

IMPACT ON THE LIFE OF COMMON PEOPLE FOR THE FLOODS IN COLONEAL PERIOD (1770 AD-1900AD) & RECENT TIME (1995 AD-2016 AD): A CASE STUDY OF NADIA DISTRICT, WEST BENGAL.

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Abstract: Hazard is a harmful incident for human life which can destroy so many precious things like crops, houses, cattle, others wealth like money, furniture, valuable documents and human lives also. So many hazards are happens like earthquake, tsunamis, drought, volcanic eruption, floods etc for natural reasons. Global warming, human interferences increase those incidents of hazard. Flood is a one of the hazard which basically happens for natural reason but human interferences increase the frequency and depth of this which is very destructive for human society. Nadia is a historically very famous district lies between 22°53' N and 24°11' N latitude and longitude from 88°09' E to 88°48' E, covering an area of 3,927 square km under the State of West Bengal in India but regular incidents of floods almost every year in time of monsoon is a big problem here. Unscientific development works from British Period hamper the drainage systems of Nadia and create many incidents of flood in colonial period. Still now millions of people face this problem in various blocks of Nadia. Development in scientific way, preservation of water bodies & river, dig new ponds & canals, increase awareness programme between publics, modernise flood warning system, obey the safety precaution rules in time of flood can save the people from this hazard.

Index Terms: Reasons of flood, History of floods, Present scenarios, Remedies.

I. INTRODUCTION: Flood is a very common natural hazard which happens for the overflow of the river due to heavy rains. People of Nadia district suffer lots for the flood almost every year due to flood. Actually Nadia was famous for healthy climate in pre colonial period. But in time of British rule establishment of railways and other development works destroy the natural drainage systems of district. Illegal construction, promoting business are main reason of floods still now. But those things also increase the chances of water logging through create the obstacles on the natural water flow. So by the use of tight laws those activity should be stopped here for prevent the flood. Unscientific distribution of settlements especially in the vulnerable areas like the side of river, illegal encroachments on water bodies and lands of river banks, improper irrigation systems, occupy the river beds for agriculture increases the incidents of flood in the study area from colonial period to present time which are responsible for huge loss of lives & wealth every year. Awareness programme among the people, rehabilitation programme in time of floods by various Government agencies, trained forces and NGOs are very essential to counter the problems like flood which can save so many lives and protect the economy of district from this hazard which happen almost regularly here.

At present Nadia district is a part of Presidency division but it is historically very rich. Nadia was the capital of Sen Dynasty in Eastern india in time of Maharaja Laxman Sen who was defeated by Muslim invader Bakhtiyar Khilji in 12th century. In 1947 the temporary name of the district was Nabwadip. Actually the name of Nadia came from the name of Nabwadip. 'Nabwadip' literally means the 'land made by nine islands' on Bhagirathi river. According to some historians, a Hindu saint prayed on the banks of River Bhagirathi which was pronounced by travellers of boat that time as 'Nay diya'. Actually this word is the main source of the term, 'Nadia'. Nabwadip was famously known as the 'Oxford of Bengal' because of the existence of many 'Tol's, which means lots of educational centre of literature, philosophy, religious education, Sanskrit, history etc with very high standard in that time. Famous leader of Bhakti movement in medieval age and renowned social reformer Shri Chaitanya Mahaprabhu belonged to Nadia who preached the Vaishnava religion in various part of India. In Modern age, the district of Nadia was formed in 1787 at the time of British rule when some part of Hoogly and North 24 Parganas district were included in it. After that, the reconstruction of so many times in size the district of Nadia finally formed in current size was 23rd February of 1948. Krishnanagar city of Maharaja Krishnachandra is the head quarter of district.

II. LOCATION OF THE STUDY AREA:

The study area has been selected the district of Nadia in west Bengal bounded between latitudes, 22°53' N and 24°11' N and longitude from 88°09' E to 88°48' E, covering an area of 3,927 square km, which located at the lower deltaic plain and surrounded by Murshidabad on the north & north-west, on the east by Republic of Bangladesh-length of common international border is 265 KM., On the south & south-east North 24 Parganas and on the west by East Burdwan and south-west by Hooghly.

The district is divided by the river Bhagirathi- Hooghly and other important river of the district are Jalangi, Churni, Mathabhanga, Ichamati, Padma and Jamuna. Most of them are tributaries of the river Bhagirathi. Bhagirathi's last tributary delta region Mathabhanga begins from it and Bhairab River include with it. Churni and Ichamati originate from Mathabhanga. These rivers frequently changes there route and they is highly flood prone.

The Nadia district consisting of 04 Sub-divisions named Tehatta, Krishnanagar Sadar, Ranaghat and Kalyani from north to south with 24 Police stations and 1406 Mouza. The district has 17 Blocks, 17 Panchayat Samity, 185 Gram Panchayat and 3205 Gram Sansad also with 09 Municipalities and 02 Notified Area and number of Ward in them are 208.

The total population of the study area is 5167600 among this 2653768 Male, 2513832 Female and 87 belongs from 3rd Gender. The Gender ratio of the district is 930 and Population density is 1315.91 according to the National census report of 2011.

