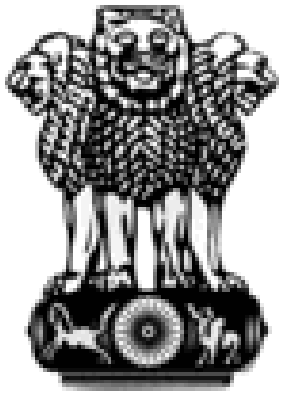
STATE DISASTER MANAGEMENT PLAN



SOIL CONSERVATION DEPARTMENT,
GOVT. OF ASSAM
GUWAHATI

CONTENTS

CHAPTER - 1

INTRODUCTION

Soil Conservation department, Govt. of Assam has the mandate to plan, develop, and proper utilization of natural resources (Soil, Water & Vegetation) efficiently and effectively. The department undertakes various soil and water conservation measures with the objective of controlling all forms of erosion and soil and water losses caused by various natural factors. The changes in the demographic pattern have caused tremendous pressure on the scarce land and water resources thus igniting the need for optimum utilization and conservation of available resources on a sustainable manner. About half of the country's geographical area is affected by different forms of soil erosion, land degradation, flood and drought, which causes great losses to productivity. It also results in environmental hazards and reduction in livelihood opportunities. The problem of erosion is also very acute in the state of Assam. The hill districts and the areas bordering Bhutan and Arunachal Pradesh being severely affected. The soil in these areas consists of recently transported materials, mostly coarse sand with pebble boulders, which are shallow and easily erodible. The practices of jhum or shifting cultivation practiced in the hilly areas also lead to severe soil erosion and degradation of land. The Soil Conservation department undertakes various measures for conservation of soil and water resources, reclamation of degraded lands and optimum utilization of available natural resources for optimum production and productivity.

About the Department : Soil Conservation Department is a minor Department of Government of Assam. The head office is located at R.G. B. Road Guwahati in front of State Zoo. There are 24 nos. of Divisional offices, 74 range offices and 13 nos. of independent centers and one soil conservation training school for field staff located at Mahur (Dima-Hasao District) for imparting training to 3rd Grade executive staff of the department from time to time. The works are implemented under the guidance of Divisional Officers and executed by Soil Conservation Rangers. Field inspections are done by various officials under the guidance of Director and quarterly progress reports submitted to the Directorate.

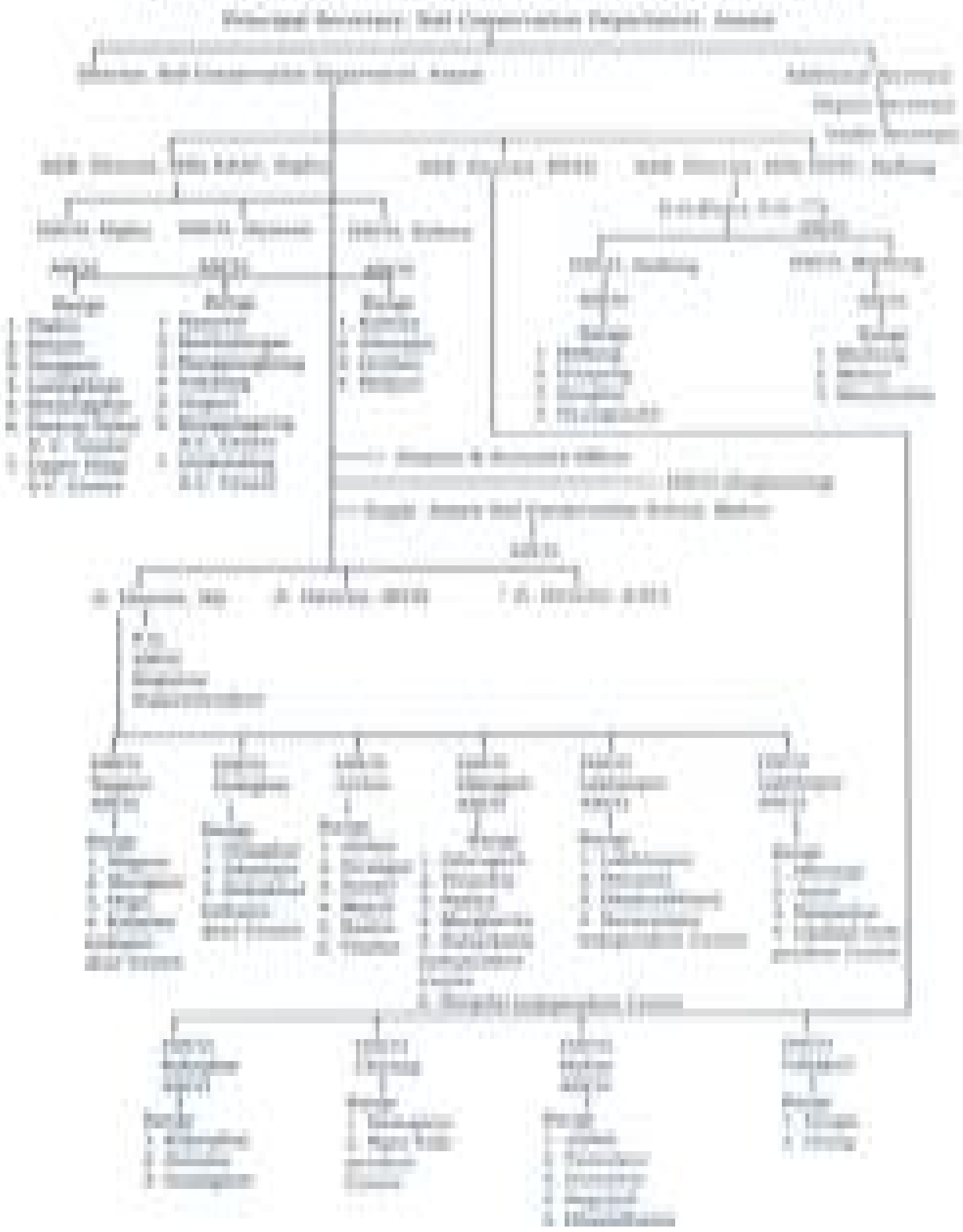
Considering the importance & need of Disaster Management plan as envisaged in Disaster Management Act, 2005, the Govt. of Assam has mandated every department of the State Government to prepare and keep in readiness for implementation a Disaster Management Plan in conformity with the guideline laid down by the State Disaster Management Authority (SDMA).

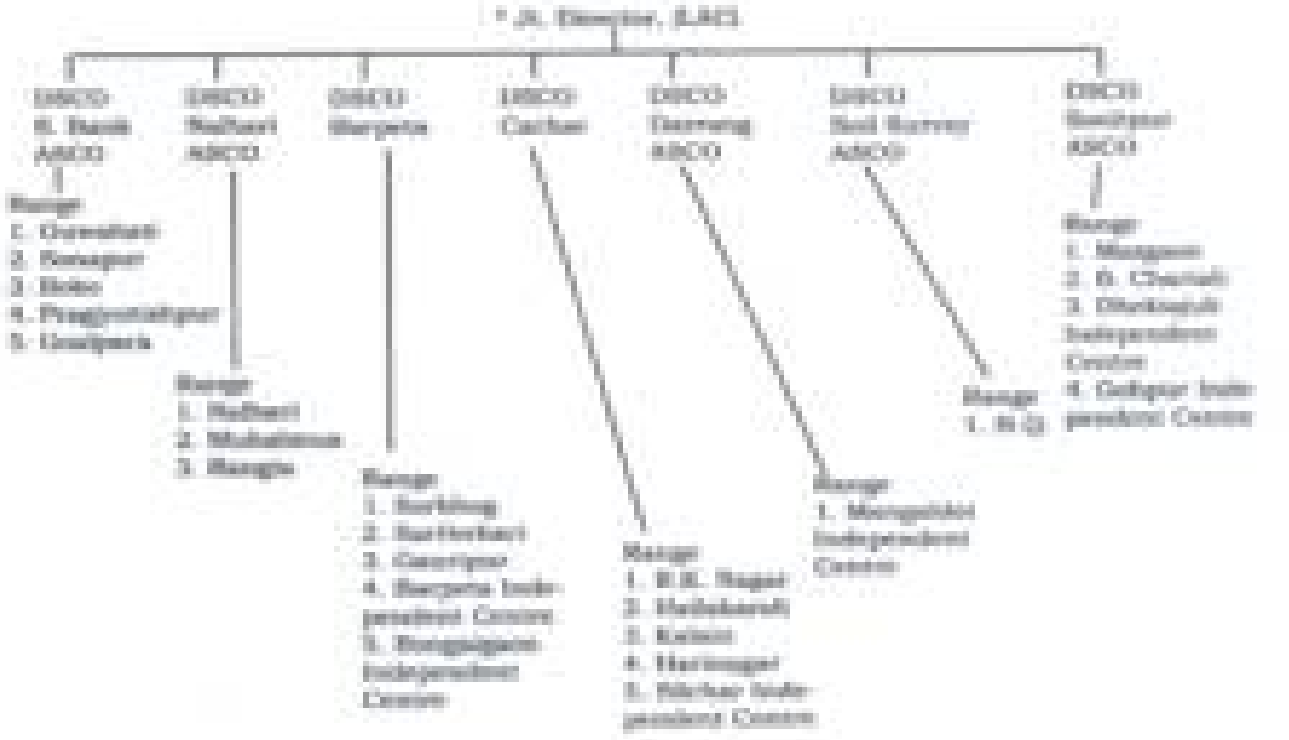
Vision: Repeated Disasters threaten sustainable development. Disasters destroy decades of human effort &investments, thereby placing new demands on society for reconstruction and rehabilitation.

The major outlines of this plan is as follows:

i. Organizational structure of the department.
ii. Vulnerability &Capacity to deal with hazards.
iii. Preparedness and response in such situations.
iv. Knowledge Management & Dissemination of plan along with the important contact.

ORGANIZATIONAL SETUP OF SOIL CONSERVATION DEPARTMENT





Gazetted	:	138 Nos.
Non-Gazetted	:	1267 Nos.
Regularised M.R. Workers (on Grade IV posts)	:	412 Nos.
TOTAL	:	1817 Nos.

Aim and objective of the Departmental Disaster Management Plan:
The aim of the plan is to creation of authentic and accurate data base, response plans, documented and rehearsed to be activated in the shortest possible time through fail-proof communication ensuring active participation at all levels, making optimal utilization of men, material and resources with no gaps or overlaps to prevent loss of the rich and abundant natural resources and minimize loss to property while ensuring restoration at the earliest.

OBJECTIVE OF DEPARTMENTAL DISASTER MANAGEMENT PLAN

- Identifying vulnerable cultivated lands with erosion related problems.
- To asses vulnerability of the departmental assets/ works created throughout the state to different disaster.
- To generate preparedness plan for fighting against different disaster.

- To develop immediate and long term support plans for vulnerable embankments/Agri bunds immediately after construction.
- To provide effective support and resources to all the concerned individuals, groups and Department in disasters.
- To train up Departmental personnel for providing emergency response services during disaster.
- To equip the people with the knowledge and skills for assessing, delineating strategies and delivering their roles in relation to risk mitigation, prevention and implementation of effective response of Soil Conservation to the extreme events.
- To keep co-ordination with DDMA& other authorities.
- Sensitization for community participation.

RESEARCH AND TRAINING FACILITIES:
The Soil Conservation Department does not have any Research and Training facilities in Disaster Management.

ACTS AND RULES IMPLEMENTED BY THE DEPARTMENT:
The Soil Conservation Department as such do not have any Acts and Rules being implemented pertaining to Disaster Management.

SCHEMES AND PROGRAMMES BEING IMPLEMENTED BY THE DEPARTMENT:

LAND DEVELOPMENT WORKS: Contour bunds, field bunds, Bench Terracing
In cultivable land with mild slope, construction of earthen bunds along contours and field bunds at suitable locations are taken up by the Department to prevent sheet and reel erosion. The bunds also serves as arrier and retain water which increases soil moisture.

GULLY CONTROL WORKS: Gully erosion destroys many hectares of cultivable agricultural land. Gully control structures like Drop spill way, Check dams, Boulder check dams with hexagonal wares, brush wood check dam etc. are constructed to stop further advancement of the Gully heads and fingers and to improve the moisture regime in the command areas.

RIVER TRAINING/RIVER BANK STABILIZATION WORKS : The meandering nature of streams caused severe bank erosion problems. Due to heavy sedimentation in river beds, the problem is getting worse every year. Department construct Boulder spurs, bank revetment, loop cutting works to tackle this problems.

PROTECTIVE AFFORESTATION WORKS: It is taken up along river/stream banks in denuded catchments and hills land /jhum land with steep slope. The main objective of the schemes is to prevent the process of soil loss due to erosion.

CHAPTER - II

HAZARD & VULNERABILITY SCENARIO:

The state of Assam is prone to natural hazards such as earthquakes, floods, landslides, cyclones and occasional draughts. The state experiences various kinds of disasters of recurrent nature that results in loss of life, livelihood and property, and disruption of economic activity, besides causing immense hardship to the affected population. Chronological reviews of the past major disasters show possibilities of similar events in future.

Earthquake Hazard

Earthquakes are one of the most destructive natural hazards in the seismically active Assam. The State of Assam has experienced several devastating earthquakes in the past resulting in a large number of deaths and severe property damage. Active seismicity of the North Eastern region has caused extensive landslides, rock falls on the hill slopes, subsidence and fissuring of ground in the valley, and changes in the course and configuration of river tributaries and Brahmaputra mainstream. These changes, especially in river morphology have a significant impact on the hydrologic regime and vulnerability of the communities which are in its proximity and are dependent upon this natural system as their source of livelihood.

