

SOME FACTS: The most deadly earthquake was recorded in China in 1557. During this time many people lived in the mountains in artificial caves and the quake resulted in over 800,000 deaths

(Source: earthquake.usgs.gov , http://www.ema.gov.au/www/ema/schools.nsf/Page/Get_The_FactsEarthquakes; <http://coolfacts.in/some-facts-about-earthquakes/>;
<http://en.wikipedia.org/wiki/>)



A girl practising Drop- Cover- Hold at the Great Assam School Shake Out Programme



MESSAGE

Shri Tarun Gogoi
Hon'ble Chief Minister of Assam

It gives me immense pleasure to learn that Assam State Disaster Management Authority is bringing out its Quarterly Newsletter. The newsletter would be an effective tool for disseminating information and educating the people of Assam on the various disaster management issues.

The Assam State Disaster Management Authority has done commendable job since its inception and I congratulate each and every member of the team and all the departments which have contributed towards realising the objectives of Disaster Management.

I am confident that together we can build a Safer and Disaster Resilient Assam for its people.

A handwritten signature in black ink, appearing to be 'Tarun Gogoi', written in a cursive style.

Shri Tarun Gogoi
Hon'ble Chief Minister of Assam



MESSAGE

Shri Prithvi Majhi
Minister Revenue and Disaster Management, Assam

I am happy to learn that Assam State Disaster Management Authority (ASDMA) is publishing the inaugural issue of the Quarterly Newsletter. The newsletter highlights the activities of ASDMA and also shares educative article on disaster management.

I compliment the team of ASDMA for this significant approach and wish them all the success in their endeavours.

A handwritten signature in black ink, appearing to read 'Majhi'. The signature is stylized and written in a cursive-like font.

Shri Prithvi Majhi
Minister Revenue and Disaster Management, Assam

MESSAGE

Shri Naba Kumar Das
Chief Secretary, Government of Assam

I am extremely delighted to know that Assam State Disaster Management Authority is bringing out its Quarterly Newsletter.

This initiative would open up myriad learning points on Disaster Management for the readers. The information, articles, notes published in this Newsletter would be a valued archive for the years to come. I congratulate the team for all their endeavours for publication of the Inaugural issue of the Newsletter



Shri N.K. Das
Chief Secretary, Government of Assam

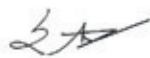
MESSAGE

DR SURAJIT MITRA, IAS
Additional Chief Secretary to Government Of Assam

I am delighted to be informed that ASDMA will bring out a Quarterly Newsletter on Disaster Management in Assam. While the State Government is the prime mover for disaster management, the main stakeholders are people who require specific and timely information regarding Do's and Dont's . In my opinion educating the public in Disaster Management is the best step forward to minimise the damage and effect of natural disasters. While the school children have to be trained right from the childhood as to what are the contingency measures one has to take in the event of calamities , the educated lot including the engineers , contractors and the project implementers need know what price the people of the State have to pay for any callousness in safety measures which are to be built in to the project implementation process.

I am sure , the Quarterly Newsletter will do its best in bringing about the much needed public awareness regarding disaster management in the State.

I wish the maiden venture of ASDMA all success in disseminating the required information and knowledge to the people of Assam.



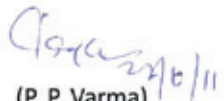
Dr. Surajit Mitra
Addl. Chief Secretary (Works)

MESSAGE

P. P. VARMA

Addl. Chief Secretary , Government of Assam
Health and FW Department

I am happy to learn that Assam State Disaster Management Authority is bringing out the inaugural issue of their Quarterly Newsletter. I extend my best wishes to the Authority for their present endeavour and hope that it will help in disseminating knowledge about the disaster Management among larger section of society.


(P. P. Varma)

Addl. Chief Secretary , Government of Assam

MESSAGE

H.M. CAIRAE, IAS

Addl. Chief Secretary, Government of Assam
Higher Secondary & Elementary Education

I convey my heartiest congratulations to the Assam State Disaster Management Authority for the inaugural issue of the Newsletter. May this be a source of learning for all sections of people in the society.



18/06/11

(H.M. Cairae)

Addl. Chief Secretary , Government of Assam

MESSAGE

Himangshu Sekhar Das
Principal Secretary To The Government Of Assam
Finance Department

With frequent occurrence of flood, erosion, earthquake, cyclone and landslide, Assam is a highly natural calamity and disaster prone state. Global warming and climate change have added new dimensions to the problems. Humanity's future challenge will lie perhaps in adapting to the "new normal" climatic conditions of the anthropocene age.

The decision taken by Assam State Disaster Management Authority to bring out a quarterly Newsletter is a very timely step. I compliment the ASDMA team for their laudable initiative.



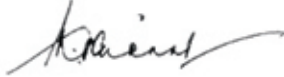
(H.S. DAS)
Principal Secretary
Finance Department

MESSAGE

Kumar Sanjay Krishna, IAS
Principal Secretary
Planning and Development Department

I am extremely delighted to learn that ASDMA is publishing its Quarterly Newsletter which would be a good source of learning on disaster management for its readers.

I convey my best wishes for successful launching of Quarterly Newsletter.



Kumar Sanjay Krishna
Principal Secretary
Planning and Development Department

MESSAGE

Shri V. K. Pipersenia, IAS
Principal Secretary, Revenue and Disaster Management

Assam State Disaster Management Authority from its inception has toiled hard to fulfil its aims and objectives and it gives me immense pleasure to know that the Authority is bringing out a Quarterly Newsletter. The newsletter will not only highlight the interventions and initiatives of the Authority at the State and District level but will also be an effective tool for disseminating information and educating the people of Assam on the various disaster management measures.

We all know that Assam falls in a high risk seismic zone and faces the onslaughts of nature's fury like floods, erosion, seasonal storms etc every year. We do not have a command over nature but we can mitigate the losses of life and property by timely preparedness measures. This bulletin is a pioneering step towards building a disaster resilient Assam.



