



Status Of Household Amenities In Patna Municipal Corporation: Ward Wise Analysis

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Abstract -The present research paper is an attempt to make the spatial analysis of availability of household amenities in Patna Municipal Corporation Area. The study is based on secondary source of data, collected from Houselisting and Housing Census Data, 2011. The study reveals that the development of household amenities is higher in central and southern parts of Patna Municipal Corporation area while the northern and eastern part of the city is least developed in this regard.

Index Terms: Household Amenities, Patna, Municipal Corporation Area, ward

I. Introduction

Housing is one of the three basic needs of human life and an important indicator of socio-economic status. Housing and access to basic household amenities such as electricity, drinking water, sanitation, clean fuel, and separate kitchen reflects a household quality of life. These basic amenities have been internationally and nationally recognised and acted upon in the form of Millennium Development Goal and various policies and programmes in India. The absence of these facilities or their inadequate availability in an area or region is not only the outcome of demand supply gap but also it has been due to the lack of financial aids, political interests, inefficiency of Institutions etc. [1]. These amenities are the critical determinants of living conditions and health of the urban people.

WHO document on 'Housing and Health – An Agenda for Action' which suggests 11 principles related to housing needs and health action? These Principles broadly highlight the role of adequate housing in the control of communicable diseases and in health promotion and identify socio economic behavioural and structural factors related to housing [2].

Marsh et.al points out that poor housing conditions affect current as well as future health status. Therefore, access to reasonable housing conditions is essential for family's overall welfare [3].

According to Nayar, the factors which exert an impact on the health status of the population can possibly be delineated into 3 sets: i) health factors which include medical intervention. ii) health promoting factors such as housing, water supply, sanitation, and hygiene. iii) non-health factors which include social and economic factors [4].

According to R.B. Bhagat, the deprivation of drinking water, sanitation, and toilet facilities is most glaring in rural areas and in small and medium towns of urban areas. And due to deprivation of these amenities various types of gastro-intestinal diseases have been increased [5].

Patna, being the capital city of Bihar, is the major urban centre in the state. Pull factors associated with the ever-growing urban influence clubbed with the severe push factor operating in the rural areas. Patna receives huge number of migrants from within the state. The rapid population growth of the city has put tremendous pressure on the urban local body to ensure basic services to the city dwellers.

Rapid growth in population unaccompanied by adequate investments in urban development during the post-independence period has led to a serious deficiency in the availability of Infrastructure and basic amenities in towns and cities in the country [6].

According to UN environment programme, 2004 - In developing countries approximately six children die every minute from diseases caused by unsafe water and inadequate sanitation. World over, there are an average of 250 million cases every year of gastroenteritis due to bathing in contaminated water [7]. The global burden of human disease caused by sewage pollution of coastal waters has been estimated at 4 million lost man years every year.

II. Objective:

The present study tries to analyse the ward wise variations in respect of availability of drinking water, electricity, latrine, kitchen, and bathroom facilities among households of Patna Municipal Corporation.

III. Data and Methodology:

The present research work is based on secondary sources of data collected from census of India Publications, 2011. Further a set of five indicators of housing amenities facilities like percentage of households having drinking water, electricity, latrine kitchen inside and bathroom within the premises considered to determine their levels of development in respect of these facilities in the Patna Municipal Corporation Area. To get spatial findings regarding the levels of development in terms of five indicators, simple percentage technique is used. And Gis- Arc view programme has been applied to show the spatial patterns of these facilities among ward wise through maps.

IV. Study Area

The city of Patna is one of the oldest continuously inhabited places in the world with the Patna Municipal Corporation extending between the Latitude 25° 33' 22"-25°39'2" North and Longitude 85° 31' 12"- 85°15'5" East.. The city of Patna lies virtually in the heart of the South Bihar Plain (Figure 1). The natural levee of the Ganga has provided a favourable base for the expansion of Patna. The 'linear' shape of Patna is mainly the outcome of the influence of the natural levee on which it is situated. The elevation of the city is 519 m above the mean sea level. It is a river borne town, located on the right bank (southern bank) of the Ganga, at the confluence of the Ganga, the Gandak and in the past the Son.