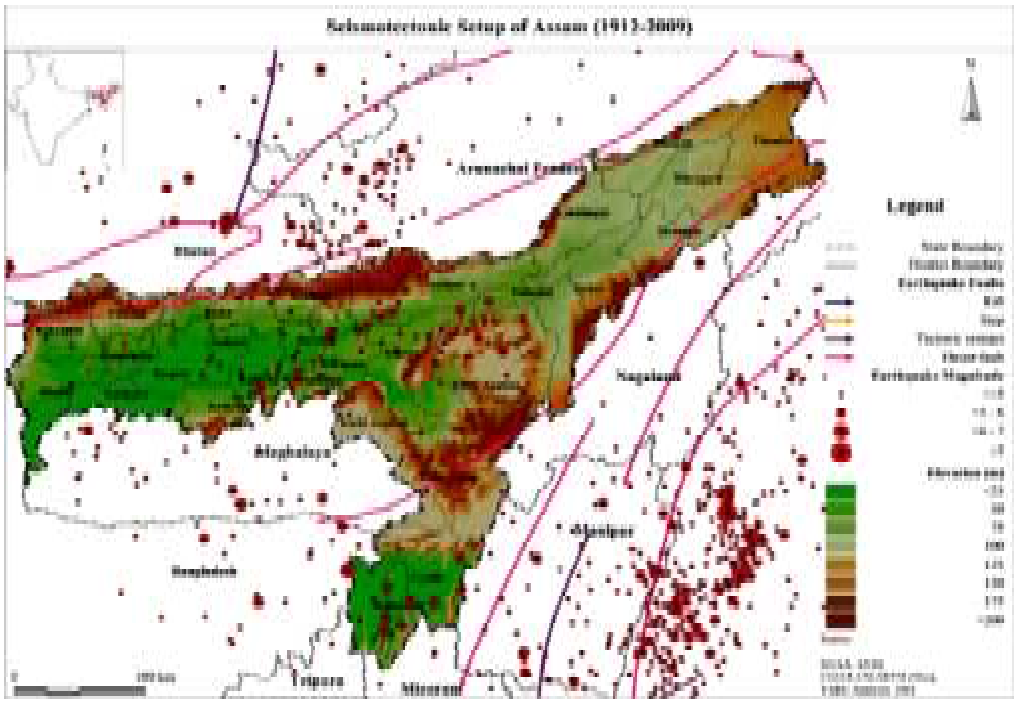
According to Mahajan et al. (2010), geo-morphologically, Assam falls within in an earthquake prone zone **(*BIS Seismic Zone IV and V*)** of the Indian subcontinent. Much of Assam lies in the Brahmaputra River Valley, except for a few southern districts. The northern and eastern parts of this valley area bounded by the Himalayan Frontal Thrust (HFF). The Himalaya is a result of continent–continent collision between the Indian and the Eurasian plates. In the eastern parts along with the HFF, there is the arc of the Lohit and Naga Thrusts. Among the large earthquakes in this region were the events in 1897 and 1950 (*Joshi et al., 2007*). According to a hazard map developed by the Global Seismic Hazard Assessment Programme, some of the location within the state can experience peak gravitational acceleration (PGA) ranging from 0.24g to 0.48g. The region where the highest PGA can be expected is along the state's border with Meghalaya, the site of the Great Indian earthquake of 1897 (*GSHAP, 1999*).

Sliced between two tectonic plate collision boundaries, the Himalayan in the north and the Indo-Burman in the east, the North-eastern region is one of the seismically most active regions of the world. The two great earthquakes of magnitudes 8.7 in 1897 and 1950 are memorable events in the annals of earthquake history of this entire region. According to some of the documented evidence discussed by Joshi et al., (2007), these earthquakes were so intense that the rivers changed their courses, ground elevations immensely affected. Apart from these, there is a recorded history of around twenty destructive earthquakes which has affected this region in the past century. Earthquakes during non-instrumental period in Assam are in the year of 1548, 1596, 1601, 1642, 1663, 1696, 1756, 1772, 1838, & 1841. With complex tectonic and geology set up of the region can produce earthquakes of magnitudes 8 and above every few hundred years (*Mahajan et al., 2010*). The earthquakes of

Magnitude 6 and above measured during instrumental period in Assam is presented in Table 1

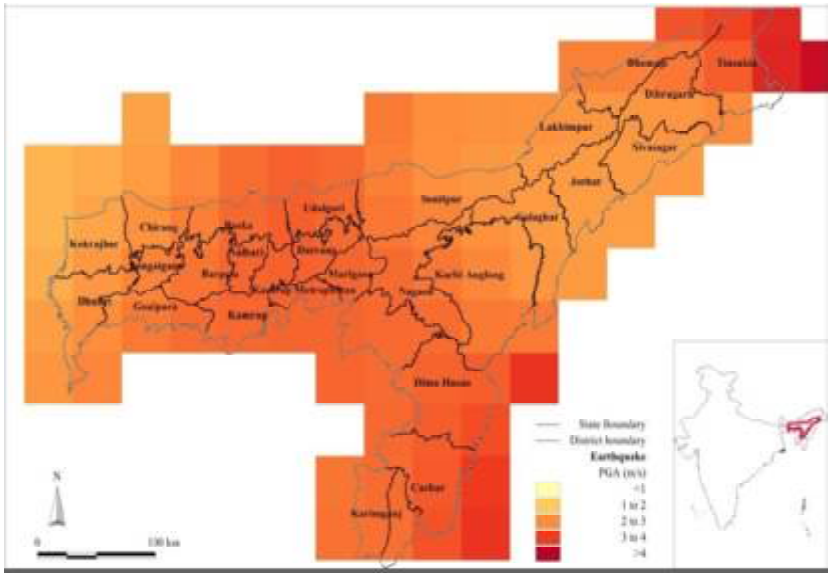
Table 1: Earthquake Hazard History of Assam State (M.6.0)					
Date	**Epicentre**	**Lat**	**Long**	**Origin Time**	**Magnitude**
10th January 1869	9.4 Km N of Kumbhir (Assam)	25.00 N	93.00 E	11:45 UTC/ 17:15 IST	7.5
12th June1897	14 Km ESE of Sangsik (Meghalaya)	25.50 N	91.00 E	11:41 UTC/ 17:11 IST	8.7
9th September 1923	South Meghalaya, India	25.25 N	91.00 E	22:03:42 IST	7.1
2nd July 1930	3.9 kms NNW of Dabigiri (Meghalaya)	25.80 N	90.20 E	21:03:34.4 UTC/ 03:23:34.4 IST	7.1
21st January 1941	Near Tezpur, Assam	26.50 N	92.50 E	02:30:16.0 UTC	6.5
23rd October 1943	13.6 kms E of Hojai (Assam)	26.00 N	93.00 E	17:23:17 UTC/ 22:53:17 IST	7.2
29thJuly 1947	Arunachal Pradesh	28.80 N	93.70 E	13:43:20 IST	7.7
15th August 1950	20.7 kilometers NW of Tajobum (Arunachal Pradesh)	28.50 N	96.50 E	14:09:28.5 UTC/ 19:39:28.5 IST	8.7
31st December 1984	SSE of Silchar (Assam)	24.64 N	92.89 E	23:33:37 UTC	6.0
6th August, 1988	Indo Myanmar Border	24.14 N	95.12 E	05.03 IST	7.3
30 December 2011	Central Assam region			15:14:01 UTC	M3.6
18 December 2011	Sikkim-Nepal border			21:35:26 UTC	M4.6

Figure 1 Sesimotectonic Setup of Assam



Source : TARU Analysis 2011

Figure : 2 Peak Ground Acceleration



Data Source GSHAP, 1999

Figure 1: Seismo-tectonic Setup of Assam

Figure 1 represents the seismo-tectonic setup of Assam and indicates the location of historical earthquakes within the region. Figure 2 indicates probable earthquake peak ground acceleration (PGA) map as described by Global Seismic Hazard Assessment Program (GSHAP) an initiative undertaken with the support of the International Council of Scientific Unions (ICSU), and endorsed as a demonstration program in the framework of the United Nations International Decade for Natural Disaster Reduction (UN/IDNDR).

According to the Global Seismic Hazard Assessment Programme (GSHAP) data, the state of Assam lies in a region with high to very high seismic hazard. As per the 2002 Bureau of Indian Standards (BIS) map, this state also falls in Zone-V. Based on the hazard history and its zonation, much of Assam falls within high intensity[1] zone i.e. IX or more based on Modified Mercalli Intensity (MMI) scale (which is a macro seismic intensity scale used to evaluate the severity of ground shaking on the basis of observed effects in an area of the earthquake occurrence). According to United States Geological Survey (2010), an earthquake which has a ground shaking of MMI scale of IX will cause considerable damage in specially designed structures and the well-designed frame structures will be thrown out of plumb. The damages will be great in substantial buildings, with partial collapse. There are also possibilities of buildings being shifted off its foundations. Any intensity higher than this will destroy well-built wooden structures, most masonry and frame structures. (*Source: TARU Analysis, 2011*)

Flood Hazard

Assam lies in the middle of the Brahmaputra and Barak basins. The Brahmaputra basin is one of the largest river basin in the northeast region of India. The river Brahmaputra originates from the semi-arid region of south Tibet. The Brahmaputra basin covers an area of 5,80,000 sq.km., out of which 70,634 sq.km. falls within Assam. The Assam basin has a length of about 1540 km in east-west direction and a maximum width of 682 km. in north-south direction. Due to this geo-climatic condition, flood hazard risk is of concern in the Brahmaputra and Barak river basins in Assam.

The Brahmaputra Valley in Assam is one of the most hazard-prone regions of the country, with more than 40% of its land (3.2 million hectares) susceptible to flood damage. This is 9.4% of the country's total flood-prone area. About 7% of land in the state's 17 riverine districts has been lost because of river erosion over the past 50 years (*Source: Environment Assessment Report, India: Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program, ADB June 2009*). Expected average annual population exposed to flood hazard is presented in Figure 4.

Flood hazard risk in the state is due to a blend of numerous natural and anthropogenic factors. The important cause for frequent occurrence of flood in this region is the extremely dynamic monsoon rainfall regime and the unique physiographic setting. The water yield of the Brahmaputra basin is among the highest in the world. This, together with the limited width of the valley and the abruptly

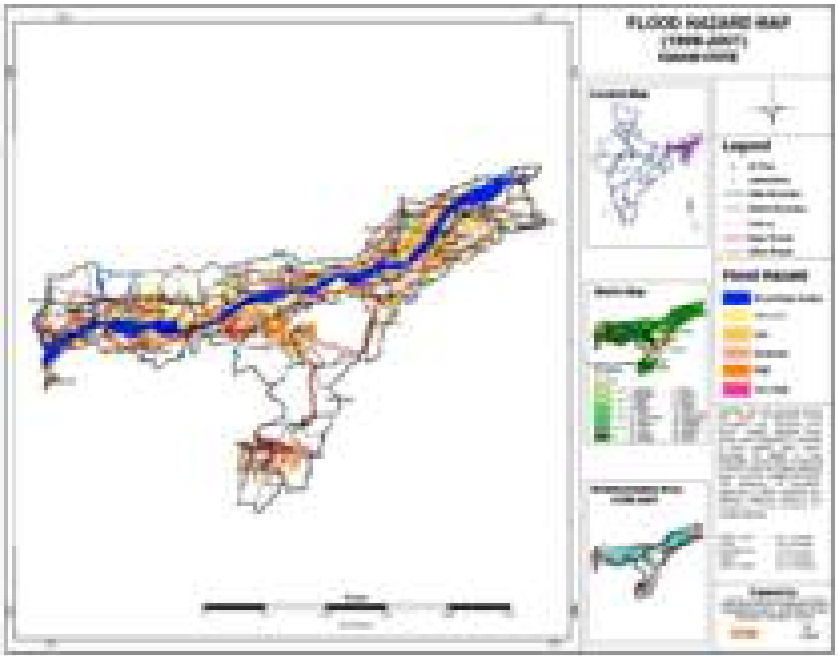
[1]Magnitude and Intensity measure different characteristics of earthquakes. Magnitude measures the energy released at the source of the earthquake. Magnitude is determined from measurements on seismographs. Intensity measures the strength of shaking produced by the earthquake at a certain location. Intensity is determined from effects on people, human structures, and the natural environment.

flattened gradient, leads to tremendous drainage congestion and resultant flooding. The Brahmaputra valley had experienced major floods in 1954, 1962, 1966, 1972, 1974, 1978, 1983, 1986, 1988, 1996, 1998, 2000 and 2004.

In addition to the geo-climatic regime of the state the morphology of the Brahmaputra River is another significant factor contributing to the floods. Characterized by intense braiding and bar formation, channels exhibit successive bifurcation and rejoining of flow around sand bars and islands. This results in a highly dynamic river bank line and bed configuration. The morphology and behaviour of the river undergoes drastic changes in response to variations in the flow regime and pattern of sediment transport and deposition in the river following the seasonal rhythm of the monsoon. Multiple factors, such as excessive sediment load, large and variable flow, easily erodible bank materials, and aggradation of the channel, have been the possible underlying factors. Another striking feature of the river's morphology is the continuous shift of the thalweg (deep channel) from one location to another within the unstable bank lines of the river. Bank materials of the Brahmaputra consist mainly of fine sand and silt with only an occasional presence of clay. They have a relatively fine-grained top stratum and a coarser substratum. Different patterns of erosion and accretion occur at different locations within a few kilometres of the riverbank at the same time, and erosion and accretion follow each other in different magnitude at the same location (*EA Report, FRERM, ADB 2009*).

