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Impact of Urbanisation on the Sustainability of Land Resource Utilisation in Koderma District of Jharkhand

ORIGINAL ARTICLE



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Abstract

Land resource is considered as an important resource as it provides space for all kind of human activities but the haphazard manner of urban land uses exposes as a challenge to its sustainability. Rapid population growth and the process of urbanisation have resulted in an increasing demand for land in urban areas. The mismatch between the supply and demand of land leads to the degradation of the land resources. The rate of urbanisation of Koderma district has increased from 17.4% to 19.72% in 2011 and number of towns has also increased from 2 in 2001 to 5 in 2011. There will be rapid expansion of built-up land, huge quantity of solid waste generation and concentration of slum areas in the cities which will threaten the sustainability of land resources. The concept of sustainable utilization of land resource calls us for the judicious use of it without compromising the needs of future generation. This paper aims at understanding the relationship between the increasing rate of urbanisation and degrading the sustainability of the land resources. For this

research paper primary as well as secondary data have been used. Primary data have been collected from interviewing the concerned people and field observation. Secondary data have been collected from various Government reports and municipal offices. The nature of the paper is descriptive and analytical. This paper further suggests the possible steps to maintain the sustainability of land resources and urbanisation in and around the cities.

Key Words

Urbanisation, Land Resource Utilisation, Degradation, Sustainability.

Introduction

Land is one of our basic and natural resources upon which all human activities are based since time immemorial. Throughout history, we have drawn most of our sustenance from the land. It is known, that the environment is the total effect of air, water, land and biosphere on the human being whether living in town or cities. It is called the physical environment in case related to land, air and water. The cultural environment is controlled by human being such as houses, roads, industries etc. Nowadays, with the increase in population in

urban areas, it endangered the sustainability of all elements of physical environment and land is no exception. It acts as a key ingredient in the process of urbanisation. It is hereby clear that the urbanisation is a process whereby a rural place transform into urban place. There will be change in the nature of functions performed by the residents of the place. Urbanisation results in the growth of the size of urban population and the extent of urban areas. These changes in the population lead to other changes in land use, economic activity and culture.

Impacts of urbanisation can clearly be visible on the land resources as it acts as a vital resource that will sustain the population. It fed our empty stomach, provide shelter to us, provide fresh air to breathe due to forest and many more. All types of activities that are performed in any urban space is linked with the utilization of land resource. In this process, urbanisation poses a great challenge in the path of sustainable utilization of it. The lifestyle of urban population demands a large number of natural resources, which are exploited and being depleted at a rapid pace to provide housing and other essential needs of and ever growing and demanding population. If the balance between utilization and availability of resources is disturbed it will surely lead to the path of devastation.

Koderma district is one of the rapidly urbanizing districts of Jharkhand. From urban population of just 9,090 in 1951, it rose more than 15 times in the span of six decades counting for 1,41,246 urban population in 2011. The rate of urbanisation in Koderma district was 17.37% in 2001 which has rose to 19.72% in 2011. There is clear view of trend of rising urban population and urbanisation in Koderma district which will affect its environment and poses threat to the sustainability of various natural resources including land.

Table 1 : Pattern and trend of urbanisation in Koderma District , 1951-2011.

Year	Total urban population of Koderma District (in numbers)
1951	9,090
1961	21,777
1971	44,215
1981	37,705
1991	66,241
2001	86,749
2011	1,41,246

(Source: Census of India 2011)

‘Sustainable Development’ and ‘Sustainability’ are often used synonymously but one distinction can be made as the former is a policy whereas the latter depicts a general concept. Sustainability is a broader concept that not only focus on human well-being unlike sustainable development rather it covers all other elements. Hence sustainable development requires a balance between the development of urban areas and protection of the environment with an eye to equity in employment, shelter, basic services, social infrastructure and transportation in urban areas.

Sustainable urbanisation can be understood by keeping the concept of sustainability in mind as urbanisation is a rigorous process so it should endorse the sustainable principles that is fulfilling the needs of present generation without compromising the ability of future generation to fulfill their needs. Increasing trend of haphazard urbanisation poses threat in its sustainability. Rapid urbanisation causes increase in population that will invite more urban problems.

Study Area

Koderma is one of the districts lies in the northern part of Jharkhand. Its locational extent is 24°15’N to 24° 40’N and 85°26’E 85°54’E. It has total population of 7,16,25 out of which 1,41,246, is urban population that resides on 77.33sq Km of the total geographical area. The rate of urbanisation of Koderma district has increased from 17.4% to 19.72% in 2011. District had total 5 towns among which Bekobar, Karma, Domchanch

are Census towns and Koderma and Jhumri Telaiya are statutory towns. Once upon a time Koderma was known by the Sobriquet “Mica capital of India” due to of its abundance.

