Original Article

Intra-Municipal Infrastructural Disparities –A Case Study Of Howrah Municipality, Wb And Its Selected Wards

Dr. Ayan Das Gupta[1*]

[1*]W.B.E.S, Assistant professor, PG Department of Geography, Chandernagore Government College, Strand Road, Burrabazar, Hooghly,West Bengal-712136, Email: - dasguptaayan11111@gmail.com

***Corresponding Author: -** Dr. Ayan Das Gupta

*W.B.E.S, Assistant professor, PG Department of Geography, Chandernagore Government College, Strand Road, Burrabazar, Hooghly,West Bengal-712136, Email: - dasguptaayan11111@gmail.com
DOI: 10.47750/pnr.2022.13.S05.379

Abstract

This study is throwing focus regarding the disparity of municipal work associated with infrastructure of Howrah. This study covers four wards of Howrah namely Uluberia (27 No. ward), Sibpure Botanical garden area (39 No. ward), Jagacha (46 No. ward) and lastly Balitikuri (50 No. ward). This research projects luminous rays upon water supply, sanitation-sewerage, health, education, solid waste management and road infrastructure. Through this, the researcher has found several gaps amongst the Municipal works in the four wards. In the context of water Supply, households of 27 and 39 are satisfied but in 46 and 50 No. wards, households are quite dissatisfied regarding the water supply through Municipal tap-water connections. In the context of sanitation and sewerage related facilities, within 39 No. ward, all the family have proper advantages. On the other side, in the counterpart of 46 No. wards, a significant proportion of families are using open places as their defecation points. There stands a huge gap of municipal work with reference to the sanitation works. In the context of health and education related facilities, all the wards are satisfied with services rendered , but in 46 No. ward, a significant proportion of people turns up the the quacks for their treatment. This indicates orthodox nature and less awareness. On the contrary, the education attainment of this ward stands of very much lower quality. In all wards, most of the people are educated up to primary and secondary level and a considerable proportion of people have attained higher level of education but this value is very much less specially in 46 No. ward i.e. Jagacha. In the context of solid waste management facility, there are so many gaps present in municipal initiatives. The 39 No. wards obtains full benefits from municipality regarding disposal system of waste but on the other side, the 27 No. ward i.e Uluberia does suffer from the ailments of solid waste disposal. In 27 No. ward all people dispose garbages on the roadside as a result of which there is spread or proliferation of several diseases. They have no supplementary measures to dispose garbage in a specific place; by the Nodal agency and they don't get adequate help from the Local Self Government regarding the clearance of solid waste. Road infrastructure is good on an average. The aforementioned points are discussed with minute details in this academic input and secondary as well as primary datasets are used to portray such details. Geographically viable inferences are drawn as well from the thematic displays.

Keywords: - Road infrastructure, Solid waste Management, Local Self Government, Physical Infrastructure, Perception Survey**.**

INTRODUCTION:-

Howrah (22°35'30'' North Latitude and 88°0'21''East Longitude) is a riparian city stretching itself about 14 kilometres along the west bank of the river Hugli (Ganges) with an average width of about 6 km. Howrah is the second largest town within Kolkata Metropolitan Area and also in the state of West Bengal. Since long, Howrah has been conceived as a twin city of Kolkata, with the river Hugli acting as a physical barrier between these two cities. The climate of Howrah is tropical. The monsoon starts from early June and extends up to mid –October. During the winter (November to February) the weather is dry. Humidity ranges between 50 p.c. to 95 p.c. during summer. During the period from March to May, thunderstorms occur frequently, sometimes with hail in the evening hours. The average rain fall ranges between 150cm to 200 cm per year. The maximum temperature is about 40°C (in May) and the minimum temperature is 10°C (in January).

Howrah Municipal Corporation area is located in the West Bank of the river Hooghly and is connected with the area on the East Bank through two bridges, namely the Rabindra Setu and the Vidyasagar Setu. Another bridge, viz Vivekanda Setu is located in close proximity to the city. River Hooghly is the main link of the Howrah Municipal Corporation area with the rest of K.M.A and the hinterland by water. Presently, there are 12 no's of ferry ghats within the city at these locations. Passengers' ferry services operate across the river through motorized boats .Howrah municipality's total ward number is 50, among them the researcher has chosen four extreme wards from four directions.

Objectives behind Study:-

- To get a clear picture about the beneficiaries and non-beneficiaries of municipal water supply and to find out the disparity within the study-wards.

- To show the current situation of the sanitation and sewerage system of study units.
- To find out the health infrastructure and associated problems within study units.
- To get a comprehensible layout regarding the solid waste disposal system in different study units and to find out the disparities in the same.
- To draw attention of the Urban Local Body regarding the educational infrastructure of different study wards.
- To highlight the satisfaction of households regarding the road and transport infrastructure.

METHODS AND MATERIALS:-

Methodology means the science by following which the researcher has completed the study. The researcher has depended on three types of methods that are listed below.

- **Pre-field:-**In pre-field study, the researcher has consulted with some literatures including reports, records, journals, gazetteers, leaflets etc. Through this literature review the researcher has studied previous works accomplished in the study area. Thereafter the secondary datasets have been collected from various offices like Census office, Bureau of Applied Economics and Statistics, Municipal office, NATMO etc.

- **Field-based Methods:-**During the field-based method, the researcher has tried to find out the answers of her pre-computed objectives, in relation to the topic. She has gathered data from the structured questionnaire that was prepared to gather the responses from the target audiences.

- **Post field: -** In post field study, the primary as well as the secondary datasets have been compiled to draw the geographically viable inferences. The Data base studies were mainly of two different types- Primary data base and secondary data base. Primary data bases are related to field survey and secondary data are collected from various offices. The Draft Development Plan of the Municipality has been studied thoroughly to portray thematic overlays in the post field period.

LITERATURE REVIEW:-

- Draft development plan of the Howrah Municipality with all details have been accessed and it encompassed demographic details of Howrah municipalities, the plan and programming regarding the Municipal infrastructure, details of Howrah's development plan etc.
- Chakraborty, S (2019), in her essay upon the Socio-economic Parameters of Ward Number 39 in Howrah Municipality, highlighted some detailing on the infrastructural advantages of people from the Urban Local Body of Howrah and this academic input has helped a lot to the researcher. It contained information regarding 39 No. ward of Howrah and details of its Socio - Economic condition including occupational details, income scenario, livelihood etc.
- Chatterjee, S (2018), in his essay entitled Disparities between Economic Progress and Quality of Life- Case Study of Baramuria Village of Galsi Block-2, Burdwan District, has thrown luminous focus on specific methodologies to study the inter ward disparities in socio-economic advantages of livelihood and this paper work has inspired a lot to the researcher. Furthermore, this gives the information of disparities between economic progress and quality of life. This presents the view of Economic condition of this areas' people and the difference between their economic advancement and Social Well-being.
- Mondal, A. and Halder, S.(2017), in their academic input entitled " Problems of Sanitation- A Case-study of Raniganj Municipality, have highlighted the minute details related to the problems of Physical Infrastructure in terms of Water supply, sanitation and sewerage and this writing has helped the researcher a lot, in conceiving concrete idea of inter ward comparison regarding the physical infrastructural advantages. This Article does have information about Sanitation problems of Raniganj Municipality. In this Municipality. Some wards have suffered from proper sanitation facilities, particularly the study wads have greatly suffered from the dearth of proper sanitation facilities.
- Gazetteer of Howrah District has all details of Howrah. Its physical, cultural, economic, social scenario is present vividly in these gazetteers.

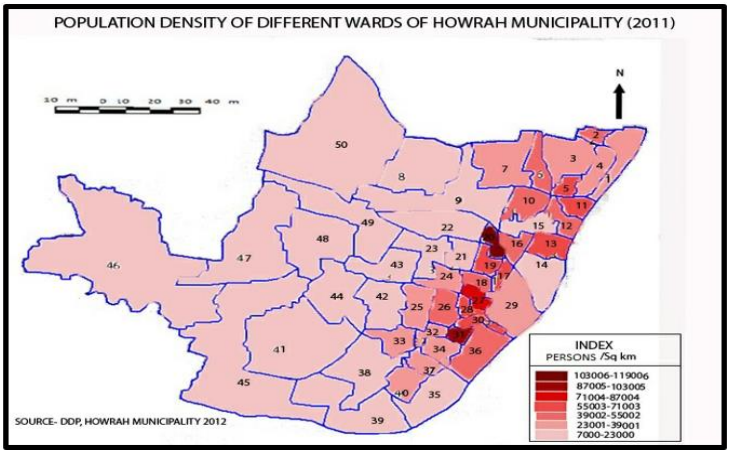
RESULTS AND DISCUSSIONS:-

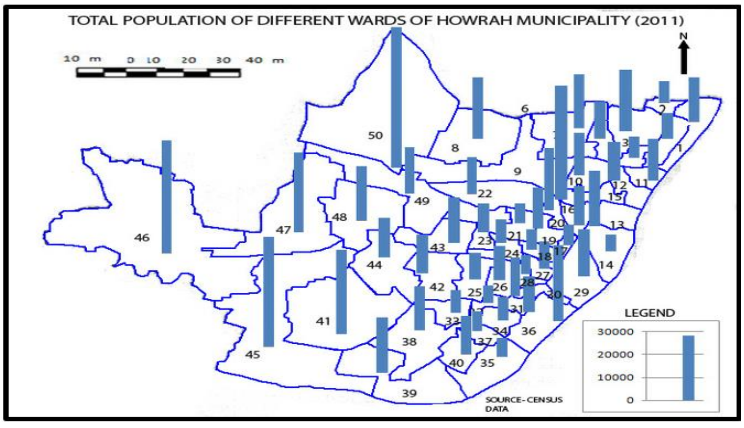
The population of Howrah has increased from 1.58 lakhs in 1901 to 9.5 lakhs in 1991 and crossed the million marks in 2011. The Census data reveals that the total number of workers has considerably increased between 1991 and 2011. It was 3, 01,592 in 1991 and has increased to 3, 46,984 in 2011. Of this again, the number of main workers has increased from 2, 99,970 to 3, and 30,648 during the decade of 1991 - 2011. During same period, the no. of marginal workers has increased significantly from 1,622 to 16,336. HMC area is divided into 50 wards for administrative purposes. There is a distinct variation in growth rate amongst the wards; ward 46 registered the highest growth rate during 1991 –2011, followed by ward No. 47, the growth rate of which is being 29% to 65 % Again 24 out of the total 50 wards have registered with negative growth rate during the decade of 1991 –2011. The gross density of population in HMC area in 2001 was 19543 persons/ Sq Km. Among the HMC wards, ward No. 19 had the highest density of population indicating 96026 persons / Sq. Km. in 2011. The lowest density was observed in ward No. 46 where the corresponding figure was only 6909 persons / Sq. Km.