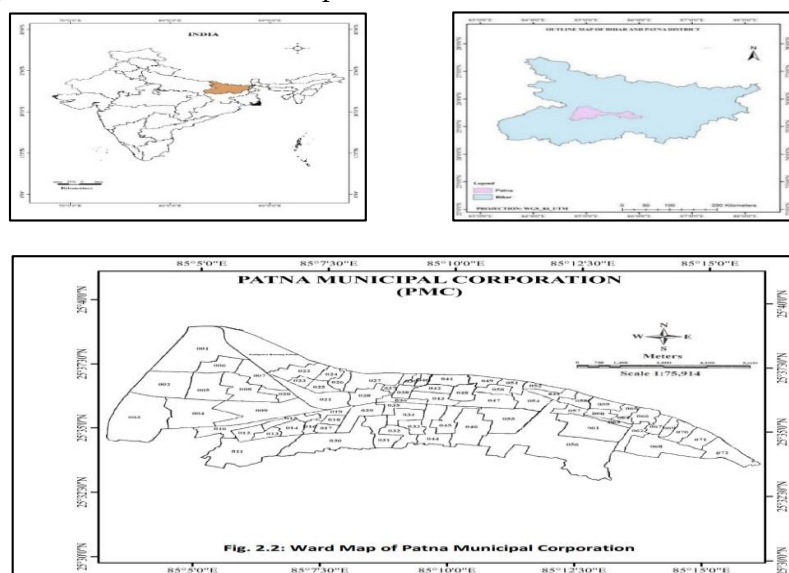


Figure.1

The total area under the PMC according to the urban development ministry of Bihar it is 99.45 sq.km, while the Patna Municipal Corporations websites state its area about 109.21 sq.km. according to 2011 census, the Patna Municipal Corporation with its 72 wards is the home of 16,84,222 individuals and has an average density of 16,741 persons per sq.km, thereby making it the most densely populated city of the state. These wards managed through 4 circles. Each circle is administered by an executive Officer who is deputed by the state government. The Circle are:

- 1) New Capital Circle –it comprises 29 wards (1- 28 wards, and ward 37)
- 2) Kankarbagh Circle – the circle covers 11 Wards (Wards 29-35, 44-46 and 55)
- 3) Bankipore Circle – It cover 13 Wards (Wards 36-43 and 47-51)
- 4) Patna City Circle – the circle covers 21 Wards (Wards 52-73)

V. Result and Discussions

Table 5.1 shows the Ward-wise percentage distribution on individual amenities like drinking water, availability of electricity, latrine facility, bathroom, and kitchen facility in Patna Municipal Corporation Area, 2011.

Table 5.1 Ward-wise percentage distribution on individual amenities like drinking water, availability of electricity, latrine facility, bathroom, and kitchen facility in Patna Municipal Corporation Area, 2011.

Ward Name	Drinking Water (within the premises)	Electricity	Latrine (within premises)	Bathroom (within premises)	Kitchen (inside house)
Patna (M Corp. + OG) - Ward No.1	75.1	89.9	83.8	51.3	88.5
Patna (M Corp. + OG) - Ward No.2	93.3	98.1	93.7	92	94.2
Patna (M Corp. + OG) - Ward No.3	82.5	90.2	78.1	61.1	96.7
Patna (M Corp. + OG) - Ward No.4	79.5	89.9	85.8	69.1	93.8
Patna (M Corp. + OG) - Ward No.5	91.4	98.5	92.6	91.2	97.3
Patna (M Corp. + OG) - Ward No.6	96.5	98.5	98.7	91.9	98.6
Patna (M Corp. + OG) - Ward No.7	96.7	99.3	98	95.4	99.3
Patna (M Corp. + OG) - Ward No.8	90.1	96.5	92.8	89.4	99.4
Patna (M Corp. + OG) - Ward No.9	56.9	86.5	58.7	39.4	85.7
Patna (M Corp. + OG) - Ward No.10	88.8	94.9	90.1	77.7	97.4