Methodology and Database

For the convenience of the study only two urban local bodies (ULB) have been taken out of five ULBs of the districts as these two are statutory towns namely Jhumri Telaiya and Koderma. Both the ULBs are notified area as Jhumri Telaiya is Nagar Parishad and Koderma is Nagar Panchayat. Methods used for this paper is descriptive and analytical in nature The current study is based upon the primary data as well as secondary data. Primary data have been collected from interviewing the concerned people and field observation. Secondary data have been collected from various Government reports, district census handbook, municipal offices, journals, research papers etc.

Objectives

- To find out the trend of urbanisation in Jhumri Telaiya and Koderma.
- To assess the relationship between urbanisation and sustainability of land resources.

Discussion and Findings

As per the data available from census of India (1971,1981,1991,2001,2011) provided by municipal officials, trend of increase in urbanisation can be seen in Jhumri Telaiya and Koderma. Jhumri Telaiya has been given the status of Notified Area Committee in 1952 whereas this status has been given to Koderma in 1984. Total Geographical area of Jhumri Telaiya and Koderma are 51.14 sq.km. and 6.47 sq.km. respectively.

Table 2 : Decadal Urban Population Growth trend of Jhumri Telaiya

Year	Total Urban Population	Density
1971	29,097	569
1981	38,705	757
1991	53,577	1,048
2001	69,503	1,359
2011	87,867	1,718

(Source: Municipal office of Jhumri Telaiya and Koderma)

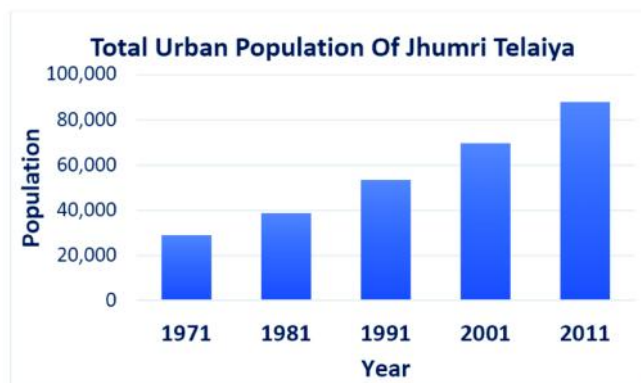
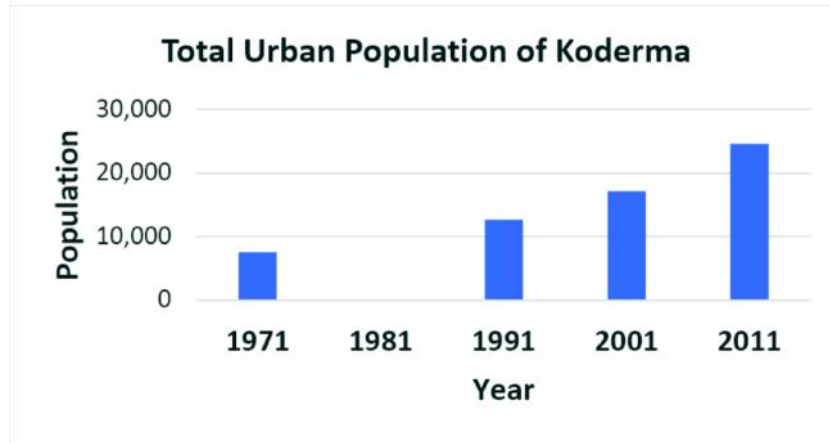


Table 3: Decadal Urban Population Growth trend of Koderma

Year	Total Urban Population	Density
1971	7,559	1,168
1981	NA	NA
1991	12,664	1,957
2001	17,246	2,666
2011	24,633	3,807

(Source: Municipal office of Jhumri Telaiya and Koderma)



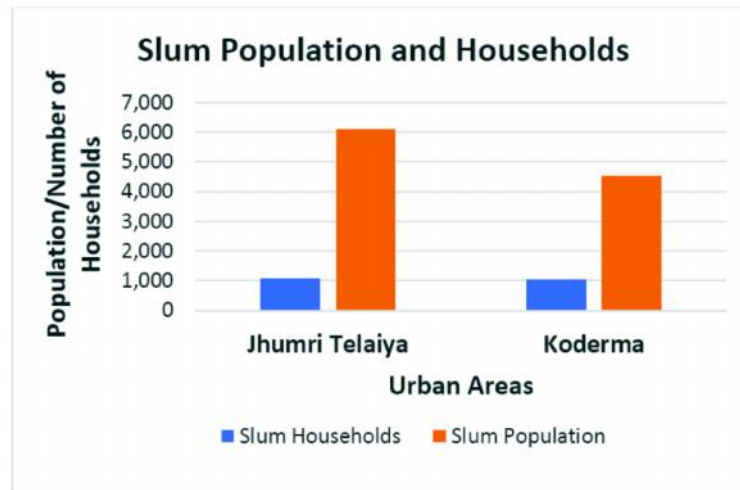
The issue of urban land sustainability is rapidly generating into a critical issue because of the rapid pace of urbanisation and its associated socio-economic and environmental impacts are unprecedented. As we can see the above mentioned data that the urban population is increasing in both the urban local bodies hence putting more pressure on land resources to provide them with shelter, fooding and other basic amenities. This increases the built-up area upon the land resources as increasing population need to accommodate somewhere. The increase in the built-up area is totally attributed to the increase in the urban population.