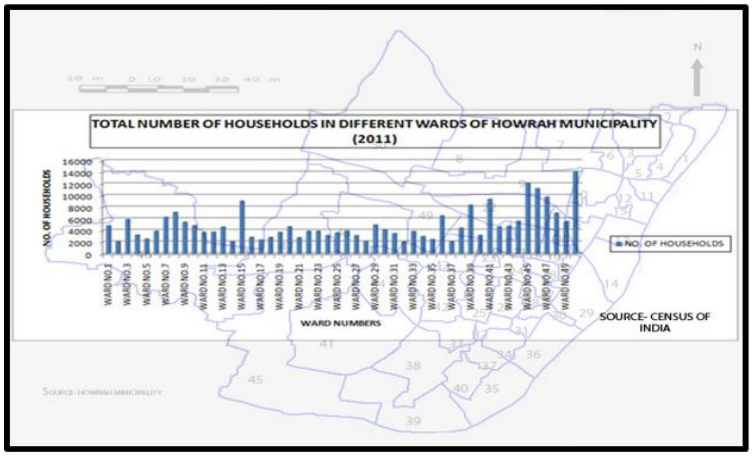
Some Basic Data And Population Characteristics Of H.M.C As Per The Census 2011):-

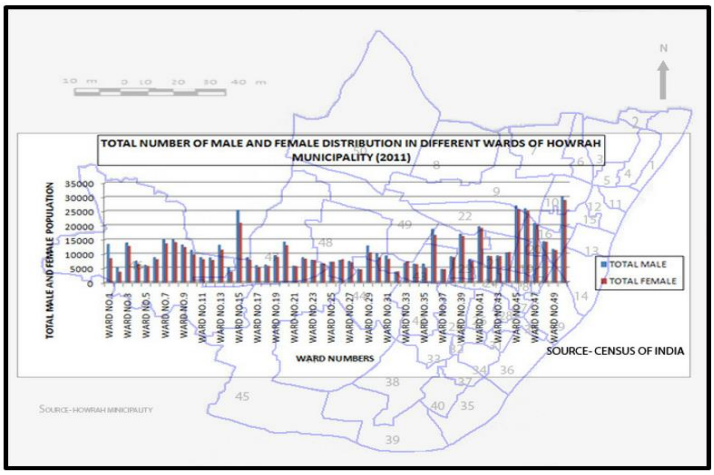
Area	51.74 Sq.Km.
No. of Wards	50
No. of Holdings	120000
Total Population	1008704
Male Population	547969
Female Population	460735
Population Density	19496, person / Sq.Km.
Literate Population	779234
Literate Male Population	444063
Literate Female Population	335171
Total Workers (Main + Marginal)	346984
Total Male Workers	313413
Total Female Workers	33571
Total Main Workers (Male)	301836
Total Main Workers (Female)	28812
Population in BPL	90000

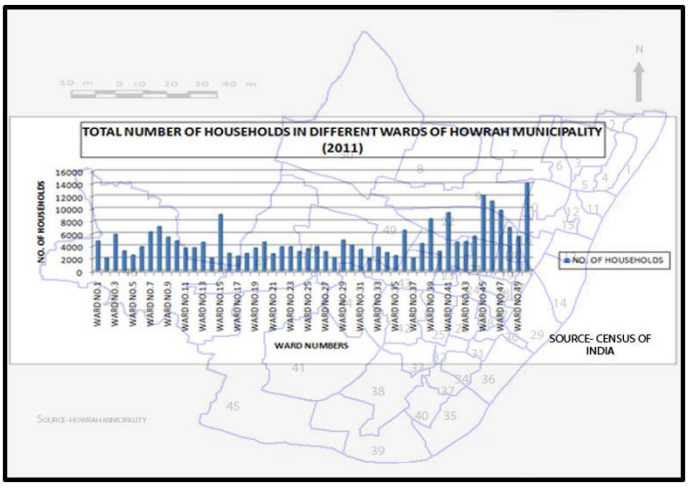
Source: - Draft Development Plan, Howrah Municipality,2011











The Intra-municipal infrastructural sub-component of the DDP refers to planning for infrastructural projects and services at the ULB level, viz. projects or services that are either wholly located within a ward or cut across more than one ward, but are entirely located within the ULB boundaries. Intra-municipal projects are those that benefit a large number of citizens within the ULB, typically their benefits extending beyond limited number of colonies / slums or settlements. Such projects or services are typically confined to the boundaries of the ULBs, and will not have trans-municipal implication. Intra-municipal infrastructure sub-component will cover planning for basic services that includes:

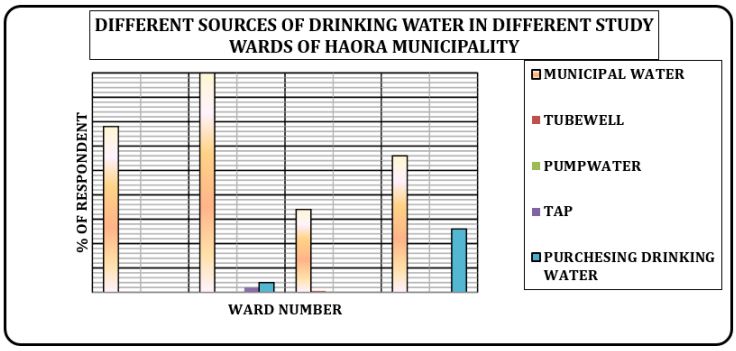
- Water supply
- Sewerage and Sanitation
- Drainage
- Solid Waste Management
- Municipal Roads and Pavements
- Street lighting
- Education
- Health

Among the study, it includes water supply, sewerage and sanitation, solid waste management, road infrastructure, education and Health Infrastructure.

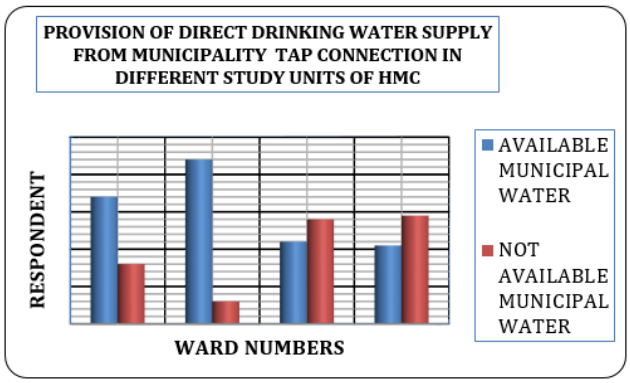
Water Supply:-

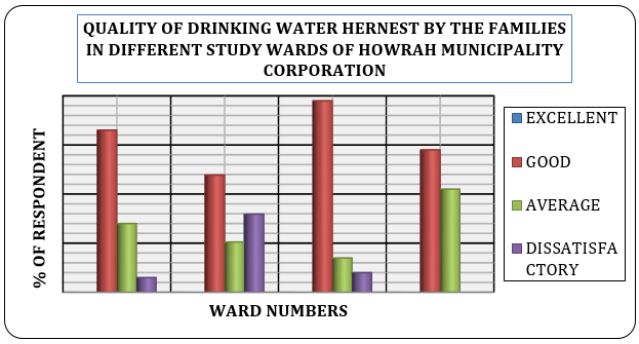
HMC supplies 40 gallons of water per of per capita daily of drinking water, although it is noticed that the level of services is not uniform across the Corporation. In the 5 wards (45-50) constituting 'added areas', water was being supplied by the Kolkata Metropolitan Water and Sanitary Authority (KMWSA), the organisation responsible for supply of drinking water from the Kolkata Metropolitan Area. In the rest of the Corporation, water is supplied either through pipes or through HMC installed hand pumps. HMC supply is around 32 million gallons per day (mgd) of which 30 mgd is from its Padma Pukur Water Treatment Plant which was handed over by KMDA. The balance quantity is available from innumerable hand tube wells scattered in different parts of the city as well as from the deep tube wells. People use different sources to procure drinking water in study wards. Most of the households use municipal water in all study wards. Diagram is showing that .Other significant sources of drinking water in 50 no. ward includes purchasing drinking water in bottles, that indicate municipal water users in the entire study unit is pretty high. Tube-well, pump water and tap are used for drinking purposes but are in very much low total numbers in all the study wards.

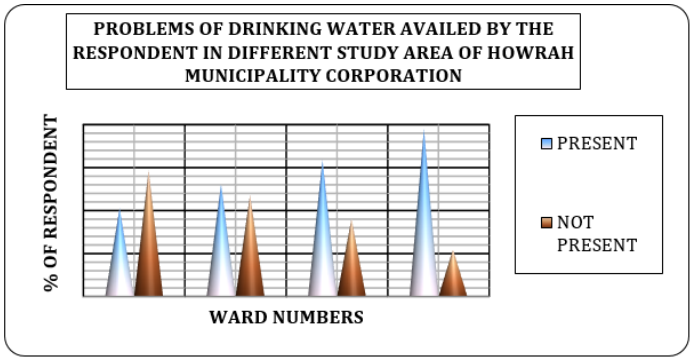
Upper diagram is also showing that municipal water users are high in different study wards.