LOCATION MAP OF STUDY AREA

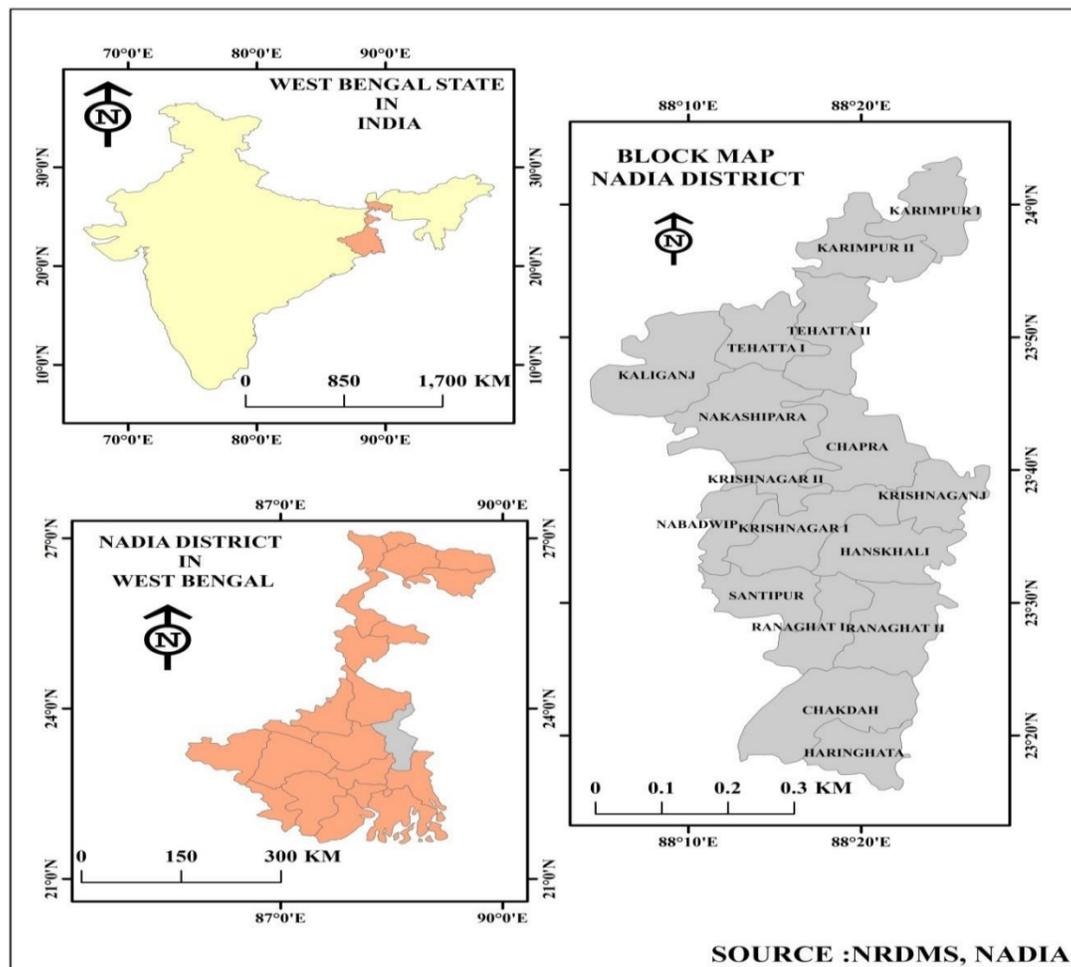


Figure: 1

III. SIGNIFICANCE OF THE STUDY:

Rising of the water level cross the embankment is called flood. Every rainy season is called the season of flood. Flood can happen both gradually or suddenly due to beach of the water control structure, spill over or heavy down pour cause in the region. Bengal is the main centre of natural hazard. Nadia is the surrounded by the rivers and nearest place of the Bay of Bengal. Flood hazards wood worsens & El-Nino becomes a phenomenon. Bengal is situated on the international border it is combined of the sea.

Flood brings sorrow, troubles and difficulties for the human being, living things etc. Flood plains are in general those most subjects to recurring floods situated adjacent to rivers & streams & it is caused flood prone area. Bhagirathi & river Ganga & its tributaries are presents for flooding. Monsoon & Monsoonal rains caused flooding in area. Monsoonal rains & tropical cyclones drive streams in the Bay of Bengal. British rule in colonial period is also responsible for change the Nadia as a flood sensitive district. Millions of people suffer by floods in Nadia. Unscientific way of land use and over interferences of administration from British period on drainage systems are main reasons of floods. Even in recent time 300 persons were injured & 30 thousand houses destroyed subsequently 2000 people were evacuated from the city in 2006.

IV. AIMS AND OBJECTIVES:

The present study analyse the flood scenario of Nadia district in time of British rule. It also highlights the reasons and present scenario of flood and impacts of it on human life.

- .To studies the history of floods in Nadia district.
- To study the present an overview scenario of flood in Nadia district.
- To identify the flood problem and damages due to flood of study area.
- To find out the political reasons of flood in the study area.
- To conceptualize the factors responsible for flood in the study area.
- To assess the impact of on-going measures to mitigate the devastation made by recurring flood.

V. HYPOTHESES:

- A number of hypotheses have been formulated to study the problem. They will be tested on the basis of gleaned data. Some of the hypotheses are as under
- The nature of topography and level of land are related with the occurrence of floods.
- The sudden onset of flood and rise in the volume of water due to flow of upstream water towards downstream channel is the main cause of flood in the districts.
- Historically Nadia is a flood prone district.
- British rules in colonial period are responsible for floods in the district of Nadia.

VI. DATA AND METHODOLOGY:

The present investigation is based on primary and secondary data both. In order to achieve the objectives of the study, the necessary primary data are to be obtained from individual respondent through Questionnaire associated collection by the help of door to door survey with hazards & systematic cum analytical method will be adopted for coming to the conclusion.

The required secondary data has been collected from Disaster Managements, Department of flood control; Govt. of West Bengal. Central Water Commission, Ministry of water resources Govt. of India, published & unpublished literatures will also be consulted. Several other Government departments and Libraries, internet browsing, books, National and International journals, and reports published by Govt. and non-government organizations, individuals, etc also very important sources of data.

Maps & diagrams, Cartographic Presentations have been drawn and interoperated on the preliminary report of the field and secondary data also. Statistical Techniques are also the part of methods. The data findings have been represented by appropriate cartographic techniques. The block in the unit of study, for the analysis and comparison the entire data is reduced to per cent. The relevant information has been organised, classified and tabulated by suitable techniques and mapped using suitable Geographical methods.

VII. CAUSE OF FLOODS IN NADIA:

Heavy rainfall and limited carrying capacity of the river Bhagirathi-Hoogly from Jangipur in Murshidabad to Kalna in Burdwan generate flood in the basin of Bhagirathi. In this reach the Bhagirathi has discharge carrying capacity maximum 1.3 lakh. Cusec but all the rivers can generate run off volume of any amount between 4-6 lakh. Cusec in their catchment areas if receive rainfall simultaneously. There is only the Massanjore dam to interfering with these natural flows of flood water in this vast tract of land.

Shape of the catchment area is the basic reason of flood in this region. Because of steep slope from a high level plateau area sloping sharply down to a flat terrain near the outfall and also adverse outfall condition for its limited intake capacity. This feature is again adversely affected by the tidal condition in the generally month of September, when the river Bhagirathi is in high tide condition. Spread of flood in the upstream of the river system in the west and beyond Berhampur due to the delay in drainage causes by more accumulation. Generally the district of Nadia suffer by flooding for three reasons; they are-

I. High intensity rainfall in the basin area of Bhagirathi-Jalangi-Ichamati River due to Monsoon.

II. Flood water flow from Ganga-Padma and its tributaries in high speed.

III. Drainage congestion at its outfall due to the high stage of Bhagirathi.

Source: West Bengal Disaster Management & Civil Defence Department.

VIII. POLITICAL FACTOR OF FLOODS:

“Urban areas need flood protection most, rural areas the least, And in the countryside it is the richer land owners who will gain from flood control. They can invest in the modern method of irrigated farming – to plant HYV of crops that require the flood protection banks the government is to provide. But the poor farmers and fishing communities will find their catches and crops dwindling if the annual flood is lost.” (Pearce,1992:250)

Political, economic & social context determine the vulnerability in any kind of natural hazard including flood for people who are victims. Public's own variable characteristics is the key issue like their capabilities, resilience & awareness to derive the vulnerability mapping are a significant part of the disaster equation.

“Vulnerability is analysed as being developed from a range of socio-economic approaches to floods and “the disaster of everyday life.” (Blaikie et al, 1994; Cannon 1994).

Vulnerability of public life depends on political reason very much. Political willingness is very important behind the use of modern technology to understand the advance news of floods, awareness programme, to manufacture the rescue centre from flood in a particular area.

