

**ISSUES AND CHALLENGES ASSOCIATED WITH WATER-SUPPLY, SANITATION AND SEWERAGE RELATED FACILITIES ALONG WITH WASTE MANAGEMENT IN SELECTED MICRO URBAN UNITS OF NABADWIP (M) IN NADIA, WB- A GEO-CRITICAL ANECDOTE**

**Dr. Ayan Das Gupta<sup>1</sup>**

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

***Abstract***

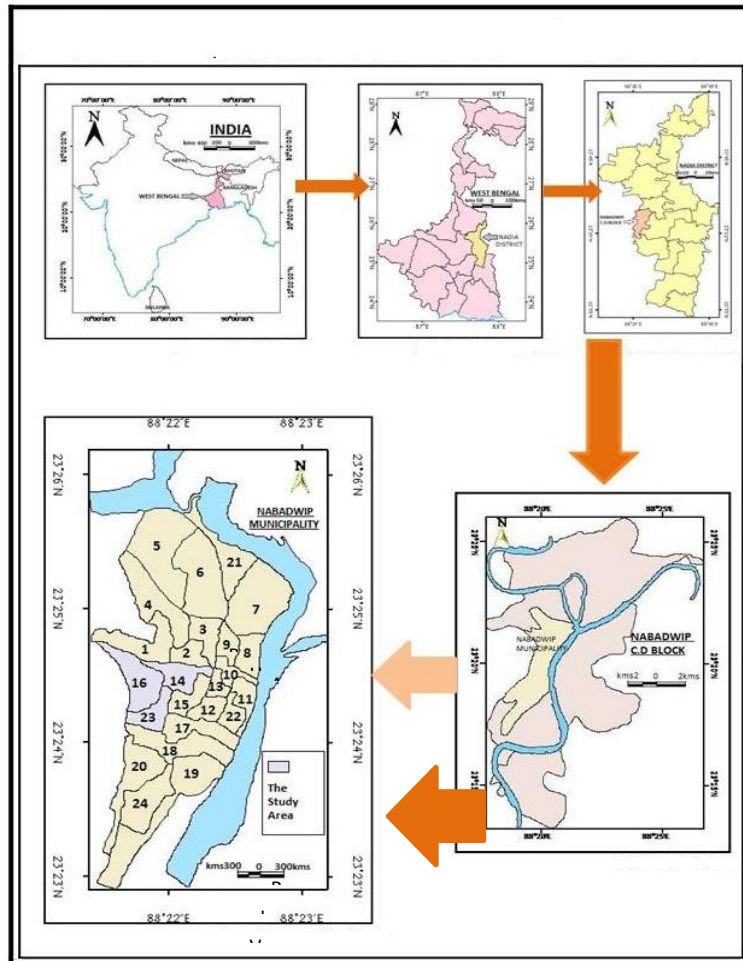
The Nabadwip Township persists at the western side of the mighty river Bhagirathi within the District of Nadia in West Bengal. It serves as an old and non-planned township with a vast areal extent of 11.66 Square Kilometre and according to the most recent Census, the total population of this urban unit encompasses total 1, 25543 persons. The slum dwellers do contribute a mammoth portion of population over here and the strength of population in the notified slum areas includes total 66,052 persons that do represent 52.61% of the entire spectrum of population. The totalistic literacy at Nabadwip is pretty satisfactory and it is Nearabout 81%. Being a flood-prone region, it has envisaged the flood events of 1971,1981,1999,2000 and 2006 that had a longing lingering look behind. In each and every year this urban belt does experience the inundation and therefore the local self-government is taking multiple positive measures to save the community. The present research has aimed to throw focus upon the physical infrastructural facilities mainly in the Nabadwip urban local body and under the umbrella of Physical facility-utility services, it is incorporating the spectrums of water supply, sanitation and sewerage related facilities. Not only the physical amenities, but also one particular non-physical infrastructure has also been focused upon in this discussion and that is the solid waste management. Apart from consultation of the secondary datasets in terms of the draft development plan of the Municipality, the researcher has prepared structured questionnaire to conduct perception survey for procuring the primary datasets. After through mixing and matching of the secondary data with those of the primary databases, different thematic overlays have been prepared here in Quantum GIS the open source softwares to reach to the geographically viable inferences. Several cartographic representations are constructed to portray the reality regarding the functioning of the Nodal Agency of Nabadwip.

**Key-words:** - Water-supply, Sanitation, Sewerage Facilities, Perception Study, Solid-waste Management.

**Introduction:-**

Historical perspective of the township of Nabadwip is corroborated over here. No Consolidated as well as comprehensive intimation can be obtained related to the temporality as well as surroundings with special reference to the origination of the urban

spatial unit of Nabadwip. The previously obtained reliable facts and figures are received upon which the historians do depend and according to them, long years back within the 12th century, it used to serve as the renowned capital town of the Monarch Lakshman Sen who was the last Hindu King that had enjoyed full Sovereignty within Bengal. After the victory of

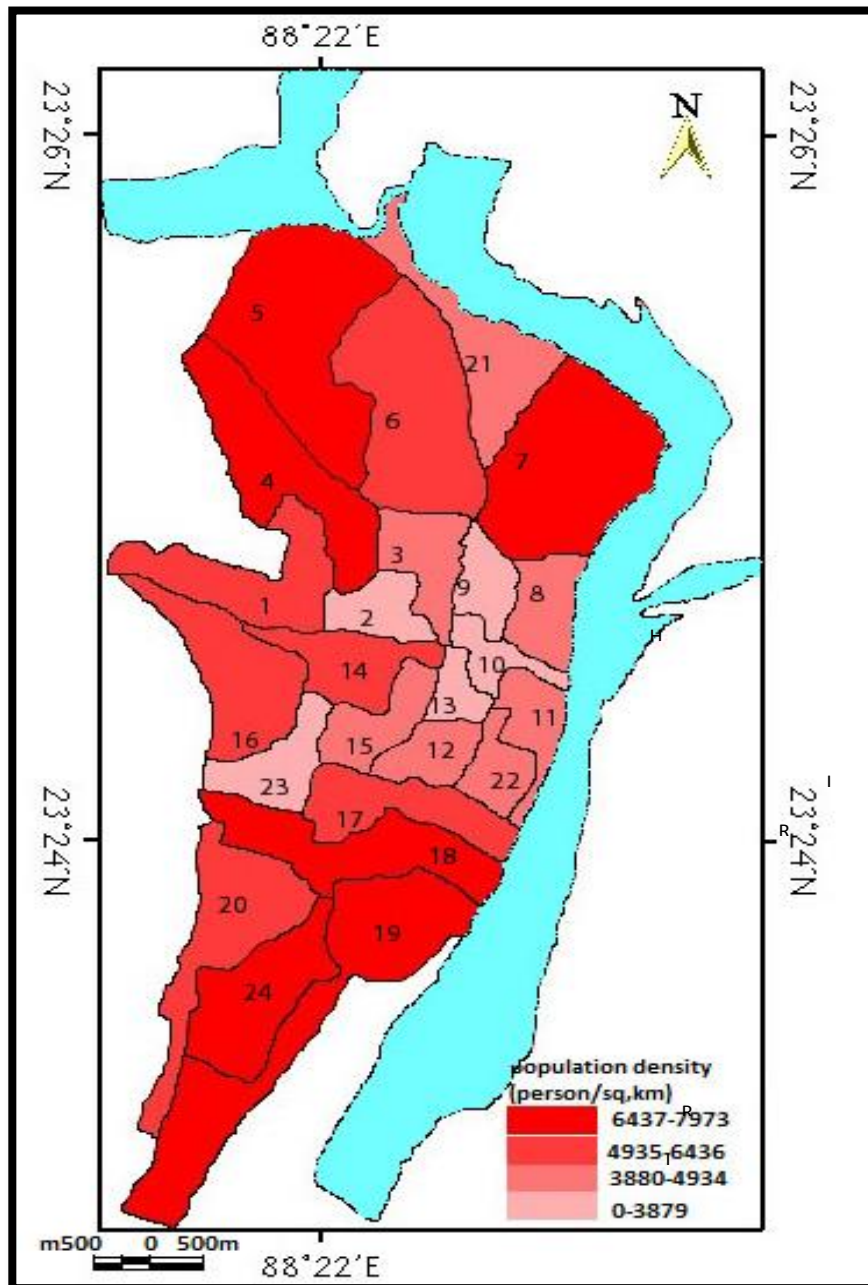


Ikhtiyaruddin Muhammad Bin Bakhtiyar Khilji, Nabadwip was basically forgotten in the pages of history book until the grandeurs of entry of Shree Chaitanya Dev. Minhaj -E-Shiraj pointed out that the solvent merchants and erudite scholars had abandoned the entire city beforehand the attack and after the occurrence of the shameless plunder. They didn't turn up again in the trauma of Bakhtiyar Khilji. The total city, therefore, got left as well as deserted, although in the coins thereafter, there stood a mention of the revenue-earning of the district of Nadia. The shifting of seat of the Government from the Distract of Nadia upto Gour indicated almost to its perish and inconspicuousness. It didn't, however, collectively come to an end, but carried on to exist as a seat of auspicious learning, where a good number of elite

Scholars, educated persons expert in Government law and theology-ideology had turned up. With passage of time, it rose to distinct identity of the place and projected a luminous shine upon the popular place. The prestigious era in the pages of history of Nabadwip urban local body dates from very time of Shree Chaitanya. The famous poet Shree Brindaban Das earned his popularity in Nabadwip as the celebrated biography-writer of Pravu Chaitanya Dev. He had once rightly uttered, "No other place is just equal with Nabadwip over the earth just because Chaitanya was residing and preaching Bhakti Religion over there." To his reputed followers, Chaitanya Dev may be considered as an advocator of Hindu Religion and embodied God. But it's as a social reformer and a holistic lover of humanity, he is to remember upon. Much of the name and fame of Nabadwip resides upon its persisting as an old place of learning, which has had a big influence on the society, culture, politics, economy, morals of the human beings of the class of Bengalees. It is preliminarily being noted as the popular school of Nyaya-Philosophy. But the place has also procreated scholars in Government law, Hindu literature, astronomy, poetics, Sanskrit grammar etc. The disciples

were influenced to go towards Nabadwip from long distances and often spent their whole life with their old friends or the co-learners. Nearabout almost all the giant scholars of Oriental leaning-system used to turn up to Nabadwip in their time. Sir William Jones had spent total three months of every year in the campus of this very University. Dr. Carey visited here in the year of 1794 and authored so many popular articles and monographs. Some of the erudite Pandits and holy Brahmins desired utmost to settle down in this place, Because of the great inculcation about the system of Oriental learning they were tilted towards this sacred place,

**WARD-WISE DISTRIBUTION OF POPULATION DENSITY IN NABADWIP MUNICIPALITY, 2011**



**Study Arena:-**

The urban local body of Nabadwip was established in the year of 28<sup>th</sup> July of 1869. The administrative boundary of the nodal agency of Nabadwip has been written below in a tabular format and there from one can get the vivid details of its surrounding areas.

**Administrative Surroundings:-**

Northern Side: -	The holy Main stream from the mighty Bhagirathi River
Eastern Part: -	The extension of the river Bhagirathi and its One of the Micro rural units namely Gadkhali
Southern Side: -	From the particular point on the Westward boundary of the mouza Gadkhali near about 6,600 feet towards southern direction from the Northern Limit of Mouza Gadkhali and, then moving straight towards the West to the railway bridge number 98 and then to the southern side by the Railway junction line up to the bridge number 96, thenceforth by the Unmetalled Road to Samudragarh Spatial Unit up to the limit of mouza Srirampur within the district Burdwan.
Westward part:-	Mouza Srirampur within the district Burdwan and then Mouza entitled Bablari - Dewanganj and Sankarpur within the district of Nadia up to the juncture of mouza Rudra Para and Gangaprasad Mouza and thenceforth running towards straight North-ward through the mouza namely Sankarpur (incorporating within the Urban Local Body of the part called Brajanagar) up to the flowage of the river Bhagirathi.

**Economic Background and Base:-**

Nabadwip is primarily a big centre for trading of jute that is popularly known as an agro-based raw material turning up from the industrial background. Here actually the raw jute is collected and thereafter the chunk of jute get processed in proper ways and ultimately the processed jute is gathered into the big godown where from again the material or the processed product is despatched to the respective industries preparing the jute products like matting, tarpaulin, brooms etc.. The entire economy of this township is mainly dependent upon the industries that are characterized for running the hand-loom and power-loom machineries. The handcraft products made up of handloom are generated with the town and its adjacent parts are aggregated in market that is popularly known as Small Bazaar or haat. There are multiple units preparing the readymade dress-materials, bidis out of Kendu leaves and bell-metaled crockeries and utensils. So far the economic background of the study area is concerned, it can be said that side by side of the agro-based industries and garments-making industrial markets, some of the people do depend upon urban agriculture and it has also been found through the captured snapshots that within multiple numbers of wards, a group of people cultivate vegetables. In winter, a good number of agricultural plots get filled up by the colourful vegetables like violet cabbage, broccoli, radish, brinjal, beetroots, carrots, beans, and so on and so forth.

The Nabadwip Municipality is more or less densely populated and therefore the population dynamics in terms of fertility, mortality and migration over here are greatly interesting and some of the demographic features have been portrayed below in a tabular format.