This diagram also shows that in 27 no. and 36 no. wards, the availability of municipal tap connection in households is high, and then its availability in household is decreasing in 46 no. and 50 no. wards. This indicates that municipality doesn't give its best regarding water supply in the households of ward numbers 46 and 50.

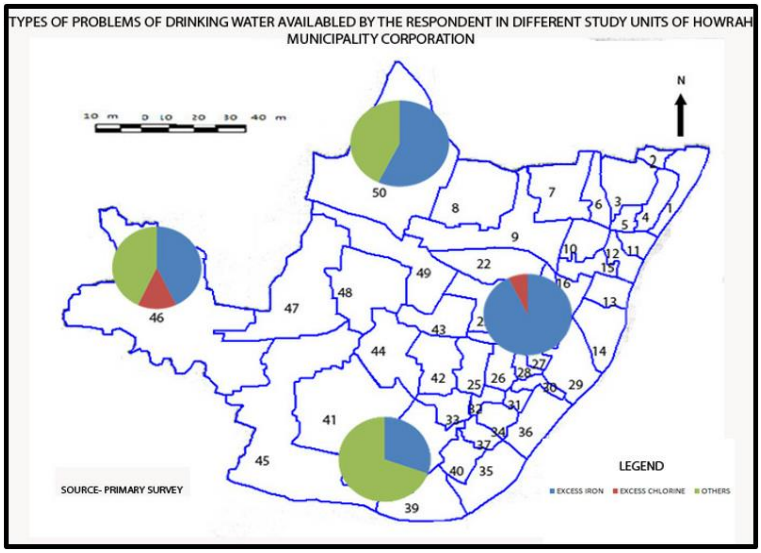




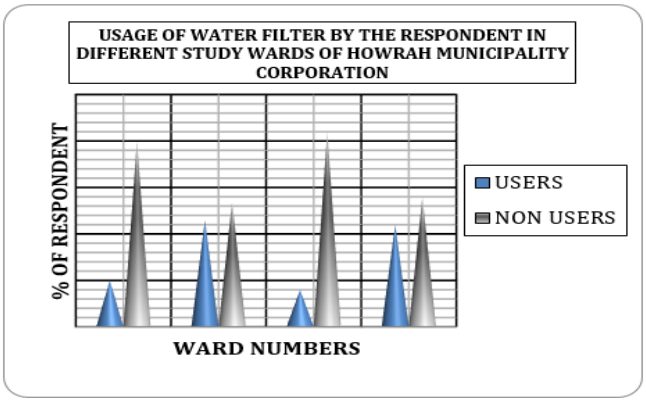


Another important thing regarding the water supply is quality of drinking water which affects the human health. In all study wards drinking water is good by characteristic feature that means good quality drinking water is high in percentage found in all study wards. This average quality drinking water is found higher in amount in ward number 50 than rest of the study wards. But dissatisfactory quality of drinking water is significantly found in ward number 39. Through this diagram, it can be concluded that though good quality of drinking water is found in higher quantity but some water-related problems are present in study area still now. Various water related problem have been found in higher percentage in ward number 50. Here 78% people are facing water related problems. On the other hand, ward number 27 is also having significant problems related to water encompassing stomach upset, diarrheal problems etc. The most common problem faced by households in different study wards is excess infestation of iron and due to occurrences of this problem, there remains stains in the garments of the residents, after washing the clothes. In ward number 39, the problem of excess iron

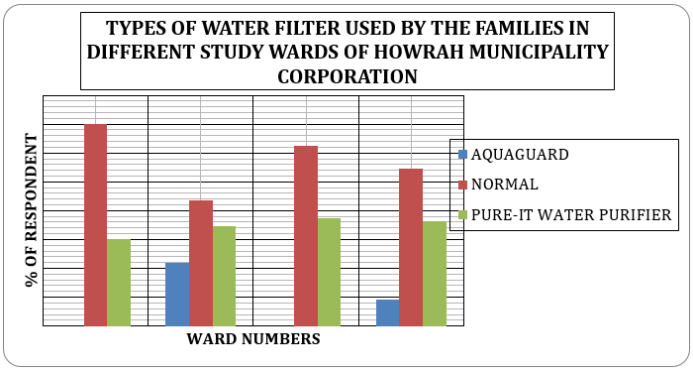
is not so prevalent. In all the study-wards, the people are fond of using the water purifiers and after survey, it has been found that most of the people are using pure-it water purifier because of its low costing. A considerable proportion of people also use the Aqua Guard water purifier but due to excessive occurrences of iron, the mechanics very often change the iron filter in the machines. This exerts monetary pressure slightly on the residents and this has been reported by them during the perception study.

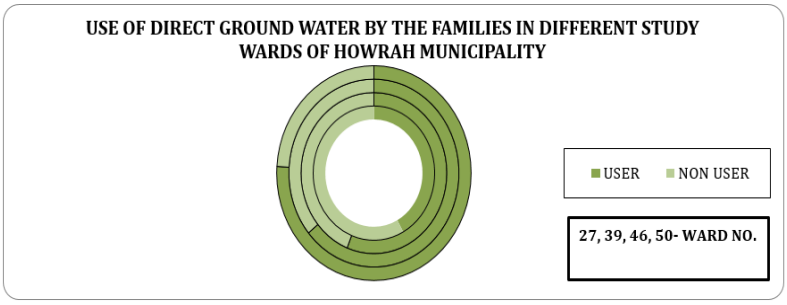


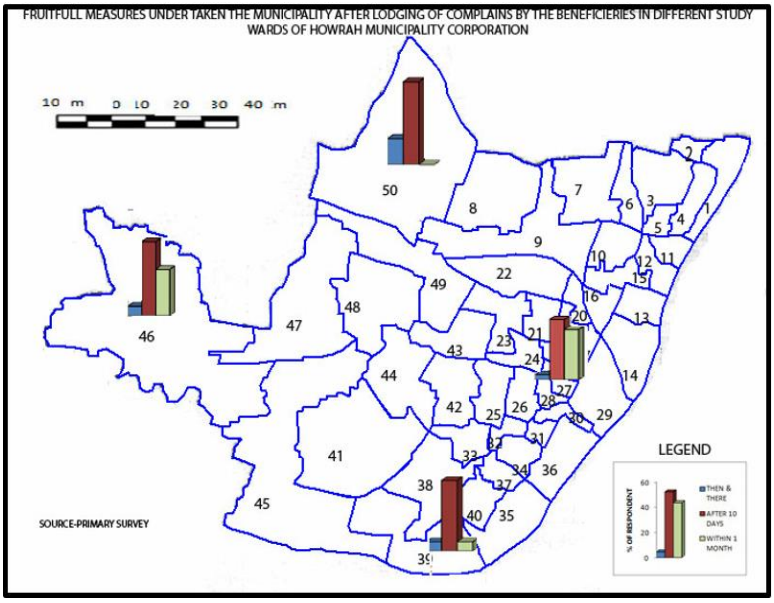
The percentage of other drinking water related a problem which arises in 39 no. ward is 69.57 that is very much high. That means in 39 no. ward, municipal water-services are not present in healthier condition. The important measures are given by the household to eradicate this water problem and this encompasses the use of water filter. But figure shows slightly hopeless picture. It shows that water filter non-user are very much high in all of the wards. Water filter non-users' percentage is very much high in ward no. 46 and the amount is 84%. Other huge amount of non-users is found in ward no. 27, amounting 80%. Households using water filter are actually accustomed in using normal filter. The fig shows that normal water filter users present in high percentage in 27 no. ward, amounting 70%. Aquaguard users are very much lower in some of the surveyed wards. No one use Aquaguard higher version in 27 no. ward. Aquaguard users is increasing in 39 no. ward, that indicate in 39 no. ward households are very much conscious about their water related problems and also regarding their health they don't compromise. Another important source of water in all of the wards is direct ground water. Direct ground water user is lower in 27 no. ward and it increases in 50 no. ward. The amount of direct ground water user in 27 no. ward is 42% and higher number of direct ground water user is found in 50 no. ward, amounting 76%.Most of the direct ground water users do use ground water for bathing/washing cloths etc. In 46 no. ward, households are maximum using direct ground water for bathing/washing purposes. Its amount is 76.78% and lower number of ground water users is found in 27 no. ward. Its amount is 68% That indicates ground water utilisation is very much significant in all of the surveyed wards.

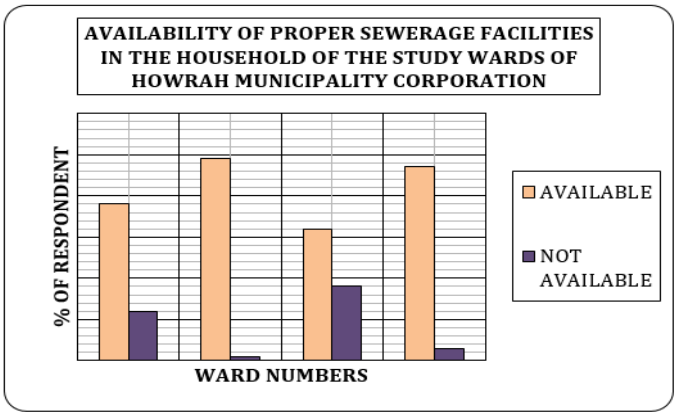


To sort-out the water related problem municipality itself plays conspicuous role. Figure shows that after any water related problem arises, the municipal unit starts sorting out the same usually after 10 days and in some cases, then and there the action is taken. In some particular cases, the delays do happen and the Municipal unit takes so much time to resolve the problem. It has been observed that sometimes the problems stand so critical and therefore the Nodal agency takes time usually in larger number of days because their engineers first of all tries to find out the loop hole. Through the questionnaire survey, it has been intimated to the surveyor that the Municipal Unit needs to pay much more attention in the premises of resolving the ground water related problems.