Patna (M Corp. + OG) - Ward No.11	88	92	87.3	69.4	97.9
Patna (M Corp. + OG) - Ward No.12	91.9	96.4	95.4	81.3	97.6
Patna (M Corp. + OG) - Ward No.13	91.6	97.9	96.8	81.8	98.7
Patna (M Corp. + OG) - Ward No.14	91.8	95.8	96.4	87.6	97.9
Patna (M Corp. + OG) - Ward No.15	90.6	96.3	93.6	83.6	96
Patna (M Corp. + OG) - Ward No.16	99	99.3	99.2	94.5	99.7
Patna (M Corp. + OG) - Ward No.17	90.9	96.9	97.7	87.4	97.6
Patna (M Corp. + OG) - Ward No.18	95.3	98.2	98.8	89.3	98.8
Patna (M Corp. + OG) - Ward No.19	81.7	89.5	80.8	75	97.6
Patna (M Corp. + OG) - Ward No.20	96.3	97.3	95.9	94.5	98.9
Patna (M Corp. + OG) - Ward No.21	62.2	93.6	64.9	57.1	96.3
Patna (M Corp. + OG) - Ward No.22	97.9	99.2	99.3	97.4	99.5
Patna (M Corp. + OG) - Ward No.23	98	99.2	99.4	95.9	98.8
Patna (M Corp. + OG) - Ward No.24	91.4	98.4	97.6	85.2	99.4
Patna (M Corp. + OG) - Ward No.25	95.5	97.8	99.4	95.8	99.5
Patna (M Corp. + OG) - Ward No.26	91.4	96.2	93.7	85.6	98.8
Patna (M Corp. + OG) - Ward No.27	84	95.9	86.8	74.6	99
Patna (M Corp. + OG) - Ward No.28	97.3	99.1	96.3	94.4	99.3

Patna (M Corp. + OG) - Ward No.29	93.9	98.1	96.2	87.4	99
Patna (M Corp. + OG) - Ward No.30	94.2	97.2	96.8	87.7	97.9
Patna (M Corp. + OG) - Ward No.31	97	99.1	99.2	96.9	99.3
Patna (M Corp. + OG) - Ward No.32	91.4	95.5	95.7	78.6	98.7
Patna (M Corp. + OG) - Ward No.33	93.8	99.2	96.8	89.4	99.5
Patna (M Corp. + OG) - Ward No.34	96.3	96.2	95.6	94.8	99.6
Patna (M Corp. + OG) - Ward No.35	92.6	98	97.2	93.9	98.8
Patna (M Corp. + OG) - Ward No.36	91.7	95.4	95.5	87	99.2
Patna (M Corp. + OG) - Ward No.37	92.7	96.7	94.4	88.6	96.3
Patna (M Corp. + OG) - Ward No.38	93.3	99.2	98.6	94.8	100
Patna (M Corp. + OG) - Ward No.39	84.1	95.8	94.8	86.9	95.7
Patna (M Corp. + OG) - Ward No.40	95.3	96.9	98.3	89.8	98.1
Patna (M Corp. + OG) - Ward No.41	87.6	97.6	94.9	87.7	99.1
Patna (M Corp. + OG) - Ward No.42	94.1	99.1	97.6	92.6	98.4
Patna (M Corp. + OG) - Ward No.43	91.3	96.2	96.3	91.9	98.6
Patna (M Corp. + OG) - Ward No.44	95.7	98.4	97.7	95.2	99.7
Patna (M Corp. + OG) - Ward No.45	96.7	98.3	98.1	96.7	99.8
Patna (M Corp. + OG) - Ward No.46	90.7	95.8	92.8	89.6	95.7