### Demographic Growth:-

Census	Population	Percentage of Growth / downfall
1981	118000	9% (Growth)
1991	125247	6.14% (Growth)
2001	115036	8.15% (Downfall)

### Places of attractions:-

The township of Nabadwip itself is the ideal spatial unit of tourists' interest because it serves as the origin of the religion-preacher Pravu Sri Chaitanya Dev. This also serves as a township of gigantic temples. There stand more than two hundred big temples situated in each and every portion of the township that is divided into four parts, demarcated as northern, southern, eastern and western ones. The below-mentioned sites as well as buildings are identified as the heritage places. These incorporate the Temple of Mahapravu and here the idol was worshipped by Vishnupriya Devi the wife of Sree Chaitanya. Mahaprabhu locality known as para is located around the temple. This locality is very popular in entire Nabadwip. There stands one old and dilapidated temple inside the Big as well as renovated temple of Mahapravu. The old or prachin Mayapur here serves as the old and original birth-place of Sree Chaitanya Dev. Malancha para is another place of tourist attraction because here Srimati Vishnupriya Devi was born. The temple of Buroshiv is situated in Buroshivtala that is also a place of sight-seeing for the tourist parties. Shiva Temple, Parama Temple and Bhabatarini temple are located at Poramatala and that place is a must visit location of all the tourists turning up in different years over here. Goddess Agameswari is established in a big temple at Nabadwip of Nadia District. Sanskrit College was situated here for quite a long time and this was a place for dissemination of knowledge in Sanskrit and along with this college, there stands the popular Pacca Toll Para. People also try to visit Manipur Rajbati after turning up here as a tourist. Nidaya Ghat and Banga Bani are the rest of the places of interest in Nabadwip.

### Physical Parameters:-

Climate and Rainfall has been described here. The urban unit of Nabadwip is situated under the influence of humid tropical weather and climate with maximum temperature of 43 degrees centigrade and the minimum temperature of 8 degrees centigrade respectively. The overall average precipitation is touching about 1400 millimeters. The main rainfall takes place between the months of June and October. Some of the places are there in Nabadwip that are actually water logged during the rainy season and due to occurrence of several depressed areas in

Nabadwip, the stagnation of water takes place.

Topography and Soil also share some uniqueness in the entire Municipality of Nabadwip. The township of Nabadwip is based upon the pedological substances of the lower Gangetic plains. It is situated at the western part of the mighty Bhagirathi (that is a popular branch of the holy Ganges system). This is ultimately falling into Bay of Bengal after running at about 300 Kilometres away from here.

### Communication:

There stand two renowned railway stations in the jurisdiction purview of Nabadwip Urban Local Body. This is located on Bandel and Katwa section of Howrah Sub-Division of Eastern Railway system. This township is coherent to Kolkata, the City of Joy within West - Bengal by different railways and multiple roadways. Krishnanagar being the District head-quarter of the Nadia District is related to Nabadwip by the state highway of 21 Kilometres of length that joins Nabadwip with NH 34 OR Kolkata Siliguri road near Krishnanagar. Bus connectivity to all the portions of state is now available from Nabadwip Local Self-government bus-terminus.

### Police Station:

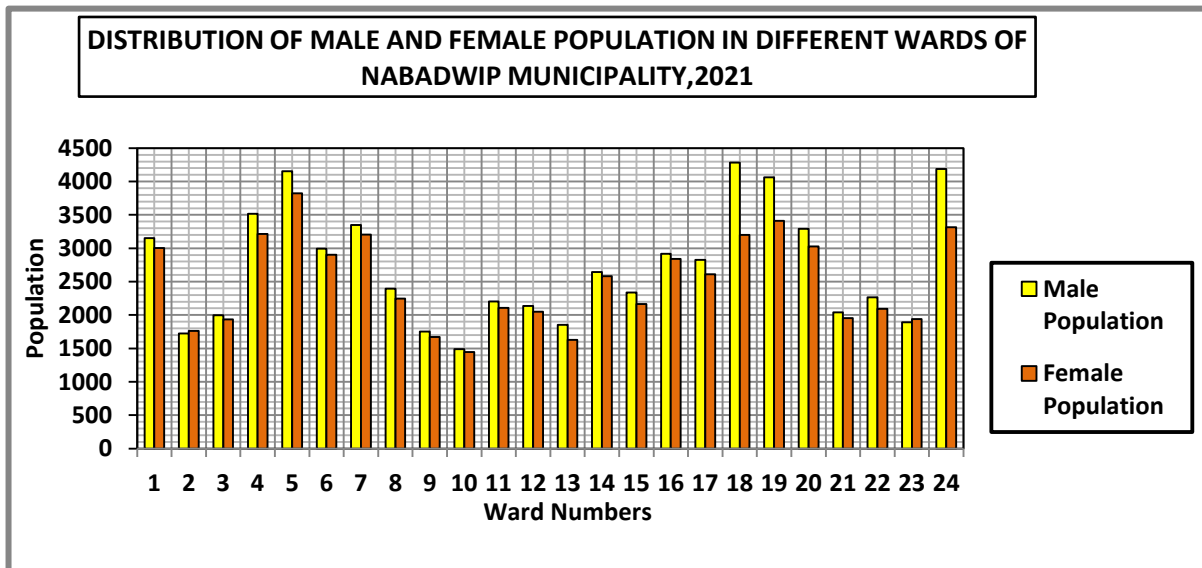
There is a Police Station at Nabadwip and it is in the middle of the township.

### Education:

There is a College affiliated to Kalyani University in Nabadwip and this is named as Nabadwip College. There are 18 high and higher secondary schools and 53 Government aided primary schools located in Nabadwip. There are also a few numbers of private schools at this town.

### Hotels and Tourist Lodge:

The Municipality runs a Guest House of thirty (30) bedrooms. There are Hotels and Tourist lodges run by private businessmen.



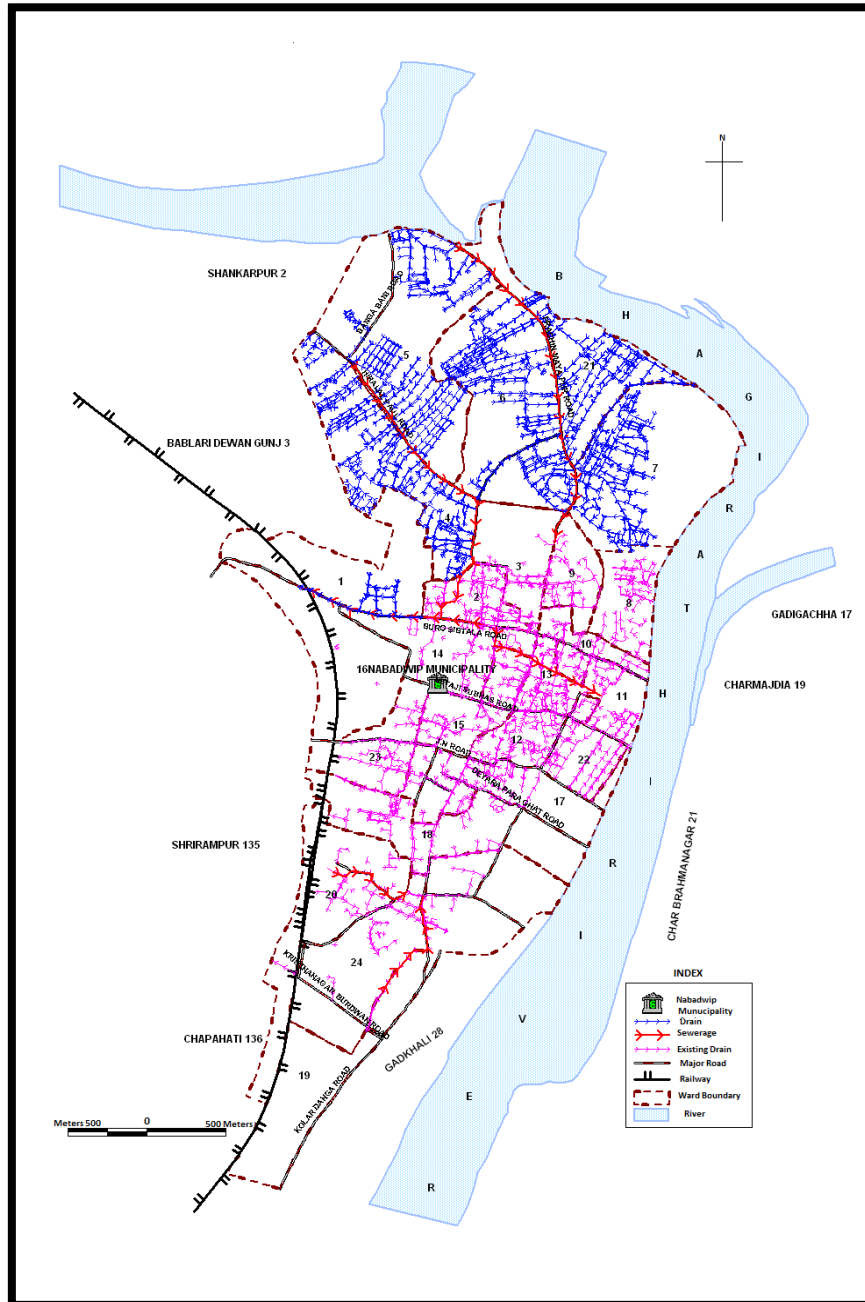
# LANDUSE MAP OF DIFFERENT WARDS IN NABADWIP MUNICIPALITY.2021



The landuse and landcover map above portray different patterns of LCLU within the urban local body of Nabadwip. The maximum portion of the Local self-Government of Nabadwip is preoccupied by the residential land area and it is demarcated by yellow colour. There stand multiple occurrences of slums and shanty towns and these are marked in orange colour. The long river Bhagirathi is

flowing in the eastern and north-eastern part of Nabadwip. Agricultural patches are also predominant in different areas of the Municipality. Park, play-ground and stadium plead in favour of the existence of urban green in Nabadwip ULB.

LAYOUT OF DRAINS AND SEWERAGE NETWORKS DISTRIBUTED IN WARDS OF NABADWIP MUNICIPALITY, 2021

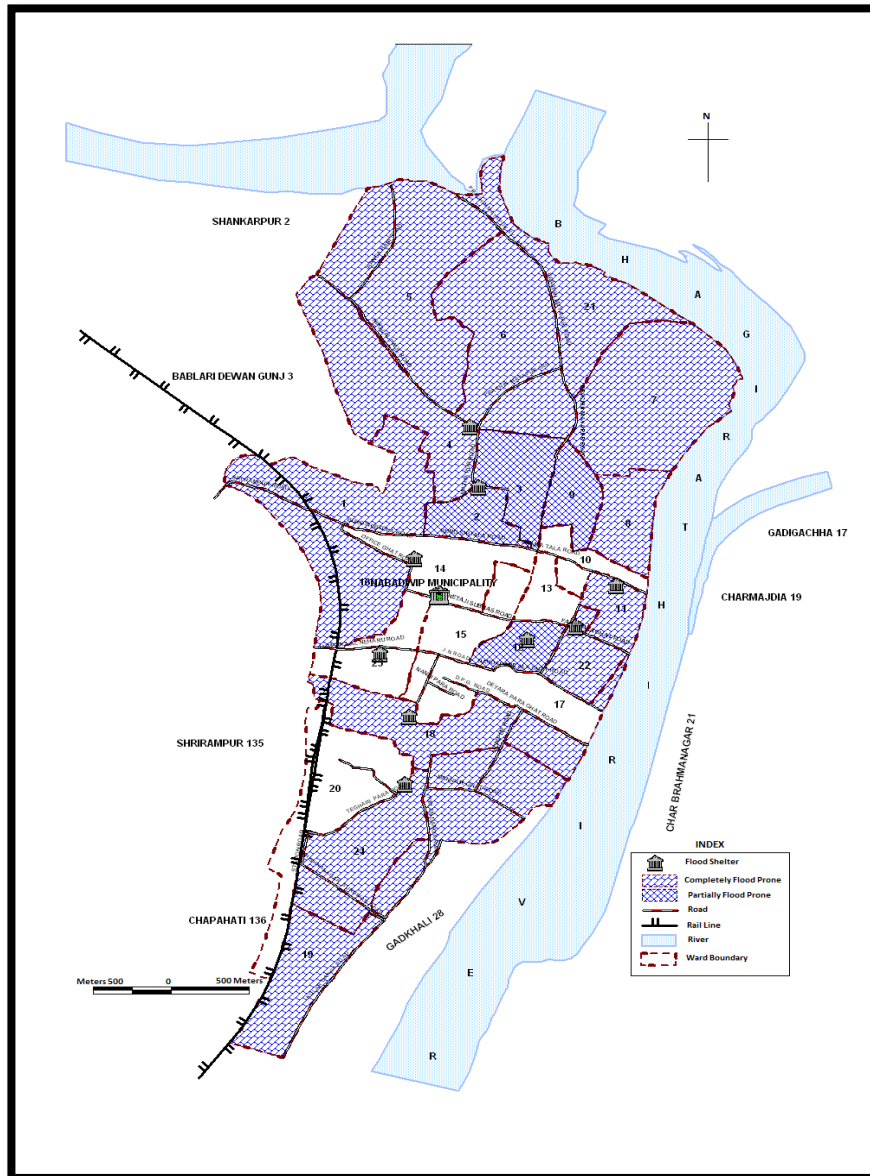


The sanitation and sewerage network is spread across the wards of the urban local body of Nabadwip and by the pink colour the existing drains are shown and by their persistence, it is clear that the entire ULB is well served by the network and the possibility of water stagnation



has greatly been reduced by the existence of these drains. Some new drains are also being constructed under the Jawaharlal Nehru National Urban Renewal Mission.