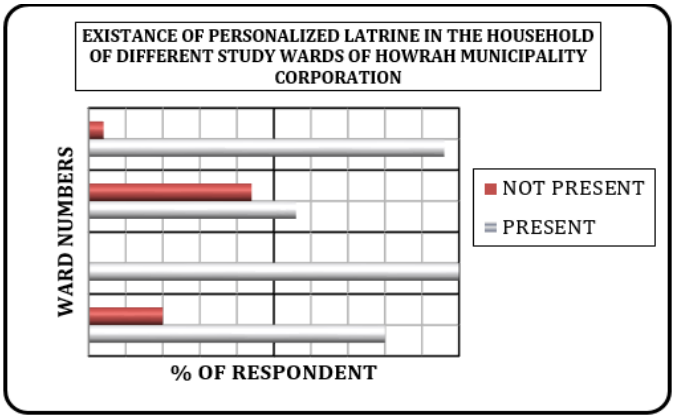






The accompanying diagrams are showing two vital things one of which is the persistence of the personalised latrines in the study wards27, 39, 46 and 50 of the Howrah Municipality whereas in the another diagram, the availability of proper sewerage facilities amongst the urbanites of the study units have been displayed through the cartographic representation. It has been observed that in ward numbers 27 and 46, the proper sewerage facilities are not present in greater number of houses but in the case of ward numbers 39 and 50, only a very few households are there that are devoid of the

aforementioned facilities. On the other side, in the micro urban units of 39 and 50, a good number of houses are there that are devoid of the facilities of personalised latrine but in rest of the study wards, the personalised latrines are present. During the perception survey, it has turned up in the forefront that certain portion of people are still accustomed in open air defecation and the municipality is running continuous campaigning in order to stop this habit but not yet, it has got success to the fullest fruition.



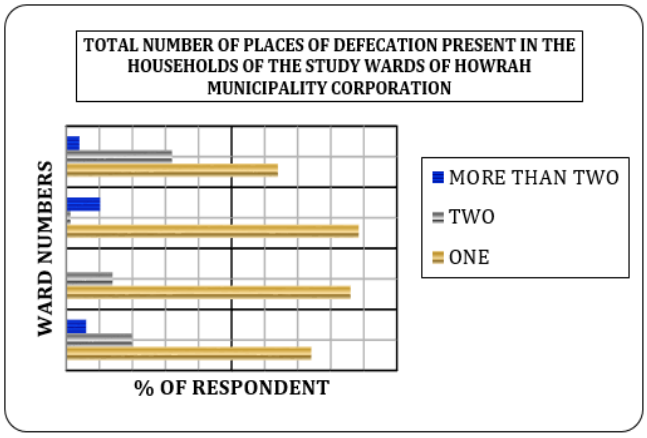
Sanitation And Sewerage:-

Only one third of the HMC area is covered by a scientifically designed sewerage network. The rest is serviced by open drains, estimated to be around 250 km in length of which 200 km is unlined and 50 km is lined. Only 5 km is covered.

The sewerage network is around 65km in length. The two pumping stations are located at Ichhapur and Arupara. The sewerage is treated in two plants located at Arupara (high cost STP) and Kona (low cost STP). Storm water drains are flown into the river Hooghly, although water-logging is critical in many parts of the Corporation. Under the Ganga Action Plan, the surface drains are mostly intercepted by underground sewers that divert the sewerage water from directly draining into the river Hooghly.

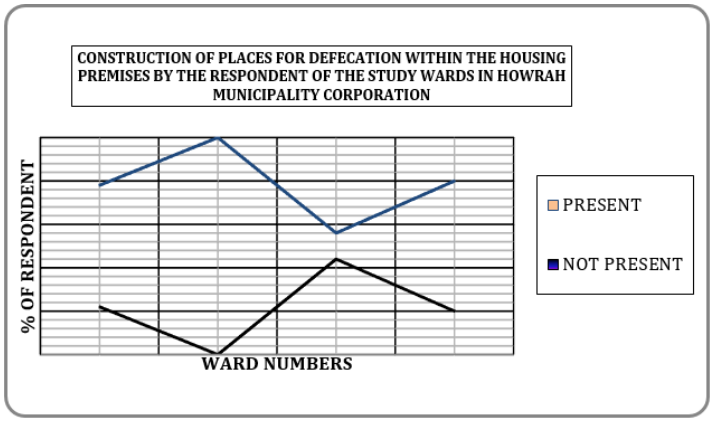
Water logging during rainy season is very serious over here. Most of the households (around 50%) have septic tank with soak-pit whereas around 38% have a Septic tank without soak-pit and 3.5% have a pour flush toilet. The scientifically designed sewerage system covers only 1.5% of population while 6% are living without personalised latrine facility.

Availability of proper sewerage in significantly high in 39 No. ward and the availability is 98% and non-availability is only 2%. On the Other hand, availability of proper sewerage is found in 46 no. ward and the percentage is 64% and non-availability is Nearabout 36%. Other study has experienced higher availability of sewerage is 50 No. ward, amounting 94% and non-availability is only about 6%. It indicates that proper sewerage facility is poor in 46 no. ward.



Personalised latrine is another important thing to measure in the urban governances. Availability of personalised latrine is higher in all study wards than non-availability. In 39 no. ward, all households are having personalised latrine facility and in opposite way, in 46 No. ward, 56% people have personalised latrine facilities and 44% people don't have any personalised latrine. Either they go to open field or community latrines for defecation.

In all study wards, maximum people use one place for their defecation purpose and this amount is high in ward No. 46, amounting 84.46% and it's lower in 50 No. ward amounting 64%. In 50 No. ward significant percentage of people use two places or points for their defecation purposes.

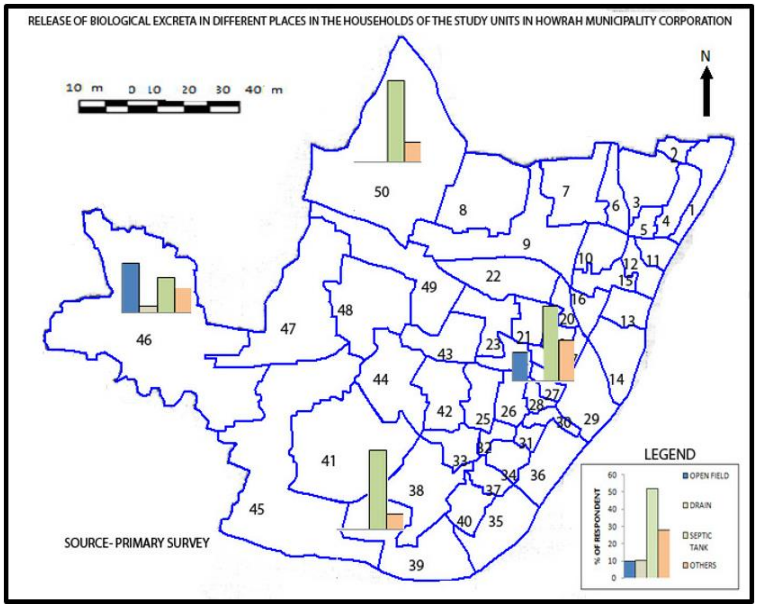


The accompanying figure shows that in all wards defecation places within housing premise is higher in percentage. In 39 No. ward, all household have defecation places-related facility within housing premises amounting 100% people. In 46 No. ward, 56% household have defecation facility within housing premise whereas 44% households do not have the same.

On the Other hand, in 27 and 50 no. wards defecation places within housing premise is having with household percentage 78% and 80% respectively. This is very much higher in percentage. It's indicated that 46 No. household is suffering from poor sanitation and sewerage related facilities, also indicating that in this ward, people are having no consciousness regarding proper sanitation and sewerage and they have no modernised thought process in this regard.

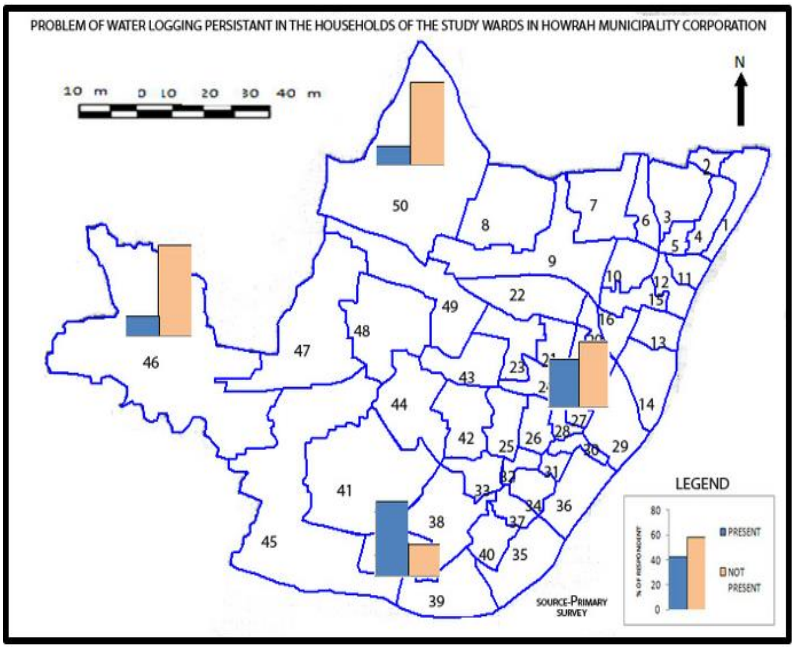
When people are devoid of personalised latrine facilities, it has been found that in most of the cases, people do choose open field for their defecation purpose. In all wards where household are having latrine facilities, most of the household have septic tank for release their biological excreta, and this is showing higher percentage amounting 84% in 39 No ward.