The floods are caused by the runoff of extremely heavy rainfall during the monsoon and high sediment loads from upper watersheds that are geologically unstable and degraded because of deforestation and changing land use. The flood combined with river erosion has significant impacts each year. Estimated possible flood hazard risk of Assam in presented in Fig 3.

Figure 3: Flood Hazard Map (1998-2007)



According to Flood Hazard Atlas of Assam (ISRO, 2011), approximately 28.31% (*22.21 lakh hectares*) of land in state of Assam was affected by flood hazard between the period 1998 to 2007. In the above study, the flood prone areas were divided into categories based on frequency which range from very high to very low. Very high indicates nine to ten times inundation during last 10 years. This amounts to nearly 1.64% of total geographical areas of state (*5.79% of total flood affected area*). 'High; indicates occurrence of seven to eight floods over the last 10 year. This amounts to approximately 2.86% of total geographical areas of state (*10.11% of total flood affected area*). The rest of the flood affected zones i.e. moderate, low and very low the percentage area of each flood hazard category accounts to 4.48% (*15.83% total flood affected area*), 6.27% (22.14% total flood affected area) and 13.06% (*46.13% total flood affected area*) respectively.

Table 3 Flood Hazard Affected Area in Assam (1998-2007)

Hazard Severity	Flood Hazard Area (ha)	% Flood Hazard (w.r.t. State Geographic Area)	% Flood Hazard (w.r.t. Total Flood Hazard Area)
Very High	1,28,687	1.64	5.79
High	2,24,629	2.86	10.11
Moderate	3,51,667	4.48	15.83
Low	4,91,761	6.27	22.14
Very Low	10,24,584	13.06	46.13
Total	22,21,328	28.31	100

Source: Flood Hazard Atlas of Assam, ISRO 2011

Table 4 Extent of Flood Hazard in Assam (1998-2007)

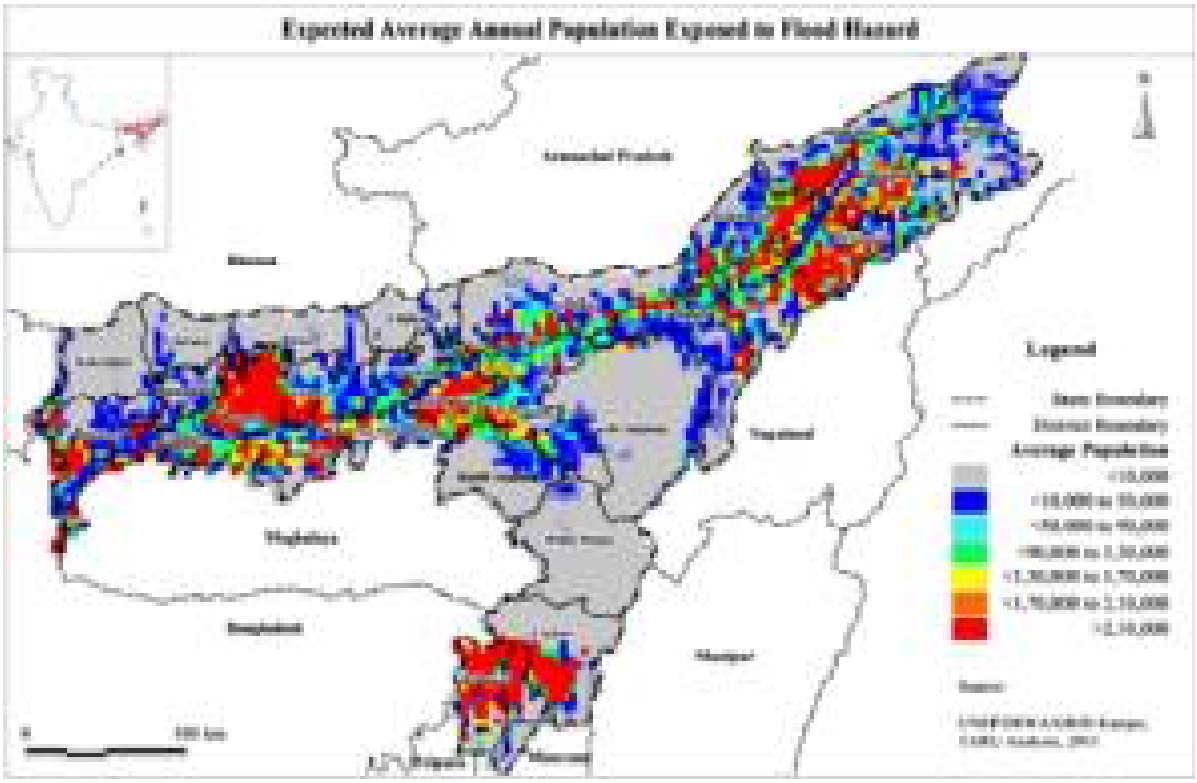
Affected Area (%)	No. of Districts	Name of Districts
0-10%	4	Baska, Chirang, North Cachar, Karbi Anglong
10-20%	2	Kokrajhar, Tinsukia
20-30%	6	Cachar, Golaghat, Hailakandi, Kamrup (Metro), Karimganj, Udalguri
30-40%	6	Bongaigaon, Dhubri, Dibrugarh, Golpara, Kamrup(Rural), Sonitpur
40-50%	5	Dhemaji, Jorhat, Nalbari, Nagaon, Sibsagar
50-60%	1	Lakhimpur
60-70%	1	Barpeta
70-80%	2	Darrang and Morigaon

Source: Flood Hazard Atlas of Assam, ISRO 2011

Note: Analysis is based on 10 years (between 1998-2007) data used in above mentioned study.

Apart from the geo-climatic setting, high rate of population growth in the form of high birth rate and immigration from border countries has led unplanned settlements. Human activities like deforestation, accelerated rated change in land use, filling up low lying areas for the construction of buildings, urban development and temporary flood control measures are some changes which do contribute to the overall vulnerability of the state to floods (*Dhar and Nandaragi, 2003*).The reliability and effectiveness of the embankments from the Brahmaputra flooding are generally insufficient because of structural deterioration and ongoing riverbank erosion.

Figure 4: Expected Average Annual Population Exposed to Flood Hazard

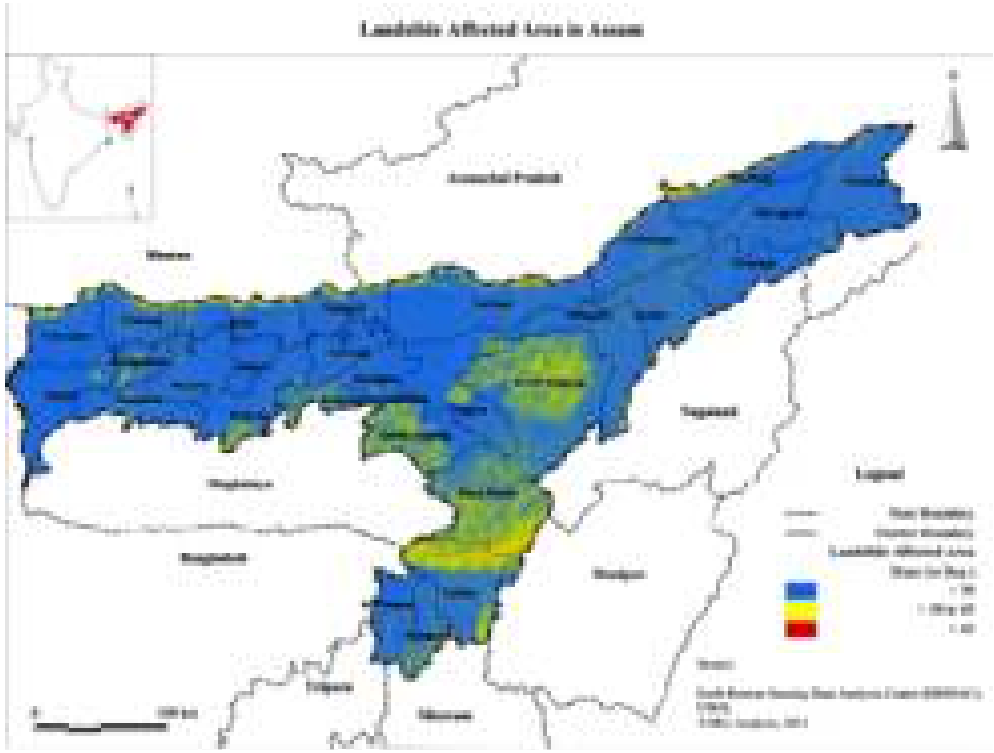


An indicative map of expected average annual population exposed to flood hazard risk is presented in Fig 4. As per the FRERM report, the local communities believe that the major cause of their unrelenting flood and drainage problems is the unreliability of the deteriorated infrastructure. Other concerns raised include (i) the inadequate quality of embankment construction; (ii) delayed or non payment of land acquisition and resettlement for completed works; and (iii) the need for community participation in planning, implementation, and management. It is increasingly realized to build FRERM infrastructure (*structural and non-structural mitigation*) to address the concern of flood and river-bank erosion. Systematic monitoring of the river dynamics, need to be strengthened.

Landslide Hazard

Landslides are sudden, short-lived geomorphic event that involves a rapid-to-slow descent of soil or rock in sloping terrains. It can also be caused by excessive precipitation or human activities, such as deforestation or development that disturb natural slope stability. Landslides are caused when the stability of a slope changes from a stable to an unstable condition. A change in the stability of a slope can be caused by a number of factors, acting together or alone.

Figure 5: Landslide Affected Area in Assam



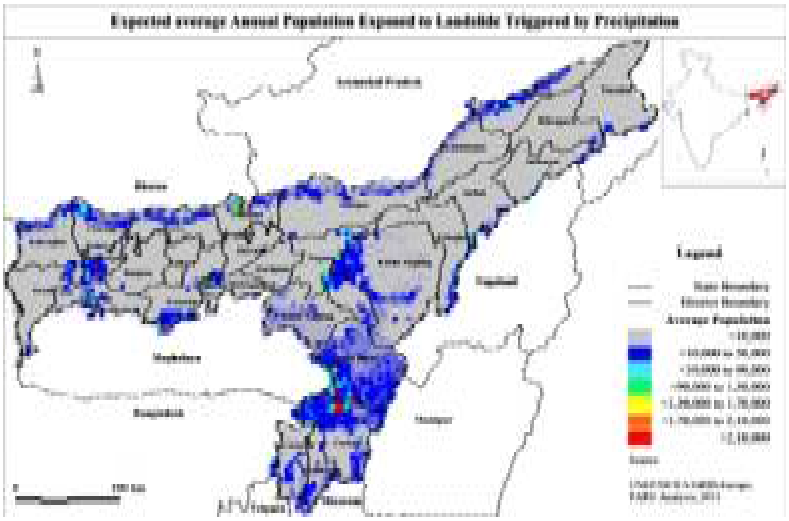
Assam is located on the Himalayas, which are the recent foundation of mountain history and are geologically unstable; they are seismically very active therefore are still in the upheaval stage (Valdiya, 1975). As mentioned in previous sections the state has a history of earthquakes. These earthquakes are usually accompanied by damaging landslides in the region *(GSI, 2011)*. Even though much of the minor landslides go unnoticed some of the major events which have occurred in the region over the past seven years are presented in the table below:

Table 5 List of key Landslide events

Date	Type	District	Name of the Place	Cause of Landslide
5- 8Oct 2004	Land-slide	Kamrup	Guwahati Urban	Heavy concentrated rainfall
28Aug, 2009	Rock-slips and land slide	North Cachar Hills	Mahur and Phaiding	Torrential rains

Table 5 List of key Landslide events				
Date	**Type**	**District**	**Name of the Place**	**Cause of Landslide**
12-Sep-10	Rock-slips and land-slide	Lakhimpur, Dhemaji, Golaghat, and Bongaigaon	-	-
16-Jun-10	-	North Cachar Hills	Jatinga, Longrangjao, Mahur and Wadringdisa	Heavy rains
3-Jun-10	Mud-slide	Karimganj	Rongpur Village	-

Figure 6: Expected Average Annual Population Exposed to Landslide Triggered by Precipitation

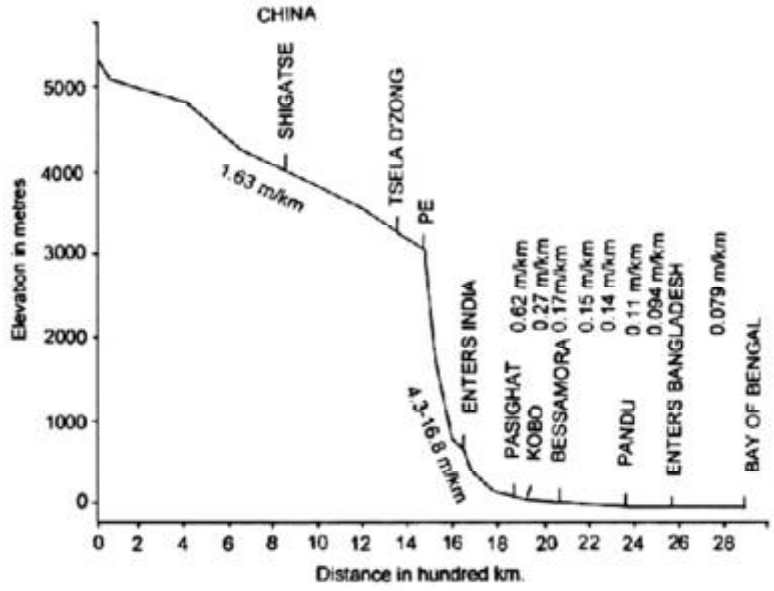


Erosion

The Brahmaputra basin is an example of an extremely heterogeneous watershed with complex topography, high spatial variability in land cover. The elevation profile of the Brahmaputra river is illustrated in Figure 7. Additionally, the climate is complex within the catchment because of the altitudinal range, the geographical location and the influence of the South Asian monsoon systems. Further, the tectono-sedimentary province along the Brahmaputra river valley in the state of Assam is near about 720 km long and 90 km wide with high variation in elevation which is home for nearly 26 million people. It ranges 120 m at Kobo in the extreme east through 50.5 m at Guwahati to 28.45 m at Dhubri in the extreme west (Sarma, 2005). The above factors give rise to riverbank erosion which has been regular phenomenon in Assam.