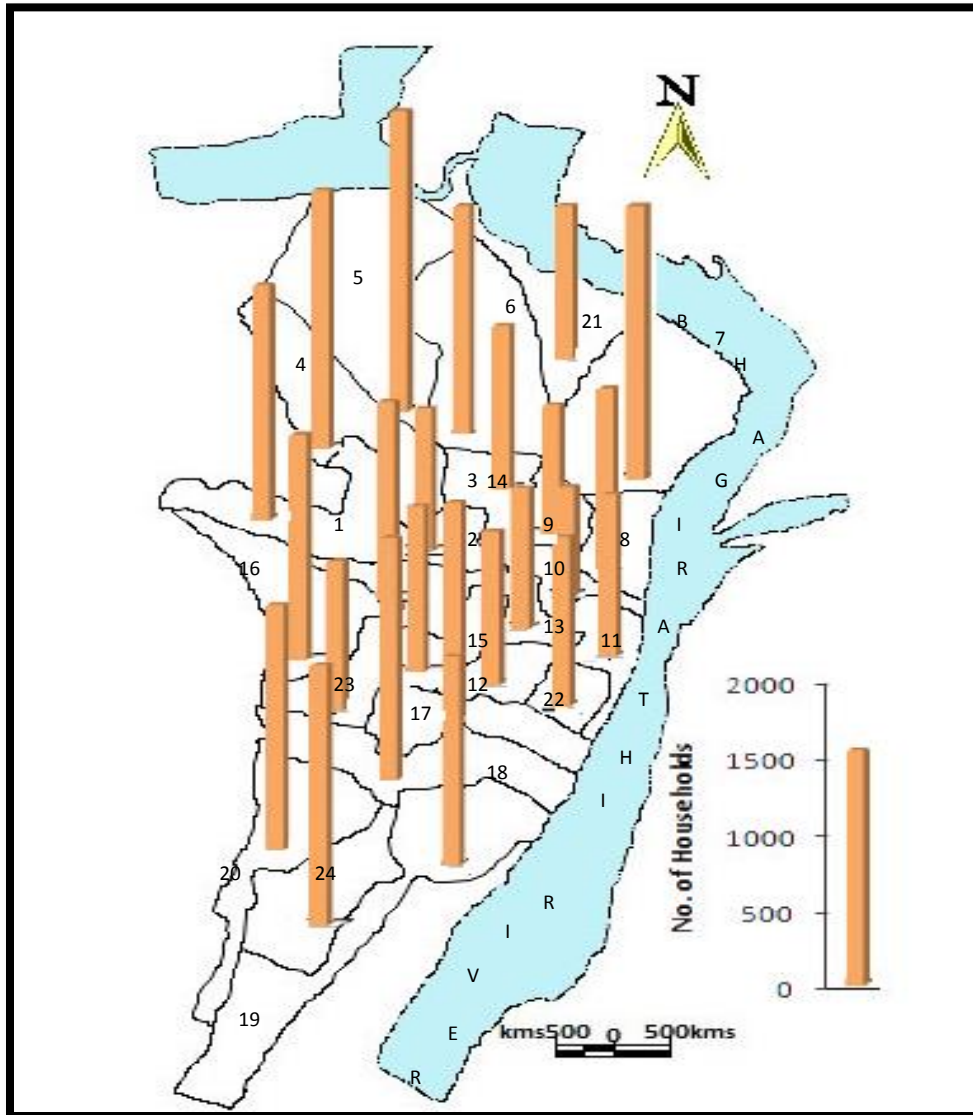
**LAYOUT OF FLOOD-AFFECTED ZONES ALONG WITH THE PLACES FOR FLOOD-TIME SHELTERS WITHIN THE WARDS OF NABADWIP MUNICIPALITY, 2021**



Because of the existence of River Bhagirathi very close to the Nabadwip Municipality, the entire area has become flood prone and from the map constructed over, the partially flood prone and the permanently flood prone areas are shown in the map and from the layout, it is pretty clear that apart from the Central and the south western portions of the local self-government of Nabadwip, the entire area gets flood-prone in each and every year and due to repeated occurrences of the devastating inundations, the ULB has managed to construct some of the

shelters to save the flood-victims. Those flood shelters are scattered shown in the central part of the map of Nabadwip. After the water level goes down, the distressed people are collected from the temporary shelters and after cleaning the flooded areas with great hurry, those displaced people are again placed in their original habitats. The municipality has now become almost expert in rendering this type of services. The condition of the slum-dwellers of Nabadwip actually becomes pathetic during the flooding.

**TOTAL NUMBER OF HOUSEHOLDS IN DIFFERENT WARDS OF NABADWIP MUNICIPALITY, 2021**



The total number of households in different micro urban units at Nabadwip has been shown with the help of map above and from the distribution pattern of this; it becomes quite clear that almost all the micro urban units are densely populated in Nabadwip. The maximum household ranges between 1400 and 1500 in Nabadwip.

### **Objectives behind the study:-**

There remain definite objectives for accomplishing which, the researcher has undertaken this project and those objectives are written below:-

- To obtain a crystal-clear scenario related to the beneficiaries as well as non-beneficiaries of municipal solid waste-disposal system within entire Nabadwip ULB.
- To investigate the loopholes for which the overall distribution pattern of water-supply in various households across micro urban units is not, by nature, uniform.
- To depict the present scenario of sewerage and sanitation within various parts of the local self-government and to make specific comment upon their manifold problems and bright possibilities.
- To seek the attention of the Urban Local Body related to the proliferation of different diseases due to unplanned clearance of dumped trashes or mucks from selective portions of the Nabadwip ULB.
- To bring into forefront, the challenges and issues associated with the solid trash management in definite wards of the ULB of Nabadwip.
- To mention specifically the demerits of the ULB related to the proper scientific management of the trash materials turning up regularly in the municipality.

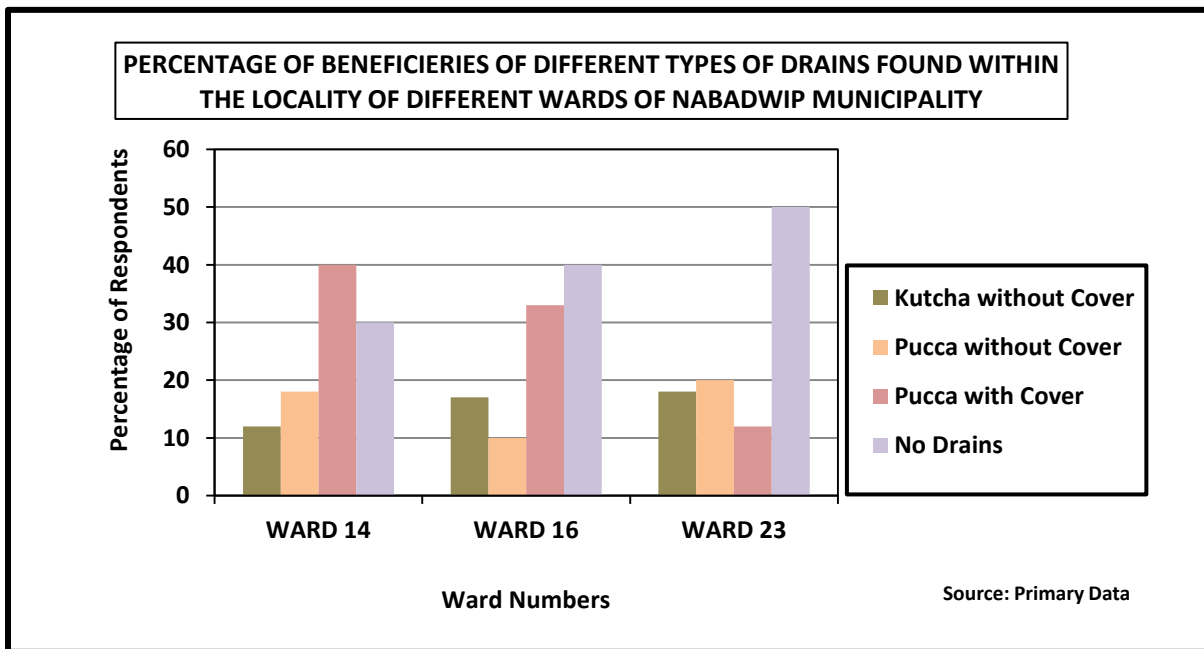
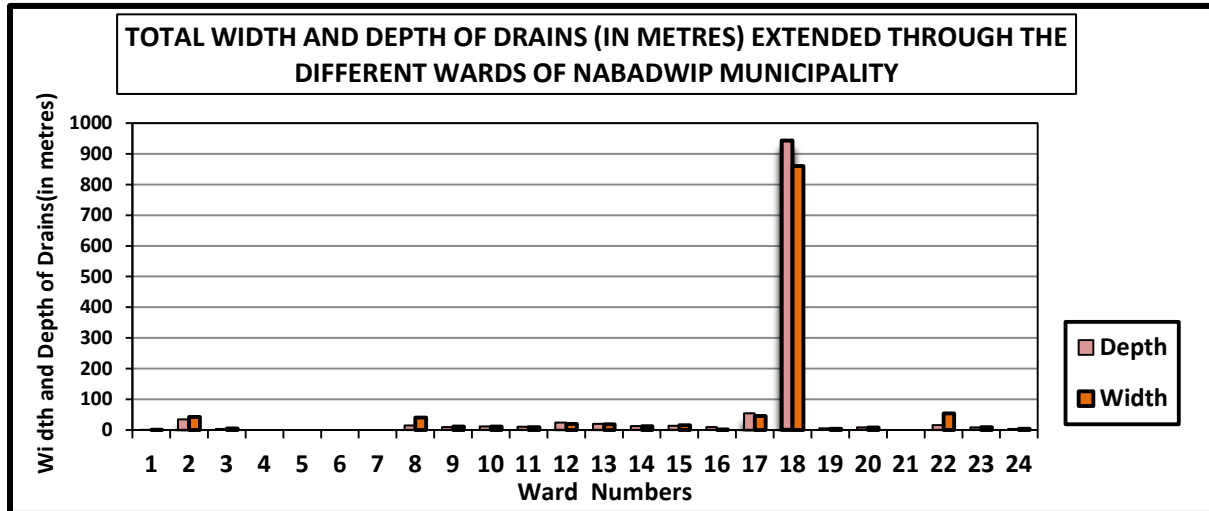
### **Methods and Materials:-**

The targeted wards of the Municipality are 14, 16 and 23 because at the time of official interview of the chairperson of Nabadwip M, by the researcher, it was found that these micro urban units are having maximum problems of water supply, sanitation and sewerage. Two types of datasets have been collected for making the project mention-worthy and the foremost one is the secondary data where different records, journals, gazetteers etc. on the definite problem have been accessed and lots of relevant information have been accumulated from those definite literary evidences . This info has been substantiated by primary datasets obtained from the structured questionnaire-schedule survey. Purposive stratified technique of sampling has been taken into consideration to run the perception study and total one hundred households have been thoroughly surveyed from each target ward. Depending upon the total cumulative monthly income with respect to per family, the total sample has been divided into three targeted groups for the data collection. For conducting primary survey, basically total hundred households are chosen on the basis of reconnaissance survey from each ward to collect the exact figure of target people from the table, in percentage regarding manifold urban issues related to this very project. Thereafter thematic maps and diagrams have been built-up based on the dataset procured from the master-table and geographically inferences are drawn as per the rules.

### **Results and Discussions:-**

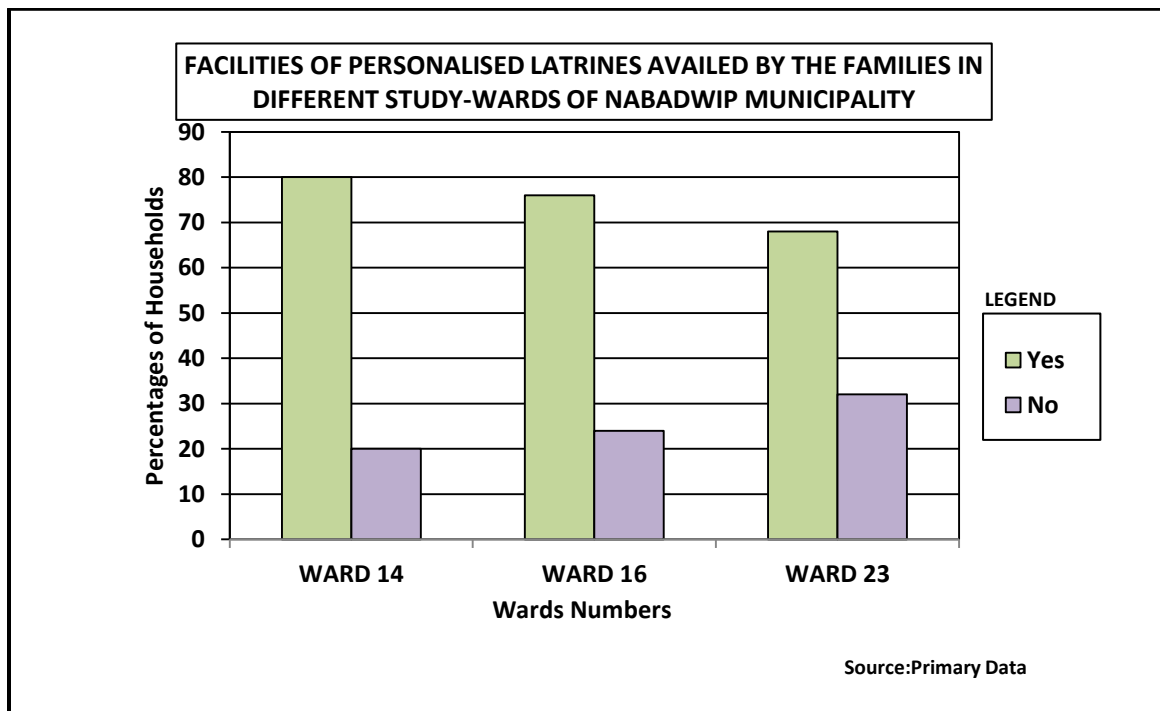
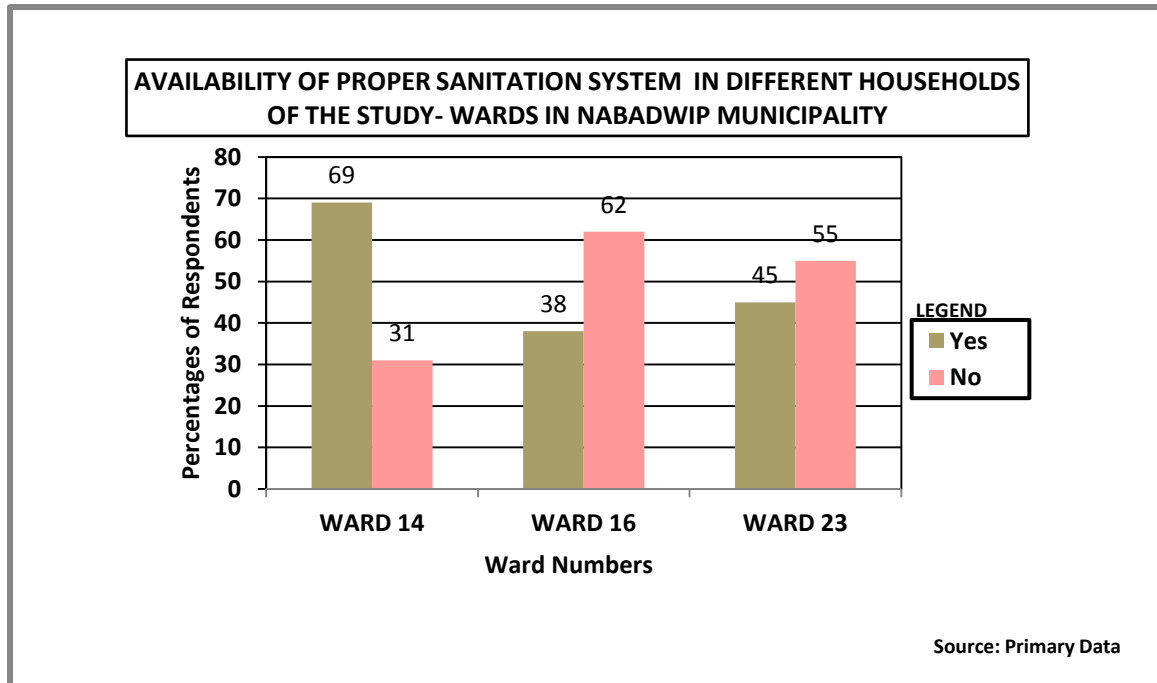
Sanitation and sewerage related facilities available in Nabadwip Municipality of Nabadwip have been investigated and the results are as follows. Proper sanitary facilities are absent