Patna (M Corp. + OG) - Ward No.47	88.8	95.3	93	88.8	98.9
Patna (M Corp. + OG) - Ward No.48	92.5	98.8	92.4	75	99.3
Patna (M Corp. + OG) - Ward No.49	88.4	97.3	93.6	79.1	97.6
Patna (M Corp. + OG) - Ward No.50	89.8	98.8	96.6	87.5	97.8
Patna (M Corp. + OG) - Ward No.51	83.6	98.1	93.3	79.7	97
Patna (M Corp. + OG) - Ward No.52	81.9	94.6	94.9	74.3	98.1
Patna (M Corp. + OG) - Ward No.53	84.2	95	91.8	74.1	95.8
Patna (M Corp. + OG) - Ward No.54	88.9	97.7	94.8	78.9	96.5
Patna (M Corp. + OG) - Ward No.55	89.4	98	91.7	82.7	95.9
Patna (M Corp. + OG) - Ward No.56	62.6	83	73.3	43.8	93.6
Patna (M Corp. + OG) - Ward No.57	74.1	98.1	84.8	62.7	95.4
Patna (M Corp. + OG) - Ward No.58	90.5	97.2	96	71.5	97.7
Patna (M Corp. + OG) - Ward No.59	83.7	90.1	91	79.1	97.7
Patna (M Corp. + OG) - Ward No.60	91.7	96.6	95.9	69.9	98.2
Patna (M Corp. + OG) - Ward No.61	76	90.2	82.6	46.9	97.8
Patna (M Corp. + OG) - Ward No.62	91.3	95.5	95.8	67.2	98.7
Patna (M Corp. + OG) - Ward No.63	93.6	97.9	98.2	82.8	98.4
Patna (M Corp. + OG) - Ward No.64	92.6	98.1	95.8	79.3	99.3

Patna (M Corp. + OG) - Ward No.65	91.2	95.4	95.9	74.2	96.4
Patna (M Corp. + OG) - Ward No.66	90.5	98	97	80.2	97.7
Patna (M Corp. + OG) - Ward No.67	84.6	92	95	67.9	98.2
Patna (M Corp. + OG) - Ward No.68	56.2	81	75.8	39.1	97.2
Patna (M Corp. + OG) - Ward No.69	71.4	92.2	84.3	51.6	93.7
Patna (M Corp. + OG) - Ward No.70	81.8	93.7	93.5	55.7	96.1
Patna (M Corp. + OG) - Ward No.71	75.1	91.7	88.8	51.5	99
Patna (M Corp. + OG) - Ward No.72	46.5	79	68.2	38.9	94.9
Patna (M Corp. + OG) - Ward No.73	93.1	96.3	92.1	77.5	98.1
Total Patna Municipal Corporation	87.7	95.5	92.3	79.4	97.5

Source: *Houselisting and Housing Census Data 2011 for PMC.*

5.2 Drinking Water

Water is a fundamental human need. Each person on earth requires at least 20 to 50 litres of clean, safe water a day for drinking, cooking, and simply keeping themselves clean. It can be seen from the Table 5.1 that there is a variation in availability of drinking water among ward wise in Patna Municipal Corporation. The percentage of availability of drinking water varies from 46.5 percent in ward number 72 to 99 percent in Ward number 16. The entire range of variation is grouped into three categories of High (above 92.6 percent), Medium (82.3-92.6 percent), low (below 82.3 percent) (Table 5.2).

Table 5.2. Availability of Drinking Water Facility in Patna Municipal Corporation, 2011

Category	Percentage	Number of Wards	Ward Number
High	Above 92.6	23 Wards	2,6,7,16,18,20,22,23,25,28,29,30,31,33,34,37,38,40,42,44,45,63,73
Medium	82.3-92.6	36 Wards	3,5,8,10,11,12,13,14,15,17,24,26,27,32,35,36,39,41,43,46,47,48,49,50,51,53,54,55,58,59,60,62,64,67,65,66
Low	Below 82.3	14 Wards	1,4,9,19,21,52,56,57,61,68,69,70,71,72