Erosion history of Assam indicates that between 1912 and 1996 around 868 sq.km. of land was lost to bank erosion; averaging to about 10.3 sq. km. of area lost per year. Further, the research conducted by Sharma *et al.* (2010) also made evident that significant erosion occurred in Assam due to Brahmaputra river between 1914 to 1975. According to Kotoky*et al.* (2004), the bank line of the Brahmaputra is extremely unstable consisting mostly of fine sands and silts. Large scale slumping of river banks does take place when the level falls after a flood. Further, the braided nature of the Brahmaputra adds unpredictability to erosion problem making it more serious.

Figure 7: Elevation Profile of the Brahmaputra River



Source: Sarma(2005)

Table 6 Soil Erosion Statistics of Assam (2002)	
a) Total cultivable area in Assam	34,60,082 Ha
b) Area affected by Soil Erosion	1,93,000 Ha
c) Area under Wasteland & Degraded Land	2,71,556 Ha
d) Area affected by shifting cultivation	1,70,000 Ha
Average area being eroded due to flood and soil erosion problems	6,500 Ha
f) Average area affected by Flood annually	4,50,000 Ha
g) Average annual rainfall in Assam	2,4000 mm
h) Total Annual Silt Load of Brahmaputra (1990)	
At Bhurbandha	3,59,241 Cu.M
At Pandu	4,94,357 Cu.M
i) Annual Soil Erosion rate (1990)	
Jia Bharali River	4,721 Tonnes per Sq.Km
Puthimari River	2,887 Tonnes per Sq.Km

Source: Assam Science Technology and Environment Council
Available Online At: http://www.envisassam.nic.in/soilerosion.asplast accessed on 13th Jan, 2012

Figure 8: River Bank Erosion

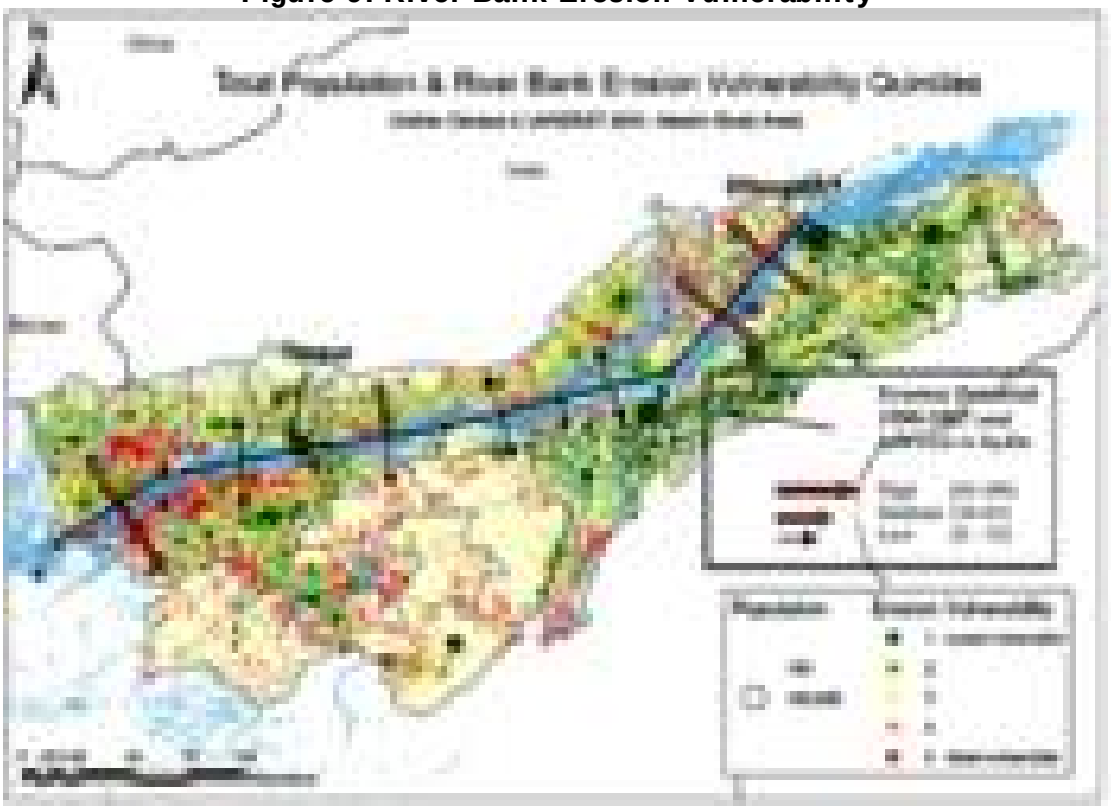
Source: TARU Field Visit, July 2011

The extent of loss to the bank erosion varies from year to year depending on the severity of floods in the state. Majuli, the largest river island in the world is now seriously affected by the erosion and is facing the threat to existence. According to Sarma (2005), in the state of Assam during period 1963–1975 and 1996 the amount of erosion on the north and south banks was 459.51 sq. km. and 368.69 sq. km., respectively (total 846.20 sq. km). Whereas, the amount of erosion was much higher during 1912-1928 periods, the total land eroded in north and south banks accounted to 782.49 sq. km. and 747.61 sq. km. (total 1530.1 sq. km.) respectively, while deposition which is simultaneous process (which formed new area by filling) in the north and south banks amounted to 303.84 sq. km and 246.32 sq. km. (total 550.16 sq. km.) respectively. Table 7 provides river bank erosion details along Brahmaputra river.

Table 7 River Bank Erosion Along Brahmaputra River (*North and South Bank*)

Year	Erosion (Sq. km.)		Total (Sq km)
	North Bank	South Bank	
1912–1928	782.49	747.61	1530.10
1963–1975	459.51	386.69	846.20
Total			2376.30
1912–1928	303.84	246.32	550.16
1963–1975	555.08	385.62	940.70
Total			**1490.86**
Source: Sarma, 2005			

Figure 9: River Bank Erosion Vulnerability



Source: Sharma *et al.*, 2010

According to Assam land-use board study (2003), high rainfall *(more specifically high intensity rainfall)* has been found to be another important factor causing erosion in almost all the districts mainly due to higher gradient/slope. Loss of topsoil through surface run-off under heavy precipitation and humid climatic condition is the most common type of soil erosion (gully) in the entire state. The problem of topsoil erosion is severe in the plain which further has an impact on the agriculture. The problem of erosion has been observed in districts like Nalbari, Hailakandi and Kokrajhar. These pockets are mostly located in the fringe areas of Indo-Bhutan border (Bhavar Belt) marked by sudden gush of runoff after a rain in the form of flash floods.

Table 8 represents the crop area affected by Gully erosion in Assam with its extent in number of districts.

Table 8 Crop Area Affected by Gully Erosion in Assam

Sl. No.	***Crop Area Affected (%)***	***No. of District***
1	0-10%	9
2	10-20%	13
3	30-40%	2
4	40-50%	2
5	> 50%	1

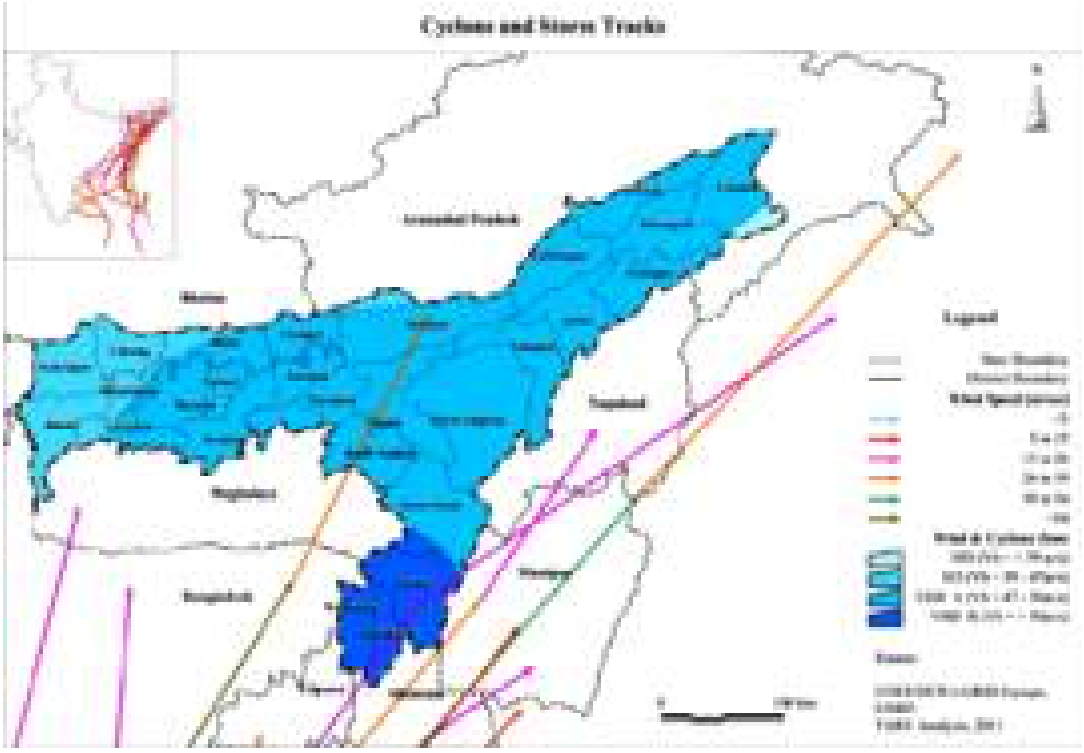
Source: State Land-use Board, 2003

Wind and Cyclone

Assam is situated in the north eastern direction of Bangladesh which is highly prone to cyclone/winds. Every year about 60% of the area affect by cyclone in Bangladesh. Due to the location aspect, districts like Dhubri, Goalpara, Hailakandi, Cachar and Karbi Anglong are more prone to cyclone/winds. Districts namely Kokrajhar, Bongaigaon, Kamrup, Barpeta, Nalbari, Darrang, Sonitpur, Nagaon, Morigaon, Lakhimpur, Dhemaji, Sibsagar, Jorhat, Golaghat, Dibrugarh, Tinsukia and Karbi Anglong are likely to experience wind speed of 50 m/s whereas districts like Hailakandi, Karimganj and Cachar has wind speed of more than 55m/s and are more vulnerable to cyclonic storms. Occasional cyclones do occur in western Assam their severity is more during monsoon. According to BMTPC cyclone zonation, north-west districts of Assam lying in zone of high damage where wind speed can reach up-to 47 m/s. District very close to Bangladesh are in very high damage zone due to close proximity of Bay of Bengal (which is a cyclone basin). In this zone wind speed can reach up-to 55 m/s, can resultant into large scale damage. Fig 17 indicates the wind speed zonation of Assam along with the tracks of the recent events of cyclones recorded within the state.

According to IMD Cyclone e-Atlas track records for the period 1968-2008 shows two cyclone events passing through the State. According to the Lutheran World Federation/Department for World Service India Program (ACT/LWS India) 2003, a short but devastating storm with torrential rains did occur in areas of Dhubri, Dhemaji, and Sonitpur districts of Assam on 22nd April 2003, Mancachar Sub division of Dhubri district situated in the western corner of Assam was affected by this event. Almost 48 people killed and 1,500 persons were injured in this event. There was also an record of similar event on December 23rd, 2010.During this event, Karbi Anglong, Cachar and Hailakandi were affected by severe winds.

Figure 10: Cyclone Affected Area and Zonation of Assam



FIRE

Fire hazards risk is complex since predicting or modeling its occurrence at a macro level (state level) difficult. In this report an indicative fire hazard risk of the state is highlighted based on the historical database (1996 to 2008) of fire events as procured from fire service department. Table 9 highlights the occurrence of small, medium and large scale fire calls received by the fire service department within the last decade. The data indicates that that irrespective of the total fires in Assam have been decreasing over the past one decade, there has been a noticeable increase in the number of major fires. This may be due to the density of settlements/development within the cities.