Shri V. K. Pipersenia, IAS
Principal Secretary, Revenue and Disaster Management



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FROM THE DESK OF THE CEO, ASDMA

ASDMA has undertaken various programs in its endeavour to build "A State Prepared" and a "Safer Assam". The initiatives for the first quarter of 2011 for ASDMA have been documented and it gives me immense pleasure to present before you the Inaugural issue of the ASDMA Newsletter. The purpose of the Newsletter is not only to share the activities and initiatives undertaken by the Authority, but also to update it's readers about the various aspects of Disaster Risk Reduction.

The newsletter would be a quarterly publication covering activities of ASDMA in the State and in the Districts. It would also incorporate a feature on different hazards the state is prone to and it's mitigation aspects. A special section in the Newsletter would be dedicated to discuss about the new or unique development, idea or action in the field of disaster preparedness, mitigation and response. The Newsletter is designed as a knowledge sharing tool and is a step towards creating an informed group of people in the movement called Disaster Management.

**Atul Chaturvedi
Chief Executive Officer
Assam State Disaster Management Authority**



EDITOR'S NOTE

“Eternal Preparedness and Alertness is the Price one pays for his Safety”

The quoted message holds true in every age. Time has always given a testimonial of the fact that the Country which is better prepared for disasters faces fewer losses. Abiding by this principle, Assam State Disaster Management Authority (ASDMA) has taken up various initiatives towards building a Safer Assam.

The need for sharing these initiatives has been felt for a long time and therefore from this year onward it has been decided that ASDMA would come up with a Quarterly Newsletter.

I take this opportunity to thank the Principal Secretary, Revenue & Disaster Management, Chief Executive Officer, ASDMA, Team ASDMA and all those who have contributed in every way to ensure the publication of ASDMA NEWSLETTER.

Suggestions and Criticism of the readers which would help towards adding value to the forthcoming issues of the Newsletter is welcome. The feedback from the reader would be a source of inspiration and encouragement.

Wishing you a good read.

Sushmita Dutta





SPECIAL FEATURE : INSIGHT INTO EARTHQUAKE

**(By Rajesh Dutta, Engineering Consultant-
Earthquake Mitigation)**

An earthquake is a sudden motion or vibration in the earth caused by the abrupt release of energy in the earth's lithosphere, shaking of ground by different types of waves generated by tectonic movements or volcanic activity. An earthquake is initiated when the accumulated tectonic stresses at any one point in the ground become greater than the strength at this point. Release of stress at one point may increase the stresses nearby and result in a progressive rupture which may propagate for several hundred kilometers. The rupture will almost invariably occur along faults and the wave motion may range from violent at some locations to imperceptible at others. The varying geology at different locations in the country implies that the likelihood of damaging earthquakes taking place at different locations is different. The past two decades have seen devastating earthquakes striking India with frightening regularity. India's Seismic Zone Map emphasizes that around 59% of its land area is under moderate to severe earthquake hazard including Assam in highest seismic level of Zone V.

Unsafe building stock makes the built environment vulnerable and this in turn results in extensive loss of human life and property as observed in Killari (1993) & Bhuj (2001). Moreover, Guwahati is among the top 10 listed cities having high seismicity that are located in Zone V. To add to it Early warning or prediction of earthquake till date is not possible.

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SPECIAL FEATURE : INSIGHT INTO EARTHQUAKE

...contd.

As many as 20 destructive earthquakes of magnitudes 6 – 7 Richter scale rocked this region during the past century. Some of the major earthquakes that occurred in this region were in 1869, 1897, 1923, 1930, 1943, 1947, 1950, 1985, 1984 & 1988. The recent earthquake on 21st September, 2009 at Thimphu, Bhutan was magnitude of 6.1 in Richter Scale followed by small tremors. The 1897 Earthquake near Rongoli, Assam was one of the most powerful earthquakes in the Indian Sub-Continent and wrecked havoc around 500 km radial distances in Assam, Meghalaya & West Bengal. In addition to collapse of buildings, landslides were also reported in affected areas. Hot springs at some of the areas became more active following the earthquake.

The 1950 Assam Earthquake caused severe landslides which temporarily blocked the course of Subansiri, Dibang & Dihang. Bursting of these temporary bunds created by landslides, released enormous amounts of impounded water producing devastating floods in downstream reaches. This earthquake raised Brahmaputra's river bed by a few meters causing increase in erosive power of the river along its bank. Thus, 1897 & 1950 Earthquakes triggered secondary disasters like landslides, floods, flash floods & tidal waves causing much havoc.

Presently it is seen that though it is essential, a majority of the buildings constructed in Assam, especially in semi-urban & rural areas are non-engineered and built without adhering to earthquake resistant design principles.

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SPECIAL FEATURE : INSIGHT INTO EARTHQUAKE ...contd.

Most contractors & masons engaged in the construction activities are not familiar with the earthquake resistant design features specified in the Bureau of Indian Standards (BIS) building codes. Indigenously built lightweight & earthquake resistant ekra houses made of bamboo in Assam are being replaced with modern RCC buildings, often without incorporating earthquake resistant features and improper compliance of BIS codes & Building Bye-Laws.

The approach to Earthquake Management in Assam therefore focuses on the institutionalization of initiatives & activities based on scientific strategies covering pre-earthquake components of prevention, mitigation & preparedness as well as post-earthquake components of emergency response, rehabilitation & recovery. ASDMA's road map for earthquake management include building up a well informed community resilient and prepared to face such disasters in future with minimal loss and damages to life, property & infrastructures. The earthquake management framework also imposes the additional responsibility on professionals to upgrade their skills & expertise, to contribute to capacity building and cooperate with other stakeholders in seismic safety in this region. ■



SOME FACTS: The largest recorded earthquake in the world was a magnitude 9.5 (Mw) in Chile on May 22, 1960. When the Chilean earthquake occurred, seismographs recorded seismic waves that traveled all around the Earth. These seismic waves shook the entire earth for many days! This phenomenon is called the free oscillation of the Earth

(Source: earthquake.usgs.gov , http://www.ema.gov.u/www/ema/schools.nsf/Page/Get_The_Facts_Earthquakes; <http://coolfacts.in/some-facts-about-earthquakes/>; <http://en.wikipedia.org/wiki/>)





RELIABLE SEISMIC PRECURSOR FOR COMMON MAN

(By Dr. Arun Bapat, Eminent Seismologist)

The Northeastern Region of India is seismically very active and it had experienced two major earthquakes on 12 June 1897 and on 15 August 1950. The magnitudes of these events were more than 8.5 on Richter scale. The occurrence of any earthquake is a natural phenomenon and it does not kill anybody. It is the collapse of man-made buildings which kill men. If our houses are designed to withstand the seismic forces, then the houses may not collapse or it would suffer less damage. Keeping in view the present seismic status it is desirable that the common man is informed about some reliable seismic precursors. Details given here are expected to be useful and helpful to common man to save his life. The precursors described in this note are applicable to





Reliable Seismic Precursors for Common Man ...contd.