which not only endangers the individual health, but also the environmental conditions of the slum and consequently the town area in general is also compromised a lot. The individual houses in the slum pockets are in general temporary in nature, without having a permanent scientifically framed facility of sanitation and sewerage.



A large number of pour flush latrines have been constructed over the past few years in the houses of the slums through the central government aided ILCS programme. There are also 07 community toilets with bathing facilities within and around the slums. But still there is a need to look into the matter with utmost importance. After the collection of the snapshots of the public toilets, it has been found that there is a growing need of regular clearance of the toilets over there. Because of non-clearance of the same, some of the people are being affected with the diseases like urinary tract infection and others. At the time of questionnaire survey, it came in the forefront that the females especially are encountering with urine infection and doctors have told them to use personalized toilets

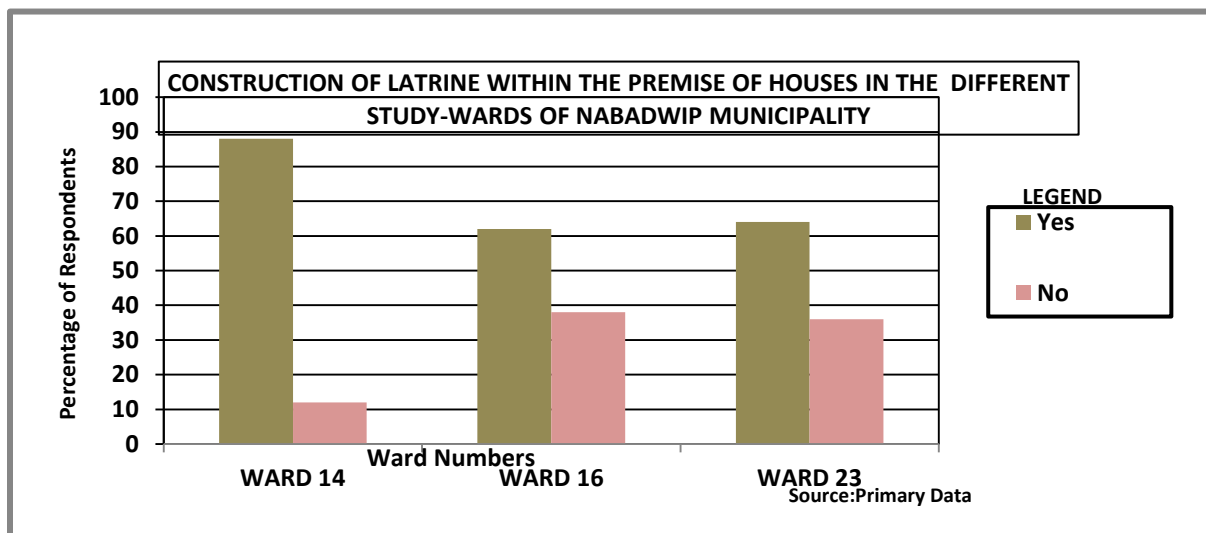
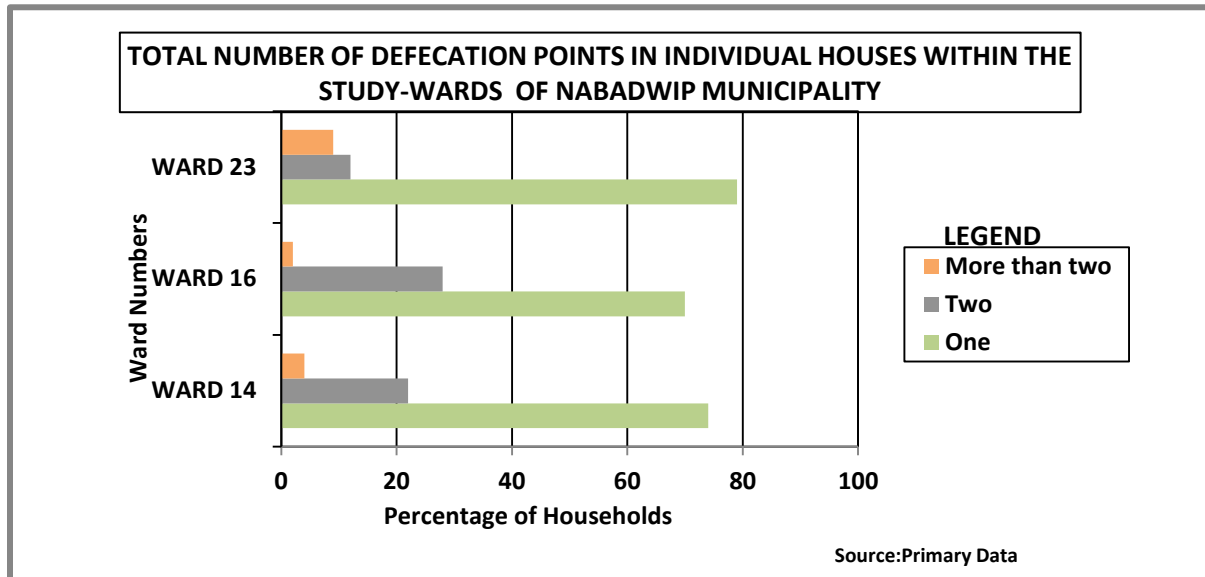
but due to poverty, they are almost bound to visit the public toilets. Some of the sweepers are appointed to clear the public toilets but their services are infrequent.



In the slums, the sanitation condition is extremely poor in the Nabadwip municipality. 15% to 20% people today even defecate in the open fields. This is adversely affecting upon the local atmosphere. If the biological excreta of human being gets somehow mixed with the water of well and water bodies then the occurrences of any stomach infection like dysentery, diarrhea etc become very common. The local self-government is paying

heed to this problem and through the awareness campaigning they are trying to make people understand this burning problem. .

Holdings in Slum	Holding having Sanitary Latrine	Holding Not having Sanitary Latrine
9931	2979	6952

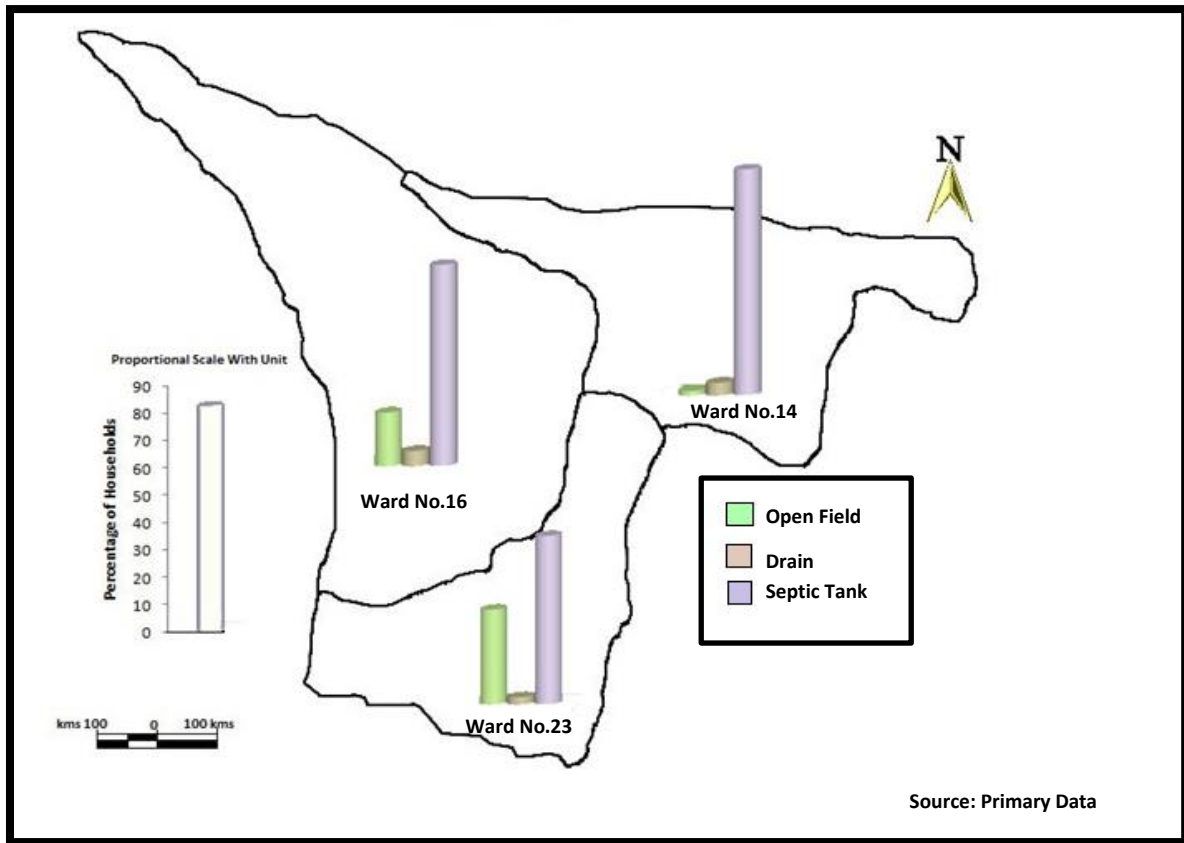


### Sanitation and Sewerage

Condition of Sanitation and sewerage is quite poor in the municipality. Especially in the slums, full coverage on sanitation is absent. Nabadwip is one of the most important holy places in West Bengal and situated on the bank of The Holy River Ganges and birth place of Mahaprabhu Shri Chaitanya. Therefore, thousands of pilgrims get gathered during several

occasions. Special arrangements for their food and Lodging, Water Supply, Sanitary arrangements are to be made but unfortunately those facilities are not present upto an optimum extent. Through the cartographic representations, it has become quite clear that in ward number 16 and 23, more than 50% people are totally devoid of ideal sanitation and sewerage related facilities. On the other side, it is envisaged that amongst a good number of housings of the residents of Nabadwip Municipality, there remains absolute absence of the personalized latrines. They usually depend upon the community toilets. The similar picture has been portrayed when there was an attempt to show the provision of personalized latrines within the housing premises of the residents of Nabadwip. On the other side, it is found that only in microscopically minor segments of houses, there remain the provision of more than one latrines or the points for defecation.