Floods are understood as natural disasters because they all disrupt the society. An individual and social organisations affected by natural hazard like flood. Hence, there exists a social gradient to floods which make it as just like a social disaster. Hewitt's Interpretation of calamity (1983) provided a critical alternative to the dominant view, with its interpretation of disasters as phenomena outside the ordinary and every day.

The cause and processes whereby one has slipped into poverty from a relatively better economic condition is well understood and articulated by the concept of initial well-being for people. Yet at no time, was the river or the rainfall blamed. Rather than the river, it was the change of course which was highlighted as the main course. The fact that agrarian communities are dependent on their land because the land near to river specially those are flood prone is heavily fertile as well as excellent for the production of crops like paddy, jute, corn, sugarcane etc and not only that they have no scope to take any other option of job for their poor social and economical profile which has become a scarce commodity in the state. As a result they have no any other option either choosing to stay on in flood prone areas or sacrifice their life or wealth in the time of flood every year.

In British period Nadia district is one of the most revenue earning area for them but British government as like their colonial mentality not so bother about the poor condition of agrarian people who faces the devastating flood. After independence Government take so many steps to control the flood but they are still not enough for public. Farakka Barrage, D.V.C was made for many reason with prevent the flood but still have not get final success in this matter. Many times those dams cannot hold the water pressure for their week condition especially in rainy season and unable to control the crucial situation in control of flood. Because release of water from dam is essential to save the dam that time and those water create flood in down slope area belongs from Nadia that time. In few time wrong decision of Government or casual mentality of employee related to dam like open the more lock gate in improper time responsible of flood in Nadia district. One of the most devastating flood in recent time occur in 2000 was happens for the excessive water release from dams especially under the D.V.C. It was called as a “Man made flood” by the opposition leader that time. Regular dredging in the reservoir of dams are very essential to continue the actual storage capacity of them because without it for the siltation of clay in the reservoir they should lost their capacity to hold the water in crisis period. Time to time thorough check up of the construction of dam is very essential to save the dam from broken and control the flood. But unfortunately some political sources say that those works are not done in proper time and those dams lost their storage capacity. Cause of flood in 2000 and 2006 is one of this, that lack of management of dams. Once Chief Minister of West Bengal bring an allegation on the Farakka barrage authority the lock gate of barrage not work properly and they always been open without any concern of Government. Not only is that dredging in the river bed very necessary to increase the carrying capacity of river. River like Churni, Jalangi, Ichamati and other canals of the district lost their force. So it is essential to dredging on those river beds. But unfortunately Government is not so careful regarding this matter and not only that in few cases the sanctioned amount of money regarding this matter is not enough or due to the corruption those money are not fully use or misuse by the government officer or political leaders of the district. Public responsibility is also very important to save the natural drainage system and water bodies of the district. So time unscientific use of water increase the eutrophication level of water on those water bodies and they lost their hydrological ecosystem, destroy the ph level and decrease the oxygen level in water and increase the amount hydrophyte which damage the flowing capacity of natural drainage system. Condition of Anjana River near Krishnanagar or condition of Mathura canal of Kalyani is the example of that. Illegal construction on water bodies, Forceful promoting of flats and housing complex with the capturing the land of water bodies almost every municipal towns of the study area like Krishnanagar, Ranaghat, Kalyani, Chakdah and villages are a serious problem now. Flood water or extra water in time of heavy rain is not been bypass for this reason. Strict law and application of them through police & administration is very necessary regarding this matter is very necessary. Condition of manmade drainage system is very poor in Nadia especially in cities like Nabadwip, Shantipur, Krishnanagar etc almost in time of British period. It is the duty of local bodies to modify them but some time lack of political willingness and improper funding create obstacles in this matter. Huge numbers of people are very poor in the study area. Their main occupation is farming or fishing and they lived in the river bank of Bhagirathi, Jalangi or Churni like in the Majherchor of Kalyani, Kalinarayanpur of Ranaghat for fertile land and availability of fish. Those area are highly vulnerable and almost every year they suffer by flood. So replace them from those areas and allotted land to them in safer area, aware them about the risk of flood in time to time and construct their house properly as well as create alternative source of income for them through education and technical training is very necessary. Unfortunately subsidies coming from them not utilise properly for them and amount of money coming in the rescue period in time of flood hazard are forfeited by political leaders and Government officials. Illegal brickfields and sand collection centre in the river banks like Bhagirathi, Churni etc in the places like Kalyani, Ranaghat, Shantipur, Pallasey destroy the nature of river bed which is very harmful and create flood. Role of concern Government department like Land department, Fishery department, local Government bodies like panchayet, municipalities as well as Political willingness is also very important regarding this matter.

Hazards are the all time partner of Bengal. A natural hazard does not mean not only flood, epidemics, heavy rain, lack of rains, storms and landslides all of them are under it. In the time of colonial period Nadia district have those entire natural hazards in cyclic order and flood is one of them.

Nadia district under the lower Gangetic plain are made by new alluvial soil carried by the long or short rivers like Bhagirathi, Padma, Jalangi, Ichamati, Churni, Bhairab, Gorai etc. Various types of paddy like, Aush, Aman and many types of food grains are the main production of crops here. But produced in the northern side of the district and different types of tasty fruits like mango, jackfruit, coconut, blackberry, litchis are produced here. Basically two type of land scenario followed here. One is alluvial soil which deposited by various river and soil produced by the erosion of rainfall another is the top level of soil made by tidal force. Except river there have huge number of canal, tanks, baor, water bodies or ponds made by rain water. Those water bodies are help to produce soil in the district and they also supply the water for agricultural purpose in absence of planned irrigation system here. Kumuthnath Mallik wrote that, Nadia is an ideal place of business and trade for the facilities of agriculture and river.

As such, life and livelihood blossomed along the banks of these rivers. Famous business places of past like Shantipur, Kaliganj, Chakdah, Nabwadip situated on the bank of River Bhagirathi, Ranaghat and Hanskhali on the bank of River Churni, Karimpur, Aduliya, Krishnanagar, Swarupganj on the bank of River Jalangi, Krishnananj, Majdiya, Boyaliya, Nanaganj, Alamdanga, Pangsha on the bank of River Mathbhanga and Kustiya, Kumarkhali Khola etc on the bank of River Padma.

IX. HISTORY OF FLOODS IN NADIA DISTRICT:

Not only was Nadia an agriculture-based famous land or river-centric ideal business area, but it was also popular for excellent healthy climate where Chief Justice of Supreme Court this time Sir William Jones came here in 1784 A.D. and continued to stay here for three months in a year; it was also known from two letters for written to the Court of Directors in Kolkata in 3rd January and 23rd February of 1713 A.D. that Governor of East India Company in Kolkata Mr. Rassel came here for recover his health. As well as huge number of public came here for recover their health. Deewan Kartikeya Chandra Roy wrote that, from the seven-eight *kros*h distance of Kolkata in north to Murshidabad all the occupied area was very healthy. Especially the climate of Krishnanagar on the river Khariya was superb and people came here from the everywhere of Bengal for regain their health. So it can be easily tell that Nadia was superb in all the sectors like agricultural productions, production of fruits, flowers, healthy climates etc from the old age period to till the starting period of Colonial period. But from the starting of Colonial rule for more profit in business; production of cash crops on the alluvial soil in the district, making the levees, construction of railways caused floods and other types of natural hazard again and again.