What is seen about one week or few days before earthquake?

Water precursors are seen during this time. About two to five days before the occurrence of earthquake, water in rivers, tributaries or Nallas suddenly undergoes abrupt change in level and discharge. It may increase or decrease depending up on the geology and location of the river. The changes are sudden and abrupt. The water levels in wells change suddenly by one to two meters. Sometimes the well water turns muddy or a fountain is seen coming out from the bottom of well.

Thermal Precursors are seen about three to six days before the occurrence of earthquake the local area temperature goes on increasing above the normal temperature. This information about temperature is available in daily weather columns of newspaper. If there

is no information about the deviation of temperature then this could be obtained at India Meteorological Department (IMD) web site. Usually there will be a rising trend. For example on first day the temperature may be 3 degrees above normal, on second day it may be 4 to 5 degrees above normal and on penultimate and ultimate day it could be as high as 7 to 8 and 9 to 11 degrees above normal. School and College students can keep a log of daily temperatures and watch the situation.

Seismo-Electromagnetic Precursors is seen about three to six days before the occurrence of earthquake. The magnetic field of the earth is reduced. This adversely affects the transmission, propagation and reception of electromagnetic waves. As a result the reception of radio waves in the potential Epicentral area is disturbed. This disturbance could

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Reliable Seismic Precursors for Common Man ...contd.

be seen about three to five days in advance. As an example, if a radio station is broadcasting programme at 1000 kHz then the same radio station would be received in the potential Epicentral area at 1100, 1200, 1300... 1600, 1700 kHz or so. If it is difficult to receive your favorite station at the fixed frequency, then try for higher frequencies you may hear the radio station.

What is seen few hours before earthquake?

- The wireless communication of various Departments would be disturbed and it may not be possible to receive the transmitted message from one station to the other station. Police, Government and other Departments may experience this type of difficulty. If the magnitude of the earthquake is quite large (7.0 or more) then there will not be any communication, it may experience a blockade of communication.

The blockade occurs about ten hours before the earthquake.

- About ten to fifteen hours before the earthquake, the reception on television would be disturbed and the frequency of disturbances would go on increasing till earthquake occurrence. There would be audio, visual and spectral disturbances on television reception. This type of disturbance is more manifested in antenna reception as compared to cable reception.
- About ten to twenty hours before earthquake, the reception on landline telephones would be highly disturbed. There would be repeated khar-khar noise. If one tries to enquire at the complaint center, he would be told that the system in the exchange is all right.
- About 100 to 150 minutes before the occurrence of the earthquake, the mobile telephones start mal-functioning and then it may be in non-functioning

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Interaction with students at the School Shake Out Programme



Reliable Seismic Precursors for Common Man ...contd.

condition.

Animal Precursor:

- It is seen that about ten to twelve hours before the occurrence of an earthquake, entire zoological kingdom consisting of animals, birds, insects, reptiles become highly disturbed and they are in restless condition. They make shrilling and unusual noise. They move in a directionless manner with fear and apprehension

Birds do not sit on trees or nests but move in groups at a low height with shrilling noise.

- Rodents such as snakes, rats, mongoose etc are highly scared. They come out of their burrows and hideouts.
- Domestic animals such as cow, buffalo, dog, cat, horse, donkey, hen, chicken etc want to be free if they are tied. Elephants are very sensitive and abnormal behavior of elephants could be seen immediately.
- Fishes in ponds and tanks show their

disturbed conditions by erratic movements. If the magnitude of the impending earthquake is large (more than 7.0) then the fish try to jump out of pond.

- Insects such as millipedes, centipedes, ants etc also show signs of disturbed conditions. Normally ants move in one single file but under such abnormal conditions, they move in a stationary circular orbit and moving one over the other.
- If the owner of the domestic animal goes near the animal, the disturbed condition of the animal is exhibited in the form of attack on the owner by the animal.
- If domestic animals show any sign of disturbed condition then set them free. All the animals should be set free and not tied or kept in cage.
- Zoo, national parks, animal sheds, dairies, poultry, piggery, stud farms etc would give useful inputs for abnormal behavior by looking at several species at one time.

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Training of Women Volunteers, organised by ASDMA



Reliable Seismic Precursors for Common Man ...contd.

Abnormal Human Precursor:

- This is seen and could be observed in hospitals by doctors, nurses and Para-medical staff. It is seen that some sensitive persons are highly disturbed.
- There is sudden rise in patients of blood pressure, heart trouble, headache, migraine, respiratory disorders and diseases etc.
- Further these psychosomatic diseases are manifested without any provocation.
- Some people feel restless. A few have vomiting sensation or they vomit. A number of persons suffer strong attack of headache, that too without any provocation.
- The best indicator is number of deliveries in any hospital. On the penultimate day of earthquake the rate of deliveries is about three to five times more than the average, while on the day of earthquake it is as high as seven to eight times the normal rate

- In India this rise in number of deliveries was seen before the Latur (Maharashtra) earthquake of 1993, Bhuj (Gujarat) earthquake of 2001 and Andaman earthquake of 2004 and Kashmir earthquake of 2005.

What is seen few minutes before earthquake?

About 100 to 150 minutes before earthquake, the mobile telephones would start mal-functioning or non-functioning.