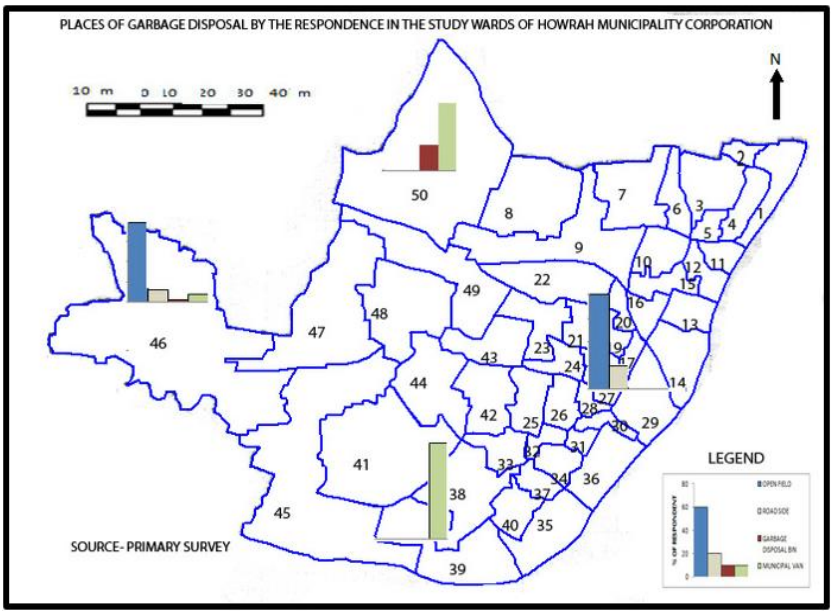
In 46 No. ward 42% people use open places for their defecation purpose. In this ward only 30% household have septic tank facility in their houses. Another place for releasing biological excreta is connected somehow with the wells leading to the contamination of water in it. Its amount is higher in 27 No. ward than in other wards, amounting 28% and it's lower in ward number 16. It indicates proper sanitation and sewerage related facility is poor mostly in overall analyses across all the study wards. Recently the Howrah Municipality has taken into consideration some plans and programmes to improvise the condition of sanitation and sewerage and it was quite expected that after fruitful execution of the aforementioned plans, automatically the existing problems will be solved.



This figure shows the release of biological excreta in different places. Lacks of awareness of household and appalling poverty are the reasons behind poor level of generation of awareness amongst people regarding the adverse impact of open air defecation on the environment. In 46 number ward, release of biological excreta in open field is very much high in proportion than other place-components. In 39 number ward, release of biological excreta in open air is not found what indicates that in this ward people are very much aware regarding their health concerns and also it indicates that this society is very much modernised. The 50 number ward also indicates these features like 39 number ward. In 27 number ward, the release of biological excrete in open field is significantly high. Another significant problem arises all over the study wards and that is the water logging problem. In 27 and 39 No. ward, water logging problem is much acute, the percentage

of household who have faced water logging problem in 27 and 39 No ward are 42% and 70% respectively. But in 46 and 50 No ward, households have experienced lower percentage amounting 18% in both the cases. It indicates that drainage related facility is poor in 27 and 39 No. wards. Huge amount of drain are situated in all wards but due to the unclear condition of drains these get chocked very often and as a result of this in rainy season, the condition of road becomes very pathetic and plastic bags and other garbages start floating on the road. The urban local body is aware but not yet been successful in execution of any fruitful plan to solve this issue.

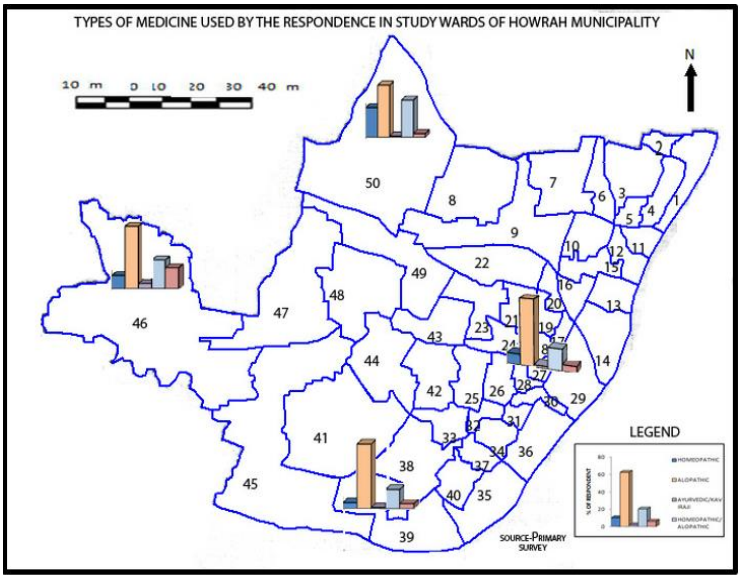




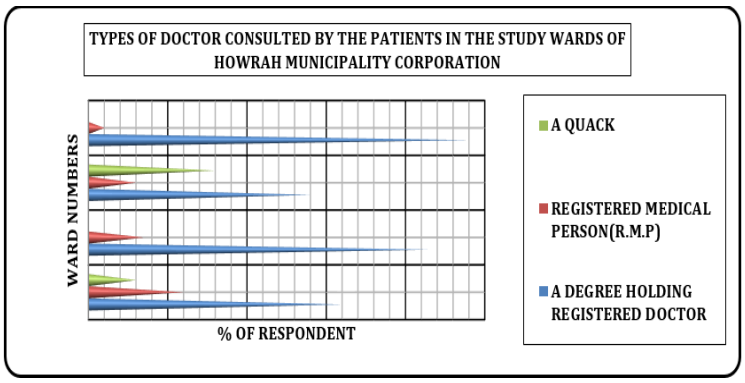
Health Infrastructure:-

Health is the important infrastructural part which denotes the condition of well-being of people in any place. In the selected study wards 27, 39, 46 and 50 wards health infrastructure stands as a very much important component. In of north Howrah, the ESI Hospital and Kedar Nath Hospital play a very significant role. Maximum people do visit these Hospitals for emergency situation in north Howrah. In the context of south Howrah another hospital plays a very significant role and that is South Howrah State General Hospital, which is not only playing a conspicuous role in south Howrah but also in the all over Howrah District. Maximum people of Howrah choose to go to this hospital for their treatment. For the East and West Howrah the important hospital are Uluberia Mohokuma and Jagacha Hospital. In all Hospital consultation fee is 2 Rs. The patients need to issue a booking ticket early in the morning and thereafter the consult the respective doctors.

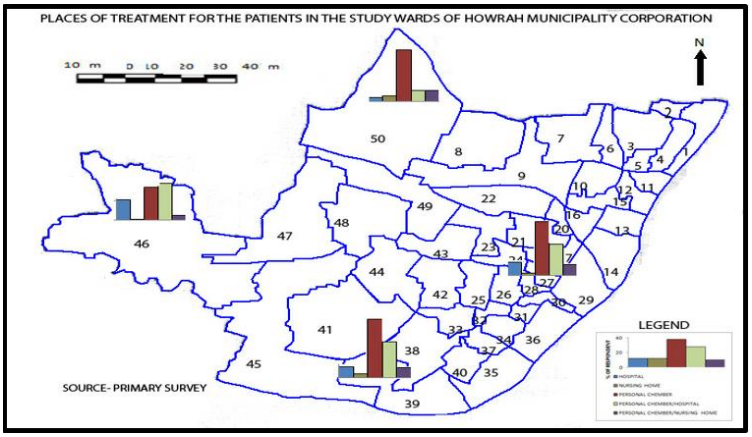
The diagnostic tests are done also in subsidised rates over here. People are happy with the staff of these hospitals but in order to avoid the crowding of the patients, the entry of more number of doctors is a requirement now.



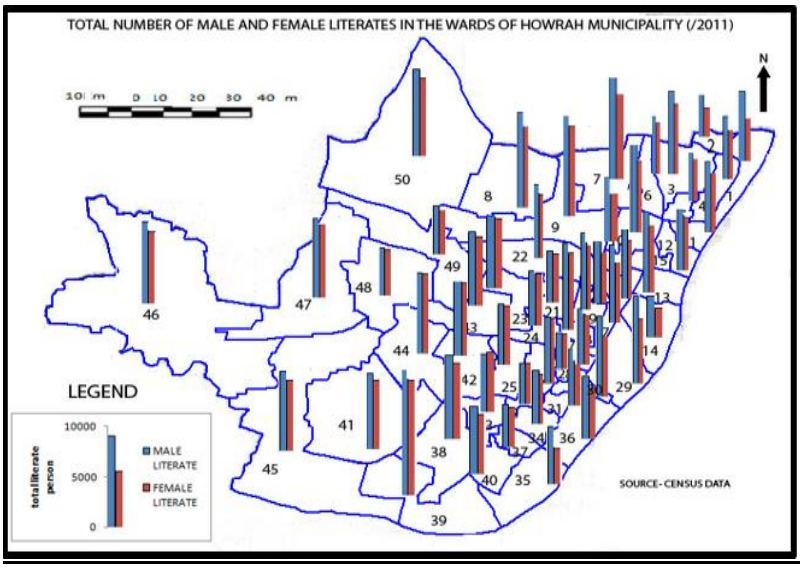
Health infrastructural disparity has been found among the study wards through and that has come in the forefront through discussion by questionnaire. The researcher has discussed about several points to procure the final result from the perception study. In study wards when it was discussed about the use of different kinds of medicine by the family it is shown that Allopathic medicine user in all over the ward are very much high in percentage. Homeopathy and Allopathic both medicine users are also there in different families. The percentage of both the medicine users in ward numbers 27, 39, 46 and 50 are-20%, 20%, 22%, and 30% respectively and only allopathic medicine user has been found in almost all the study wards. Recently the scientists are discouraging the treatment of homeopathic drugs and they do depend much more on the allopathic drugs. During the perception study, it has been found that for the critical diseases and the cases of surgery, usually the residents of the target wards do visit the chambers of the allopathic doctors but in the cases of common flu, fever etc, a good number of people still like to visit the chambers of the homeopathic doctors. In a very small number of houses, the researcher has found the existence of the users of the Ayurveda drugs and basically the aged people are found in higher number in this particular premise. From the overall discussion, it is clear that maximum families all over the study units are Allopathic medicine user. Through the figure it is shown that maximum families all over the study wards consult with a Degree holding MBBS degree at the time of health check-up. Its percentage in all the study wards is 64% on an average but for 27 no. ward, 86% people and for 39 No. ward, 56% people are using the aforementioned types of drugs. A significant proportion of household are interested to consult with a quack as well for the purpose of their treatment. 32% families are there who are of such orthodox nature.