**RELEASE OF BIOLOGICAL EXCRETA FROM LATRINE IN DIFFERENT PLACES WITHIN THE STUDY-WARDS OF NABADWIP MUNICIPALITY**



It is suggested by the DTG 1 that dormitories are required for the pilgrims for their accommodation during the festivals and these would enable the ULB to generating more non tax revenues. But no mention-worthy step has been taken into consideration yet in this particular regard. One spatial overlay has been prepared above where it is clearly manifested that in most of the cases at ward number 23, the biological excreta of the residents get released in open ground and definitely that is so alarming. The researcher has drawn attention to the Chairperson in this regard. Nadia District has been declared as

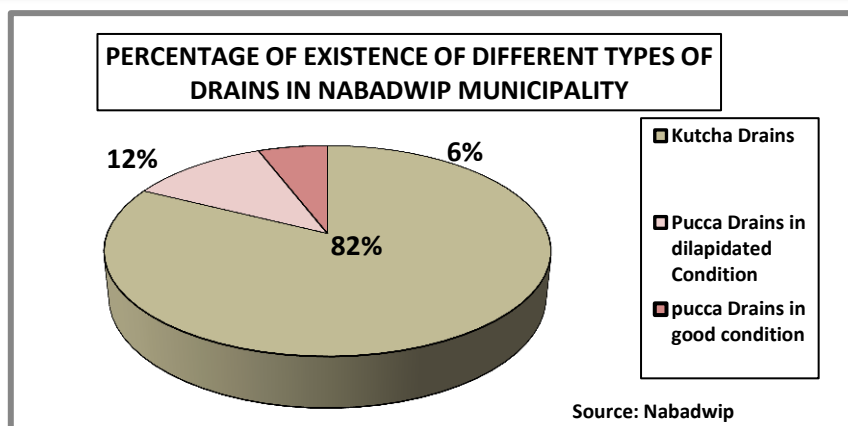
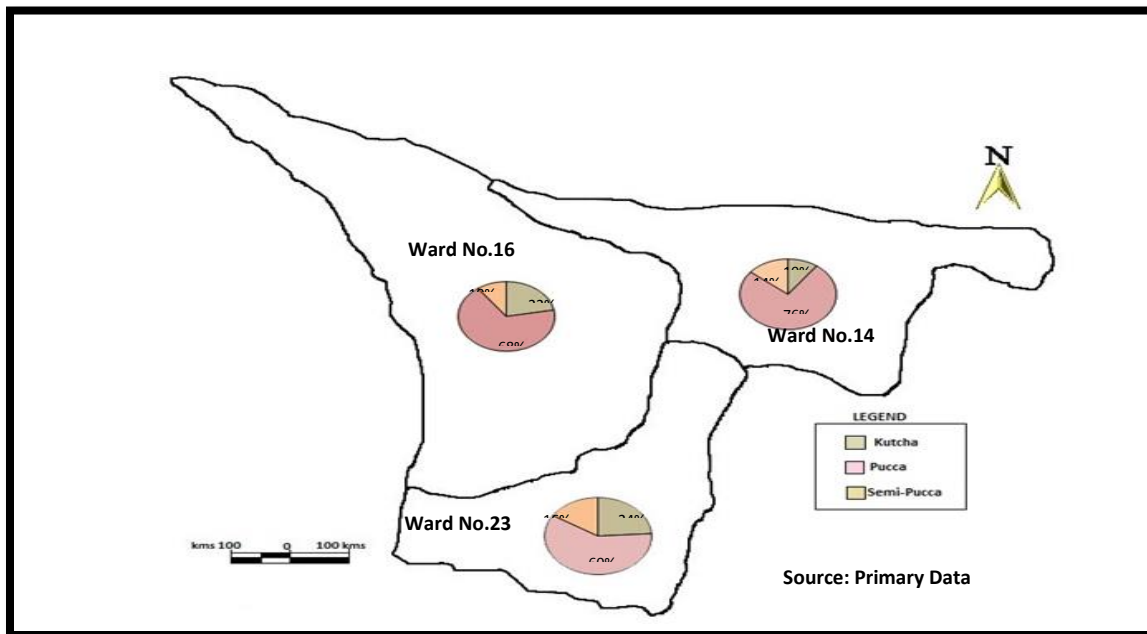
an open defecation free spatial unit within entire west Bengal and this picture is truly pathetic as well as shameful for the entire district.

**Storm Water Drains:**

The Nabadwip is a town surrounded by the river Ganges and other rivulets. Therefore, there are problems like water logging and storm water drainage is not in existence here. People are there to suffer during the monsoon in general but specifically the slum dwellers have been suffering a lot during the monsoon. Normal drains are also in worst conditions. There is 8500 meters of drains of which kutchha drain is 7000 meters, pucca drains in dilapidated conditions are of 1000 meters and pucca drains in good conditions are found for only 500 meters.

Non-Slum Population	Sanitation Exists	In %	Sanitation not exists	In %
75000	67500	90	7500	10

TYPES OF LATRINE USED BY THE SURVEYED FAMILIES IN DIFFERENT SYUDY-WARDS OF NABADWIP MUNICIPALITY





The Picture above shows that proper sanitation system persists in ward 14,16,and 23.Here the figure reveals that ward 14and 23 are endowed with ideally proper sanitation system and in ward 16 , proper sanitation system is not that much noteworthy to mention..

Sr. No	Nature/Condition of Drains	Length in Meters
1	Kutchra drain	7000
2	Pucca drains in dilapidated conditions	1000
3	Pucca drains in good conditions	500
	Total	8500

#### Drain exist in Nabadwip Municipality (socio-economic survey 07) Household

Yes	No
11,857	15,357

During the socio economic survey, 27,214 persons have been interviewed and they have reported about the conditions of drainage. 11,857 persons have reported that there are not having proper drainage systems in the slum areas of Nabadwip and 15,357 persons have reported that there is drainage system that are ideal for them. Another accompanying diagram corroborates that personalised latrine in different wards are found in considerable numbers in Nabadwip Municipality. Here it has also been shown that in ward no.14 the locality is endowed with personalised latrine in its maximum number whereas in wards 16 and 23, the existence of personal latrine is not that much mentionable.

#### Drainage:

Issue about the drainage was discussed among the members of slums and it was observed that they have prioritized first on this issue. The drainage condition in the slums are in bad situation which causes health problems, disturbing to maintain cleanliness, polluting local atmosphere and used water can't be flown in proper way over here. Especially during monsoon, long lasting water logging creates lot of problems in daily life for the innumerable people. There are requirements to undertake construction of drains in the slums of the ULB. The ULB needs to provide infrastructural facilities and mobilizing capital costs. There is a need to make a person responsible for carrying out those activities. The concerned ward committees would supervise over the construction works voluntarily. Supervision and monitoring would also be undertaken by the ward committees. Besides, collection and disposal of waste would be supervised by the ward committee members. The dwellers have opined to pay for maintenance and take over the responsibility to monitor the operation and maintenance works.

#### Drainage system

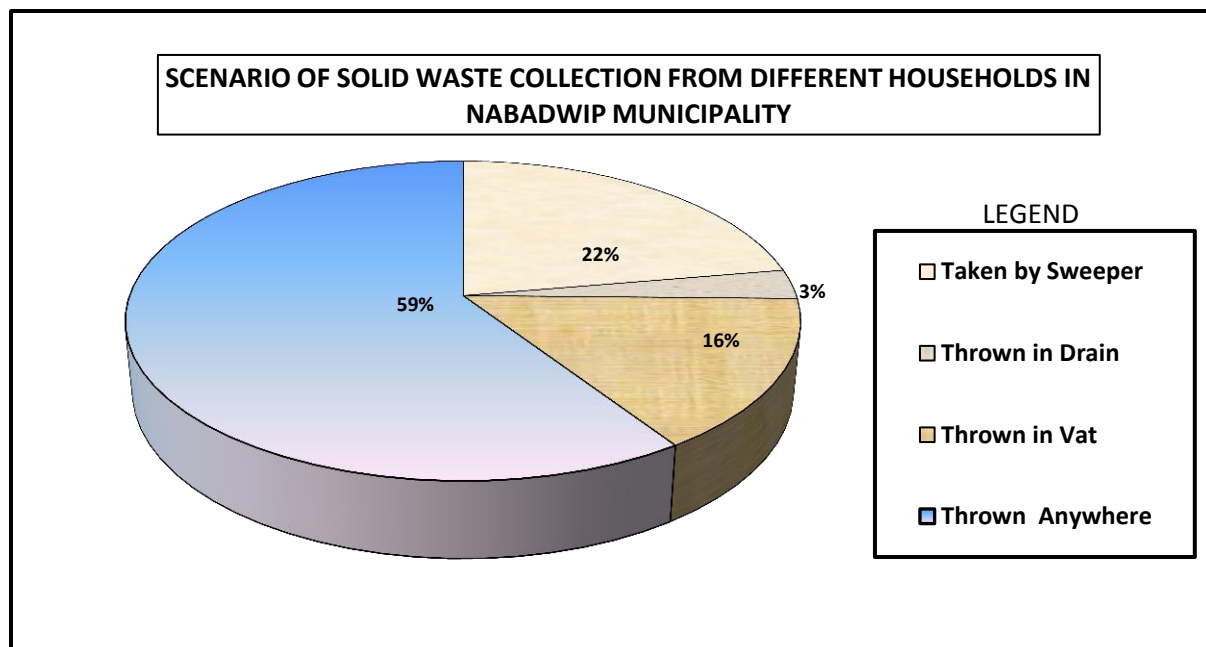
In most of the places, drain does not exist but where drains are in existence; they are in blocked conditions and water does not flow freely. An example can be cited here – Gabtala, Malanchapara, Balir pukur (kutirpara) etc are falling under this category. The maintenance of the drainage is poor and that can be said in overall analysis. The condition of drain is in need of improvement. In this regard there was a workshop and meeting of the councilors

and the ward committee that may be referred. The drainage master plan is required, pumping station is needed, and the contour plan is essential for executing the matter in proper manners.

Construction of new drains is suggested in selected places and there are kutchra drains that need to be converted into pucca. The issue of operation and maintenance was taken into consideration and decided the task of Operation and Management are to be carried out by the ULB involving ward committees. Ward Committee is willing to play effective role in supervision of operation and maintenance of the drains. The people are less interested to bear any cost for this purpose. Nabadwip is since surrounded by the rivers and rivulets and therefore the people of the area had to suffer from flood during each and every monsoon and that need to take special attention. Protection measures have to be taken in order to reduce risks. Here Community Based Disaster Preparedness and Risks Management (CBDRM) requirements are being undertaken. Protection measures have to be taken in order to reduce totalistic risks. Here Community Based Disaster Preparedness and Risks Management (CBDRM) require undertaking of the Urban Local Body. The initiative to be undertaken is incorporated in the Environmental Management Plan.

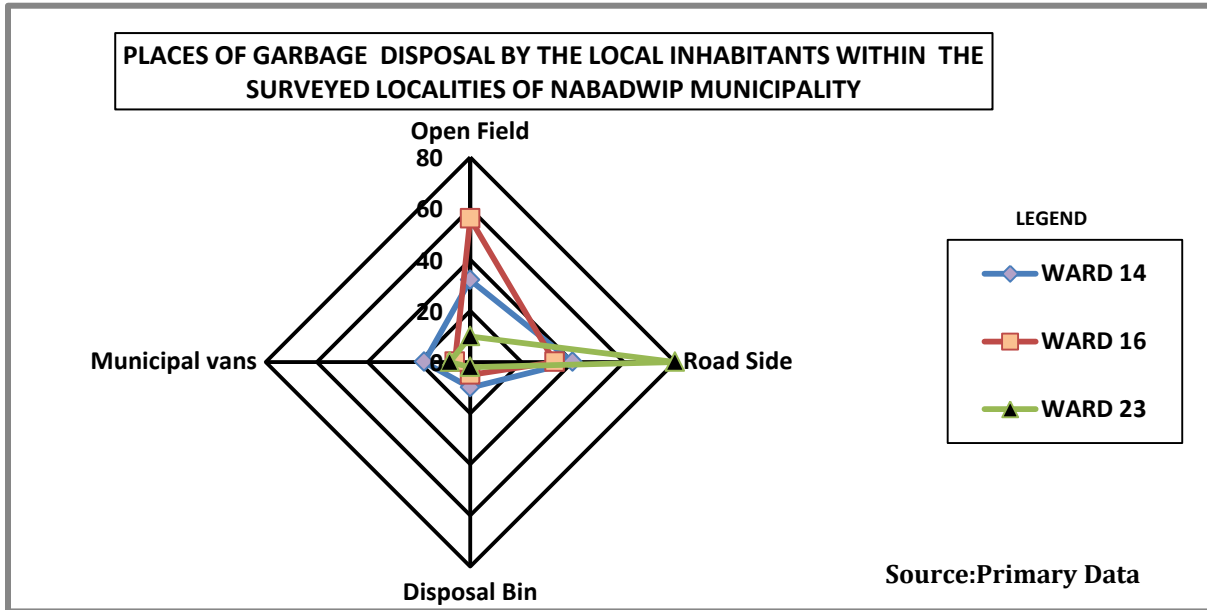
#### Waste Management System in Nabadwip Municipality:-

Waste is not collected from door to door and there is no question of segregated collection. The following pie chart would give a vivid picture about the garbage collection and the condition of solid waste management. In the slums of Nabadwip the situation is much bad. From the divided proportional circle, it is understood that only in 22% cases, the garbages are collected by the sweeper but the attendance of sweeper is not regular. This has been reported by the localites during the perception study. 3% garbages are thrown



away directly into the drains leading to the chocking of those flowage systems. 16% case are there where the people do release garbage into the proper places that means into the vats. Most strikingly, it was seen that near about 60% cases are there where the common

people throw garbage anywhere. This thing has created great menace in the overall local self-government of the ULB of Nabadwip.