- About ten to thirty minutes before earthquake an unusual multicolor glow is seen in the sky known as seismic glow. Sometime, a halo of circular or oval shape may also be seen. This is seen during day or night time. If there are clouds, it may be difficult to see the unusual seismic glow. Such seismic glows have been seen before large magnitude earthquakes. During recent past, China on 12 May 2008.

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Training Programme in the District



Reliable Seismic Precursors for Common Man ...contd.

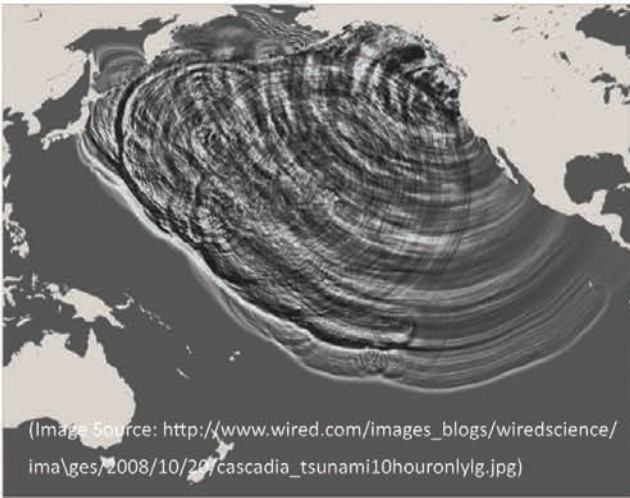
Seismic Glow was seen before Sichuan earthquake of magnitude 8.0 in

The medical Doctors observe that the rate of OPD and deliveries in hospital has increased several times more than the average.

- Secondly, inquire from friends or relatives by telephone at a distance of 20 to 50 km away from your location whether similar conditions are also prevailing or not at other places.

If such conditions are observed at several locations (more than fifteen to twenty locations over extended area of 20 to 30 km distance) then it is reasonable to expect that an earthquake may occur any time.

- Under such conditions, one should close all electric, gas and water connections, extinguish Chula fire in the house and come on open ground and stay in open away from the collapse range of the house.



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Reliable Seismic Precursors for Common Man ...contd.

- Uncooked food such as Chana, Chidva, Poha, Murmura, Komal Chawl etc may be kept ready while coming out of house. These items do not need any fire, water and salt and could be eaten in uncooked condition. Man could be alive on this food for few days. These items have long shelf life does not get stale. Have some stock of water bottles and first aid medicines.
- While sitting or standing in open ground try to observe various objects such as trees, clouds, sky. If there is river or Nalla observe the flow of water.

Most Importantly, Do not jump to any affirmative conclusion by observing one parameter at one place.

If the above instructions are followed properly, it would definitely help in mitigating the seismic disaster and save lives. ■



SOME FACTS: The 1950 Medog earthquake also known as the Assam Earthquake, occurred on August 15, 1950, and had a magnitude of 8.6. The epicentre was actually located near Rima, in Tibet, China. However, the earthquake was destructive in both Assam and Tibet, and 1,526 people were reported killed

(Source: earthquake.usgs.gov , http://www.ema.gov.au/www/ema/schools.nsf/Page/Get_The_FactsEarthquakes; <http://coolfacts.in/some-facts-about-earthquakes/>; <http://en.wikipedia.org/wiki/>)



Mock Drill at the Assam Secretariat



ACTIVITIES FROM THE STATE

THE MEETING OF THE ASSAM STATE DISASTER MANAGEMENT AUTHORITY.

The 3rd Meeting of the Assam State Disaster Management Authority was held on 16th February 2011 under the chairmanship of Hon'ble Chief Minister. The Assam State Disaster Management Policy, the Assam Disaster Management Rules and the Annual Report of ASDMA were released by the Chief Minister on the occasion. Various Issues were discussed and decisions taken in the meeting. One of the major decisions taken was setting up of the Assam Institute of Disaster Management at Guwahati which would be an autonomous and self Sustaining Centre of excellence for the entire North East.



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INAUGURATION OF THE STATE DISASTER RESPONSE AND INFORMATION CENTER

The reburbished 24 X 7 X 365 State Disaster Response and Information Centre (SDRIC) of the Assam State Disaster Management Authority (ASDMA) was inaugurated by Shri Tarun Gogoi, Hon'ble Chief Minister of Assam on 16th February 2011. This State of Art Response and Information Center is designed to enhance the response capabilities of the State with a flow of information from the district Level. Initially the primary work of the SDRIC, which would work round the clock, is to provide information to decision making authorities on the event of any disaster. The SDRIC would soon not only manage and disseminate information but also assist in managing resources in event of a disaster.

TOWARDS MAKING THE STATE DISASTER MANAGEMENT PLAN

"If we fail to Plan, we plan to fail"

ASDMA has therefore undertaken preparation of a comprehensive State Disaster Management Plan covering all the hazards that the State is prone to. This is a significant step towards realizing its aim of building a disaster resilient Assam. A professional Agency has been engaged for this purpose and the State Disaster Management Plan expected to be ready by October 2011.



Discussion with the CM on the SDRIC



Workshop on IRS



NATIONAL WORKSHOP ON EARTHQUAKE RISK MITIGATION STRATEGY IN NORTH EAST

The National Workshop on Earthquake Risk Mitigation Strategy In North East was held at the Administrative Staff College on 24th and 25th February 2011. Shri Tarun Gogoi, Hon'ble Chief Minister of Assam, Shri Muzaffar Ahmad, Member of National Disaster Management Authority (NDMA); the Principal Secretary, Revenue and Disaster Management, Chief Executive Officer, ASDMA and other senior officials were present at the inaugural session of the workshop. The workshop was organised by Assam State Disaster Management Authority (ASDMA) in collaboration with National Institute of Disaster Management (NIDM), New Delhi and Assam Administrative Staff College.