In the times of colonial period mainly flood heavily impacted on negative way towards the livelihood of common people. The main rivers of district like Bhagirathi, Padma, Jalangi, Mathabhanga, Ichamati does not carry the extra water due to rainfall because of fulfil the river bed by sediment for natural or human related reason. Due to the Permanent settlement British Government as well as zamindar constructed barrier on the sides of the rivers from 1793 A.D. to 1879 A.D. and as a result stopped the mixing of extra water of river with canal, ponds and tanks. At past it was easy to release the water in time of heavy rain from river for the well connectivity with canals or tanks. Tanks could not capture too much water for the cultivation of cash crops like indigo, jute etc. Hindu-Patriot paper wrote that, today the drainage systems of villages are damaged. Not only that the character of rivers are lost for the construction of roadways and railways. In 1862 A.D. Kolkata to Kustiya of Nadia district railway started under the Eastern Bengal Rail and in this 100 mile rail way there was 21 rail stations. To save the railway and rail stations riversides, canals and tanks filled that time which was very destructive in sense of occurring flood hazard. River Churni change the route in 1898 A.D. when Ranaghat to Krishnanagar railway established via Shantipur through Aishtala Ghat. According to the survey in 1850 A.D. the lowest deepness in dry season of Bhagirathi, Jalangi and Mathabhanga rivers were 2 feet 6 inches, 3 feet 00 inches respectively and in the time of flooding deepness of those rivers were 20 feet, 29 feet, 22 feet 6 inches, 24 feet. But in 1853 A.D. the lowest deepness in dry season of Bhagirathi, Jalangi and Mathabhanga rivers were 2 inches, 00, 3 inches where in the time of flooding deepness of those rivers were 14 feet 6 inches, 24 feet, 18 feet 9 inches. That means it is clear that those rivers were lost their deepness of river bed due to the siltation and the lost of rivers natural rhythm was the cause of devastating flood in extreme rain. For that reason J.H. Garrett write- Nadia is one of the main district belongs from lower land which are flood prone.

People of Nadia face two destructive hazards in the initial stage of colonial rule one was Epidemic in 1770 A.D. And the second was devastating flood in 1770 A.D. In 29th September of 1770 A.D. water pressure has been increased in all the river of lower land for Continuous rain. Due to the increasing water pressure in Damodar and Bhagirathi River the water level also increase in Padma, Jalangi, Mathabhanga, Ichamati and Churni. As a result Nadia has flooded. Flow of Bhagirathi started to change in the flood of 1747 A.D. on Nabwadip area. Which has been permanently changed in the flood of 1770 A.D. and Bhagirathi started to flow from the east side of Nabadwip. In 1787 A.D. Nadia was again affected by flood in the month of November due to heavy storm and rain. After this floods happened on Nadia in 1796, 1799, 1801 and 1820 A.D. respectively. Among them the flood of 1796 and 1799 A.D. was very dangerous. Agricultural structure and agrarian society of the district highly effected for those respective flood. Moreover that high rate of taxation on them by British Government increases the Crisis and created a different type of middle man in society by British who have called new zamindar or Ijaradar group. In the flood of 1820 A.D. Nabadwip also have flooded and Bhagirathi permanently flow through the western side of Nabadwip. After three year Nadia effected by a destructive flood again for the overflowing the rivers. Krishnanagar, Jinukghata, Kumarkhali, Nabwadip, Khalbouliya, Chapra among all the vital business spot was in under the flood water. Bhagirathi river far away 1 Kilometre in north from Daihat and near Agradwip it changes the route towards south direction. River bed also 4 K.M. away in south direction from Ghoraihetra and Goatpara. In 1830 A.D. flood was happened again in Nadia and price of food grains almost hike double. Decrease the rate of food production and food collection which was also hit the economy of village in the study area. After that the people of Nadia district suffered by destructive floods in 1838, 1856, 1859, 1867, 1871, 1885, 1887 and 1890 A.D. and among those floods the flood of 1856, 1867, 1885 and 1890 A.D. were most deadly.

Because of the flood prone characteristic of Nadia district people in this area suffered by so many floods after 1856 A.D. just for the heavy rain of few days. In this decade the person belongs from the sides of Jalangi, Mathabhanga and Churni River were mostly suffered. Diseases like Malaria spread hugely in the places like Ula, Ranaghat, Chakdah, Bongaon, Godkhali and Krishnanagar. W.W. Hunter wrote that, in 1856 A.D. this flood at first observed in the Godghat of Jasohar and after that it was spread in Godkhali of Nadia and then it washed out publics from the places like Chakdah, Naogram, Ranaghat, Anuliya, Kayetpara, Krishnanagar etc. According to the report of Dr. Eliot in 1864 A.D. unhealthy water bodies, ponds, atmospheres are responsible for this epidemic.

A heavy flood happened again in 1859 A.D. and as a result the price hike of rice increases multiple times. Rate of rice was 20 rupees per Mon which was out of the capacity for a farmer who could not earn more than 9 Ana after a whole day work. This situation was continued in 1964 A.D. also. Because 5th October of 1864 A.D. A huge cyclone happened in Andaban & Nicobar Iceland which created floods in the study of area. Flood occurred again in 1866 A.D. and 1868 A.D. Kumudnath Mallik said destructive flood happened again in 1871-72 A.D. when rail road destroyed. At every time common people of the district faced those flood hazards bravely despite the loss of life and wealth both. In 1885 A.D. people of the district faced flood again. Satishchandra Mitra wrote that 11th September in 1885 A.D. water level of Jalangi rose by 19 foot and western part of the district under in the flood water. Flood again occurred in 1889 A.D. and 1890 A.D. which the people tackled successfully. Paddy production almost half during this time and except the British Government sanctioned agricultural loan and relief materials the situation should not be changed. In 1892 A.D. and 1897 A.D. flood happened in the huge area of Nadia. In 1900 A.D. people of Nadia also faces huge loss. Willcocks wrote that at past our old generation used to fertilate the agricultural land through "Overflow Irrigation." But from 1770 A.D. to 1900 A.D. Cultivations of cash crops side in the Rivers, canals are play the vital role in behind flood. Development and prevention of malaria is necessary to control the flood. But colonial rule highly influenced negatively on rivers which is exemplified by River Embankment. As a result floods, malaria, cholera were increased day by day. Lord Cornwallis introduced Permanent Settlement to increase the rate of royalty through taxation. From 1793 A.D. to 1871 A.D. British Government and Jamindar created bar on river for agricultural development which is the cause of lost the rhythm of rivers. In 1819-20 A.D. Collector of Nadia G.K. Robinson took the initiative to the Mathabhanga River. At first in 1823 A.D. cow operate dredging machines of 10,400 Pound brought in Nadia and also brought Stemmer operate dredger in 1828-29. Except that Kumud Nath Mallick wrote that, 1861 A.D. to 1870 A.D. 249,632 Rupees 4 Ana income from rivers in ten years and 145,294 Rupees 4 Ana expend; that means actual profit was 101,538 Rupees which was not enough to actual development.