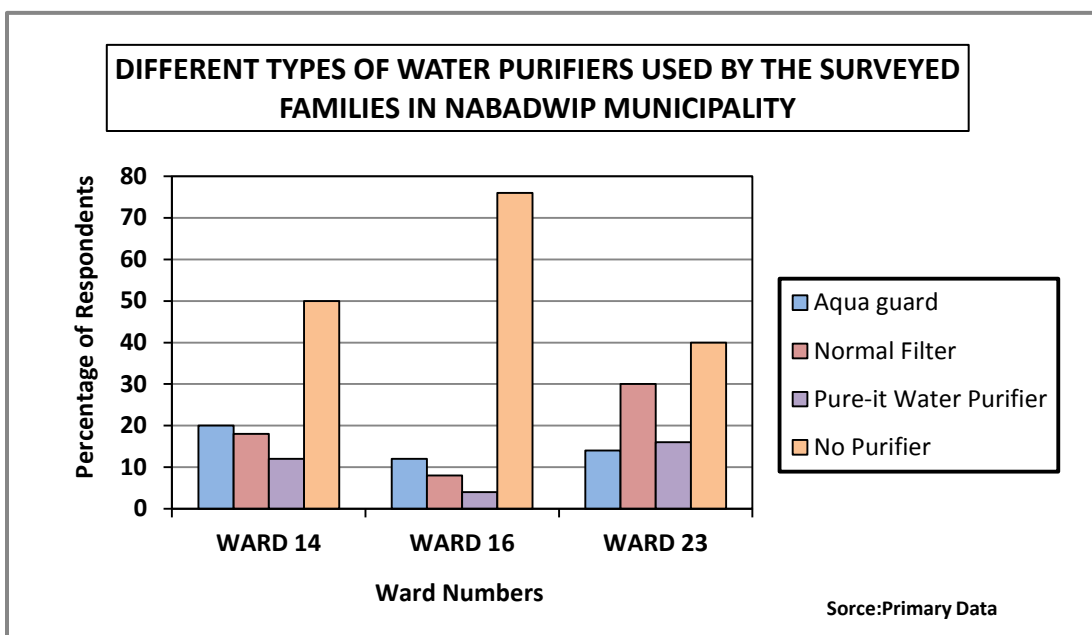
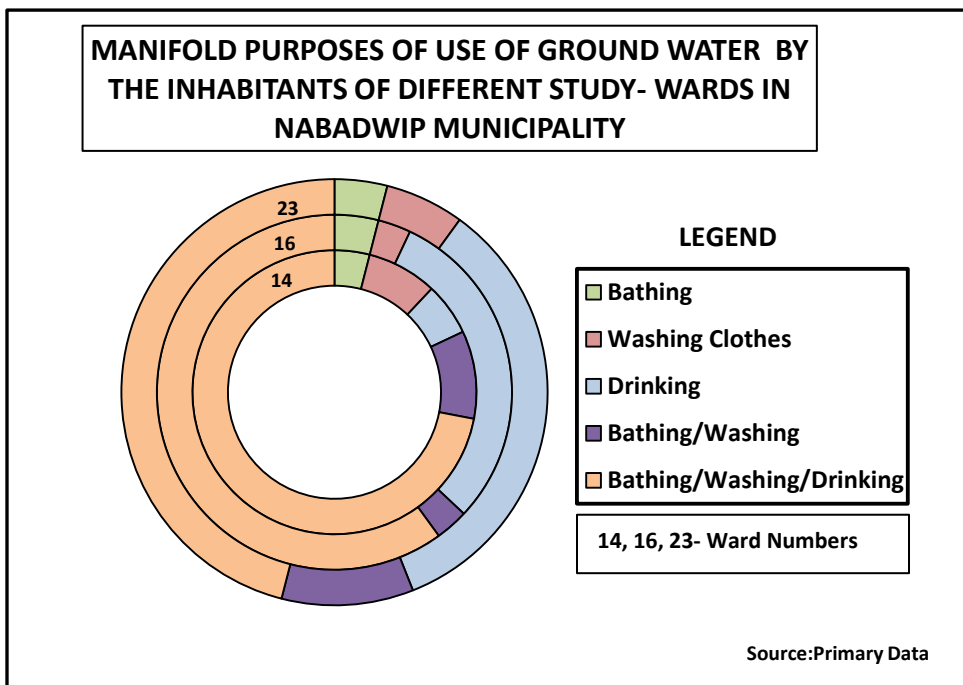
In the urban local body there is 52 MT SW plant and waste materials are getting collected per day. Mucks need to be collected in proper ways with thorough attention and the things are regularly recycled. Solid Waste Management has to be considered in utmost consideration for maintaining cleanliness into the micro urban units. The waste needs to be converted into wealth and therefore the recycling techniques are invented. The recycling encompasses collection, segregation, remelting, resmelting and refining. It is feasible through use of pronounced progress of science and technology. In the municipality, garbage is gathered from roadside. Door to door collection is not yet been done systematically. Garbage disposal is not done properly throughout. There is no system of house-to-house collection. It is thrown here and there and even into the drains. The dumping ground is in existence for the last 10 years. There is a need of one more dumping ground. Now garbage disposal in the wards is getting a conspicuous as well as significant issue for maintaining healthy and clean ambience. Permanent structures in term of vat at the various points of wards are needed where people can dispose off the mucks from their homes. It was clearly mentioned in problem identification workshop. Operation and Maintenance are to be undertaken by the ULB involving ward committees respectively. The existing dumping ground is situated in ward no- 1 and is causing environmental and health concerns. Ward Committee is willing to play the role in supervision, maintenance and operation. Recycling is also required which would create employment opportunities for the unemployed youths. Special team has to be deployed for collection and disposal of waste during festivals in order to keep the festival-places clean and hygienic. Vats have to be provided at the spots where the festivals take place. These would draw the attention of pilgrims during their visit to Nabadwip on several occasions. Here it must be noted that by introducing the waste disposal in a proper manner, it would draw attention of other persons belonging to the upper strata and the tourism can be developed in the ULB.

**Scenario of Water Supply:-**

The municipality has overhead reservoir for supplying water through pipe line and tube

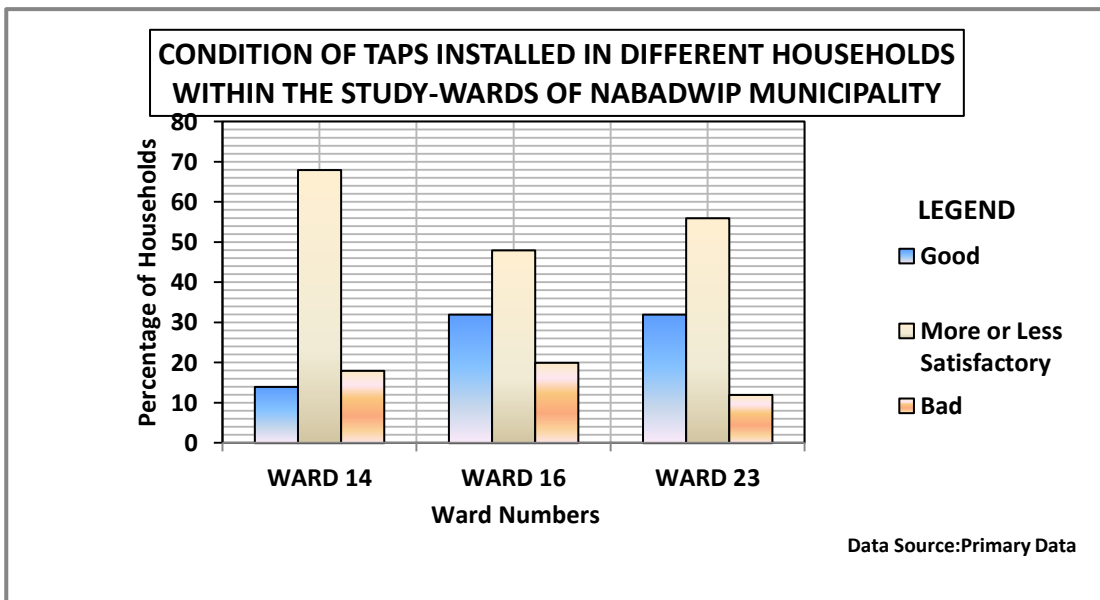
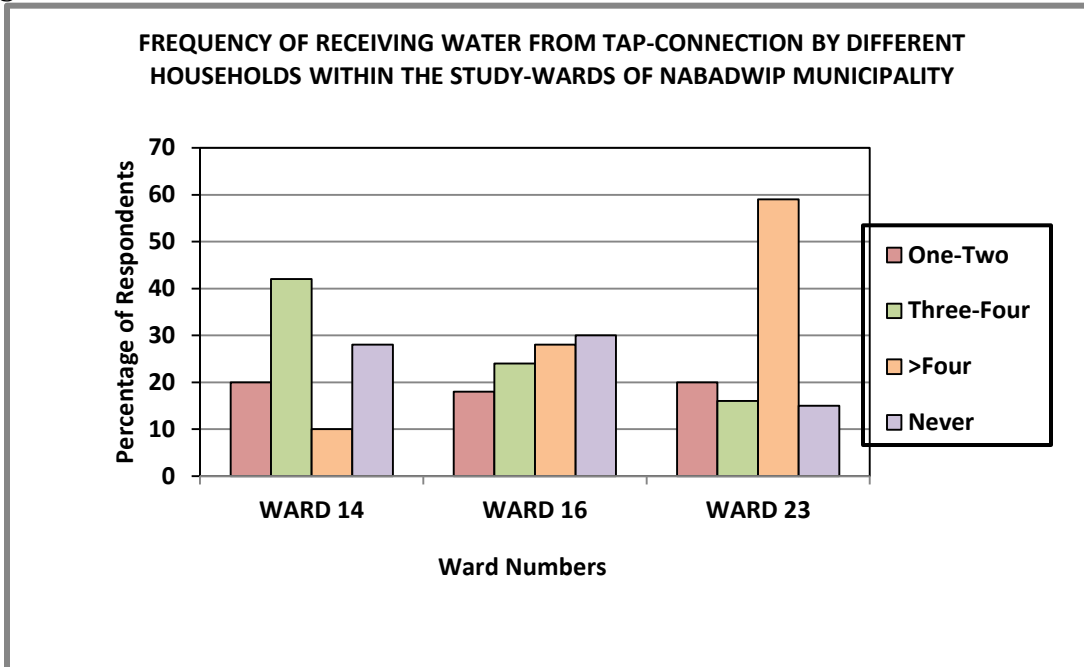
Sr. No.	Priority issue	Location	Reasons for being prioritized	Remarks / suggestions to manage the issue
1.	Drainage	Whole Municipality	Majority of the drains are clogged due to irregular cleaning. It disrupts the flow of water through drains. Flooding usually occurs during monsoon season and creates poor hazards. Environment and health.	Construction of Pucca drains, repair and regular cleaning of drains is required to undertake. Drainage system must be well maintained so that health and environmental situation can be pro people.
2.	Drinking water	Across the municipality	The quality of water is not good. Many areas are not connected with water supply network	Extension of water supply network to provide safe drinking water to all the households.
3.	Roads	All wards to be covered	In most of the wards roads are damaged. There is heavy plying of mixed types of vehicles with very low mobility	Construction of new roads, mainly converting all brick paved and Kutcha roads to Black Top/concrete road. As road communication is one of the most important means of local economic development.
4.	Road Lighting	All wards to be covered	In many areas the intensity of light is very low due to use of ordinary tube lights. Many areas even do not have electricity connection for streetlights.	Extension and full coverage with street lights.
5	Solid waste management	Across the municipality	Considering health hazardous, environment preservation and in order to keep the city clean	Door to door collection of Waste is required to be arranged by the municipality therefore the SWM is to be properly undertaken.

wells and hand pumps as well. The present supply of pipe water by the ULB is varying from 15 liters to 55 lpcd. But the ULB is very serous to reach to the extent of 130 lpcd. Water supply has reached to 6 hrs a day but during summer the scarcity of water does appear. The water quality is not upto the mark but contaminated with iron in most of the times. Sometimes it appears to be unfit for drinking.

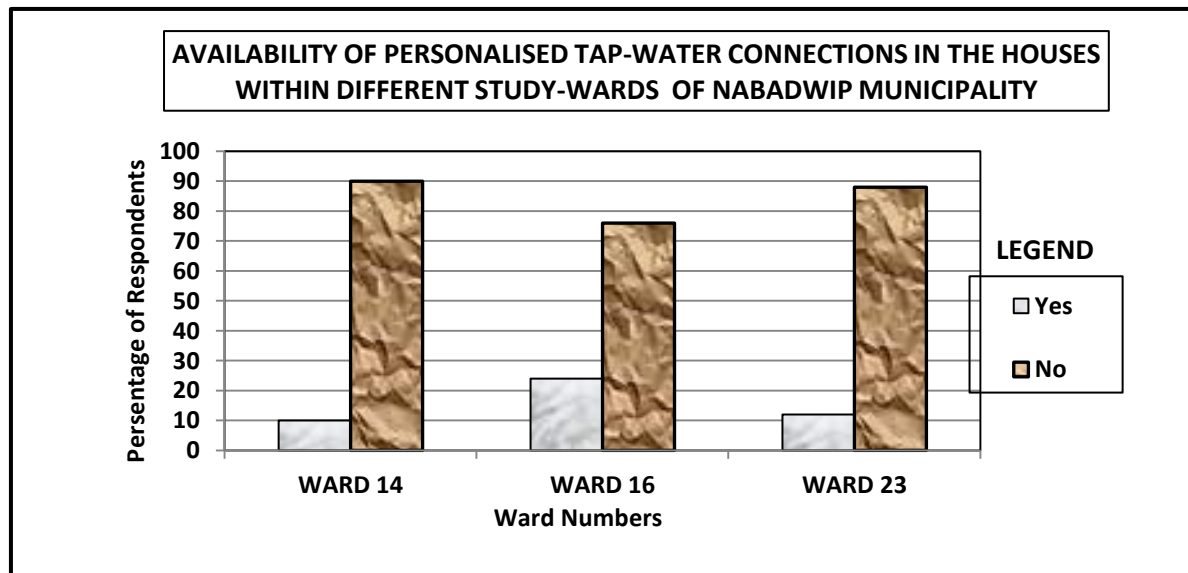
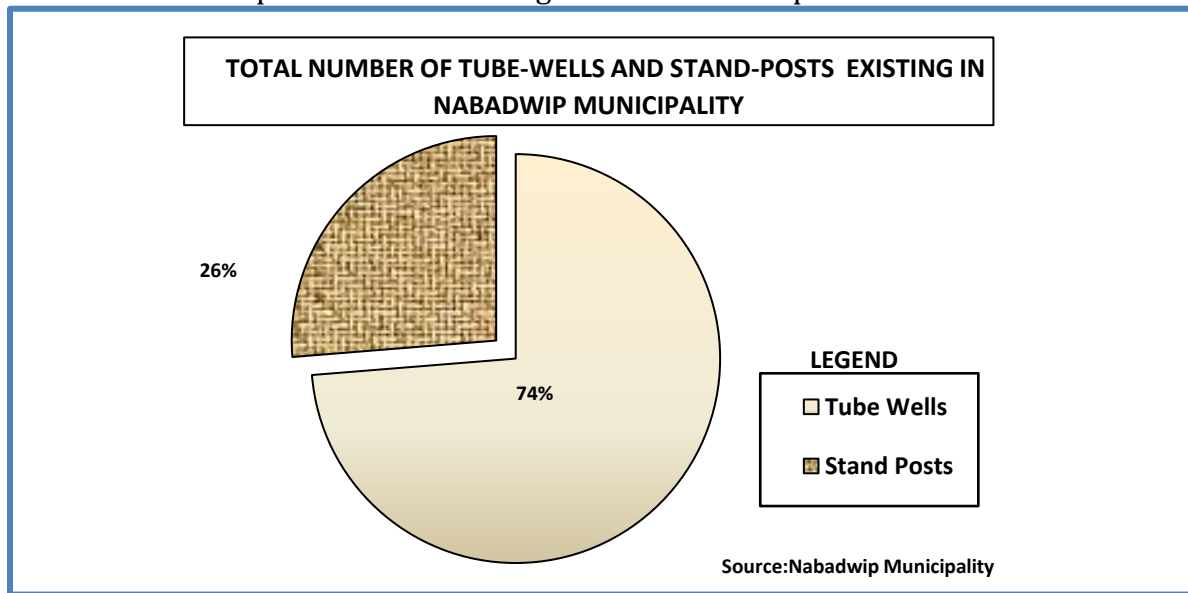