With passage of time, the young allopathic doctors are turning up to the hospitals at Howrah and a good number of private practitioners are also found in the study units. Due to high consultation charges, the poverty stricken people get the least scope to visit the chambers of the private practitioners but the solvent people very often visit their chambers. Through the questionnaire survey, it has been clarified that in order to avoid the crowding in the government hospitals, they prefer to visit the chambers of the private practitioners. Some surgeons have also constructed well-equipped nursing homes in Howrah district and the complicated operations do run in those clinics. So in overall discussion, it can ber said that the district is quite advanced in treatment of patients but due to old fashioned mentality and orthodoxy, still now a certain percentage of people do visit the chambers of the quacks.



In all the study units most of the families are going to doctor's personal chambers for treatment and that has been uttered already before. Sometimes, they lose their faith on hospitals. Sometimes they believe that hospital doctors do not give their full attention on their sick family members. As a result, their amount to going to government hospital is very much rare. Among all study unit Hospital going families are higher in percentage and found in 46 No. ward amounting 21.12. 62% families are going to personal chamber for treatment in 50 No. ward.



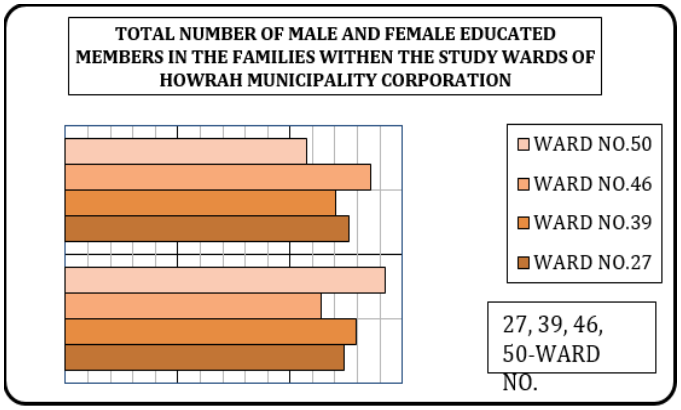
Educational Infrastructure:-

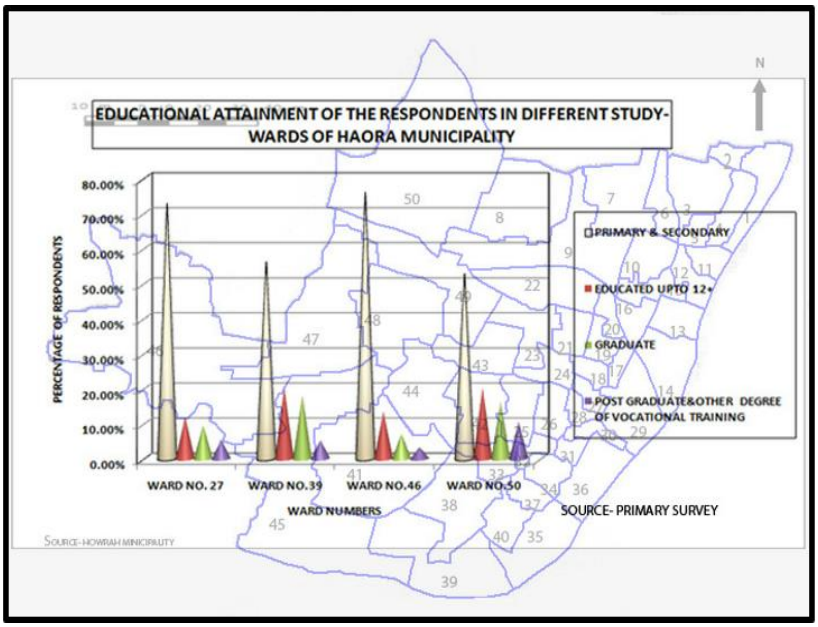
Education is the very much important infrastructure for personal development of human beings. Through the educational enlightenments any area gets developed. So, for the area's development huge spreading of education is very much needed.

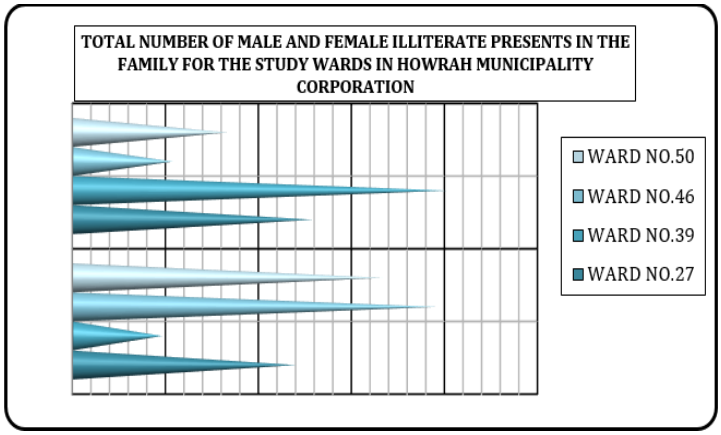
To the context of spreading of education Howrah municipality has taken various steps. They have established huge number of primary, secondary and higher secondary schools, colleges, technical institutes, other vocational training centres etc. The very much well known and important technical institute are situated in 39 No. study ward. One B.E College is also situated over there. To know the batter educational infrastructure the researcher has surveyed three different strata of school my three study wards. Out of three types of schools, one is primary and two are of junior high and higher secondary types. These belong to the 27, 46 and 50 No. wards. In the study area of ward number 27, total literate population about 49.56% who are male and 50.44% are female population. In 46 no. ward percentage of male literate is lower than other study ward and on the other hand, male literate population is high in 50 number ward. Female literacy is surprisingly better in some cases than those of male literacy and after the questionnaire survey; it was found that females get inspired very much by their family members for educational enlightenment. Total literate male and female are also shown through the figure that indicates male and female literate proportion in different wards.

In study wards total number educated people is shown through this figure. This figure clearly portrays the attainment of education in different wards. Through this figure, it can be understood that in 50 number wards educated male persons are high than female members. In another way in 46 number wards educated male person is low than educated female persons. So it is clear that male school dropout is high than female. The school dropout has several reasons in the municipality like apathy on education, poverty, poor motivation from parents etc. The mid-day meal programme has to some extent inspired the students to turn up to the school and the Local self-Government is also trying to render several incentives to influence positively the people so that they can send their children regularly to the schools. People in the

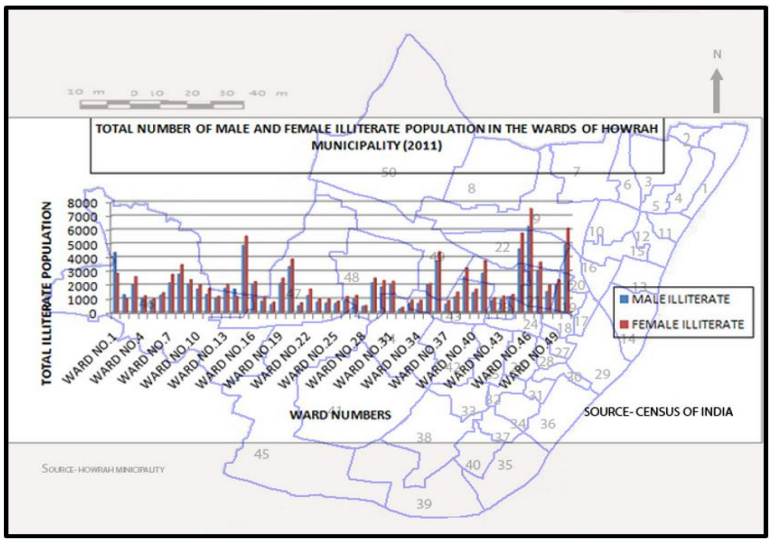
wards of Howrah Municipality do aspire for higher education and a good number of postgraduate students were found during the perception study.