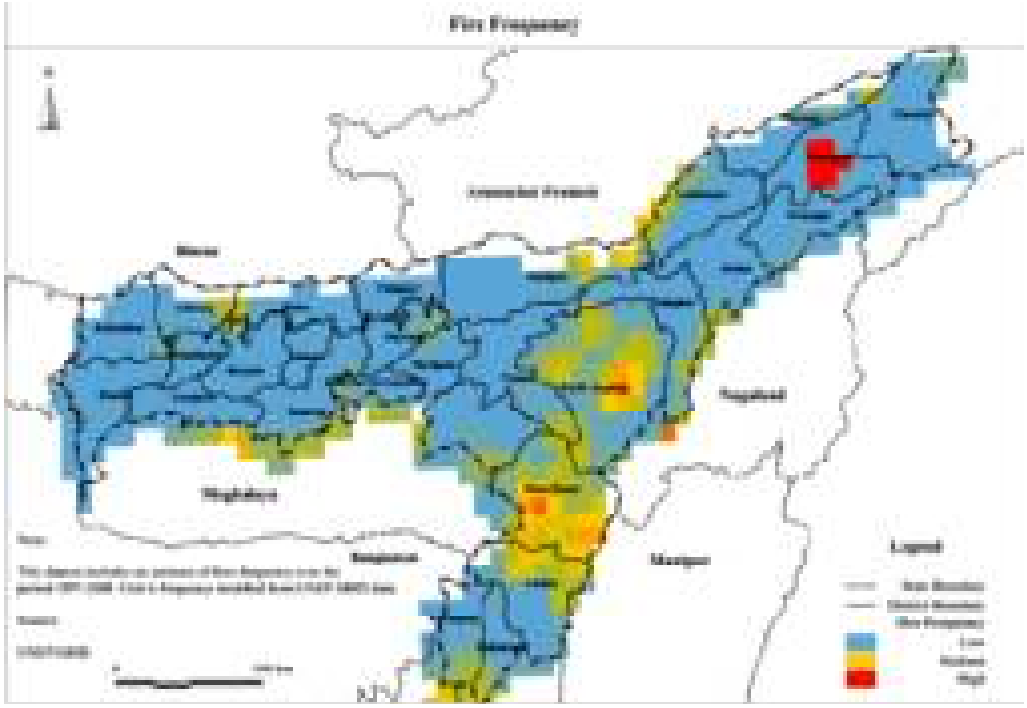
Table 9 Annual Fire Statistics of Assam (Year 1996 to 2008)

Year	Major Fire Call	Serious Fire Call	Medium Fire Call	Small Fire Call	Total Nos. of Fire Call
1996	148	13	108	1514	1783
1997	133	12	91	1689	1925
1998	127	6	79	1418	1630
1999	207	14	128	1676	2025
2000	182	17	130	1545	1874
2001	176	15	134	1409	1734
2002	202	12	143	1527	1884
2003	243	5	162	1336	1776
2004	239	15	143	1502	1899
2005	308	9	127	1420	1864
2006	300	8	200	1716	2224
2007	311	7	159	1338	1815
2008	308	11	188	1139	1646

Source: Fire Service Department, Assam

Fig 18 represents frequency of fires (mostly forest fire or other large scale fire incidences) in Assam between1997 and 2008. It is a modified product of World Fire Atlas (WFA, ESA-ESRIN) dataset which shows low, medium and high frequency. Based on the map it is evident that North Cachar hills, Karbi Anglong and Dibrugarh are more prone to fire incidences.

Figure 11: Fire Frequency



Climate Variability and Climate Change

The main characteristics of climate change include rising temperatures, changes in rainfall pattern, melting of glaciers and sea ice, sea level rise and an increased intensity and/or frequency of extreme events. These changes in physical processes have impacts on biological and socio-economic factors such as: shifts in crop growing seasons; changes in disease vectors; increased rates of extinction of many species; severe water shortages; and heavy deluges and flooding. The north-eastern region of India is expected to be highly prone to the consequences to climate change. The annual mean maximum temperatures in the region are rising at the rate of +0.11°C per decade. The annual mean temperatures are also increasing at a rate of 0.04°C per decade in the region.

The State of Assam is very much a part of the regional warming trend. However, there is no significant trend in rainfall for the region as a whole i.e. rainfall is neither increasing nor decreasing appreciably for the region as a whole. However, for a part of the region comprising Nagaland, Manipur, Mizoram, Tripura and parts of the Barail Hills, making one of the 36 meteorological sub divisions of the country, a significant change in seasonal rainfall has been observed. The summer monsoon rainfall is found to be decreasing over this region significantly during the last century at an approximate rate of 11mm per decade.

Extreme precipitation events (*heavy rain storm, cloud burst*) may have their own impacts on the fragile geomorphology of the Himalayan part of the Brahmaputra basin causing more widespread landslides and soil erosion. The response of hydrologic systems, erosion processes, and sedimentation in the Himalayan river basins could alter significantly due to climate change. Glacial recession is also linked to increased sediment load in rivers. A number of major flash floods have occurred in this decade due to heavy rainstorms or cloud bursts in the state or in the upper catchments of the

rivers in the neighboring states (*Meghalaya, Arunachal Pradesh*) and highlands in other countries (*Bhutan, China*).

The southern part of Nagaon district in central Assam valley and adjoining parts of Karbi Anglong form a rain-shadow zone where annual rainfall is as low as 800-1200mm. Water scarcity is a potential constraint for the people living in these areas. Absence of effective irrigation systems or water harvesting practices adds to the vulnerability of the people. Lumding, located centrally in this zone shows a decline in rainfall at a rate of 2.15 mm per year. As a result water crisis might aggravate in this region in the coming years.

One of the recent studies evaluates the possible impacts of climate change on water resources of the river basins in *India (Climate change impact assessment of water resources of India, A. K. Gosain, Sandhya Rao and Anamika Arora, Current Science, Vol. 101, No. 3, 10 August 2011).* The report mentions majority of the river systems show increase in precipitation at the basin level. Only Brahmaputra, Cauvery and Pennar show marginal decrease in precipitation under Mid Century (MC) scenario. The basins with reduction in precipitation show associated decrease in water yield. It is noticed that majority of the river systems show overall increase in sediment load at the basin level, with some basins such as the Ganga, Brahmaputra, Krishna, Pennar and Cauvery having sub-basins that show reduction in sediment load under the MC scenario. Under the End Century (EC) scenario there is further deterioration. The magnitude of erosion is much higher; however, the trends are quite similar to the MC scenario. The Ganga system shows significant increase in sediment load in majority of its sub-basins. Some areas of Krishna, Pennar and Brahmaputra show reduction in sediment load under EC scenario. However, the overall situation is bad and needs attention to deliberate on the viable options to cope with such a situation. There are few sub-basins of the Ganga, Brahmaputra, Krishna, Cauvery and Pennar that show some decrease in the peak flow magnitudes. This has a severe implication for the existing infrastructure such as dams, bridges, roads, etc. for the areas and shall require appropriate adaptation measures to be taken up.

More rigorous studies are required at regional scale to ascertain intraregional trends in temperature and rainfall in this part of India. Several districts of Assam were badly affected due to drought like situations consecutively for two years in 2005 and 2006 which had a signature of climate change on them as vindicated by the IPCC report of 2007(IPCC, 2007a). In the intense drought-like conditions that prevailed in as many as 15 districts of Assam during the summer monsoon months of the year 2006 owing mainly to below normal (*nearly 40%*) rainfall in the region, more than 75% of the 26 million people associated with livelihoods related to agriculture in these districts were affected and the state suffered a loss of more than 100 Cr due to crop failure and other peripheral effects. The recent spell of drought during October 2008 to July 2009 also has severely affected agriculture and production of hydropower in Assam and its neighboring states.

As a result of global warming, glaciers in the Himalayas are retreating at an average rate of 15m/year, consistent with the rapid warming recorded at Himalayan climate stations since the 1970s. The mainstream of the Brahmaputra River (*known as the Yarlung Jhangbo in Tibet, China*) and some of its tributaries like the Subansiri and the Jia-Bharali are partly fed by snow-melt run-off in the trans- Himalayan and Himalayan parts of their basins. With glacial contribution decreasing over the years, future lean season flow (*low flow*) may decrease in the Brahmaputra basin leading to increased water stress and changed hydrological regimes of the rivers as well as altered eco-hydrological characteristics of the riparian ecosystems. As a result

agriculture on which large populations depend for livelihoods and diverse ecosystems that sustain a rich biodiversity and food security in the state may be jeopardized. Important forest ecosystems (*especially grassland and wetland environs*) on river banks such as those in Kaziranga, Manas, Pobitora, Burhachapori, Panidihing and Dibru Saikhowa may see changes in the normal mode of land water interactions which may have significant detrimental effect on the micro-environment characterized by temperature, soil moisture, humidity on which the sustenance of many wild flora and fauna depends. Projected increase in rainfall and accelerated summer flows may give rise to more intense flooding and flood hazards in the Brahmaputra valley as an immediate consequence, but subsequent retreat of glaciers may reduce flows in the long run.

Recession of glaciers caused by climate change have created more glacial lakes in the Nepal, Bhutan and Tibet Himalayas and increasing glacial lake outburst floods (GLOF) have caused more flash flooding in the Greater Himalayan Region in recent times. The catastrophic floods in western Assam in 2004 were a result of a landslide induced flood in the Bhutan hills. Similarly another large LDOF-induced flash flood caused havoc in the bordering areas of Arunachal and China in June 2000.

The Northeast Indian region is going to see massive distortion of its hilly landscape due to the construction of large dams as part of more than 168 hydropower projects envisaged in the next five decades, out of which more than 100 hydropower dams are in Arunachal Pradesh alone. Government of India is also promoting large dam based hydro projects in Bhutan like the Mangdechhu Hydroelectric Project in the Manas river basin (in Bhutan). Given the high probability of increased heavy rainfall events, landslides, formation of GLOFs and LDOFs due to climate change in the Himalayan region, threats of flash floods from the large dams in Arunachal and Bhutan will always loom large over the downstream populations in Assam. *(ASTEC 2011.Recommendations for State of Assam's Strategy and Action Plan on Climate Change.37p. First Draft. Assam Science Technology and Environment Council, Guwahati, Assam, India)*.

Operational : In appropriate skill, lack of adequate knowledge on operating machines/equipments can **also cause accidents.**

Capacity of the department to deal with the identified Disaster: Soil conservation Department is not directly related to disaster mitigation but can assists or depute officers to help those in the area affected by disaster. Soil conservation dept is having divisional office & range offices in all of the district of Assam. Soil Conservation officials are accustomed with local conditions to mitigate any type of disaster likely to occur in their respective areas. Most of the officials are trained to handle disaster in various workshop /seminar/mockdrill conducted state/district/ subdivision/ block level. The field offices are equipped with vehicle and adequate manpower to assist the divisional officers to manage disaster by extending support to district administration round the clock. In case of disaster within the Soil Conservation Department the concern Dos/ASCOs/ROs will promptly take action for necessary support will seek from District Authority, local police, fire etc. as the case may be whenever required.

Gaps in the existing capacity: The Soil Conservation department does not have any disaster management capacity at present. Such capacity may have to be built for meeting the requisites of such disaster management.

RISK: Risk assessment is a methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of possible vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend. It includes review of the technical characteristics of hazards such as their location, intensity, frequency and probability; the analysis of exposure and vulnerability including the physical social, health, economic and environmental dimensions; and the evaluation of the effectiveness of prevailing and alternative coping capacities in respect to likely risk scenarios. This series of activities is sometimes also known as a risk analysis process (UNISDR, 2011). Risk in general is characterized by hazard intensity, exposure of elements and the scale of damage that it undergoes under the influence/action of the hazard. Risks faced are not static and there is a continuous need to study, undertake research and update the profile of the risk within the state as well as the surrounding region. A range of institutions (Geological Survey of India, Indian Meteorological Department, Central Water Commission, Indian Space Research Organization among others) with mandate from the Central and the State Government are involved in primary detection and assessment of the hazard. Technical institutions are also involved in undertaking scientific and social assessments for a wide range of risks within the State environment. From the disaster management perspective it is important to understand the hazards and its potential impact, and prepare governance institutions and community/society to respond for particular outlook/scenario.

Nodal agencies/Scientific institutions document/catalogue disaster events and these databases are maintained and updated on regular basis. Every event feeds into better understanding and building of the hazard profile. Information such as population vulnerability due to socio-economic factors, physical vulnerability, accounts of damage and loss are maintained by a range of agencies mandated to deliver sector specific functions. By putting all this information together, the state can develop/undertake risk analysis or risk assessment exercise. The output/information will enable disaster management professionals and communities to undertake prevention/mitigation and preparedness actions.

The broad state wide profile of hazards and impacts is covered in the subsequent description within this chapter. The results of the broad-brush assessment indicate that a wide range of threats and hazards pose a significant risk to the State institutions, infrastructure and community. Earthquakes, landslides, floods *(including flash floods and urban flooding)*, wind and cyclone, droughts, cloud bursts, erosion, forest fire, climate variability and climate change, epidemics, infectious diseases, chemical hazards and hazardous material release / chemical spills, transportation accidents – road / rail / inland waterways including boat capsize, shortages/problems resulted due to loss of infrastructure, structural collapse of infrastructure, act of terror, sabotage of critical infrastructure, dam failures, mine collapse, CBRNE, ground water pollution, any slow/rapid changes in the environment causing problems related to health / loss of life / damage to assets / impact on livelihood / economic loss / landscape damage or changes etc. present significant risks to the State of Assam. A detail risk assessment will help in identifying risk reduction measures, prioritize response functions, update preparedness plan and inform strategic and policy decision making at all administration levels (Local/District/State/National). A detailed Multi-Hazard Risk & Vulnerability Assessment (MHRVA) study can direct strategic investment plan for risk reduction.

ASDMA has commissioned several scientific studies to determine hazard risk and vulnerability across the State. The information collated through these assessments is used to guide developing planning efforts and mitigation/response aspects of disaster

management. The state of Assam is prone to natural hazards such as earthquakes, floods, landslides, cyclones and occasional draughts. The population is vulnerable to perennial floods, landslides and environmental degradations. Disasters cause sudden disruption to the normal life of a society and cause enormous damage to property to a great extent. Chronological reviews of the past major disasters show possibilities of similar events in future. Since the detailed HVRA is in the process of development under the guidance of ASDMA, this section attempts to throw light on the critical issues as identified by scientists and published within peer reviewed articles, journals and technical reports.

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Integration into its development plans and projects, the measures for prevention of disaster and mitigation.

Disaster Management Cell both in state and district level shall collect information, mobilise the resources for managing the situation in rescuing the man and machineries and take necessary steps for rehabilitation of the victims.