There is urgent need of extension for water pipeline and installation of hand pumps and tube well in Nabadwip Municipality. Water pipeline's extension and installation more stand posts and tube wells in selected places are extremely in need for the citizen. By

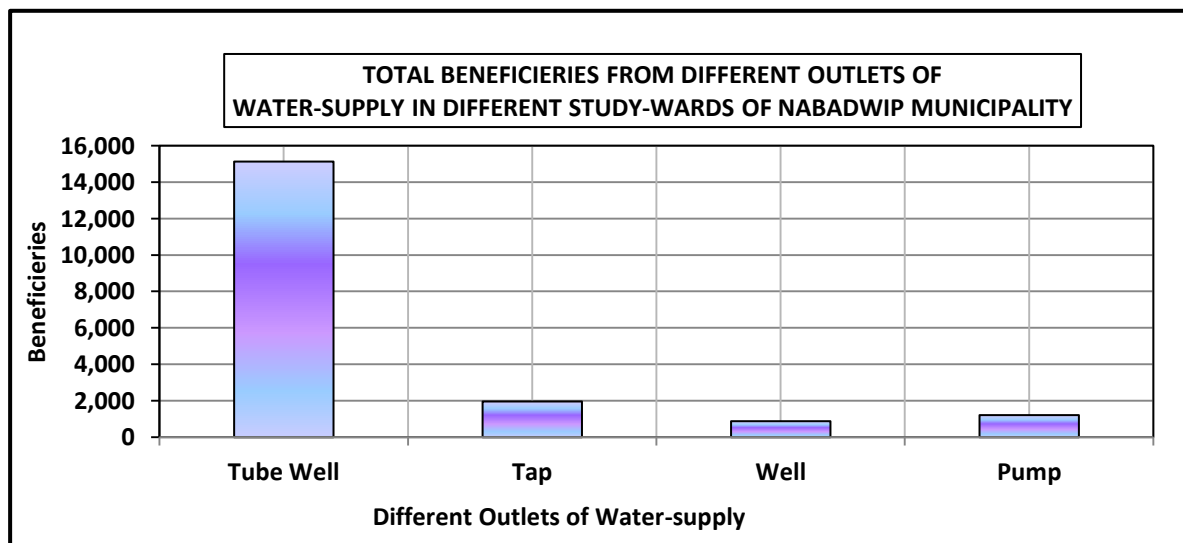
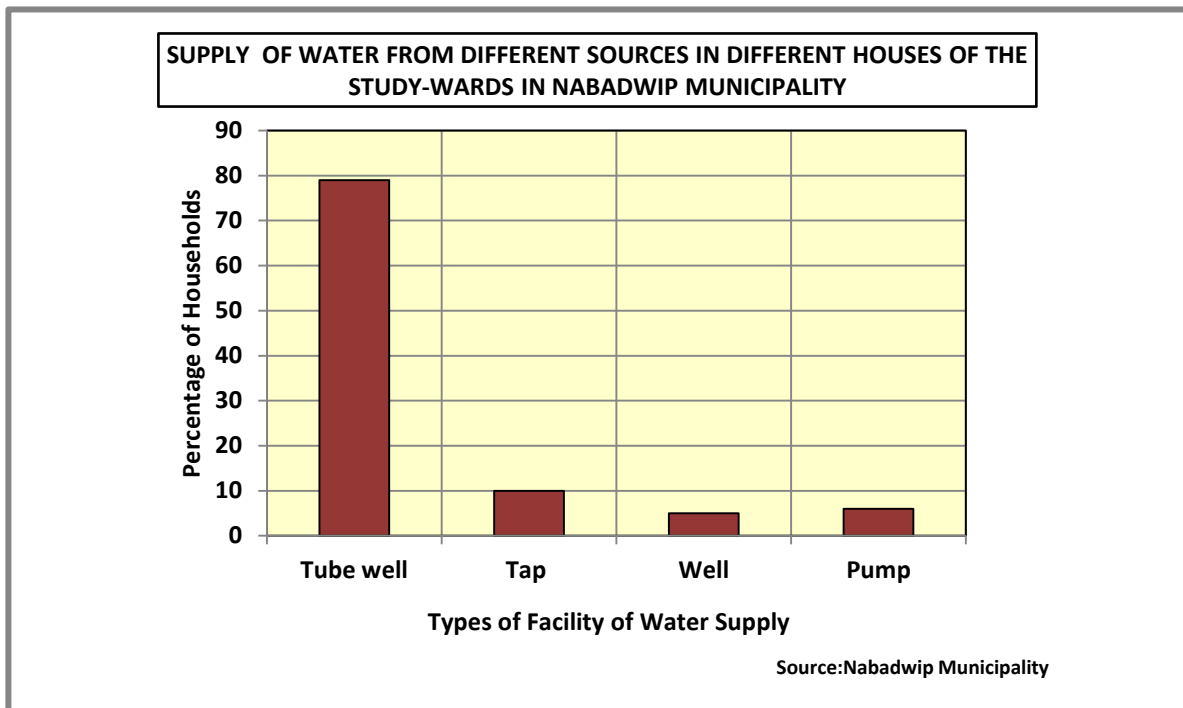
the diagram above, the manifold uses of the ground water has been portrayed and so far the diagrammatic representation is concerned, maximum percentage of ground water is utilized for drinking, washing and bathing purposes. On the other hand, the use of different water purifiers has been shown for the targeted wards and it becomes clearly manifested that in most of the cases, the local people do not use any water purifier. Selected portion of people are using aqua-guard and it has been expresses during the survey that because of high maintenance cost, some of the people have shifted towards the use of the Pure-it Water Purifier. That machine is cheap and has good feedback from the customers.



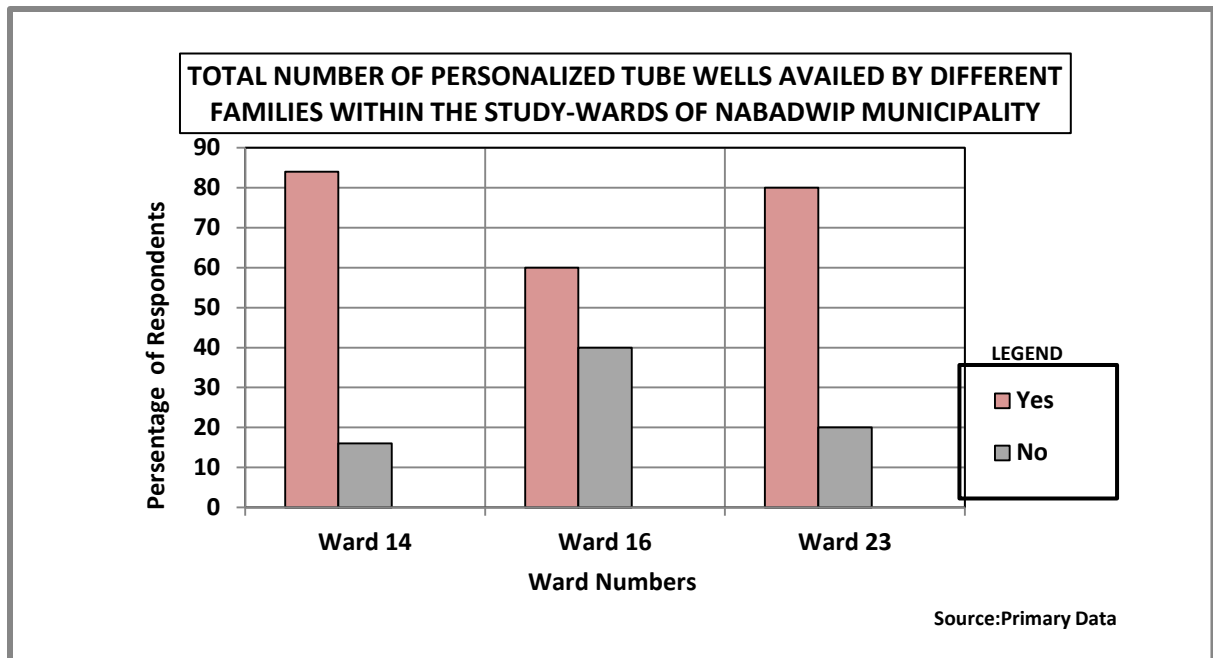
Another survey was conducted to know the frequency of collection of water from the tap connections in the target wards and the researcher was quite inquisitive to know the condition of the tap connections in different households. It has been found that in most of the cases, three to four times a day, the citizen are getting tap water and in ward number 23, a mammoth portion of people are getting water from tap connection for more than four hours a day. It is very much striking that selected few are there in all the study-wards who are not at all getting tap water per day. Actually they have not installed the facilities of tap connection due to several reasons and they fetch water from distant tube wells. So far the feedback from the respondents is concerned regarding the status and stature of satisfaction to them regarding the functioning of the tap water connection, it was found that in maximum cases people are saying it to be more or less satisfactory and some people are there in all the wards, according to whom, the condition of taps are not at all satisfactory. Selected few have pleaded in favour of good facilities of tap-connection.



Special emphasis has to be given on water supply during the festivals. Some stand posts are required at the spots of festivals. The problem identification in different workshops for Operation and Maintenance are to be carried out by the ULB involving ward committee as well. Ward Committee is willing to play the role in supervision and operation. Questionnaire survey has shown that amongst all the sources of supply of water in the urban local body, the contribution of tube well is satisfactory in maximum cases and some of the people do extract water from their personalized well, tap and pump. On the other side, the total number of beneficiary is also high regarding the collection of water per day from the tube-wells. The Municipal authority has installed good number of tube wells in different portions of the urban local body so that at the time of need, they can harness water for their household purposes.

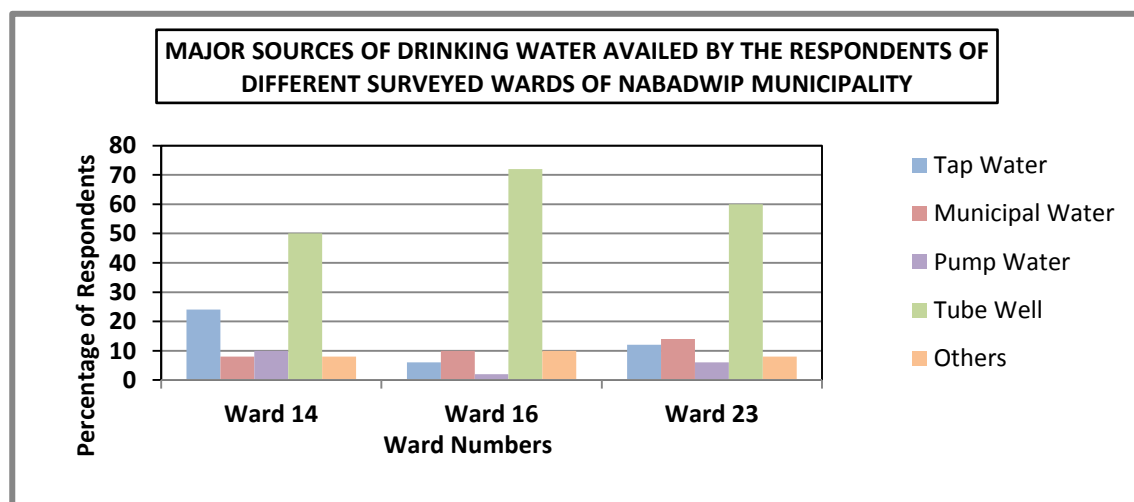




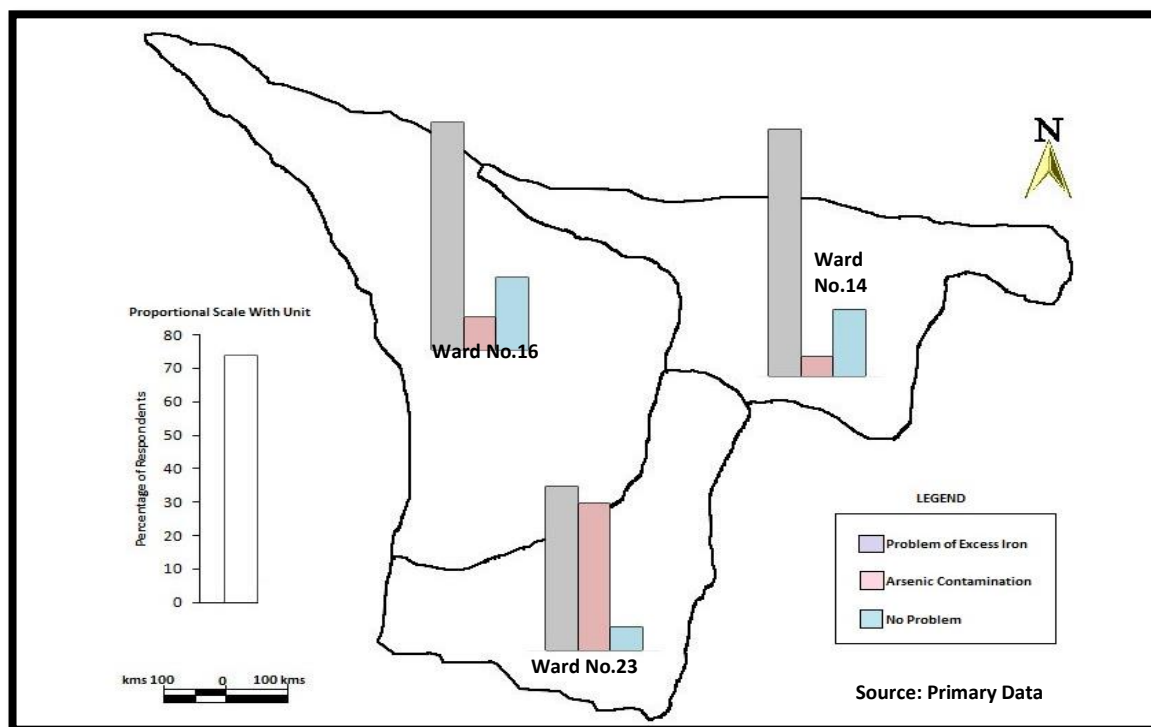


### Drinking Water:-

In the Ward level consultations, the issue of drinking water has been discussed in details. People have given their valuable opinions and suggestions. People have opined that the ULB is expected to provide the infrastructural facilities and capital costs for drinking water harnessing. A coordinating authority has to be formed and they would undertake supervision and responsibility for repairing as well as maintenances. In all the wards, a good number of respondents have personalized tube well and apart from tube-well, they acquire drinking water from some other sources like Tap water, Municipal water connection, water obtained from pumps directly and some other sources. Maximum people are getting potable drinking water from the tube-well. In order to remove the excess iron, they are using iron filters in their personal water-filters. Otherwise the water is free of other problems related to contamination by fluorides.