The workshop was another significant step of ASDMA to strengthen its resolve towards creating a disaster resilient Assam. The outcome of National Conference was development of a "Road map for the North east on Earthquake Risk Mitigation Strategy" covering areas of Risk Assessment, Mitigation and Response. A booklet by Arun Bapat on the Seismological precursors was also released on the second day of the



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STATE LEVEL WORKSHOP ON "INCIDENT RESPONSE SYSTEM"

The Incident Response System is a management tool which can be used to respond to disaster incidents of various kinds and magnitudes such as earthquakes, floods, cyclones, landslides etc. A State level Workshop on "Incident Response System", was held on 28th February 2011 at the Assam Administrative Staff College. It was inaugurated by Shri N. K. Das, Chief Secretary to the Government of Assam. Shri J.K. Sinha, Hon'ble Member, National Disaster Management Authority (NDMA), was also present at the Workshop. As a Management System, IRS draws its strength from its applicability to a wide range of incidents/disasters of varying scales.

THE STATE GEARS UP FOR EARTHQUAKE PREPAREDNESS

In the backdrop of the series of tremors that the State experienced and the large earthquake in Japan, the Chief Secretary, Govt. of Assam called for meeting for all departments on 15th March, 2011 to review the preparedness of the State machinery for any eventuality particularly as the state falls in Zone-V, one of the most seismically hazard prone areas in the world. He emphasised that the period of complacency was over and having seen the devastation of Japan, each department has to initiate actions so that it is better prepared. All departments were therefore urged to prepare their contingency plan for ensuring quick response and recovery. Further they were also asked to initiate mitigation measures so as to

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The Officers from ASDMA visited 13 Relief Camps in Goalpara for assessing the situation after Ethnic Violence broke out in Goalpara in the Month of January



ACTIVITIES FROM THE STATE

...contd.

ensure that all critical facilities are functional at the time of crisis. Guwahati Development Department was requested to take the Guwahati Microzonation report into consideration in the Master Plan prepared for Guwahati City. Guwahati Development Department was further advised to initiate immediate action on issues that had earlier been flagged like widening of roads, structural assessment of buildings, etc.

FLOOD AND EROSION ISSUES REVIEWED AT THE STATE LEVEL

A Committee “Assam Flood and Erosion Mitigation & Risk Reduction Committee” was constituted and the first meeting was held on 10th March 2010 with the mandate of reviewing, monitoring and coordinating all flood and erosion related issues and recommend all risk reduction and mitigation measures for alleviating the impact of flood and erosion on the people and economy of the State. Water Resources Department, Soil Conservation Department and Forest Department gave a presentation on problem areas, status of schemes and on catchment area rehabilitation. The departments were advised to prepare a perspective plan so that a holistic picture could emerge and works undertaken are not ad-hoc and schematic. ■





ACTIVITIES FROM THE DISTRICT

KAMRUP

DDMA Kamrup district organised training programme for teachers of H. S. School

A two-day training programme of Doctors on “Emergency Health Management” was organized on 19th & 20th January, 2011

DDMA Kamrup imparted Specialized training on first aid & search and rescue on 8th Jan ,2011 in Kamrup

NGOs coordination workshop was held in Kamrup where 44 functionaries from different NGO under Kamrup district participated in the training programme

DDMA, Kamrup in coordination with Center For Upliftment Of Rural Life (NGO) imparted training at 40 villages of Rampur dev block, Kamrup district on Earthquake Preparedness

DIBRUGARH

One day sensitisation programme on Disaster Management was organized in collaboration with North Eastern Council, Shillong & North East Institute of Science and Technology (NEIST), Jorhat in Dibrugarh

One day public awareness programme was organized on 23rd January 2011 in collaboration with Boiragimoth Yuvak Kendra, Dibrugarh

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A Programme on Trauma and Disaster Management' was organised where the heads of the line departments were present.

LAKHIMPUR

In Lakhimpur emergency equipments were displayed to school and college students by DDMA

District Level Consultation on Disaster Risk Reduction was held at 29th January 2011 in Lakhimpur and participants from NGOs and Govt. Agencies attended the Consultation

Specialized Training of Task Forces on "Search & Rescue and First Aid" was imparted in two Batches for three days each in February 2011



SOME FACTS: The most deadly earthquake was recorded in China in 1557. During this time many people lived in the mountains in artificial caves and the quake resulted in over 800,000 deaths

(Source: earthquake.usgs.gov , http://www.ema.gov.au/www/ema/schools.nsf/Page/Get_The_FactsEarthquakes; <http://coolfacts.in/some-facts-about-earthquakes/>;
<http://en.wikipedia.org/wiki/>)



A girl practising Drop- Cover- Hold at the Great Assam School Shake Out Programme



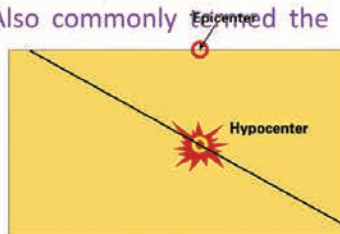
LET'S LEARN : NEW TERMS

"In a time of drastic change it is the learner who inherits the future."--Eric H

Learning is an important part of preparation and hence it is important to keep one self updated in this ever changing world. In seismology too, various terminologies are used and news ones evolve from time to time. In order to know, learn and prepare oneself, understanding of these words are essential. Here is an attempt to discuss few frequently used terms.

Epicenter : The epicenter is the point on the earth's surface vertically above the hypocenter (or focus), point in the crust where a seismic rupture begins.

Hypocenter: The hypocenter is the point within the earth where an earthquake rupture starts. The epicenter is the point directly above it at the surface of the Earth. Also commonly called the focus.



Epicenter & Hypocenter.
(Modified from Charles
Ammon, Penn State)

Accelerograph : An instrument that records the acceleration of the ground during an earthquake, also commonly called an accelerometer.

*Kinematics FBA-23
accelerograph*



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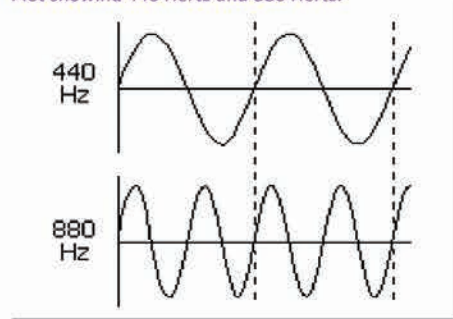
Active fault : A fault that is likely to have another earthquake sometime in the future. Faults are commonly considered to be active if they have moved one or more times in the last 10,000 years.