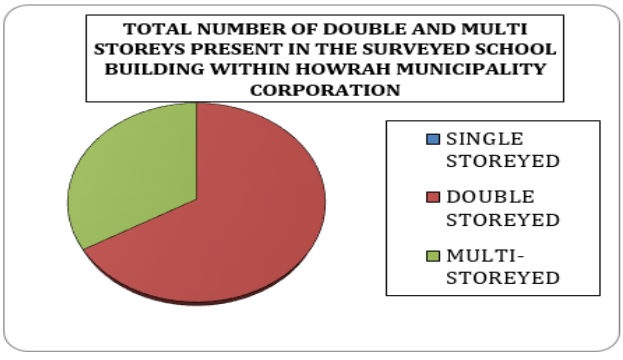


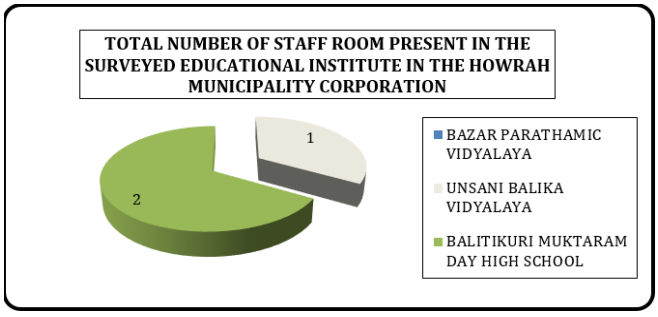
During the perception study, it was found clearly that most of the people have done studies upto primary as well as secondary level and therefore in all the study wards, the length of conical diagram is highest. Higher secondary level education takes the second position and very small number of people has done studies upto graduation level. Lastly, it is also worthy to mention that a very few postgraduate students were found in all the study wards. With passage of time, the people have started shifting towards the vocational training courses as well as polytechnic courses and the same reflection has turned up in the perception study.



Through this figure, it is clear that primary and secondary education is significantly higher in amount in all the study wards. Primary and secondary education is higher in percentage found amounting 75.96% in 46 No. ward, and on the other side, it is lower in 50 No ward amounting 52.78%. Among the study wards higher amount of educated people studied up to 12 classes were found and its amount is 20.37%. Higher percentage of graduate degree holding persons are found as well in 39 No. ward. 18.18% PG and other vocational training course holder students were found in 50 No. ward. Male and female literacy both are pretty promising in all the study wards. In 46 No. ward, male illiteracy is higher than female where percentage of male illiteracy is 78.38% and female illiteracy is only 21.62%. Other huge male illiterates are found in 50 No. ward. Male and female illiteracy are also shown in different wards with the help of multiple bar diagram and a typical feature has come in the forefront through this study. In some of the wards, female illiteracy is higher than those of male illiteracy and the reverse picture is visible in some selected wards.

Number of illiterate person is also important because it shows the requirement of campaigning by the municipality to educate people. This aforementioned figure shows the amount of illiterate in study wards. In 27 number ward, illiterate male and female are percentage-wise same. In 46 number ward, illiterate male percentage is very much high than other wards and also than female it is higher. In 39 number ward, male illiterate percentage is very much low than female and also than other wards, so it is clear that in 39 number ward educational attainment is high in the context of male. The researcher has surveyed three schools namely Bazarpara Primary School, Unsani Girls School (junior high), and Balitikuri Muktaram Day High School. This one school building is multi-storeyed, two are double storeyed and they belong to the West Bengal board. Medium of learning is Bengali. Primary school is situated in the 27 No ward, Junior high school is situated in the 46 number ward and high school is situated in the 50 No. ward.

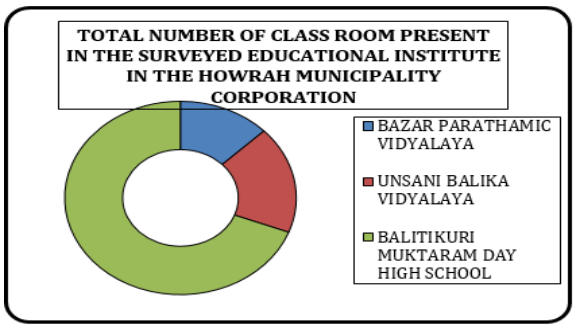




Primary school is established in 1955 and on the other hand the Muktaram Day High school is established in 1932. Lastly Unsani Girls School is newly established in the year of 2008. So, among three schools, Muktaram Day High school is

very much old. All schools have safe drinking water facility for students. All the schools have also toilet facility for student but these are not cleaned every day. The sweeper comes occasionally and that is a big problem reported by the students as well as teachers of these educational institutions. In most of the schools, only one staff room is present but only in one surveyed school, there is a provision of two staff rooms.

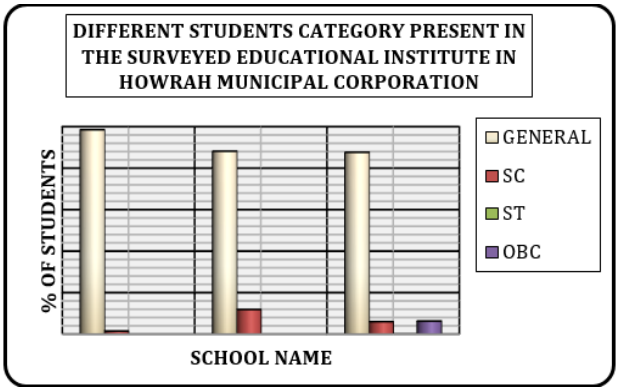
The Muktaram Day High school and Bazarpara Primary school are co-educated school. Total number of class room in Bazarpara Primary school is 5, in Unsani School it is 7 and in Balitikuri Muktaram Day high school, it is 27. On the other hand total number of staff room present in Unsani Girls high school is 1 and staff room for Muktaram Day High school is 2. Bazarpara Primary school has no staff room. Teachers treat one class room as a staff room. As a result students' education is hampered as their mind gets diverted due to the gossip of the teacher.



The student teacher ratio of these three schools is very much weak. The number of present this are not sufficient for the student. In Bazarpara Primary school total number of student is 138 and teachers are only 6. In Unsani Girls School where total number of student is 203 there stand teachers near about 10 and in Balitikuri Muktaram Day High school total number of student is high in amount amounting 1022 but the teachers are found in 27 numbers. So, it is clear that teachers' amount is very much lower than total strength of students, as a result of which, proper education is hampered. The figure shows the clear view about student teacher ratio.

Among the total student in Bazarpara Primary school 98.55% student are general and 1.45% student are SC candidates .In Unsani Girls school among the total student 88.18% student are belonging to general category and rest of the 11.82% student are belonging to SC category. On the other hand in the context of Balitikuri Muktaram Day High school among the total student 87.67% student belong to general category, 5.97% student belong to SC category, 0.1% student belongs to ST category. 6.26% students belong to OBC category. So, through the figure it is clear that in Balitikuri Muktaram Day high school all caste categories of students are found because in Balitikuri Muktaram Day High school students are coming from various strata of the society.

Non-teaching staff is another important component that maintain the school official work, and also maintain the school official record. Bazarpara Primary school have no non-teaching staff, Unsani Girls school have one non-teaching staff and Balitikuri Muktaram Day school have four non-teaching staff.

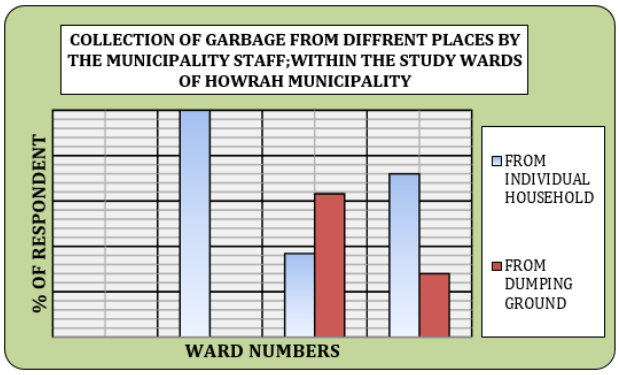


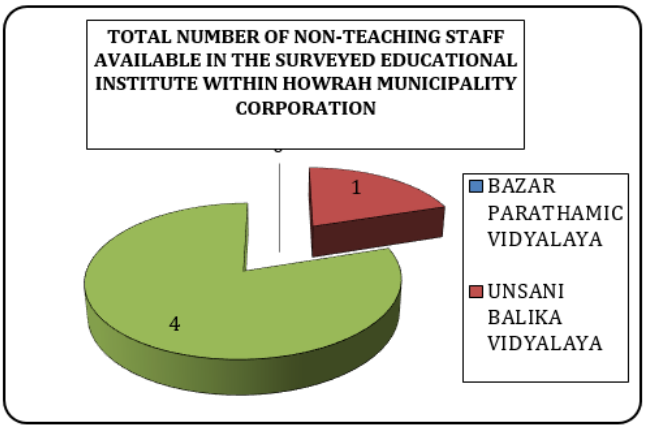
Solid Waste Management:-

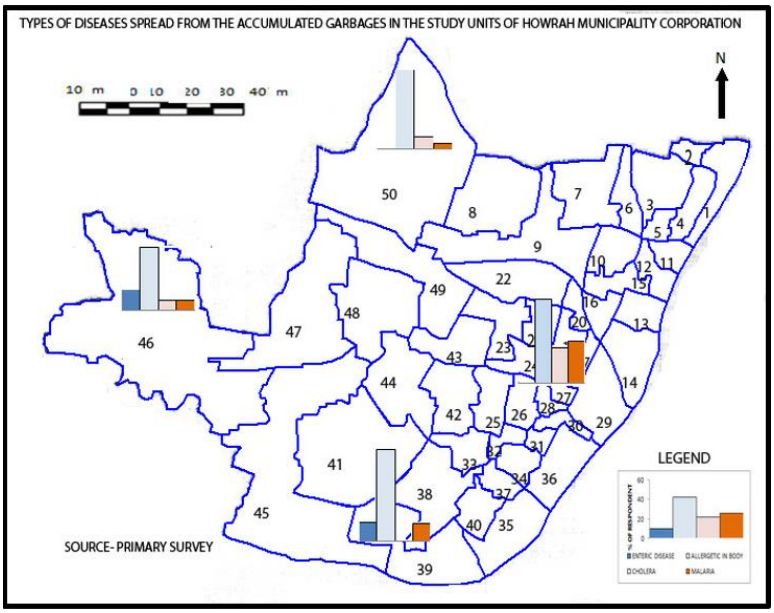
There is no provision for segregation of solid waste at the point of collection in Howrah M. The city generates around 850 MT of solid waste per day of which 800 MT is collected and transported to the dumping ground at Belgachhiya. The transportation is entrusted in part with private operators. The trenching ground at Belgachhiya is spread over 15 acres and is saturated. The biomedical waste are collected separately and transported in covered containers as per MSW guidelines and treated as per biomedical waste rules through designated agencies. For this purpose authority has ear marked 17 acres of land with 10 meter depth. The bio-medical wastes are segregated according to their nature and are treated scientifically before dumping in specific isolated zones as per MSW guidelines. Rest are incinerated by the agency engaged for the work.