The acute shortage of housing facilities is one of the serious problems plaguing the Indian cities. The availability and development of housing facility has not expanded that fast to meet the growing demand. There are lots of slum pocket grew in urban areas of Jhumri Telaiya and Koderma mainly in the core of the city besides railway line and main road in open areas. This improper use of land resources by slum dweller creates nuisance in the development of the area. The people who reside near the slum pockets are facing several problem like improper waste disposal, waste water are openly overflowing the drains, open defecation etc. Several slum dwellers have been interviewed during the field visit and talked about the problems of the slum areas. Some of them are Raju Gope (Aged about 37 years), Goverdhan Bhuiyan (Aged about 34 years) from Bhuiya Toli, near Devi Mandap Road (Jhumri Telaiya); Manoj Birhore (Aged about 38 years), Dinesh Birhore (Aged about 28 years) from Birhore Tola, Asnabad (Jhumri Telaiya); Saajan Kumar (Aged about 30 years), Rinki Kumari (Aged about 27 years) from Jalwabad (Koderma); Phulwa Devi (Aged about 40 years), Jagan Lal (Aged about 36 Years) from Baherwatand (Koderma) all are the residents of slum areas. They talked about the dilapidated condition of their area like the waste generated by them were left unpicked for several weeks, poor drainage facility leading to water-clogging, forced for open defecation due to shortage of public toilets. Overall, the slum pockets developed in the cities is indicating the improper utilization of land resource by holding the area and degrading the land quality.

Table 4: Number of Slum households and Slum population in Jhumri Telaiya and Koderma

Places	Slum Households	Slum Population
Jhumri Telaiya	1,063	6,102
Koderma	1,055	4,523
Total	2,118	10,625

(Source: Jhumri Telaiya Nagar Parishad Office and Koderma Nagar Panchayat Office)

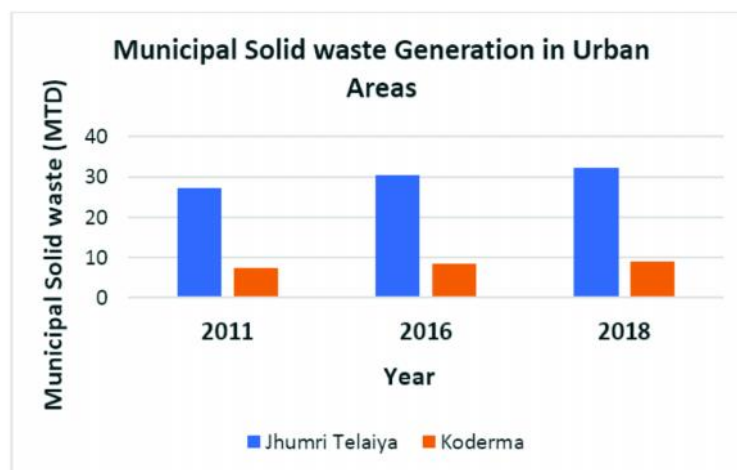


Municipal solid waste has been a great challenge to the urban local bodies and Jhumri Telaiya and Koderma being no exception. These wastes generally comprised of biodegradable waste, building materials, plastic, paper etc. Jhumri Telaiya and Koderma both have their dumpsites at Telaiya Basti (ward no.2 &3) and Burakali (ward no.1) respectively where all the solid waste of the town are dumped. Solid waste poses threat to the land sustainability as the pile of waste called as legacy waste leads to the generation of leachate which penetrates into the ground hence degrading the land qualities nearby. As per data provided by the municipal office the generation of solid waste has been increased year wise. Total quantity of existing legacy waste in Telaiya Basti which is dumpsite of Jhumri Telaiya is 62,824.00 MT occupied over the area of 4.45 Acres. During the field visit it has been observed that a vast area is under the dumpsite and there are water sources nearby which are more vulnerable of contamination from leachate alongwith the contamination of land area. Local People have done their complaints to municipal officials to remove the waste from the site but no one paid attention to the complaints and the waste were left as it is.