Dip slip: Dip-slip faults are inclined fractures where the blocks have mostly shifted vertically. If the rock mass above an inclined fault moves down, the fault is termed normal, whereas if the rock above the fault moves up, the fault is termed reverse. A thrust fault is a reverse fault with a dip of 45° or less. Oblique-slip faults have significant components of different slip styles.

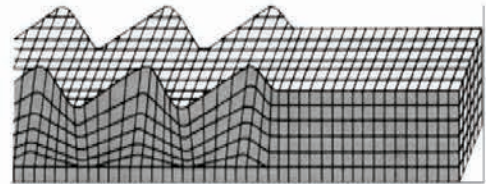
Hertz (Hz) : Hertz (Hz) is a unit of measurement named in honor of Heinrich Hertz, the German physicist who in 1887 first produced electromagnetic waves. Expresses the

frequency in cycles per second; 1 Hz = 1 cycle of rise and fall of a wave per second

Plot showing a 440 Hertz and 880 Hertz.



Love wave: A Love wave is a surface wave having a horizontal motion that is transverse (or perpendicular) to the direction the wave is traveling.



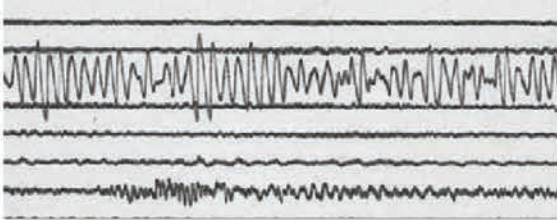
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LET'S LEARN: New Terms ...contd.

Harmonic tremor : Harmonic tremor describes continuous rhythmic earthquakes that can be detected by seismographs. Harmonic tremors often precede or accompany volcanic eruptions



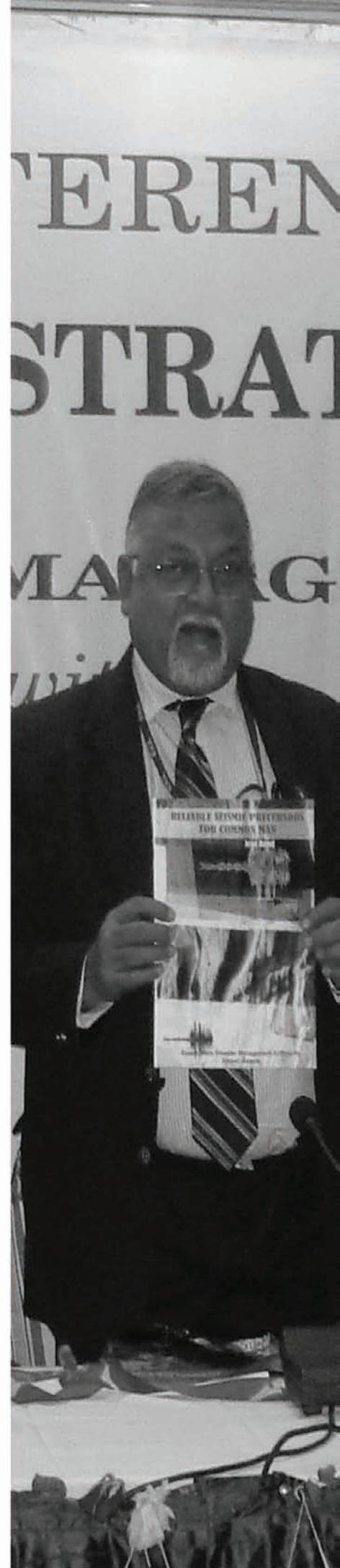
During the first week of April a different type of seismic signature was showing up on seismograms from Mount St. Helens. On April 1 the first weak harmonic tremor was detected. Stronger bursts of harmonic tremor were recorded on the 2nd. The seismogram above is an example of harmonic tremor recorded at seismic station RAN on April 2. (Image courtesy of the Volcano Hazards Program website)

Liquefaction: A process by which water-saturated sediment temporarily loses strength and acts as a fluid, like when you wiggle your toes in the wet sand near the water at the beach. This effect can be caused by earthquake shaking.

Sand ejected through a crack forming a series of sand boils along the railroad tracks adjacent to Deschutes Parkway in Olympia. (Photo courtesy of Geomatrix)



To know more visit the following website:
www.earthquake.usgs.gov/learn/glossary/





THIRD DIMENSION A WEBSITE WITH A DIFFERENCE

72hours.org by the San Francisco Department of Emergency Management is a very useful and interactive website. A visit to this website will help one learn how to prepare oneself and ones family for an emergency. It shares information on how to Make a Plan, Build a Kit and Get Involved. The website also shares a interactive Quiz on Earthquake to test ones knowledge about what to do during an earthquake. the website has emphasized on three vital points to prepare oneself for any kind of disaster especially 'Earthquake'. It is;