The quick Response Team may be constituted by the District Cell with representative of their respective Department for early response to the disaster. This team will be under beck and call of the head of the District Level Disaster Management Cell and on receipt of information from the nodal officer, the head of the cell will mobilise the quick Response Team.

Provision of funds for prevention of disaster, mitigation, capacity building and preparedness.

Requirement of funds prevention of disaster, mitigation, capacity building and preparedness shall be worked out by the District level Disaster Management Cell and communicated to the State Level Disaster Management Cell. The Government in Revenue and Disaster Management Department will make adequate provision of funds for the purpose. Head of each for drawal and disbursement of funds for preparedness of the cell and for its disaster management.

Drawing up mitigation, preparedness and response plans, capacity building, data collection and identification and training of personnel in relation to disaster management.

The District Level Disaster Management Cell work out strategies for meeting the requirements for disaster mitigation of larger order with assistance of other organizations and facilities that could be extended from the State. Requirement of infrastructure and logistic support should also be worked out by the District Level Disaster management Cell and additional infrastructure facilities may be built up as required. For this purpose the Cell should co-ordinate with the State Level Disaster Management Cell for the needful.

Review the enactments administered by it, its policies, rules and regulations with a view to incorporate therein the provisions necessary for prevention of disasters, mitigation or preparedness.

State Government also announces Policies from time to time taking into consideration of the priorities and local problems for development of in the State.

As such there is no provision for prevention of disasters, its mitigation or preparedness. The District Level Disaster management Cell may suggest the policy support for the purpose taking into account the type, intensity, frequency & impact of the disaster in their area of jurisdiction.

The nodal Officer at the District Level is supported by other officers at Block Level. Each centre is well connected with telephone, Fax and email facilities. The affected areas may be contacted to the centre immediately in case of emergency. The District/Block level officer may communicate with the Department through Directorate after consultation with district administration.

CHAPTER - III

IMPACT OF DISASTERS ON DEPARTMENT:

Repeated disasters threaten sustainable development. The state is prone to disasters like earthquakes, landslides, hailstorms, lightning, storms, cloud blusts, forest-fires etc. Soil Conservation Department is engaged in implementation of projects for conservation of Soil and Water resources and utilization of land on a sustain basis for productive purpose. The Department is responsible for implementation of various schemes on Soil and Water conservation related issues with objective for generating income to rural people by protection and development of Agricultural land. The department is also engaged in implementation of programmes related to control of shifting cultivation in the districts by providing alternative practices like horticulture, cash crop development etc. to wean away jhumias from harmful practices of shifting cultivation.

Sl. No.	*Disaster*	*Area likely to be Impacted*
1.	Flood	i. Siltation of the reservoir ii. Formation of Gully, River Bank erosion. iii. Inundation of Agricultural lands in low lying areas. iii. Increase pace of River bank erosion thereby affecting the river training scheme iv. Degradation of soil Health due to heavy siltation v. Loss of natural habitat of flora and fauna vi. Failure of Nursery, Cash Crop plantation and afforestation area due to waterlogging. vii. Damage of water harvesting structure, drainage channel and earthen bund. viii. Damage of physical infrastructure like office building, Godown, Smoke House etc. ix. Wetland degradation
2.	Earthquake	i. High magnitude earth quake causes severe landslide in hilly areas. ii. Collapse of office buildings, Engineering structures constructed for soil and wate conservation measures.
3.	Landslides	i. Road blocked ii. Damage of Departmental infrastructures. iii. Damage of Departmental plantation like Rubber, Bamboo etc. nearby hilly areas.
4.	Forest Fires	Plantation areas. Viz Rubber Plantation, Broom cultivation etc. -Protective afforestation areas.
5.	Incessant Rainfall Storm &Lightning	Massive erosion in hill slopes, agricultural land, gullies and ravines.

6.	Erosion	i. Formation of Rill, Gully etc. ii. Degradation of Soil health by washing the topsoil. iii. It affects the protective Afforestation and cash Crop plantation area. iv. Damage of physical infrastructure like drainage channel, earthen bund, terracing work, River Training Works, Land reclamation Works etc. v. Water pollutions. Obstruct the flow of water in stream and drainage channel leading to flood.
7.	Drought	i. Failure of Nursery, Cash crop Plantation and Protective afforestation Scheme. ii. Drying up of vegetative cover, which increase pace of wind erosion. iii. Loss of natural habitat of flora and fauna. iv. Formation of hard pan v. Loss of moisture thereby affects the Soil Organic matte, soil organic Carbon. vi. Reduction in Cash Crop production /Latex production in Rubber. vii. Depletion of water table.
8	Siltation	i. Destroys bottom dwelling organism. ii. Reduces population of fish eggs and larva. iii. Soil quality deteriorates. iv. Obstructs Water ways.
9	Cyclone	i. Uprooting of Plantation trees like Rubber, Bamboo etc. ii. Devastation of Office Buildings, Godown etc. ii. Damage of Nursery, Cash Crop Plantation and Protective afforestation areas.
10	Pollution	i. Increase the earth temperature ii. Drastic climate changes iii. Increase the epidemic/disease iv. Extinction of both flora and fauna. v. Causes breathing problems and heart diseases
Apart from the Natural hazard already experienced in the State manmade disaster like Road accident, Illegal felling of trees, Terrorism, Ethnic Clash, Encroachment, Witch-Crust, Riots etc. in the past with heavy loss of life and property.		

Seasonality of hazards:(Plain districts of Assam)

Type of Hazards	*Jan-March*				*April-June*				*July-Sept*				*Oct-Dec*			
	H	**C**	**A**	**I**	**H**	**C**	**A**	**I**	**H**	**C**	**A**	**I**	**H**	**C**	**A**	**I**
FLOOD					-	-	-	-	-	-	-	-				
CYCLONE					-	-	-	-	-	-	-					
EARHQUAKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LANDSLIDE					-	-	-	-	-	-	-	-				
FORESTFIRE	-	-	-	-												

INCESSANT RAINFALL					-	-		-	-	-		-				
HAILSTORM	-	-	-	-	-	-	-		-	-	-	-				
Drought					-	-	-	-	-	-	-	-				
Fire accident	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
River Erosion					-	-	-	-	-	-	-	-				
Industrial Hazard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bomb Blust	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Road accident	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

H=Human; C=Crop; A=Animal; I=Infrastructure

Seasonality of hazard(Hill districts of Assam)

Type of Hazards	Jan-March				April-June				July-Sept				Oct-Dec			
	H	**C**	**A**	**I**	**H**	**C**	**A**	**I**	**H**	**C**	**A**	**I**	**H**	**C**	**A**	**I**
FLOOD					-	-	-	-	-	-	-	-	-	-	-	-
CYCLONE					-	-	-	-	-	-	-					
EARHQUAKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LANDSLIDE						-	-	-	-	-		-	-	-		
FORESTFIRE	-	-	-	-												
INCESSANT RAINFALL					-	-		-	-	-		-				
HAILSTORM					-	-	-		-	-	-					

H-Human, C-Crop, a-animal, I-Infrastructure

Risk assessment of the Hazards:(plain areas)

Sl. No.	*Type of hazards*	*Time of occurrence*	*Likely to damage*	*Extent of damage*	*Vulnerable areas.*
1	Flood	April-September	Damage of soil conservation Structure	Moderate	Project areas
2	Earthquake	January-December	Loss of life, all kinds of infrastructures	Moderate	Division Office, Beat Office &GCP sites
3	Land slide	April-September	Damage of soil conservation Structure	moderate	Project areas
4	Drought	April-August	Damage of soil conservation project	Low to Moderate	Arable land and afforestation areas
5	River erosion	April-September	Damage to River project	Moderate	project areas
6	Storm	March-August	Damage to the plantation	Moderate	Afforestation areas

Risk assessment of the Hazards :**(in hill districts)**:

Type of hazards	*Time of occurrence*	*Extent of impact*	*Vulnerable areas.*
Flood	Monsoon	Low	Damage of soil Conservation structures
Cyclone	Pre & during monsoon	Moderate to High	Mostly plantation crops get damaged
Earthquake	Unpredictable	Moderate to High	Loss of life, all kinds of infrastructures
Landslide	During Monsoon	Moderate to High	In the Hills
Forestfire	March-April	Moderate to High	In the forested area
Incessant Rainfall	Monsoon	Moderate to High	Project areas
Lightning & Hailstorm	Pre & during monsoon	Moderate to High	All blocks of the Hill Districts

Vulnerability analysis:

Schemes/Project		*Extent of vulnerability towards disasters*	*Area*
Land Development works	i. Contour bunds ii. Field bunds iii. Bench terracing iv. Earthen bunds v. Water harvesting structures/ponds vi. Drainage line treatment	About 20%	Project area
Gully Control Works	i. Spillways ii. Checkdams iii. Boulder check dams with hexagonal wire iv. Brush wood checkdams	About 20-3%	Project area
Protective afforestation	i. Broom Cultivation ii. Gamei, Agar, Melia azadirach plantation	About 10-20%	Project area
River Training works	i. Boulder Spur ii. Bank Revetment iii. Loop Cutting works. iv. Gabion Structure	About 10-20%	Project area
Cash crop development	i. Rubber Plantation ii. Bamboo plantation iii. Coffee Plantation	About5-10%	Project area
Land Reclamation	i. Cleaning of drainage Channel ii. Leveling of tilla land iii. Removal of Water hyacinth	10-20%	Project area

CHAPTER - IV
PREVENTION, MITIGATION AND PREPAREDNESS PLAN

Unlike manmade disasters, natural hazards like floods, earthquakes, and cyclones cannot be avoided. However it's mitigation measures along with proper planning of developmental work in the risk prone area, these hazards can be prevented from turning in to disasters. A multi pronged approach needs to be adopted to undertake mitigation measures to address all the four aspects on the spectrum of disaster management: i. prevention and mitigation, ii Response iii. Relief and Rehabilitation in respect of the disaster and area likely to be affected by them:

- Building mitigation measures in all development projects.
- Indigenous knowledge on disaster and coping mechanisms adopted will be given due weight age.
- Capacity building etc.

Prevention of natural calamities is almost difficult. Prevention is often long term and would require integrated interventions by the state or national governments. However, some measures are taken up to reduce the impact of different disasters on Soil Conservation works.

Likely area of impact *Mitigation measures*		*Mitigation measures*	*Time frame*
Land Development works	i. Contour bunds ii. Field bunds iii. Bench terracing iv. Earthen bunds v. Water harvesting structures/ ponds vi. Drainage line treatment	Strengthening & raising the height of weak embankments, points	Before onset of pre-monsoon and monsoon season
Gully Control Works	i. Spillways ii. Checkdams iii. Boulder check dams with hexagonal wire iv. Brush wood checkdams	Strengthening & raising the height of weak embankments, points	Before onset of pre-monsoon and monsoon season
Protective afforestation	i. Broom Cultivation ii. Gamei, Agar, Melia azadirach plantation	Strengthening & raising the height of weak embankments, points	Before onset of pre-monsoon and monsoon season
River Training works	i. Boulder Spur ii. Bank Revetment iii. Loop Cutting works. Gabion Structure	Strengthening & raising the height of weak embankments, points	Before onset of pre-monsoon and monsoon season
Cash crop development	i. Rubber Plantation ii. Bamboo plantation iii. Coffee Plantation	Strengthening & raising the height of weak embankments, points	Before onset of pre-monsoon and monsoon season
Land Reclamation	i. Cleaning of drainage Channel ii. Leveling of tilla land iii. Removal of Water hyacinth	Strengthening & raising the height of weak embankments, points	Before onset of pre-monsoon and monsoon season

Main Task of the Department and responsibilities of integration of related disaster management aspects in these (*At state, District and Local Levels*) Roles and responsibilities of the Department:

Capacity building: Building capacity of the communities, as they are the first responders to disasters, is a significant part of the capacity development process. It will include awareness, sensitization, orientation and developing skills of communities and community leaders.

Departmental capacity Building Policy of Disaster Management:
1. *Institutional : The Watershed* Committees will be added strength of the Department.

2. Organizational: All the staff and watershed Committees will be trained up covering the relevant subjects in different Training Institutes.

3. Infrastructural: offices for all watershed committees have already been set up with basic amenities.

CRISIS RESPONSE PLAN OF THE DEPARTMENT:

General advance preparedness:

Setting of Control Room: The District Departmental Disaster Control Room Shall be set up in the premises of all the office of the districts.

Mock Drill: In order to handle any eventuality in ease, Mock Drill could be conducted at all levels-District, Block and Village levels twice a year.

Awareness Generation : Awareness programmes on Community based Disaster preparedness (CBDP) will be conducted to counter disaster threats collectivity and effectively and regular orientation programmes for departmental staff and village level will also be carries out.

PLAN OF ACTIVITIES OF DISTRICT DEPARTMENTAL CONTROL ROOM:
Normal Time :

- Identification of Vulnerable areas.
- Encourage the Divisional/Range officials for preparation of Disaster specific mitigation plans.
- Preparation/Renovation of District Disaster Mitigation Map.
- During normalcy it will work as an Information Centre.
- Availability of Disaster Management Plan.
- Formation of response groups & task forces for handling situations during disasters.
- Warning and communication equipment to be kept functional.
- Collect information regarding disaster-related rules & regulations.
- A senior level officer may be deployed to be in charge of the control room.
- Staff development training on use of sophisticated communication systems.
- In and out record for control room.
- Delegation of responsibilities.
- Display of charts and figures.
- Mock Drills.

After Receiving Warning

- After receiving disaster message the rescue team must be alert and immediately start the relief operation with the help of NGOs.
- They should try to contact the police, radio, fire station and food supply departments as the case may be.
- All the members of the DMTs should be informed to disseminate the disaster warning at the village level.

