarged and concreted. There is pipe line system for water supply. There is no street light in the slum. There is no electricity supply to their home. There is no proper drainage system in the Jay Mangala slum. Public infrastructure facility in Jay Mangala slum is very poor.

5.2 : Analysis of Objective 2:- Environmental Pollution in Jay Mangala Slum of Cuttack district:-The Jay Mangala slum lacks reliable sanitation services, supply of clean water, reliable electricity, timely law enforcement and other basic services. Water pollution in Jay Mangala slum is presented in the following figure.



Figure 2:- Water Pollution in Jay Mangala Slum

It is densely populated. The quality of soil deteriorates resulting in the loss of agricultural land. Pollution of land and water has affected plants, animals and human beings. Soil erosion, as a result of wind and/or water, costs the slum heavily. The recurring floods due to rain in slum have their own peculiar casualties like deforestation, silt in the river bed, inadequate and improper drainage, loss of men and property. Wastage of soil due to dumping of waste materials in Jay Mangala slum is presented in figure 3.



Figure 3:- Dumping of Waste Materials in Slum

The growing population in the study area puts pressure on land, leading to poor quality of productivity deforestation. The loss of forest land necessary for ecological balance and extinction of wild life leads to imbalance in the ecological order, loss of wild life heritage and ultimately dwindling of several species. The growing population in slum is a problem for the natural environment; it is also a problem for other aspects of environment, say, for example social, economic, political etc. The maddening race of people from villages to the cities results in dirt, disease and disasters. In a state of growing population in Jay Mangala slum, environmental problems like sanitation, ill-health, housing, water-supply and electricity keep expanding. The environmental degradation is also caused in the slum life due to indiscriminate collection of firewood, overgrazing and depletion of other natural resources. Development of the means of transport and communication in slum has not only polluted the environment, but also has led to the shrinking of the natural resources.

MAIN FINDINGS

- **Economic Condition of the Households:** -Annual income of the households of Jay Mangala slum ranges between 30,000 rupees to 1, 20,000 rupees. Mainly people are engaged in unorganized and informal sector. No one of them is in government job.
- **Educational Qualification of the Households:** -100% male households are literate only whereas 82.60% females are literates. Similarly 91.1% households are literates only. But none of them get higher education/technical education/professional education.
- **Health and Sanitation Facilities in the Slum:** - Cold, cough, fever, malaria and skin infection are the main disease of the households living in Jay Mangala slum. They go to government hospital. They buy medicine from private medical stores.
- **Private Infrastructure Facilities in the Slum:** -Most of the households have no toilet facilities living in Jay Mangala slum. The households live in thatched house, hut etc. Food is cooked by tripod stove, gas stove, kerosene stove. The source of drinking water is common tube well, common hand pumps.
- **Public Infrastructure Facilities in the Slum:** -The roads to the home in slum are not solidified, enlarged and concreted. There is pipe line system for water supply. There is no street light in the slum. There is no electricity supply to their home. There is no proper drainage system in the Jay Mangala slum. Public infrastructure facility in Jay Mangala slum is very poor.
- **Environmental Pollution in Jay Mangala Slum:** - The Jay Mangala slum lacks reliable sanitation services, supply of clean water, reliable electricity, timely law enforcement and other basic services. It is densely populated. The quality of soil deteriorates resulting in the loss of agricultural land. Pollution of land and water has affected plants, animals and human beings. Soil erosion, as a result of wind and/or water, costs the slum heavily. The recurring floods due to rain in slum have their own peculiar casualties like deforestation, silt in the river bed, inadequate and improper drainage, loss of men and property. The growing population in the study area puts pressure on land, leading to poor quality of productivity deforestation. The loss of forest land so necessary for ecological balance and extinction of wild life leads to imbalance in the ecological order, loss of wild life heritage and ultimately dwindling of several species. The growing population in slum is a problem for the natural environment; it is also a problem for other aspects of environment, say, for example social, economic, political etc. The maddening race of people from villages to the cities results in dirt, disease and disasters. In a state of growing population in Jay Mangala slum, environmental problems like sanitation, ill-health, housing, water-supply and electricity keep expanding. The environmental degradation is also caused in the slum life due

to indiscriminate collection of firewood, overgrazing and depletion of other natural resources. Development of the means of transport and communication in slum has not only polluted the environment, but also has led to the shrinking of the natural resources.

VI. CONCLUSION

Countries need to recognize that the urban poor are active agents and not just beneficiaries of development. Developing cities requires local solutions. Local authorities need to be empowered with financial and human resources to deliver services and infrastructure to the urban poor. Cities should draw up local long-term strategies for improving the lives of slum dwellers. Local governments should develop strategies to prevent the formation of new slums. These should include access to affordable land, reasonably priced materials, employment opportunities, and basic infrastructure and social services. Public investments must focus on providing access to basic services and infrastructure. Working with the urban poor, cities need to invest in housing, water, sanitation, energy, and urban services, such as garbage disposal. These services and infrastructure must reach the poor living in informal settlements. The transportation needs and safety concerns of a city's poorest residents should be a high priority in planning urban transportation systems, which can expand the choices people have regarding where to live and work. Building codes and regulations should be realistic and enforceable and reflect the lifestyle and needs of the local community. This means, for example, that they may have to be flexible enough to allow housing that is built incrementally, out of low-cost materials and on small plots of land (Agrawal, 2014). Minister of Environment and Forests (1997) has had with various government and non-government agencies on the subject of controlling pollution in Delhi. Same measures as discussed below need to be applied in slums of Cuttack district. A special drive needs to be organized to motivate the public for depositing domestic refuse in bin bags in slum. Segregation will be encouraged to facilitate recycling. The refuse bags will be placed suitably at pre-determined points of slum for collection by the concerned agencies. Large waste bins in slum would be made available at all major markets and spots to void littering. Concerted effort in slum is needed to remove street dogs many of which are carriers of rabies. Encroachments will be removed for providing more road space to facilitate free movement of traffic in slum area. For preventing the growth of squatter settlements, the Government of Delhi is considering the possibility of deploying basti managers who would monitor a register on current residents ensuring that there was no increase in the encroaching households. Same need to be applied in slums of Cuttack district. Extracurricular activities in educational institutions should include environmental projects aimed at community/neighborhood improvement, environmental pollution in slum to sensitize young students to the environmental quality of their surroundings.

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