X. BLOCK WISE VULNERABLE AREAS IN NADIA DISTRICT

People of Nadia district suffering by several flood problems in recent time. According to C.D. Blocks some of those listed below-

10.1. KRISHNAGAR SADAR SUB DIVISION:

People of Nadia district suffering by several flood problems in recent time. According to C.D. Blocks some of those listed below- Krishnanagar is a famous town of Bengal from Pre-colonial period which is named as the name of popular king of Nadia Krishnachandra Roy. The city coordinates 23.40 degree North latitude and 88.50 degree East longitude. It has 08 police stations, 07 community development blocks, 07 panchayat samitis, 77 gram panchayats, 534 mouzas, 487 inhabited villages, 02 municipalities and 16 census towns.

10.1.1.. KRISHNANAGAR-I BLOCK:

In 2015 flood happens on Krishnanagar-I block. Where approximate 525 numbers of people affected, 110 houses damaged and 300 people shifted in temporarily to the flood shelter in Char Shmbhunagar and Puratan Shambhunagar hamlets where no casualties happen and no livestock damaged under Ruipukur Gram Panchayet. Approximate 875 persons affected by flood where 600 people shifted in temporarily to the flood shelter Anandadas, Satkulia and Jungalbas Hamlets under Bhaluka Gram Panchayet and approximate 140 houses damaged but no casualties happen and no livestock damaged reported. According to the census of 2011 census it has 2,186,503 populations among them 79.205% rural and 20.795% urban population in the area of 1661.10 squares Kilometre.

10.1.2. NABADWIP BLOCK:

Due to water logging for heavy rainfall in 2015 Of C.M.C.B GPS 105 people affected and crops damaged fewer than 99 hectors of land. 180 people affected and crops damaged fewer than 110 hectors of land in Mahisura Gram Panchayet Sansad due to flood where 156 people affected and crops damaged fewer than 117 hectors of land in Majdia Pansila Gram Panchayet Sansad but 180 people affected and crops damaged fewer than 110 hectors of land in Mahisura Gram Panchayet Sansad and 204 people affected and crops damaged fewer than 135 hectors of land in Mayapur Bamunpukur-I Gram Panchayet Sansad as well as 217 people affected and crops damaged fewer than 125 hectors of land in Mayapur Bamunpukur-II Gram Panchayet Sansad in 2015. 135 people affected and crops damaged fewer than 156 hectors of land in Swarupganj Gram Panchayet Sansad and 225 people affected of Bahirchara and all sansads hamlets under Fakirdanga Gholapara Gram Panchayet Sansad and crops damaged fewer than 199 hectors of land in 2015. No human live lost and no livestock damaged according to report.

10.1.3. NABADWIP MUNICIPALTY:

In 2015 at least 21 numbers of wards out of 24 were affected and under the water due to flood where 21508 persons in 24 numbers of ward were affected as on report 20.08.2015. As a result 02 people died where 3736 houses fully damaged and 9072 partly. Severe impacts looked on Agriculture, Handloom, Biri binding and readymade garment workers for this flood.

10.1.4. KRISHNANAGAR-II BLOCK:

8000 people affected and house damaged 1600 in Sandhapara-I Gram Panchayet Sansad due to flood and 07 live stocks damaged. 20200 people affected and one people died as well as house damaged 500 in Belpukur Gram Panchayet Sansad. 1200 people affected and house damaged 150 in Dhubulia-I Gram Panchayet Sansad and 10 live stocks damaged in the flood of 2015.

10.1.5. NAKASHIPARA BLOCK:

In 2015 flood happens on Nakashipara block. Where approximate 11000 numbers of people affected, 800 houses damaged and some people shifted in temporarily to the flood shelter in Chakurmipara, Sardanga, Gotpara and Dangamat hamlets where no casualties happen and no livestock damaged under Nakashipara Gram Panchayet. Approximate 10000 persons affected by flood in Madhupur, Mathurnagar, Kulepota and Basudebpur Hamlets under Majhergram Gram Panchayet and approximate 950 houses damaged and one casualty happen where no livestock damaged reported. Approximate 23000 persons affected by flood Kinupota, Karkoia, Bepodanga, Udamdanga and Adampota Hamlets under Dharmada Gram Panchayet where one person died, approximate 1680 houses damaged but no livestock damaged reported. Approximate 4000 persons affected by flood Jagonnathpur, Chandanpur, Gopalpur, and Kasiadanga Hamlets under Billwagram Gram Panchayet where no casualty reported, approximate 102 houses damaged but no livestock damaged reported. 1550 persons affected by flood Lohagachha, Gachha Baganpara and Gachha Basepara Hamlets under Muragachha Gram Panchayet where one person died, approximate 78 houses damaged but no livestock damaged reported. 2000 persons affected and one died with 120 houses damaged in Dhananjoypur Gram Panchayet. In all Gram Panchayets some people shifted in temporarily to the flood shelter under this block.

10.1.6.. KALIGANJ BLOCK:

In 2000 all GPs of the block suffered by the flood. 200000 people are affected by this destructive hazard where National Highway 34 was inundated in some areas and in 2003 approximate 4000 people of Manikdih, Ghasuridanga, Narayanpur, Khidirpur hamlets in Kaliganj Gram Panchayet and 7000 people of Bhagyabantapur, Fulbagan, Noachar and Ballavpara hamlets in Gobra Gram Panchayet affected as well as some areas were inundated. 3000 people affected in Char Chakundi, Charchuadanga and Ghorai Khatra under the GPS of Rajarampur Ghorai khetra.

In 2006 more than 3000 people of Matiary, more than 10000 people of Gobra, more than 8000 people of Kaliganj, more than 7000 people of Rajarampur Ghorai khetra Gram Panchayet Sansad and people of Faridpur as well as Plassey-I GPS affected by flood like situation and in 2015 near about 7000 people in Barachandghar, 13000 in Debagram, 10000 in Faridpur, 20000 in Gobra, 15000 in Hatgachha, 13000 in Juranpur, 21000 in Kaliganj, 9000 in Matiary, 11000 in Palitbeghia, 10000 in Panighata, 9000 in Plassey-I, 8000 in Plassey-II, 8000 in Rajarampur Ghorai khetra, 7000 in Mira-I, 6000 in Mira-II are affected by flood and water logging.