All the Watershed Committees, User Groups and Self help Groups should be contacted for their involvement.

During Disaster

- On receipt of warning, inform all concerned with Disaster Management regarding the accuracy of the information.
- Take necessary steps for locating the most vulnerable areas & rescue them with the help of identified active volunteers.

Post Disaster

- A list should be prepare of affective village, areas, structure etc.
- Assessment and evaluation of the extent of damage shall be prepared.
- Rehabilitation & Mitigation Process to be started.

CHAPTER - V

CRISIS RESPONSE STRUCTURE OF THE DEPARTMENT

DAMAGE ASSESMENT/INFRUSTRUCTURE RESTORATON TEAMS/REHABILITATION :

These teams shall comprise of officers/staff from the departments and shall be responsible for;

a) Clearing of debris and clearing of areas.
b) Damage assessment, monitoring and reporting.
c) Preparing Plan of Action for restoration and rehabilitation.

ACTION BY THE DEPARTMENT :

Preparedness:

- Stock piling of repair materials like sand bags, bamboo at vulnerable points etc.
- Provision for guarding weak points
- Listing of volunteers.
- Co-ordinating with others.
- Equipments to be ready.
- Delegation of areas of operation.
- Contact Nos./addresses of staff/officers.
- Ensure tube wells, wells are in perfect condition.
- Coordinate with Dist. Adm.

Post-Disaster :

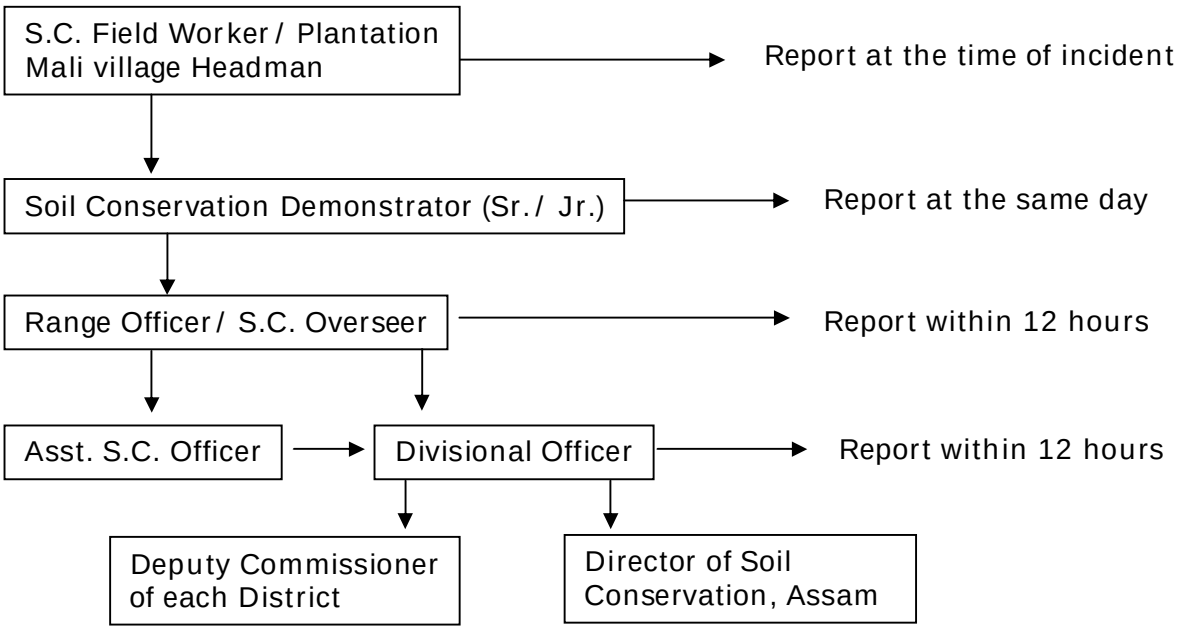
- Damage assessment report to be done immediately.
- Make arrangement for repair of water harvesting structures, gabion structures, revetments, bunds, bench terraces, etc.
- Taking help of the community for maintenance and restoration of all engineering structures damaged at the time of disaster.
- Feasibility of alternative cropping as part of rehabilitation programme.
- Assist the District Administration in infrastructure restoration.

STANDARD OPERATING PROCEDURE (SOP) :

The standard Operating Procedure details the regularly recurring work processes that are to be conducted or followed within an organisation. They document the way activities are to be performed to facilitate consistent conformance to technical and quality system requirements and to support data quality.

Every official in the response teams (DAIRT) has clear roles and responsibilities. Disaster specific teams have the responsibility to act quickly and coordinate with the

concerned Head of Department in such situations. Each team has one senior official who has to supervise the efforts of other team members.



Actions to be taken at the time of disaster:

Following are the list of actions to be taken at the time of disaster:-

(a) Soil Conservation Field Worker/Demonstrator shall collect and maintain full information of the disaster alongwith photographs and report to the concerned Range Officer immediately.

(b) The range officer on receiving the information shall immediately submit full report to the concerned Divisional Officer and Department Disaster Control Room in writing about the disaster.

(c) Damage Assessment & Infrastructure Restoration Team (DAIRT) shall be deputed to verify and inspect the extent of damage and assess the magnitude of losses in disaster.

(d) Damage Assessment & Infrastructure Restoration Team (DAIRT) shall submit complete report and Action Plan for Rehabilitation measures.

(e) With the approval and subject to sanctioning by the Head of the Department the DAIRT will undertake the rehabilitation and relief work.

CHAPTER - VI

Citizen engagement

Identify and develop information networking system among officers, staff and local public for immediate action taken.
Co-operate with other departmental officials and staff and local administration and also involve the local public to cope up with the situation of disaster.
Information dissemination and public awareness with emphasis on earth quake safe construction &survival strategies. Preparing &updating of contingency plan at the district level.

CHAPTER - VII

Review , Up gradation, Dissemination of Disaster management Plan.

The Disaster Management Plan will improve and update every year depending upon the situation. Update will be done in consultation with the PRI, Local MLA and Administration.
Suggestion will be taken from Departmental higher authority for any new addition in Disaster Management Plan.
The Plan will be circulated to all the concerned stake holders for generating awareness among people.

CHAPTER - VIII

Knowledge Management: Resource Institutions (NERIWALM, NIRD & PR, SIRD etc.) and Resource persons are identified and notified for knowledge sharing and capacity building.
The past history & lesson learnt will be documented and uploaded in the website to share with everybody**.**

CHAPTER - IX

CONTACT NUMBERS :

DIRECTORATE :

Director of Soil Conservation, Assam
Bhumi Shangrakshan Bhawan
R. G. Bara Road, in front of state zoo.
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Telephone no: 0361-2203856
Fax no: same
E-mail Id: soilconservationassam@gmail.com

Sri Sibananda Choudhury
Joint Director of Soil Conservation
(Head Quarter)
Phone Number : 94350-18913
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soilconservationassam@gmail.com

Sri J. Malakar
Joint Director of Soil Conservation
Lower Assam Circle,
Phone No. 94350-15629
E-mail address:
jointdsclac@gmail.com

Sri H. C. Roy
Joint Director of Soil Conservation,
River Valley Project.
Phone No. 94353-06266
E-mail address:
jointdscrvp2015@gmail.com

Sl. No.	*Names of the DSCOs*	*District level*	*Contact numbers*	*Ranges of the respective divisions*	*Bits or independent centre (if available)*
1	Sri M. Hazarika	1.Barpeta soil conservation division, Barpeta Divisional soil conservation officer: Email address: dobarpetascdivisional@rediffmail.com	94350-17722	1.Sorbhog 2.Sarthebari and 3.Gauripur	1.Barpeta 2.Bongai-gaon
2	Md. A. Ahmed	Dhemaji-Jonai S.C. Division, Silapathar Divisional soil conservation officer: Email address: dwdudhemaji@gmail.com	94350-88799	1.Dhemaji, 2.Silapathar and 3.Jonai	Likaibali
3	Sri B. Goala	Cachar soil conservation division, Silchar, Divisional soil conservation officer: Email address: docachar2012@gmail.com	94355-14422	1.Ramkrishna nagar, 2.Harinagar, 3. Hailakandi and 4.Kalain	Silchar

(*Continued :: 2*)

Sl. No.	*Names of the DSCOs*	*District level*	*Contact numbers*	*Ranges of the respective divisions*	*Bits or independent centre (if available)*
4	Sri M. H. Mazumdar	Eastern Assam Soil Conservation Division, Dibrugarh, Divisional soil conservation officer: Email address: contactdscodbr@gmail.com	94356-51191	1.Dibrugarh, 2. Sadia, 3.Tinsukia and 4.Margherita	1.naharkatia 2.borgolai
5	Sri S.K.Deb	Lakhimpur soil conservation division, North Lakhimpur, Divisional soil conservation officer: E mail address: Soil.lakhimpur@gmail.com	94351-34071	1.Harmitty, 2. Lakhimpur 3.Dhakuakhana	Narayanpur
6	Sri Bolin Neog	South Bank soil conservation division, Guwahati, E-mail address: divisionalofficersouth@gmail.com	98599-84123	1.Guwahati, 2.Sonapur, 3. Chandrapur, 4. Goalpara and 5.Baku	
7	Smt. Taposhi Kalita	Golaghat soil conservation division, Golaghat, Divisional soil conservation officer: E- mail address:golaghatsoil@gmail.com	94350-90408	1.Golaghat, 2.Dhansiri	Bokakhat
8	Sri B. A. Ahmed	Baksa Soil Conservation Division, Mushalpur, Divisional soil conservation officer: E- mail address: divisionalofficer27@gmail.com	88110-90272	1. Jallah 2. Tamulpur 3. Goreswar 4. Nagrijuli 5. Dhamdhama	
9	Sri Akhter Hussain	Lower Assam Soil Survey Division, Guwahati, Divisional Soil Conservation Officer: E- mail address:divsoilassd@gmail.com	94353-88668	H.Q.	

(*Continued :: 3*)

Sl. No.	*Names of the DSCOs*	*District level*	*Contact numbers*	*Ranges of the respective divisions*	*Bits or independent centre (if available)*
10	Sri Akan Nath	Nalbari soil conservation Division, Nalbari, Divisional soil conservation officer: E- mail address:nalbariscdivijion@gmail.com	94351-52273	1. Nalbari, 2. Mukalmua and 3. Rangia	
11	Sri C. J. Saikia	Hamren Soil Conservation Division, Hamren Divisional soil conservation officer: E- mail address: soilhamren@gmail.com	94353-81743	1.Hamren 2.Baithalangsu 3.Ouguri 4.Voksong and 5.Rangpongbong	1. Rangangpeng 2. Girikinding S.C.Center
12	Sri Ranjan Pathak	Haflong S. C. Division, Haflong, Divisional soil conservation officer: E- mail address: haflongscdivision@gmail.com	94355-21771	1.Haflong 2.Gunjung 3.Dayungmukh and 4.Sangbar.	
13	Sri C. R. Das	Kokrajhar Soil Conservation Division, Kokrajhar, Divisional soil conservation officer and I/c-Additional Director E- mail address: soilconservationkokrajhar@gmail.com	84748-73750	1.Gosaigaon 2.Kokrajhar and 3.Dotama	
14	Sri E.P. Marak	Kohora Soil Conservation Division, Kohora, Divisional Soil Conservation officer: E- mail address: kohorasoil@gmail.com	94357-39455	1.Kohora 2.Balijuri 3.Deithor and 4. Silonojan	
15	Sri D. Gogoi	Diphu Soil Conservation Division, Diphu, Divisional soil conservation Officer: E- mail address: soildiphu@gmail.com	96780-09880	1.Diphu 2.Barjan 3.Loringthepi 4.Barlangpher, and 5.Dengaon.	Parkupphar

(*Continued :: 4*)

Sl. No.	*Names of the DSCOs*	*District level*	*Contact numbers*	*Ranges of the respective divisions*	*Bits or independent centre (if available)*
16	Sri M. D. Chutia	Darrang Soil Conservation Division, Mangaldoi, Divisional soil conservation officer: E- mail address: darrangsoil@gmail.com	94351-03133		Mangaldoi
17	Sri P. Dutta	Jorhat soil Conservation Division, Divisional soil conservation officer: E- mail address: divisionalofficer.jscd.assam@gmail.com	94350-17653	1.Jorhat 2. Sibsagar 3.Sonari 4.Najira 5.Majuli and 6.Titabor	
18	Sri R.N. Das	Sonitpur Soil Conservation Division, Tezpur, divisional soil conservation officer: E- mail address: dosoilsonitpur@gmail.com	94352-64176	1.Mazgaon 2.B.Chariali	1.Dhekiajuli 2.Gohpur
19	Sri R. Tassa	Udalguri Soil Conservation Division, Udalguri, Divisional Soil Conservation Officer: E- mail address: wcdcudalguri@gmail.com	98641-48645	1.Tangla 2.Orang	
20	Sri Arup Rai	Divisional Officer (Publicity) & I/c-Additional Director of Soil Conservation, Soil Conservation Directorate, Haflong	94350-77335	H.Q, Haflong	
21	Sri A. Rai Sarma	Maibong Soil Conservation Division, Maibong Divisional soil conservation officer: E- mail address: divsoilmaibong@gmail.com	99540-66579	1.Maibong 2.Mahur and 3.Mandardisa	

(*Continued :: 5*)