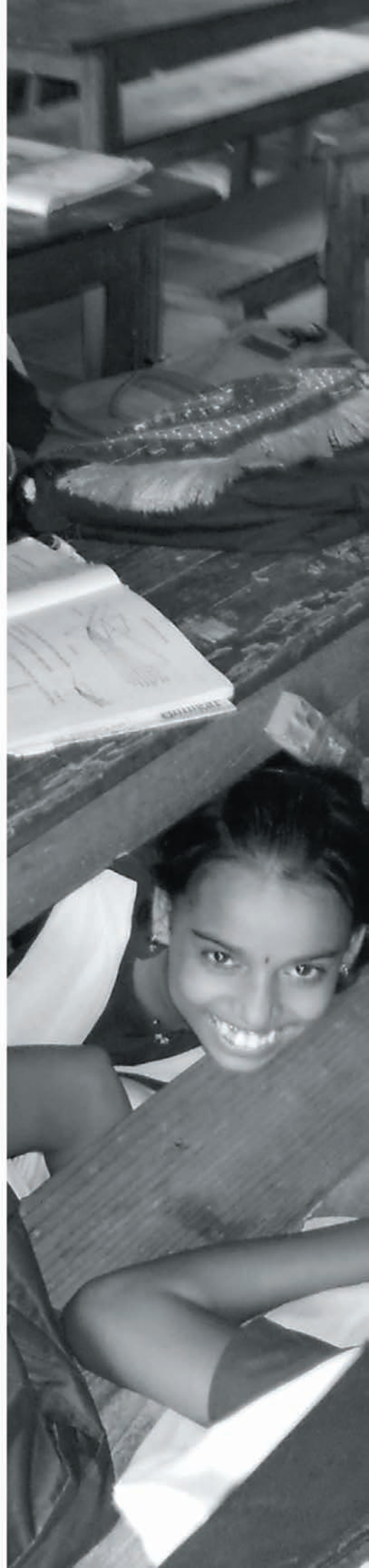
- Make a Plan
- Build a Kit
- Get involved

It is essential to make a kit because after a major disaster, it is unlikely that emergency response services will be able to immediately respond to everyone's needs, so it's important to be prepared to take care of yourself and your family. hence it is important to plan to be on your own for at least the first 72 hours.

The website puts forward the following steps which will help one prepare for any emergency:

- Designate an out-of-area contact person. Try to select someone that is far enough away to not be affected by the same emergency. Provide this person with the names and contact information of the people you want to keep informed of your situation. Instruct family members to call this person and tell them where they are. Long distance phone service is often restored sooner than local service.

(contd. next page)





THE THIRD DIMENSION: A website with a difference ...contd.

- Duplicate important documents and keep copies off-site, either in a safety deposit box or with someone you trust. Documents may include: passport, drivers license, social security card, wills, deeds, financial statements, insurance information, marriage license and prescriptions.
- Inventory valuables, in writing and with photographs or video. Keep copies of this information off-site with your other important documents.
- Make a household/family plan. Involve all key people in planning.
- Make your home safe.
- Put together a disaster supply kit. Plan to have supplies for yourself and your family for at least 3 days following a disaster.

- When planning, consider the special needs of children, seniors or people with disabilities, family members that don't speak English and pets.

Besides the website also highlights on the Building A kit and Getting Involved

Building A kit is important because after a major disaster the usual services which we take for granted, such as running water, telephones etc, may be unavailable and that is why experts recommend that one should be prepared to be self-sufficient for at least three days.

Also one can get involved so that the Government machinery is better prepared for the next emergency. This is done by Training, Volunteering, and other Community involvement opportunities.

TO KNOW AND LEARN MORE VISIT:
www.72hours.org ■





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ভূমিকম্প ব্যবস্থাপনা শীৰ্ষক আলোচনা-চক্র

স্টাফ ৰিপ'ৰ্টাৰ, ২৪ ফেব্ৰুৱাৰী : যিকোনো মুহূৰ্ততে হ'ব পৰা সম্ভাৱ্য ভূমিকম্পৰ বিষয়ে প্ৰস্তুত হৈ থাকিবলৈ মুখ্য মন্ত্ৰী তৰুণ গগৈয়ে অসম ৰাজ্যিক দুৰ্যোগ ব্যৱস্থাপনা কৰ্তৃপক্ষক নিৰ্দেশ দিছে। আজি গুৱাহাটীৰ খানাপাৰাৰ অসম প্ৰশাসনিক পদাধিকাৰী প্ৰশিক্ষণ মহাবিদ্যালয়ত অনুষ্ঠিত উত্তৰ-পূবৰ ভূমিকম্প ব্যৱস্থাপনা শীৰ্ষক এখন দুদিনীয়া ৰাষ্ট্ৰীয় কৰ্মশালাত উপস্থিত থাকি মুখ্য মন্ত্ৰী গগৈয়ে সম্ভাৱ্য ভূমিকম্পক প্ৰতিহত কৰিব পৰাকৈ ৰাজ্য চৰকাৰ সঠিক নহয় বুলি মন্তব্য কৰে। সেয়েহে ভূমিকম্প ব্যৱস্থাপনাৰ সন্দৰ্ভত আধুনিক তথ্য প্ৰযুক্তিৰ প্ৰয়োগেৰে ৰাজ্যিক দুৰ্যোগ ব্যৱস্থাপনা কৰ্তৃপক্ষ সৰল হোৱাৰ ওপৰত তেওঁ গুৰুত্ব আৰোপ কৰে। ৰাজ্য চৰকাৰৰ বাহেৰে অসম দুৰ্যোগ ব্যৱস্থাপনা বিভাগৰ প্ৰধান সচিব ডি কে পিণাৰচিনিয়াই উদ্বোধন কৰা আলোচনা-চক্ৰখনত বক্তৃতা আগবঢ়াই ৰাষ্ট্ৰীয় দুৰ্যোগ ব্যৱস্থাপনা প্ৰতিষ্ঠানৰ কাৰ্যবাহী সঞ্চালক ৰি. জি ধৰে কয় যে অসম তথা উত্তৰ পূৰ্বাঞ্চল পঞ্চম ভূমিকম্পপ্ৰধা অঞ্চলত অৰ্ধভুক্ত হোৱাৰ প্ৰচলিত ৰাখি বিশেষ সতৰ্কত অবলম্বনৰ প্ৰয়োজন আছে। যোৱা এশ বছৰত সংঘটিত হোৱা ৯১ শতাংশ ভূমিকম্পই ৪ৰ পৰা ৬ বিখটাৰ স্কেলৰ যদিও ১.২ শতাংশ ভূমিকম্পই ৬ বিখটাৰ স্কেলৰ সীম অতিক্ৰম কৰিছে। ১৯৫০ চনৰ দৰে ৮.৭ বিখটাৰ স্কেলৰ প্ৰলয়ংকৰী ভূমিকম্প পুনৰ ৰাজ্যত সংঘটিত হ'লে বহুসংখ্যক লোকৰ মৃত্যু হোৱাৰ লগতে ঘৰ-দুৱাৰ ধ্বংসপ্ৰাপ্ত হ'ব পাৰে বুলি ধৰা আশংকা কৰে। আনহাতে উদ্যোগীক আনুষ্ঠানত বক্তব্য আগবঢ়াই জিএন জিকেল হাৰ্ডে অৱ ইণ্ডিয়াৰ প্ৰাক্তন যুটীয়া সঞ্চালকপ্ৰধান সঞ্জয় দাশগুপ্তাই।

WE FAIL TO TAKE STEPS, WE WILL BE RESPONSIBLE, SAYS



Chief minister Tarun Gogoi speaks at the conference in Guwahati on the

logoi ts over juake safety

STAFF REPORTER
GUWAHATI, Feb. 24: When a major earthquake rages in the northeast region every body will be in the region...