10.1.7. KRISHNAGANJ BLOCK:

In August of 2015 nearly 800 people affected and 26 house fully and 42 partly damaged in Joyghata Gram Panchayet. 900 people affected and 22 house fully and 58 partly damaged in Matiary-Banpur Gram Panchayet and one died due to snake bite, 400 people affected and 18 house fully and 32 partly damaged in Gobindapur Gram Panchayet, 500 people affected and 22 house fully and 42 partly damaged in Taldah-Majhdia Gram Panchayet, 300 people affected and 14 house fully and 24 partly damaged in Krishnaganj Gram Panchayet. Crops, roads damaged and livelihood stopped for the labour classes almost every part in the block.

10.1.8. CHAPRA BLOCK:

In 2016 a flood like situation due to heavy rain falls and storm on Badlangi, Fulkalmi, Nabinnagar, Elangi, Goaldanga, Kalyandaha and Padmamala hamlets of Pipragachhi Gram Panchayet Sansad 17221 persons effected where 3119 house damaged and public suffering for their daily needs like food, drinking water etc. Crops, Cattles, Roads etc. were damaged due to this flood like situation.

10.2. TEHATTA SUB DIVISION:

The Tehatta subdivision is topographically part of the Nadia Plain North. The Jalangi River forms the subdivision border in the north-western part and then flows through the subdivision. The head quarter coordinate 23.70 degree North latitude and 88.55 degree East longitude. Tehatta subdivision has 05 police stations, 04 community development blocks, 04 panchayat samitis, 36 gram panchayats, 240 mouzas, 217 inhabited villages and 02 census towns. According to the census of 2011 census it has 796,245 populations among them 97.15% rural and 2.85% urban population in the area of 862.18 squares Kilometre.

10.2.1. TEHATTA-I BLOCK:

Tehatta-block affected by flood like situation & water logging in 2000 heavily when 8000 people suffered, near about 90 houses damaged, crop damage occurred around 100 ha and 350 livestock damaged in Chandergat Gram Panchayet. 5000 people suffered, near about 94 houses damaged, crop damage around 50 ha and 200 live stocks damaged in Tehatta Gram Panchayet. 6000 people suffered, near about 56 houses damaged, crop damage around 50 ha and 200 live stocks damaged in Raghunathpur Gram Panchayet. 4000 people suffered, near about 40 houses damaged, crop damage around 40 ha and 250 live stocks damaged in Patharghata-I Gram Panchayet. 4000 people suffered, near about 50 houses damaged, crop damage around 100 ha and 300 live stocks damaged in Patharghata-II Gram Panchayet. 8000 people suffered, near about 125 houses damaged, crop damage around 100 ha and 240 live stocks damaged in Kanainagar Gram Panchayet under Tehatta-I block.

In 2nd May, 2015 due to storm approximate 70,000 people of 62 hamlets spread over all 11 Gram Panchayet Sansads under Tehatta-I block affected and 214 houses damaged where 1040 ha crop damage including 240 live stocks damage happened and in 2015 due to rainfall & water logging hamlets like Dhopotto Daspara, Dhopotto Muslimpara under Chandraghat Gram Panchayet 276 persons suffered, 23 house damaged and 6000 man days loss in this block.

In August, 2015 due to rainfall & water logging approximate 25,000 people of 55 hamlets spread over all 11 Gram Panchayet Sansads under Tehatta-I block affected and 14 houses damaged where 3435 ha crop & vegetable damaged.

10.2.2. TEHATTA-II BLOCK:

In 2014 the people of Bareya hamlet under Palsunda-II Gram Panchayet Sansad suffered by flood and in 2015 the people of Chakbehari and Baur hamlets under Hanspukuriya and Palashipara Gram Panchayet Sansad suffered by flood. The road also submerged in this area.

10.2.3. KARIMPUR-I BLOCK:

Due to the flood in 2000 near about 458 persons suffered, 15 casualties happened, 121 houses damaged, 2458 ha. Crops damaged, 11 cows and 45 goats died in Madhugari Gram Panchayet Sansad and due to the flood in 2000 near about 354 persons suffered, 08 casualties happened, 78 houses damaged, 1598 ha. Crops damaged, 07 cows and 12 goats died in Karimpur-I Gram Panchayet Sansad.

Due to the flood in 2000 near about 312 persons suffered, 05 casualties happened, 88 houses damaged, 1354 ha. Crops damaged, 05 cows and 47 goats died in Shikarpur Gram Panchayet Sansad and due to the flood in 2000 near about 145 persons suffered, 05 casualties happened, 47 houses damaged, 452 ha. Crops damaged, 08 cows and 28 goats died in Karimpur II Gram Panchayet Sansad.

10.2.4. KARIMPUR-II BLOCK:

Flood happened in the years of 1978, 1980, 1987, 1998, 2000 and 2002 respectively in Karimpur-II blocks when all the people of 10 Gram Panchayet Sansad affected and at least 195000 persons suffered, 08 casualties, 9350 house damaged, 171 losses of live stocks as well as huge amounts of agricultural labour lost work.

10.3. RANAGHAT SUB DIVISION:

A myth is still prevalent that the name of the Sub divisional town came from the bandit 'Rana Dacoit,' who used to pillage this area 500 or 600 years back and he used to give pujas to the goddess Kali to thank her. A more likely origin for the name of the town comes from Rani (Queen) or Rana (a Rajput warrior) and ghat (Steps leading to the river). The head quarter of subdivision coordinate 23.18 degree North latitude and 88.58 degree East longitude. The Subdivision have 06 police stations, 04 community development block, 04 panchayat samitis, 47 gram panchayats, 327 mouzas, 293 inhabited villages, 03 municipalities, 02 notified areas, 23 census towns and 05 outgrowth. The 2011 census, Ranaghat has 1,432,761 populations in total where 58.32% rural and 41.68% urban population in the area of 893.58 square Kilometre.

10.3.1. HANSKHALI BLOCK:

In 2000 near about 14276 peoples affected by flood where 1304 house damaged, loss of live stocks near about 1570 and huge damage of crops in hamlets like Boysakuthi, Natungram, Benali, Pebatikamari, Bergram, Hanskhali under Mayurhat-II Gram Panchayet Sansad and in 2000 near about 5348 peoples affected by flood where 109 house damaged, loss of live stocks near about 127 and huge damage of crops in hamlets like Goruapota, Bapujinagar, Mandabghat and Purandarpur under Badkulla-II Gram Panchayet Sansad.

In 2002 near about 5348 peoples affected by flood & hailstorm where 655 house damaged and huge damage of crops in hamlets like Itabaria, Dhakuria, Joypur, Muchifulbari and Dakhinpara, under Dakhinpara-II Gram Panchayet Sansad and in 2005 near about 02 peoples affected by lightning in flood like situation and two life loss with huge damage of crops in Gazna hamlet under Gazna Gram Panchayet Sansad.

10.3.2. SHANTIPUR BLOCK:

In 2015 approximate 58360 persons affected by flood with 01 casualty and 1566 house fully damaged where 6356 partly in Gram Panchayet Sansad like Haripur, Baganchra, Gayeshpur, Belgoria-I, Belgoria-II, Arbandi-I, Arbandi-II respectively. There was a huge impact on the livelihood of affected people. Most of the affected people are poor labourer and lost their job temporarily. 03 cattle died in this block.