Source: *Based on Table 5.1*

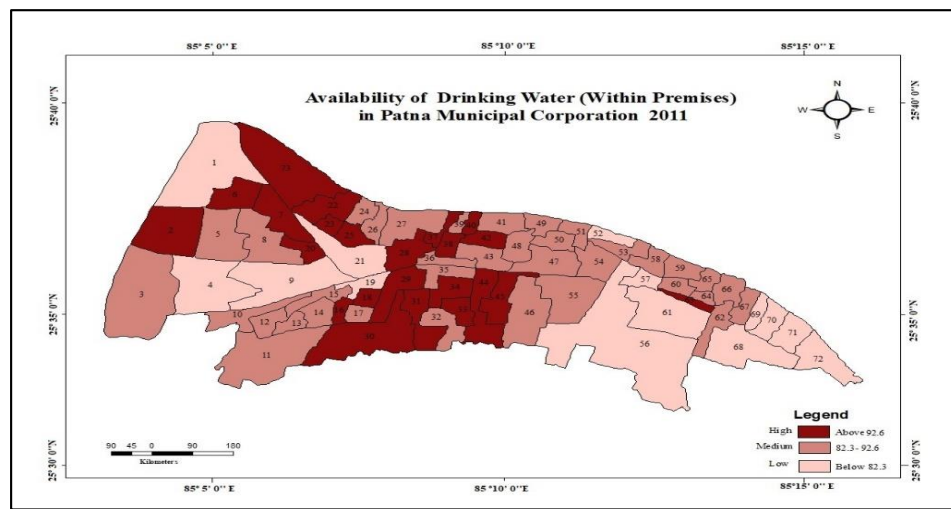


Figure 5.2

An analysis of data given in Table 5.2 shows that 23 wards fall in the high level (above 92.06 per cent) of availability of drinking water. Nearly, one third wards of Patna Municipal corporation witnessed the high level of availability of drinking water. Among which 11 wards comes under the New capital circle. While 36 wards have medium level of availability of drinking facility which covers the 14 ward of New Capital circle, 3 ward of the Kankarbagh circle, 9 ward of the Bankipore circle and 10 wards of the Patna city circle. Analysis of the Figure 5.2 shows that the accessibility of drinking water in Patna Municipal corporation is recorded of medium and low level while only few pockets of high level of availability of drinking water which has been identified in the north-western and southern parts of Patna Municipal corporation area.

5.3 Electricity

Table 5.3 Availability of Electric facility in Patna Municipal Corporation, 2011

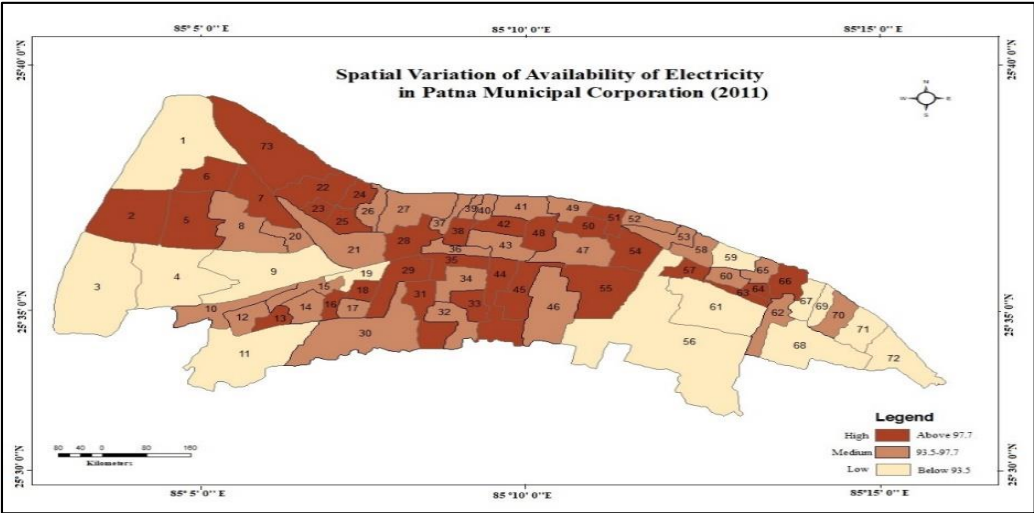
Category	Percentage	Number of Wards	Ward Number
High	Above 97.7	29 Wards	2,5,6,7,13,16,18,22,23,24,25,28,29,31,33,35,38,42,44,45,48,50,51,54,55,57,63,64,66,
Medium	93.5- 97.7	29 Wards	8,10,12,14,15,17,20,21,26,27,30,32,34,36,37,39,40,41,43,46,47,49,52,53,58,60,62,65,70
Low	Below 93.5	14 Wards	1,3,4,9,11,19,56,59,61,67,68,69,71,72,

Source: Based on Table 5.1

Table 5.1 reveals that there is also a great spatial variation in the availability of electricity among Ward wise in Patna Municipal Corporation. The percentage of availability of electricity varies from 99.3 percent in ward 16 to 81 percent in ward 68. The whole range may be categorised into three groups, high (above 97.7 percent), medium (93.5- 97.7 percent) and low (below 93.5 percent) (Table 5.3 and Figure 5.3).