Table 5: Municipal Solid waste generation (Metric tonne per day)

Places	2011	2016	2018
Jhumri Telaiya	27.33	30.46	32.36
Koderma	07.55	08.53	08.98

(Source: Jhumri Telaiya Nagar Parishad Office and Koderma Nagar Panchayat Office)



Despite the urbanisation, most of the population have either no availability of toilets or access to public toilet or have to defecate in open. These can create lots of problems for environment especially land resources. According to Census 2011, In Jhumri Telaiya 58.5% households have toilet facility and rest 41.5% have to

use public toilets or defecate in open. Whereas in Koderma, 52.5% households have toilet facility and rest 47.5% have to use public toilets or defecate in open. Lack of toilet facility forced the people to defecate open and its adverse effect are quite known to everyone that it is not good for the environment. It leads to the fecal contamination of the environment.

We know that Biomedical waste are comprised of various chemicals that will directly come in contact to land if not disposed properly. Generally, hospitals throw their waste in open that get mixed with municipal solid waste which makes it handling difficult. Bio-medical waste should be treated according to Bio-medical Rules 2016 for its proposal. It can be seen in Rajgharia Road, Doctor Gali etc. in Jhumri Telaiya and near Sadar Hospital in Koderma. As per the Municipal officials, total hospital waste generated in Jhumri Telaiya is 250kg/day and in Koderma it is 88kg/day. Some smaller hospitals or nursing home throws their hospital waste openly on the road or nearby open areas that could be proved toxic. Hospitals have to sign the agreement to get their waste processed in the facility centre named Bio Genetic Laboratory Private Limited located in Dhanbad which is authorized by State Pollution Control Board of Jharkhand but the smaller hospitals and nursing homes did not signed the agreement as it will increase the economic burden on them, so they used to throw their waste openly on the road or open areas that get mixed with the municipal solid waste.

Due to absence of sewerage system, there are various hygiene and sanitation related issues. Existing drains have converted into waste water carrying drains. These drains also faces problems of water logging as some of the households waste are directly dumped into these drains, construction of roads in town blocks the drains, lack of proper drainage network system and etc. Due to absence of proper drainage facility there are certain key water logging areas like Azad Mohalla (ward no.4), Devi Mandap Road (ward no.25), Near DVC Along the railway line (ward no.17), Behind Bazaar samiti and By Pass road. During interviewing the local people like Rajeshwar Saw (Aged about 45 Years), Rani Priya (Aged about 30 years), Sukhdeo Paswan (Aged about 33 Years), Dharmshila Devi (Aged about 46 years) and many more spoke that the condition of these drains are pathetic throughout the year but it get more worsen during the rainy season. Usually once in 3-4 months the drains were cleaned but the drains are clogged most of the time. The toxic elements present in the choked drains are then penetrates in the nearby land thus degrading the land qualities and disturbing the pH value of the land.

Conclusion and Suggestions

Koderma is one of the rapidly urbanizing district of Jharkhand with a rate of 19.72% in 2011. It has huge potential of developing as an highly urbanized area as it has good connectivity with bigger cities, comes in the catchment area of river Barakar from south and River Sakri in the north, enormous mineral base which can boost up the industries, fast growing educational environment, development of health infrastructure and so on. Rapid increase in the population in coming years cannot be negated and if there will be unsystematic, rapid, unplanned urbanisation the situation will further threatens the sustainability of the critical environmental components. So in order to avoid these problems there is need for systematic and comprehensive planning for the sustainable development of the cities with the healthy urban environment and conservation of natural resources. There should be an instilling of the idea of sustainable urbanisation among the administrators as well as the residents of the cities There is need of an integrated approach to urban planning, need for regulation of unsystematic urban growth particularly in respect of land resource management and utilization to ensure the conservation of land resource.

This paper further suggests for the proper handling and processing of the total solid waste generated in the city. The proposed Solid Waste Management Plant at Chandrodih should be operationalized sooner. A project has been proposed for dumpsite land reclamation through Bio-mining and resource recovery at Jhumri Telaiya. The aim of this project is to remove the tonnes of legacy waste from the dumpsite and to start the process of Bio-remediation. Either slum pockets should be properly rehabilitated or adequate facilities should be provided in the slum pockets as we cannot deny the growth of slum pockets in the cities as it goes

side by side with urbanisation. There should be focus on the suitable sanitation infrastructure and hygiene of the residents to avoid open defecation. More public toilets should be constructed and subsidies should be provided for constructing toilets in their own households to reduce the stress on their pockets. Problem of water logging should be solved as it is one of the key problems in the path of land resource sustainability. Solid Waste water treatment plant is proposed to be installed near the town to reuse and recycle the waste water. It is evident that the land resources is limited whereas urbanisation and increase in the population is a perpetual phenomenon. For maintaining equilibrium, we should apply and focus more on sustainable approach to profusely encounter the problem and at the same time provide liveable environments to the city dwellers without denying the opportunity of the future generation to utilize the resources.

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