The conference, which began today, was attended by eminent experts from all over the country. It has been organized by the National Institute of Disaster Management in association with the Assam State Disaster Management Authority.
The executive director of the National Institute of Disaster Management, P.G. Dhar Chakrabarti, also said a big quake could strike anytime and the region was still not prepared for it.
Healing of statistics on the intensity of earthquakes in the region in the last century, he said there have been 310 tremors of 2 to 2.9 intensity, 12 tremors of 3 to 3.9 intensity, 15 tremors of 4 to 4.9 intensity, 15 tremors of 5 to 5.9 intensity and four tremors with an intensity of 6 and above on the Richter scale.
The kind of urban construction taking place, we should not be complacent and keep waiting for the disaster to happen. Many of the structures that are coming up may not be earthquake resistant. The risk must be assessed and a blueprint on action plan to deal with such situation must be kept ready," Dhar Chakrabarti said.
Former Geological Survey of India deputy director Sujit Dasgupta said the rapidly growing urban population in the region was adding up to this earthquake-induced disaster.
On Thursday seismologists, policymakers, bureaucrats and other stakeholders from northeast, research organisations NIDM and National Disaster Management Authority gathered here to formulate a roadmap on earthquake disaster mitigation strategy for northeast.
The two-day conclave was organized by NIDM and Assam Administrative Staff College. Assam chief minister Tarun Gogoi, who inaugurated the conclave, said the region had to go a long way to for tackling the imminent disaster due to earthquake.
"The kind of urban construction taking

Govt approves disaster management institute

STAFF REPORTER
GUWAHATI, Feb 16 - The decision of the State Government to set up the Assam Institute of Disaster Management (AIDM) in the city is final now. Chief Minister Tarun Gogoi today approved the decision at the third meeting of the Assam State Disaster Management Authority (ASDMA). The AIDM has been planned as an autonomous and self-sustaining centre of excellence for the entire NE region. Meanwhile the raising of the State Disaster Response Force is also under way. The Force will be placed under the Directorate of Fire Services. The Chief Minister is the chairman of the ASDMA. He also released the State Disaster Response and Information Centre (SDRIC) located on the ground floor of his office block. He also released the Assam State Disaster Management Policy 2010 and the first Annual Report of the ASDMA at a separate function held prior to the ASDMA meeting. The SDRIC would be operated by the ASDMA. According to the ASDMA officials also informed the Chief Minister of the floor-earning warning systems (FLPWS) and summary reports from the laboratory with the National Remote Sensing Centre (NRSC), Hyderabad, is working towards developing a system for field personnel who can send distress messages, first information reports and summary reports from the field. At the meeting, the ASDMA officials also informed the Chief Minister of the floor-earning warning systems (FLPWS) and summary reports from the

NE wakes up to NZ quake horror

Guwahati: If an earthquake of 6.3 magnitude on the Richter scale could ravage New Zealand's Christchurch, for Northeast it is only a matter of time for getting the region flattened.



A car lies under rubble outside the Rugby World Cup venue AMI Stadium in Christchurch, New Zealand, Thursday

Experts said besides being in the seismically most potent zone V, rapid urbanization has made northeast more imminent to high scale of quake disasters. The region had already experienced a 6.2 magnitude quake in September 2006, with epicentre in Bhutan where 10 people died.
"National Institute of Disaster Management (NIDM) executive director P.G. Dhar Chakrabarti said the urban population of northeast was about 2 lakh in 1950 but it has now multiplied to almost 90 lakh.
"The kind of urbanization taking place, we should not be complacent and keep waiting for the disaster to happen. Many of the structures that are coming up may not be earthquake resistant. The risk must be assessed and a blueprint on action plan to deal with such situation must be kept ready," Dhar Chakrabarti said.
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"The kind of urban construction taking

that we are still facing," the chief minister said. In the last 100 years, the region experienced 210 tremors between 5 and 5.9 magnitude, 128 tremors between 6 and 6.9 magnitude, 15 tremors between 7 and 7.9 magnitude and four tremors of eight magnitude.
A seismic microzonation study of Guwahati by department of science and technology said maximum concentration of "severe quakes" of seven to eight magnitude is observed along eastern Arunachal Pradesh, central and southern Brahmaputra valley, south-eastern Assam and eastern Nagaland.
The study found that earthquakes between five and six on the Richter scale are mostly expected in northern rim of Assam, west Tripura, southern Manipur and eastern rim of

Move to build a disaster-resilient Assam

State Disaster Response and Information Centre inaugurated

By Staff Reporter
GUWAHATI, Feb 16: Chief Minister Tarun Gogoi today inaugurated the State Disaster Response and Information Centre. The State Disaster Response and Information Centre will help the Assam State Disaster Management Authority build a disaster-resilient Assam. At the same function the Chief Minister also released the Assam State Disaster Management Policy 2010, the Assam State Disaster Management Rules 2010 and the first Annual Report of ASDMA. In the third session of the State Disaster Response and Information Centre will help the Assam State Disaster Management Authority build a disaster-resilient Assam. At the same function the Chief Minister also released the Assam State Disaster Management Policy 2010, the Assam State Disaster Management Rules 2010 and the first Annual Report of ASDMA. In the third session of the State Disaster Response and Information Centre will help the Assam State Disaster Management Authority build a disaster-resilient Assam.



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