About 29 wards comes under the high category of electricity which ranges above 97.7 percent. Among which 12 wards comes under the New capital circle which are newly formed in the western part of the city. The important ward in this circle covers Bailey Road area, Boring Road area, Khojpura area, Kurji area, Rajiv Nagar area, Gandhi Maidan area. Whereas 29 wards come under the medium category of electricity. 10 wards cover New Capital circle, 4 ward falls under the Kankarbagh circle, 8 ward covers Bankipore circle and 7 falls under the Patna circle. And remaining 14 wards fall in the low category (93.5 percent) of availability of electricity. The analysis of the figure 3 depicts that those wards which are in the eastern part of the city experienced lower accessibility of electricity in comparison to western and central part of the city.

Figure.5.3



5.4 Latrine Facility

The scenario for latrine facility within premises also shows a wide spatial variation in Patna Municipal Corporation. The data on availability of latrine facility within premises shows that the percentage of availability of latrine facility within the premises varies from 99.4 to 58.7 percent in ward 25 and 23 to ward 9.

Table 5.4.Availability of Latrine Facility in Patna Municipal Corporation, 2011

Category	Percentage	Number of Wards	Ward Number
High	Above 96.4	23 Wards	6,7,13,14,16,17,18,22,23,24,25,30,31,33,35,38,40,42,44,45,50,63,66,
Medium	88.3-96.4	35 Wards	2,5,8,10,12,15,20,26,28,29,32,34,36,37,39,41,43,46,47,78,49,51,52,53,54,55,58,59,60,62,64,65,67,70,71
Low	Below 88.3	14 Wards	1,3,4,9,11,19,21,27,56,57,61,68,69,72

Source: Based on Table 5.1

Both the ward comes under the New capital circle among which ward 9 falls under the low category of availability of latrine facility while ward 23 and 25 have high availability of latrine facility. From Table 5.4 and Figure 5.4 reveals that among high category of Latrine facility 11 wards comes under the New capital circle area of Patna Municipal Corporation. While 35 wards fall under the medium category which covers the 10 ward of New Capital circle, 5 ward of the Kankarbagh circle, 7 ward of the Bankipore circle and 13 wards of the Patna city circle. However, 14 ward shows the low category of availability of latrine facility within the premises in the city in which 8 ward covers the New capital circle and 6 ward from the Patna city circle.

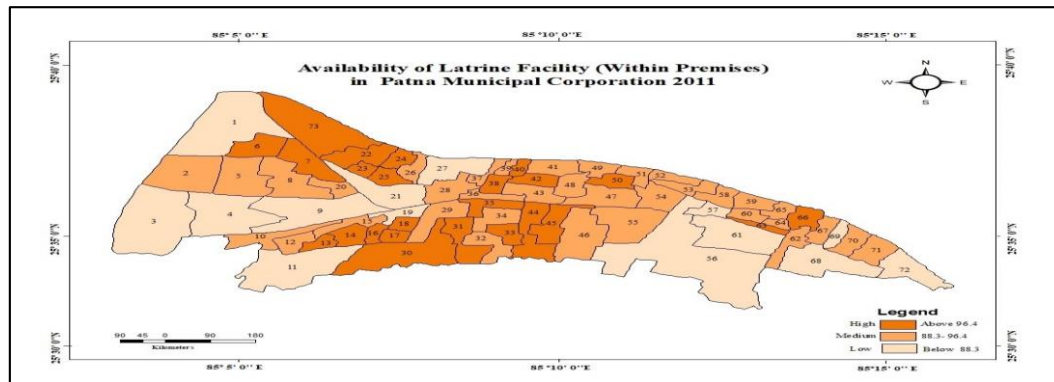


Figure 5.4

5.5 Bathroom

Table 5.1 depicts the data on the spatial variation of Bathroom facility in the Patna municipal Corporation. The analysis of the table exhibits that the percentage of bathroom availability varies from 97.4 percent to 38.9 percent in Ward 22 and Ward 72. The entire range is categorized into high (above 87.2 percent), medium (71.7-87.2 percent), low (below 71.7 percent) groups (Table 5.5).