**PROBLEMS OF DRINKING WATER FACED BY THE  
INHABITANTS OF DIFFERENT STUDY-WARDS OF  
NABADWIP MUNICIPALITY**

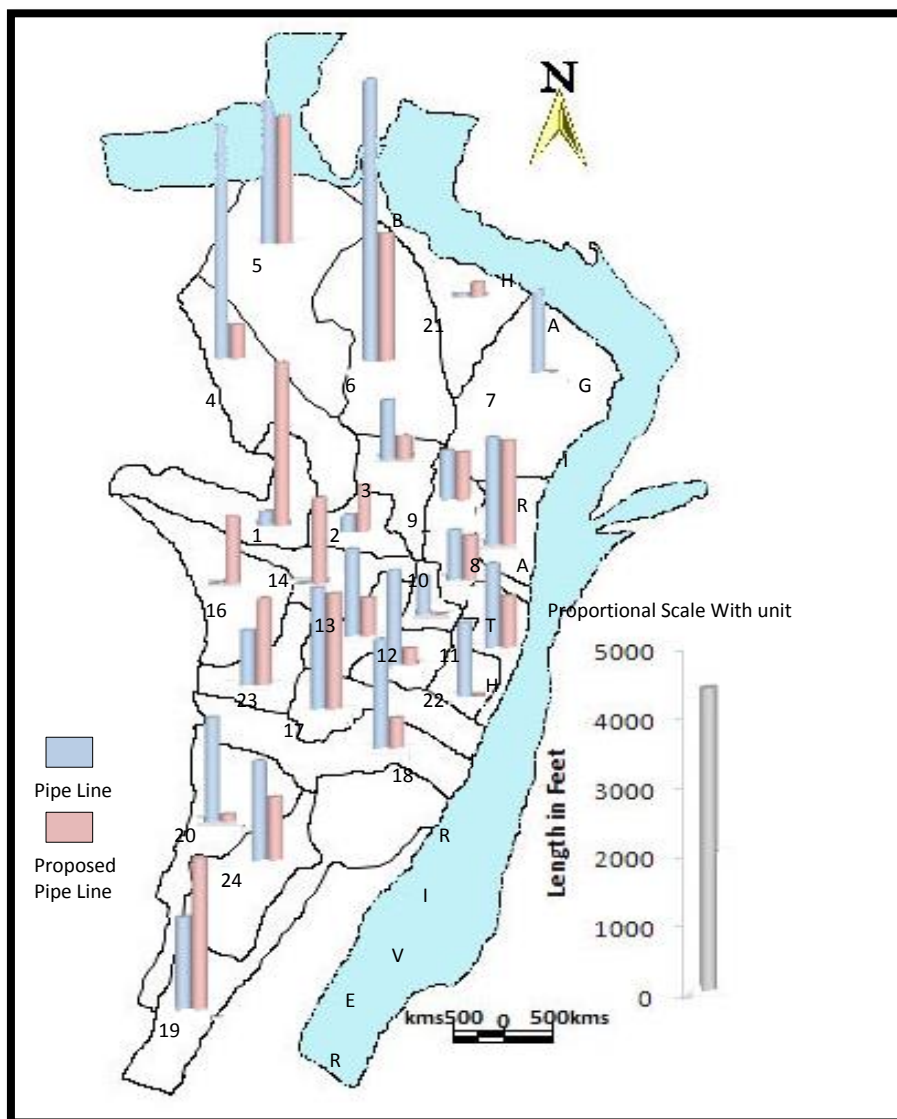


Perception study was run in three targeted wards to get a feedback regarding the problems that they are facing on account of harnessing their regular drinking water from different sources. It has been found that in ward numbers 14 and 16, maximum number of people are suffering from the problem of excess quantity of iron in their drinking water. They use the water for bathing and washing purposes as well. Due to excessive occurrences of iron in the water, there remain red stains in the garment after washing. Some of the people are using iron filters separately but that is not possible for the people who are poverty-stricken. On the other side, some people have reported that due to this particular problem they become compelled to change iron filter quite frequently in their pure it water purifier and aqua guard machine, So automatically they are to bear additional expenses out of it. In ward number 23, the problem of iron infestation in water is relatively lower. Arsenic contamination is also another burning problem in the targeted wards. It has been observed that in all the target wards, there remains the problem of arsenic contamination, In comparison with other wards, it is found in ward number 23 that maximum numbers of people are suffering from arsenic contamination. Because of arsenic infestation, the poor people suffer a lot and patches are developed in different places of their skin. Due to nutritional deficiency, the problem of arsenic infestation is quite serious amongst the poor people. Apart from the problems of iron infestation and arsenic contamination, it has also been noted that in all the wards, certain portion of people are there who do not face any problem associated

with the consumption of drinking water. Actually those people are more or less solvent and therefore they have the facility of water purifiers in their houses. The urban local body of Nabadwip is trying continuously to alleviate the problems of drinking water but not yet they have been fully successful in achieving their goals.

The people are not in a position to pay for the water supply. They would extend voluntary labor to supervision and maintenance works. Special provision has to be made for the pilgrims during the occasions. This might lead huge amount of revenue generation of the municipality. Once the pilgrims would access on the basic amenities in exchange of money then the revenue earning of the municipality will be escalated.

**LENGTH OF PIPE LINES AND PROPOSED PIPE LINES (IN FEET)  
FOR FACILITATION OF WATER SUPPLY IN DIFFERENT WARDS  
OF NABADWIP MUNICIPALITY, 2021**

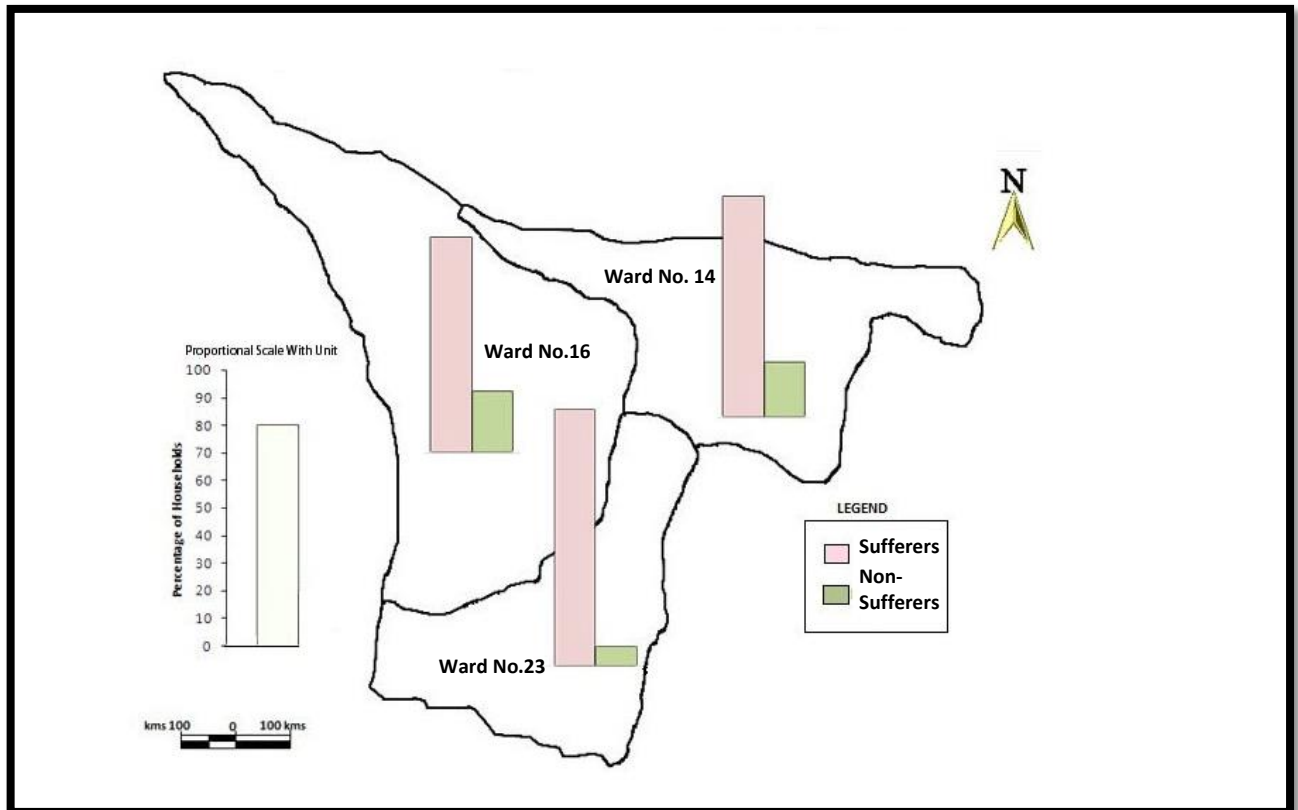


Source: Nabadwip Municipality

## Water Supply: -

The existing water supply facilities in the slum pocket are inadequate. Although the slums have sufficient source of water in the form of either tube wells or existing municipal water sources, but they lack a proper distribution system for efficient use of the water.

### PERCENTAGE OF PEOPLE SUFFERING FROM SAFE DRINKING WATER



In order to solve this problem, a network of distribution lines in some slum pockets have been proposed under Integrated Housing Scheme Development Plan but still there is gap between the desire and the achievement by the ULB. The positive efforts of the Municipality will reduce their inconvenience for procurement of water from a distant place as well as it will improve their personal health and hygiene. There are 718 numbers of Tube Wells, 256 stand posts, 17 km extended pipe line in the slums but house connection does not exist.

## Conclusion:-

After the detailed oriented perception study, run in specific wards of Nabadwip Municipality and counter verification of the primary datasets with that are the secondary ones, the surveyor has reached to the given concluding observations. The specific problems of the study wards have come in the fore front and during the asking of open ended questions to the respondents during the perception survey, some of the people have opined the solution strategies. Actually Nabadwip being an old municipality with great socio-

cultural heritage does have manifold problems of livelihood just because of lacunae in proper implementation of successful planning strategies. Recently the regional planners are putting special thrust to resolve the burning problems of the Urban Local body.

### Findings:-

- Open drainage and its irregular cleaning are the burning problems in the study-arena..
- In the study-wards of Nabadwip Municipality, drain water is falling into the ponds and hence it's leading to the contamination of water.
- Water supply is not regular in wards 14 and 16 of Nabadwip Municipality.
- Water Pollution due to leakage of pipe line in ward 23 of Nabadwip Municipality is a serious issue. -
- In wards 14 and 16 of Nabadwip, people are consuming water with excessive iron.
- Solid wastes are dumped in roadside and open land in ward no.-16.
- In ward 14 and 23, some people burn solid wastes openly on the ground and therefore this practice should be stopped as early as possible..
- In wards 16 and 23 of Nabadwip Municipality, solid wastes are not cleaned and cleared regularly by the Nabadwip Municipality staffs.
- No scientific sewerage network is found for the entire Nabadwip Municipality.
- Open drains' water and solid wastes are getting mixed together with rain water to create lots of disturbances in micro urban units of Nabadwip.

But in the concluding comment, it can be said that if the Local self-Government becomes aware and go hand in hand with some Non-Governmental Organizations, then within a short stipulated time, the aforementioned problems will be alleviated and the infrastructural facilities of the entire study area will be upgraded a lot.

### Selected References:-

- Ahuja, R (2001): Social Problems in India (2<sup>nd</sup> Ed), Rawat Publications, India
- Anderson, N (1959) : The Urban Community, Holt Publishers, New York
- Burgel, E (1955) : Urban Sociology, McGraw Hill, New York
- Census of India ,2011
- Danda, A K (1995) : Urbanization and Slums – Har Anand Publication, New Delhi
- Desai and Pillai (1970) : Slums and Urbanisation, Popular Prakasan, Bombay
- Desai, P (1972) : Profile of an Indian Slum, Popular Prakasan, Bombay
- District Statistical Handbook (2012-2017), Nadia District, Bureau of Applied Economics and Statistics, Salt Lake, Kolkata
- Draft Development Plan (2007-2012), Nabadwip Municipality, Nadia District
- Draft Development Plan (2012-2017), Nabadwip Municipality, Nadia District
- UN Habitat (2003): The Challenges of Slums – Global Report on Human Settlement
- Weibe, P. D. (1975) : Social Life in an urban Slum, Vikas Publishing House, New Delhi