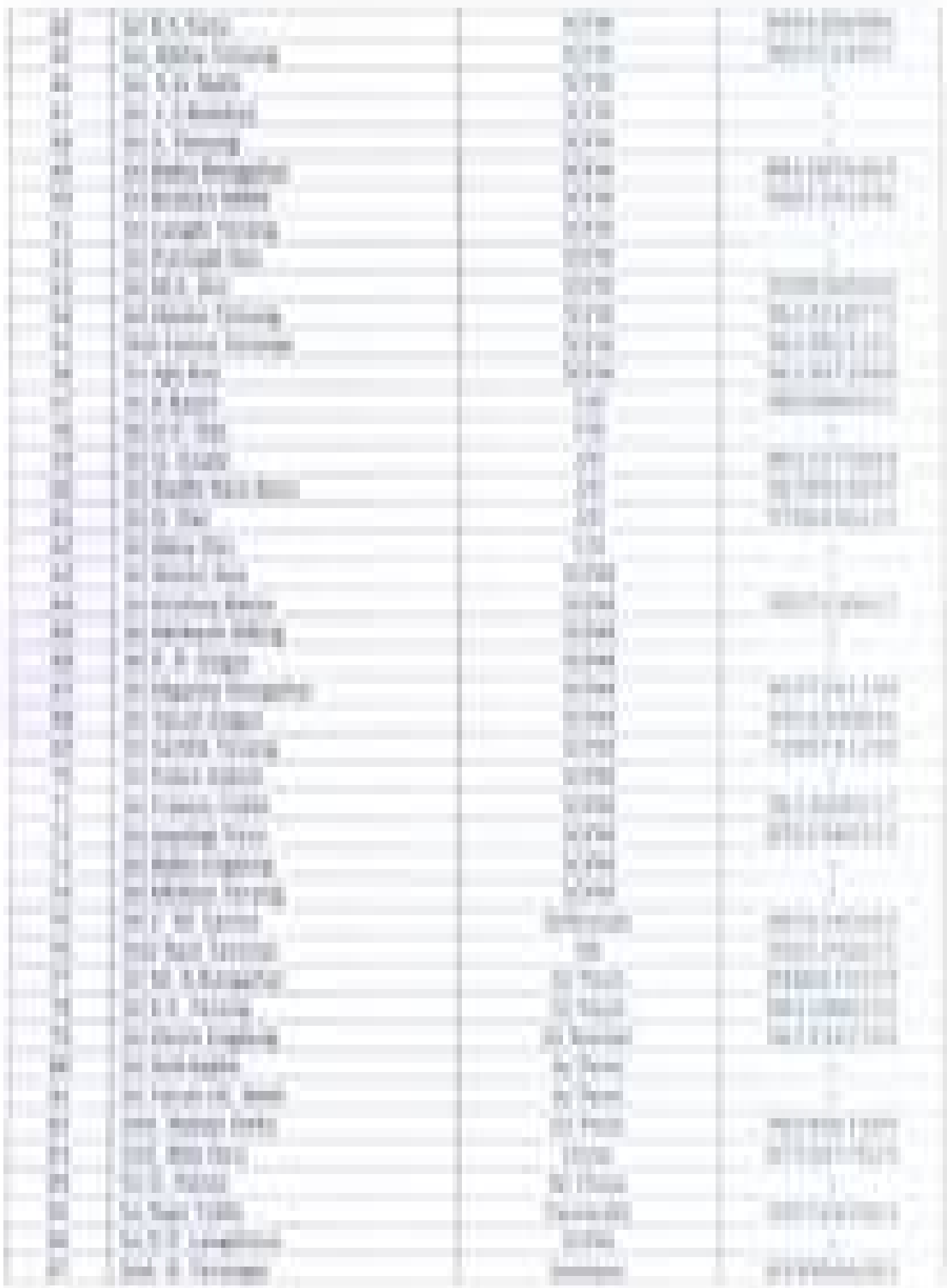
Sl. No.	*Names of the DSCOs*	*District level*	*Contact numbers*	*Ranges of the respective divisions*	*Bits or independent centre (if available)*
22	Sri T.P. Hazarika	Conservation Division Office, Nagaon, Divisional soil conservation officer: E- mail address: soilconservationnagaon@gmail.com	94350-18188	1.Nagaon 2.Morigaon 3.Hojai	Kaliabor
23	Sri.B.K. Mushahary	Chirang Soil Conservation Division, Kajalgaon, Chirang i/c, Divisional soil conservation officer: E- mail address: chirangscdivision@gmail.com	98540-21257	1. Basugaon	Bijni
24	Sri H. Roy	Engineering Soil Conservation Division, Guwahati Divisional Soil Conservation Officer(Engg): Email-id doengineering77@gmail.com	94353-06266		
25	Sri K. Singha	i/c, Supt. Assam Soil Conservation Training School Mahur Email-id mahurtrngschool@gmail.com	94350-72632		

Divisional Level

Divisional Disaster Management Nodal Officer : Shri. Dondeswar Gogoi, DSO

Digboi Soil Conservation Division,Digboi

Sl. No.	Name of Staff	Designation	Mobile No.
1	Sri D. Gogoi	D.S.C.O	[illegible]
2	Mrs. I. Terangpi	ASO	[illegible]
3	Sri A. M. Sarmah	S.C.R.	[illegible]
4	Sri B. Taram	S.C.R.	[illegible]
5	Sri Bosang Taron	S.C.R.	[illegible]
6	Sri Mukesam Engtipi	S.C.O	[illegible]
7	Sri Tapan Bora	Account	[illegible]
8	Smt. Swagata Lengthasa	Sr. Asstt. (Account)	[illegible]
9	Sri Longpong Rongchetlen	Sr. Asstt.	[illegible]
10	Smt. Bhanu Kalita	Jr. Asstt	[illegible]
11	Smt. Pradelip Rabha	Jr. Asstt	[illegible]
12	Smt. Promila Tarsar	Jr. Asstt.	[illegible]
13	Sri Longki Timung	Jr. Asstt.	[illegible]
14	Sri Aalim Nasir	SDO(C)	[illegible]
15	Sri Rup Ram Nirva	SDO(C)	
16	Sri Rajen Tarso	SDO(C)	[illegible]
17	Sri Rameswar Teron	SDO(C)	[illegible]
18	Sri Jugal Saikia	SDO(C)	
19	Sri Pulsing Engtipi	SDO(C)	[illegible]
20	Sri Kelvin Kro	SDO(C)	[illegible]
21	Sri B. Borokotoki	SDO(C)	[illegible]
22	Sri Rudha Tanu	SDO(C)	[illegible]
23	Sri K.Ch. Bora	SDW	[illegible]
24	Sri Satendra Deori	SDW	-
25	Sri. Biren Ronger	SDW	-
26	Sri Abraham Thasa	SDW	[illegible]
27	Sri Anil Nath	SDW	-
28	Sri Ismail Medhi	SDW	[illegible]
29	Sri Biren Sing Bey	SDW	-
30	Sri K.S.Rongphar	SDW	-
31	Sri G.Dulgoon	SDW	[illegible]
32	Sri M.S. Tisso	SDW	-



details of the main Departmental officials :

Name of Office & Officer	Designation	Contact No.
Divisional Soil Conservation Office, Udalguri		
Smti Tapashi Kalita	Divisional Soil Conservation Officer	[illegible]
Udalguri Soil Conservation Range, Udalguri Sri [illegible]	Range Officer	[illegible]
[illegible] Soil Conservation Range, [illegible] Sri [illegible]	Range Officer	[illegible]
[illegible] Soil Conservation Circle Sri [illegible] (I/C)	Soil Conservation Demonstrator	[illegible]
Udalguri Soil Conservation Division, Udalguri Smti [illegible]	Accountant	[illegible]

—

Bongaigaon District:

Name of Officers & Staff	Designation	Contact Numbers
Sri Mukul Hazarika	Divisional Officer, Barpeta Soil Conservation Division, Barpeta	94350-17722
Sri Mihir Kumar Roy	Range Officer, Bongaigaon Soil Conservation Range	94357-14511
Sri Sarbeswar Medhi	Soil Conservation Demonstrator	98545-10078
Sri Nirmal Deka	Senior Assistant (Accountant)	97066-54128
Sri Swapan Kr. Brahma	Soil Conservation Demonstrator	95772-82824
Sri Omar Ali Seikh	Soil Conservation Field Worker	96785-37757

Kokrajhar District:

Name of Officers & Staff	Designation	Contact Numbers
Sri C.R. Das	Divisional Officer, Kokrajhar Soil Conservation Division, Kokrajhar	84748-73750
Sri Dinesh Chandra Pathak	Assistant Soil Conservation Officer	87210-52887
Sri Dilip Kr. Bhuyan	Range Officer,	95085-91110
Sri Jyoti Medhi	Range Officer	94351-23534
Sri Harekrishna Sarmah	Range Officer	94354-80500

Cachar District:

Name of Officers & Staff	Designation	Contact Numbers
Sri B. Goala	Divisional Officer, Cachar Soil Conservation Division, Silchar	94355-14422
Sri S. Z. Barbhuiyan	Soil Conservation Overseer	94019-55159

Deviation Profile

(Initial Pointer)

Sl. No.	Name of Secondment	Designation	Date of Birth	Date of Superannuation	Mobile No.	Place of Posting
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(Shivamogga District)

Sl. No.	Name of Establishment	Designation	Scale of Pay	Date of superannuation	Mobile No.	Place of posting
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Level || Banking Officer Course

Provincial Disaster Management Focal Officers' (e) Refer Name

Sl. No	Name	Designation	Contact No
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
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20	[illegible]	[illegible]	[illegible]
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28	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]

01	[illegible]	[illegible]	[illegible]
02	[illegible]	[illegible]	[illegible]
03	[illegible]	[illegible]	[illegible]
04	[illegible]	[illegible]	[illegible]
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06	[illegible]	[illegible]	[illegible]
07	[illegible]	[illegible]	[illegible]
08	[illegible]	[illegible]	[illegible]
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10	[illegible]	[illegible]	[illegible]
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13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
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21	[illegible]	[illegible]	[illegible]
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32	[illegible]	[illegible]	[illegible]
33	[illegible]	[illegible]	[illegible]
34	[illegible]	[illegible]	[illegible]
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42	[illegible]	[illegible]	[illegible]
43	[illegible]	[illegible]	[illegible]
44	[illegible]	[illegible]	[illegible]

99	Sri Harendra Bardhan	Pharmacist Mali	[illegible]
100	Sri Ashish Bardhan	Pharmacist Mali	
101	Sri Gokul Hazarika	Pharmacist Mali	[illegible]
102	Sri Pulak Deka	Pharmacist Mali	[illegible]
103	Sri Ranjit Barooah	Peon	[illegible]
104	Sri Dhaneshwar Talukdar	Peon	[illegible]
105	Sri Bhagen Ishtiq	Peon	[illegible]
106	Sri Bora Sarighoria	Peon	[illegible]
107	Sri Lakhidhar Bharali	Peon	
108	Mst. [illegible]	Peon	
109	Sri [illegible] Sarighoria	Peon	[illegible]
110	Sri Hazarika Jara	Peon	
111	Sri Chakma Bigyan	Peon	[illegible]
112	Md. Rezaul Ali	Peon	[illegible]
113	Sri Tarun Kalita	Peon	[illegible]
114	Sri Dhanta Mani Deka	Peon	[illegible]
115	Sri Tarun Kalita	Peon	[illegible]
116	Sri Jugal Deka	Peon	[illegible]
117	Sri Bahul Kalita	Peon	[illegible]
118	Sri Parmanan Phangan	Peon	[illegible]
119	Sri Dhiren Deka	Peon	[illegible]
120	Md. Jiaul Haque Chowdhury	Peon	[illegible]
121	Sri Bimal Das	Chowkidar	
122	Sri Jay Nath Chowdhury	Chowkidar	[illegible]
123	Sri Bipul Deka	Chowkidar	
124	Sri Lakhyadhar Saikia	Chowkidar	
125	Sri Jiaul Hoque Das	Chowkidar	[illegible]
126	Sri Jiten Gogi	Chowkidar	
127	Sri Bhaiyab Phangan	Chowkidar	[illegible]
128	Sri Ranjit Nagaraj	Chowkidar	[illegible]
129	Sri Bachab Beg	Chowkidar	[illegible]
130	Sri Bhaskar Jyoti Bora	Chowkidar	
131	Smt. Rina Rani	Sweeper	

[illegible]

Sl. No.	Name	Designation	Mobile Number
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
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6	[illegible]	[illegible]	[illegible]
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8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
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15	[illegible]	[illegible]	[illegible]
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24	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]

Dibrugarh District :

Name of Officers & Staff	Designation	Contact Numbers
Sri M. H. Hazarika,	Divisional Officer, Eastern Assam Soil Conservation Division, Dibrugarh	94356-51191
Sri Robin Choudhury	Assistant Soil Conservation Office, Eastern Assam Soil Conservation Division, Dibrugarh	98547-05052
Sri Pradip Kr. Goswami	Range Officer, Soil Conservation Range, Dibrugarh	94350-32449
	Range Officer, Naharkatia Independent Accts Beat, Naharkatia.	94350-32449

Barpeta District:-

Name of Officers & Staff	Designation	Contact Numbers
Sri Mukul Hazarika	Divisional Officer, Barpeta Soil Conservation Division, Barpeta	94350-17722
Sri Sultan Jahedur Rahman	Range Officer, Sarthebari Soil Conservation Range, Sarthebari	94350-35081
Sri Dilip Kr. Haloi	Soil Conservation Overseer, Barpeta Soil Conservation Division, Barpeta	94354-81768
Sri Nirmal Deka	Senior Assistant(Accountant) Barpeta Soil Conservation Division, Barpeta	9706654128
Sri Ratnajit Choudhury	Soil Conservation Demonstrator	9864308693
Sri Sidheswar Das	Soil Conservation Field Worker Barpeta Soil Conservation Division, Barpeta	99542-56437

Director of Soil Conservation, Assam

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