10.3.3. RANAGHAT-I BLOCK:

In 2015 due to the flood 500 persons affected, 101 house partly damaged and 69 Ha of Aush 537 Ha Aman paddy losses which is almost 169 lakhs loss in the agricultural sector of Anulia Gram Panchayet Sansad and in 2015 due to the flood 850 persons affected, 228 houses partly and 28 fully damaged and 05 Ha of vegetable losses, 05 lakhs loss due to submerged of lanes caused transport problem in the agricultural sector of Ramnagar-I Gram Panchayet Sansad.

In 2015 due to the flood 350 persons affected, 130 houses partly and 10 fully damaged where 60 Ha of Aush and 220 Ha Aman paddy losses which is almost 50 lakhs loss in the agricultural sector of Kalarayanpur Paharpur Gram Panchayet Sansad and in 2015 due to the flood 4500 persons affected, 1010 house partly and 25 fully damaged where 60 Ha of Aush and 300 Ha Aman paddy losses which is almost 75 lakhs loss in the agricultural sector as well as road ways were inundated in Tarapur Gram Panchayet Sansad.

In 2015 due to the flood 4900 persons affected, 1057 house partly and 27 fully damaged where 44 Ha of Aush and 300 Ha Aman paddy losses which is almost 77 lakhs loss in crops, 310 Ha vegetable loss which is almost 03 crore, 355 Ha Banana which is almost 2.7 crore loss, 10 Ha flower which is almost loss of 15 lakh in the agricultural sector of Nawpara Masunda Gram Panchayet Sansad and in 2015 due to the flood 450 persons affected, 42 house partly damaged and 38 fully where 44 Ha of Aush and 289 Ha Aman paddy which is almost 85 lakhs, 310 Ha vegetable losses which is estimated 03 crores, 212 Ha Banana loss which is almost 1.7 crore, 45 Ha flower loss which is almost loss of 28 lakh in the agricultural sector of Payradanga Gram Panchayet Sansad.

10.3.4. RANAGHAT-II BLOCK:

In 2000 nearly 11000 people of Aranghata Gram Panchayet Sansad suffered by flood and 1349 house partially damaged where 30 live stocks damaged also and nearly 10000 people of Bahirgachi Gram Panchayet Sansad suffered by flood and 850 house partially damaged where 50 live stocks damaged also. Nearly 10000 people of Duttapulia Gram Panchayet Sansad suffered by flood and 1400 house partially damaged where 60 live stocks damaged also. Nearly 11000 people of Nokari Gram Panchayet Sansad suffered by flood and 1600 house partially damaged where 30 live stocks damaged also and nearly 8000 people of Majhergram Gram Panchayet Sansad suffered by flood and 900 house partially damaged where 20 live stocks damaged. 12000 people of Hijuli-I Gram Panchayet Sansad suffered by flood and 2000 house partially damaged where 50 live stocks damaged and nearly 9000 people of Hijuli-II Gram Panchayet Sansad suffered by flood and 700 house partially damaged where 30 live stocks damaged. 6000 people of Jugolkishore Gram Panchayet Sansad suffered by flood and 200 houses partially damaged where 20 live stocks damaged.

10.3.5. BIRNAGAR MUNICIPALTY:

Due to flood for heavy rain fall in 2015 nearly 400 persons affected and crops damaged near about 10 hectors land in Katari ghat and Chanditala under Ward number-01. 400 persons affected and crops damaged near about 12 Hectors land in Bilpara B. Block under Ward number-02. 300 persons affected and huge amount of crops damaged in Niranjannagar under Ward number-03. 200 persons affected and huge amount of crops damaged in Sukantapally and Station para under Ward number-04. 200 persons affected and crops damaged near about 04 Hectors land in Puratan Dighir para under Ward number-05. 200 persons affected and crops damaged near about 05 Hectors land in Mayra pukur para under Ward number-06. 250 persons affected and crops damaged near about 07 Hectors land in Gumtipara and Smarjitpally under Ward number-08. 200 persons affected and crops damaged near about 09 Hectors land in Daspara & Ambagan para under Ward number-09. 200 persons affected and crops damaged near about 03 Hectors land in Madhucolani para and Khan para under Ward number-10. 100 persons affected and crops damaged near about 03 Hectors land in Panchnantala coloni and Khenuapara under Ward number-11. 100 persons affected and crops damaged near about 08 Hectors land in Daspara & Palitpara road side under Ward number-11 and 12. 250 persons affected and crops damaged near about 07 Hectors land in Hurpukur & uttar palitpara under Ward number-13. 200 persons affected and crops damaged near about 06 Hectors land in Khenuapara under Ward number-14.

10.3.6. RANAGHAT MUNICIPALTY:

Due to flood in 2000 in Kheya Ghat Lane 2317 people suffered, 514 houses damaged with too much loss in agricultural sector under Ward No-01 happened. In Shyam Babu Ghat Lane 626 people suffered, 152 houses damaged with too much loss in agricultural sector under Ward No-02 happened. In Shyam Babu Ghat Lane 1007 people suffered, 311 houses damaged with too much loss in agricultural sector under Ward No-04 happened. In Stand Road 289 people suffered, 80 houses damaged with too much loss in agricultural sector under Ward No-07 happened. In Sargyadar Road, Thana Para 2475 people suffered, 615 houses damaged with too much loss in agricultural sector under Ward No-10 happened. In Nitya Nanda Pally, Sarat Pally, Bhabani Gard 1679 people suffered, 389 houses damaged with too much loss in agricultural sector under Ward No-11 happened. In Sadhur Bagan 972 people suffered, 252 houses damaged with too much loss in agricultural sector under Ward No-12 happened. In Uttar Nasra 492 people suffered, 107 houses damaged with too much loss in agricultural sector under Ward No-13 happened. In Kamar Pukur, Mahaprabhu Para 1611 people suffered, 348 houses

damaged with too much loss in agricultural sector under Ward No-16 happened. In Vashko Khal, Rath Tala, Das Para, Mil Para 2561 people suffered, 552 houses damaged with too much loss in agricultural sector under Ward No-19 happened.

10.3.7. COOPERS CAMP NAA:

In 2000 due to the flood 10,000 public of hamlets like Gosaipara, Pukurpara under Ward No-01, Khalpara, Swaansan Para under Ward No-02, Halder Para, Karunamoyee under Ward No-03, Nichu Para, Khal Para under Ward No-04, Chasi Para under Ward No-05, Rajib Para under Ward No-06 and Harichand Pally, Netaji Pally under Ward No-11 affected and almost 3800 houses damaged with huge amount loss in agricultural sector as well as 100 live stocks damaged.