Table 5.5 Availability of Bathroom Facility in Patna Municipal Corporation, 2011

Category	Range	Number of Wards	Ward Number
High	Above 87.2	32 Wards	2,5,6,7,8,14,16,17,18,20,22,23,25,28,29,30,31,33,34,35,36,37,38,40,41,42,43,44,45,46,47,50
Medium	71.7-87.2	23 Wards	10,12,13,15,19,24,26,27,32,39,48,49,51,52,53,54,55,58,59,63,64,65,66
Low	Below 71.7	17 Wards	1,3,4,9,11,21,56,57,60,61,62,67,68,69,70,71,72

Source: Based on Table 5.1

There are 32 wards which have high level of availability of bathroom facility among which fifteen wards covers the new capital circle namely ward number 2,5,6,7,8,14,16,17,18,20,22,23,25,28 and 37. While nine ward (29,30,31,33,34,35,44,45,46) covers the Kankarbagh circle, and remaining eight ward comes under the Bankipore circle. Medium Category constitutes 23 wards of the Patna Municipal Corporation area. Among which eight wards covers the New Capital circle, two wards from Kankarbagh circle, four wards cover the Bankipore circle and nine wards from the Patna city circle. And the low category constitutes 17 wards of the PMC area in which eleven ward covers the Patna city circle and six ward covers the New Capital circle (Figure 5.5)

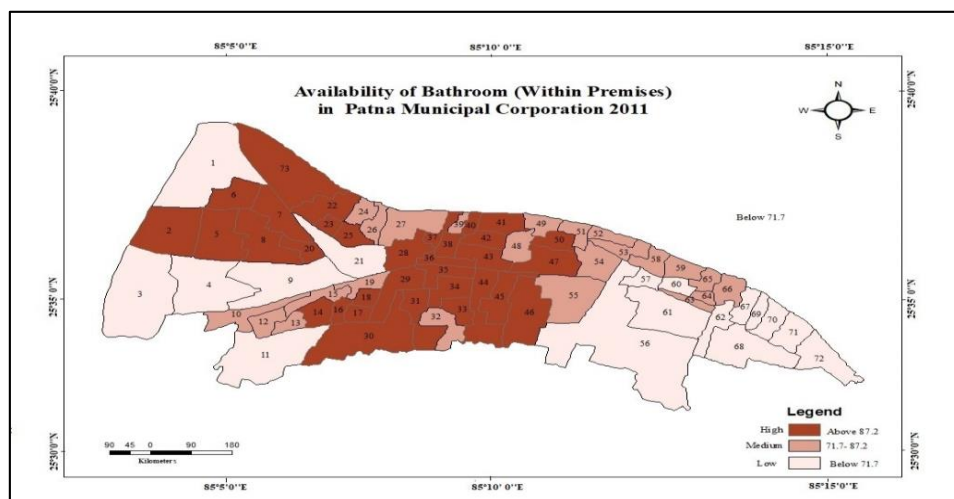


Figure 5.5

5.6 Kitchen

Industrialisation and modernisation have made some changes in the structure and pattern of houses including the provision of kitchen. It became an important factor in establishing healthy environment in the households.