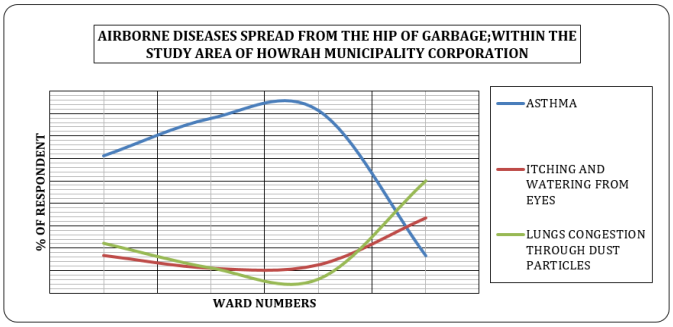
Solid waste management is very much crucial issue of any area. More significant point is the places of garbage disposal. In study units SOME people dispose their solid waste recklessly these do spread diseases. In 27 No. study wards, 80%

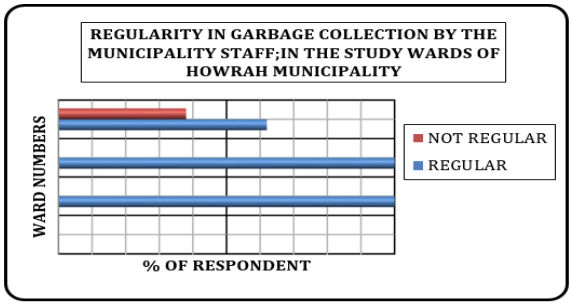
people dispose their solid waste in open field and rest of the 20% dispose their garbage in road that indicate people dispose their garbage anywhere almost. In this area no garbage disposal mode has been fixed as well as provided by the municipality. In other hand 80% people dispose their garbage in municipal van. In 46 No. ward due to the lack of people's consciousness 78% household dispose their garbage in the open field, 12% household dispose garbage in road side,2% household dispose the same in garbage disposal bin and only 8% households dispose their garbage in the municipal van. In 39 number ward 100% household says that municipal workers collect garbage from individual households. On the other hand it shows different picture in 46 number ward, where 36.84% household says municipal workers are collecting garbage from individual household and 63.16% household says municipality collects garbage from dumping ground. That indicates disparity regarding their garbage collection. Figure shows this thing clearly. Regularity of garbage collection is another important thing. In 46 and 39 numbers. A ward, garbage is collected regularly by the municipal workers. In 50 number ward, 62% household says that the garbage collection is regular and rest of the 38 % respondent says that the garbage collection is irregular.







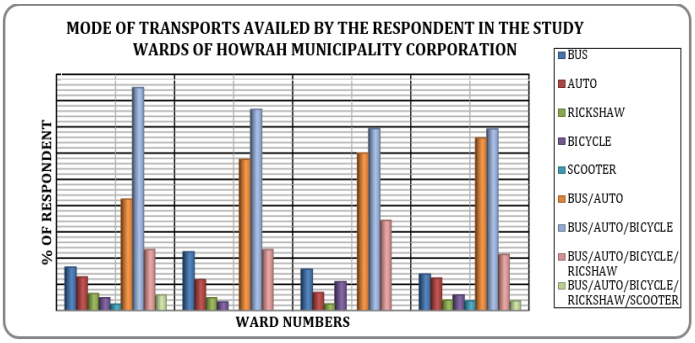


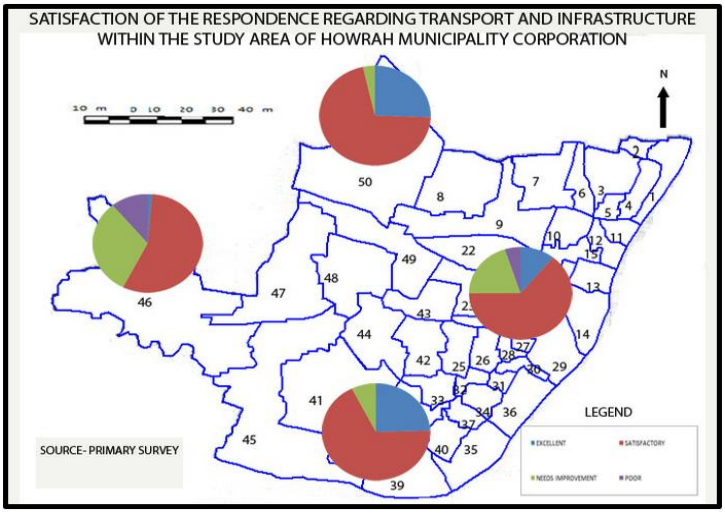


Road Infrastructure:-

The specific role of Howrah city in Kolkata Metropolitan Area is to function as an important industrial centre, as well as transportation centre. The city has played that role for more than a hundred years and is expected to continue to serve in the foreseeable future with the same importance. Howrah city had got it self-connected with the rest of India by road system, too. The Grand trunk Road planned and built by Sher shah connected Delhi and Peshawar with Chandannagar and later the portion of the road from Chandannagar to Shibpur at Howrah was constructed. Banaras Road is also another age-old Road constructed by Rani Ahalya Bai. The Andul Road and Orissa Trunk Road connected the city with Puri in Orissa. Howrah Municipal Corporation is at present connected with the remaining areas of Kolkata Metropolitan Area. (KMA) and the hinterland by a number of regional and arterial roads including 1. Grand Trunk Road 2. Banaras Road 3. Howrah Amta Road. 4. Kona Express way 5. Andul Road etc.

In all study wards, most of the people use bus as their mode of communication. Another significant mode of transportation is auto as well as bicycle. In all the study wards people use more or less these modes of communication.





CONCLUDING OBSERVATIONS:-

- In all of the wards most of the people use municipal water for their drinking purpose. But in 46 No. ward 64% family use tube well water for their drinking.
- In 46 ward most of the household have no proper sanitation and sewerage related facility, 42% house hold depend upon open field for their sanitation and sewerage purpose.
- In all of the wards most of the people visit the specialised doctors during their physical ailments but some people are there who still depend upon the quacks.
- In all of the study wards most of the people have primary and secondary education but the higher education including graduation and post-graduation level is significantly lower in proportion.
- In 46 No. ward male illiteracy is higher than female, male illiteracy is 78.38% and female illiteracy is 21.62%.
- Garbage disposal problem is very crucial issue in ward number 27, there no garbage clearance programme is organised yet by the municipality.
- In 46 number wards, 78% family dispose garbage in open field, they not use municipal van for clearances of garbage.
- Road infrastructure is good on an average in all of the study wards.

RECOMMENDATIONS:-

- Immediate measures are to be taken to solve the drinking water related problem in 39 number ward.
- Positive steps are required to solve the waste disposal related problem in 27 number ward.
- To improve the facilities of health in hospital, the Local Self Government should pay adequate attention.
- Improvement in the quality of drinking water is a need of hour.
- Measures are to be taken to arrest the proliferation flies and mosquitoes.
- Reducing the infrastructural disparity between the wards is another important task for the Urban Local Body.

Selested References:-

- Ahuja, R. (2001), Social Problems in India (2nd Ed.), Rawat Publications, Jaipur (RJ).
- Bhatia, S.C. (2011): Health, Hygiene and Education in Urban Units of Bengal, Rawat Publication, Jaipur, India.
- Burgel, E. E. (1955), Urban Sociology, McGraw-Hill, New York (NY).
- Danda, A. K. (1995), Urbanization and Slums, Har Anand Publication, New Delhi.
- Desai, A. R. and Pillai, S. D. (Eds.) (1970), Slums and Urbanisation, Popular Prakashan, Bombay
- District Statistical Handbook (2012-2017), Howrah District, Bureau of Applied Economics and Statistics, Salt Lake, Kolkata.
- Draft Development Plan (2012-2017), Hourah Municipality, Murshidabad District, W.B.
- Draft Development Plan (2017-2022), Howrah Municipality, Murshidabad District, West Bengal.
- Kadam, M. S. and Sarawade, S. S. (2016), "Study and Analysis of Solid Waste Management Challenges and Options for Treatment (Indian Villages)", IOSR Journal of Mechanical and Civil Engineering, pp. 15-22.
- Miezah, K., Obiri-Danso, K., Kádár, Z., Fei-Baffoe, B. and Mensah, M. Y. (2015), "Municipal Solid Waste Characterization and Quantification as a Measure towards Effective Waste Management in Ghana", Waste Management, 46, pp. 15-27.
- Parvathamma, G. I. (2014), "An Analytical Study on Problems and Policies of Solid Waste Management in India – Special Reference to Bangalore, IOSR Journal of Environmental Science, Toxicology and Food Technology, 8, 10, pp. 6-15.
- Sinha, D.K. and Mukherjees, A.D (2010): Fundamentals of Urban Environmental Studies, Calcutta, Visva-Bharati Press, Santiniketan, West Bengal.
- Thomas, J. and Wilson P. M. (2013), "Construction Waste Management in India", American Journal of Engineering Research, 2, pp. 6-9.
- Wright, T.R. (2011): Nightmare in the Urban Background, Vol-2, Oxford University Press, U.S.A