10.4. KALYANI SUBDIVISION:

The first Chief Minister of West Bengal established the Kalyani city in name of his daughter of hearth after independent in place of Rushvelt town which was a strategic place of British Army in time of Second World War. Kalyani town the head quarter of Kalyani Sub division Coordinates 22.98 degree North latitude and 88.48 degree East longitude along with 04 Police Stations, 02 Community development blocks, 27 Gram Panchayats, 245 Mouzas, 04 Municipalities and 13 Census Towns with area of 526.57 square Km and according to the census of 2011 population is 891,563 with 23.27% rural and 76.73% urban population.

10.4.1. CHAKDAHA BLOCK:

In 2015 due to flood 6271 persons under the Chanduria-I block suffered where 1135 houses damaged and majority of Mouzas were affected by huge agricultural loss. 6596 persons under the Chanduria-II block suffered and 02 people died for drowning where 775 houses damaged and majority of Mouzas were affected by huge agricultural loss. 12615 persons under the Sarati block suffered where 955 houses damaged and majority of Mouzas were affected by huge agricultural loss. 13695 persons under the Kanchrapara block suffered and 01 person died for drowning where 1524 houses damaged and majority of Mouzas were affected by huge agricultural loss. 2650 persons under the Madanpur-II block suffered where 1086 houses damaged and majority of Mouzas were affected by huge agricultural loss.

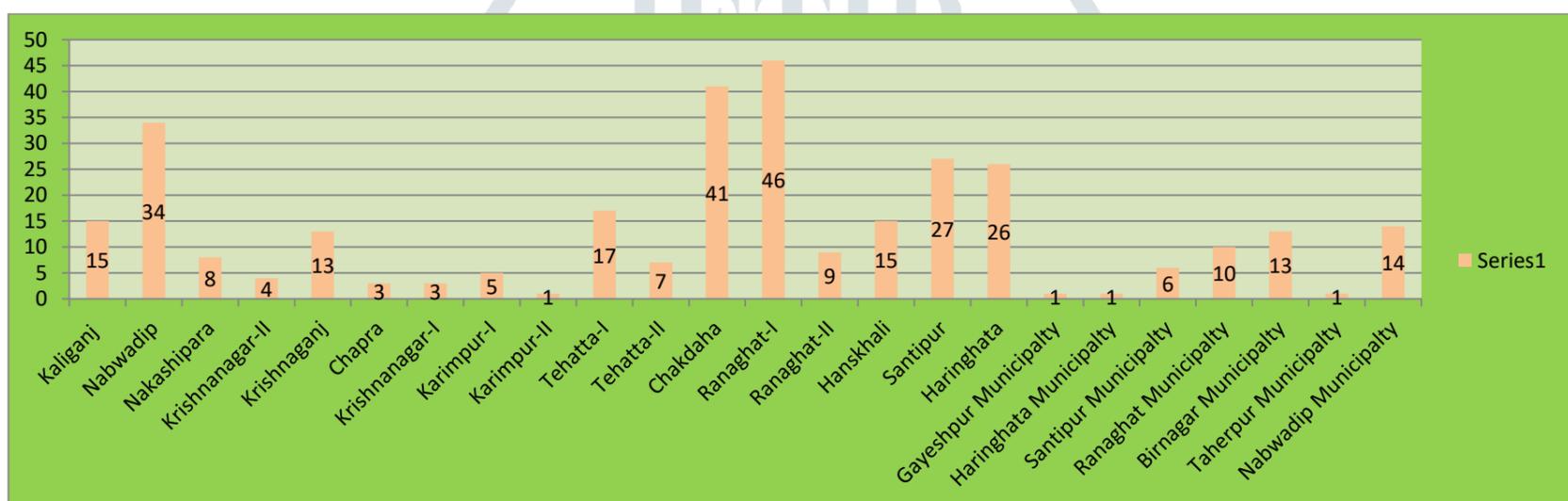
Due to flood related erosion in 2015, 1898 persons in Sannyalchar Malopara of Srikrishnapur Mouza under the Chanduria-II block suffered where few families were shifted and huge agricultural loss happened and due to flood related erosion in 2016, 1150 persons of Gournagar Mouza under the Chanduria-I block suffered where 12 houses damaged and 12 families shifted in 2016.

10.4.2. HARINGHATA BLOCK:

Due to Cyclone & water logging in 2015 hamlets like Jhikra, Chanda under Nagarukhra-I & II block 325 people affected where 325 houses damaged.

10.4.3. GAYESHPUR MUNICIPALTY:

Due to water logging and flood in 2000, 3450 people affected by insufficient of Shelter, food supply, drinking water, medicine etc in Ward Number-8, 9 & 17 partly under the Municipality of Gayeshpur where 200 houses damaged as well as livestock damaged partly.



Source: District Disaster Management Plan, Nadia; 2017-2018.

XI. RECOMMENDATION:

Huge amounts of lives, cattle, agricultural products loss for flood almost every year in the study area. People of Nadia faces heavy amount of financial loss due to flood from colonial period till now. So it is very essential to control such a destructive hazard like flood for save the common public which is a very harmful for the economy of the district also.

I. Save the natural rhythms of river from human occupancy. Save river like Churni in Ranaghat, Jalangi in Krishnanagar from illegal occupy of public for the growing rate of urbanisation. Because those tributaries of Ganga take the pressure of extra water from River Bhagirathi in time of heavy rain and help to control the situations of flood.

II. Save the water bodies in side of the river like Bhagirathi, Churni, Jalangi, Ichamati from any kind of development works like construction of Railways, Roadways or bridge etc. Because they can storage the extra water of river in time of floods and play the role of a buffer area in between the river and public settlements.

III. Dig the new ponds for storage the extra rain water and save the ponds from developers. MGNREGA and Jol Dhoro Jol Bhoro projects of West Bengal Government plays significant role in these purposes.

IV. Role of Farakka Barrage is very essential in time of rainy season. As well as the role of dams and barrages also very essential to save the district from flood. Regular dredging on the lake behind flood and to control the reduce rate of their water storage capacity by siltation.

V. To aware public of vulnerable area, organise regular mock-drill and establish an effective warning system of floods very essential for save the people from crisis.

VI. Establish the Central force and State level team those are fighting in scientific way against the flood for save the people. NDRF, State Disaster Relief Force can be playing very vital role. In Mohanpur of Nadia district a camp of National Disaster Relief Force Established for provide the facilities in time of crisis.

XII. CONCLUSION:

The district has very old records of flood for the poor drainage system with river Bhagirathi, Jalangi, Churni, Ichamati etc. Due to monsoon uncertain rainfall is responsible for floods in Nadia like other part of Bengal. British rules, cultivation of cash crops, huge amount of embankments, populations along the river side, political interferences are the main cause of flood. At past Nadia was famous for healthy atmosphere and too many rich people, British persons and zamindars come here for recover their health. But for the set up of railways, bridges and roads lots of water bodies are filling and river beds are destroys by sands for various development work. Millions of people suffer by floods in the study area. In recent time year of 2000, 2006 and 2015 people of Nadia faces so many devastating flood almost every part of the district and huge lost of human lives along with heavy damage in agricultural sector happens. Dredging the river beds, build up dams, aware public about flood are necessary for prevent the flood problems in study area.

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