Table 5.6. Availability of Kitchen Facility in Patna Municipal Corporation, 2011

Category	Percentage	Number of Wards	Ward Number
High	Above 98.7	26 Wards	7,8,16,18,20,22,23,24,25,26,27,28,29,31,33,34,35,36,38,41,44,45,47,48,64,71
Medium	96.4- 98.7	30 Wards	3,5,6,10,11,12,13,14,17,19,30,32,40,42,43,49,50,51,52,54,58,59,60,61,62,63,65,66,67,68
Low	Below 96.4	16 Wards	1,2,4,9,15,21,37,39,46,53,55,56,57,69,70,72

Source: Based on Table 5.1

The data given in Table 5.1 indicates that there is a great variation in availability of Kitchen facility inside the house in Patna Municipal Corporation. The percentage in terms of availability of Kitchen varies from 100 percent to 85.7 percent in ward 38 and 9. The entire range has been grouped into three categories like high (above 98.7 percent), medium (96.4-98.7 percent), and low (below 96.4 percent). It can be seen from the Table 5.6 and Figure 5.6 represent that 26 wards of Patna Municipal Corporation come under the high category of availability of Kitchen facility. Among which only two wards of Patna city circle that is Ward 64 and 71 have above 98.7 percentage of Kitchen facility. While medium category constitutes 30 wards in which ten wards covers the New Capital circle, two from Kankarbagh circle, six covers Bankipore circle and 12 covers the Patna city circle. And in low category of availability of kitchen facility 16 wards of PMC have below 96.4 percent of kitchen facility inside the house. Seven wards from the western part of the city comes under the low category namely Ward 1,2,4,9,15,21,37 in which ward 9 have lowest availability of kitchen facility which covers the New Capital circle.

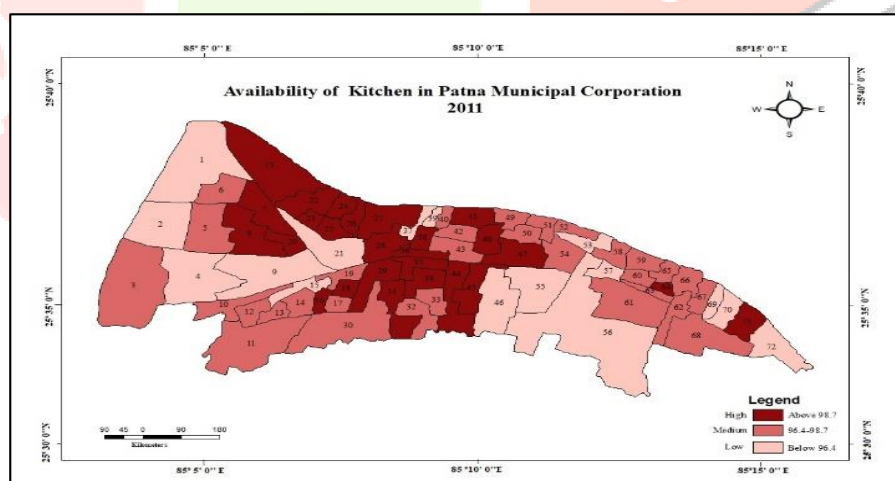


Figure.5.6

VI. Conclusion and Suggestions

The overall analysis of the data reveals that there is a spatial variation of household basic amenities in Patna Municipal Corporation.

The accessibility of drinking water in Patna Municipal Corporation is recorded of medium level while only few pockets of high level of availability of drinking water has been identified in the south-western and north-western parts of Patna Municipal corporation. The availability of electricity in PMC explains that those wards which are located in the eastern part of the city experienced lower accessibility of electricity in comparison to western and central part of the city. As far as, accessibility latrine facility is concerned, except central parts of the city latrine facility is lower in the eastern and western parts of the city. eastern parts of the PMC. The

availability of kitchen facility within the premises of households is decreasing towards the north-eastern part of the city. The pattern of availability of bathroom facility is high in the central and north-western part of the city while it is lower in the eastern, and western part of the city.

The following measures may be adopted for minimizing variations in respect of availability of household amenities in Patna Municipal corporation Area.

1. Regular monitoring of schemes and programmes launched by Government for better housing and poverty alleviation.
2. Decentralization of urban civic amenities and facilities in the areas where these facilities are least availed in the area.
3. Since the status of a city's infrastructures and its productivity and output are inextricably linked, it is highly of paramount importance that the management and upgradation of the civic infrastructures be considered seriously. In doing so, the policy maker should furthermore give top priority to the backward area of the city through schemes like Integrated Development of Small and Medium Towns (IDSMT)/JnNURM)/NUDM, without its loopholes, for strengthening the overall infra-structure and economic base of the city.

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