

No. 31-56-2003.NDM.I/III
Government of India
Ministry of Home Affairs
(National Disaster Management Division)

North Block, New Delhi
November 3, 2004

OFFICE MEMORANDUM

Sub: **Action Plan for Landslide Risk Mitigation.**

The undersigned is directed to refer to the subject cited above and to say that the recommendations of the **National Workshop on Landslides Mitigation** held on 22nd September, 2004 were discussed in the first meeting of the **National Core Group for Landslide Risk Mitigation** held on 5th October, 2004 under the Chairmanship of Secretary(Border Management), MHA. In order to prevent and mitigate the landslide risks, the National Core Group have decided the following:-

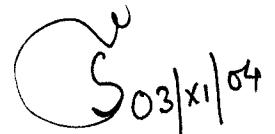
- (i)(a) **Finalisation of uniform methodologies for Landslide Hazard Zonation on Macro and Meso Scales:** Bureau of Indian Standards (BIS) has existing codes for landslide hazard zonation on Macro Scales. GSI has applied the provisions of these BIS codes for landslides hazard zonation and they have now prepared a draft note suggesting revision of these BIS codes. GSI has already forwarded these suggestions to the BIS. BIS is requested to review suggestions of GSI by the relevant Technical Committee of BIS and take necessary action to amend and reaffirm the code, if necessary, before the end of December, 2004.
- (b) **Developing Methodologies for Landslide Hazard Zonation on Meso Scales:-** The existing BIS Code does not prescribe the methodologies for landslide zonation on Meso Scales. It has been decided that BIS will come up with provisions for landslide hazard zonation on Meso Scale either under the existing Code or develop a new code for the purpose. It has also been decided that this will be completed in all respect by March 2005.
- (ii) **Landslide Hazard Zonation of the Vulnerable Areas on Macro Scale:-** It is estimated that about 10,000 kms route is to be covered on Macro Scale to have a quick preliminary appraisal of large areas, identified critical slopes and prioritise areas or detailed studies. It has been decided that GSI will

identify the routes in consultation with the State Governments. GSI with its field offices located in different parts of the country will conduct the survey. The National Remote Sensing Agency (NRSA) will provide remote sensing data to GSI and Survey of India will provide the topographical maps on the required scales to GSI. It has been decided to constitute a Technical Committee comprising of NRSA, Survey of India and DST with GSI as the convener to review the work of landslide hazard zonation of vulnerable areas on Macro scales in a time bound manner. GSI is requested to convene this meeting immediately and develop the detailed work plan with time line. This Committee will meet periodically to review the work of landslide hazard zonation and the progress of the work will be intimated to MHA from time to time.

- (iii) **Landslide Hazard Zonation of the identified Areas on a Meso Scale.** This site specific survey needs to be done on a higher scale, i.e., 1:10,000 or 1:5,000 scale in the inhabited areas or the sites proposed for infrastructure development. It is estimated that 25 sites need to be taken up for the purpose. GSI in consultation with the State Govts. will finalise the routes to be selected for this exercise. GSI has offered to take up about 10 such sites. Allocation of sites to other agencies and review of this work from time to time will be taken up by a Technical Committee consisting of IIT Roorkee, CBRI, NIRM, CRRI, GB Pant Institute of Himalayan Ecology and Development, DST, BRO and THDC. GSI will be the convenor of this Committee. Other interested agencies may also be coopted by GSI. This Committee will meet periodically and develop the work plan and progress of the work will be intimated to the MHA from time to time.
- (iv) **Developing Landslide Risk Mitigation Plan:-** After the completion of hazard zonation on macro and meso scales, GSI in consultation with the members of the Technical Committee as constituted above and other relevant institutions and agencies, will develop specific set of guidelines for landslide risk mitigation for various zones in the country to be followed by all Central and State Government Ministries/Departments/Agencies. The recommendations thus prepared and approved will be issued as standing orders of the Government for compliance by all Central and State Agencies.

- (v) **Monitoring of Recurring Landslides**:- There are many sites which are active and pose danger to communication routes or cause river blockades and have to be monitored continuously. It is estimated that there are 30 such sites where mapping on a scale of 1:500 - 1:200 is required to be initiated for mitigation planning. GSI has offered to take up 10 such sites. Other agencies with necessary expertise may also take up this work. Technical Committee constituted at Sl. No. 2 above will also review this item of work. This Committee will allocate sites to different agencies for regular monitoring of recurring landslides. The progress of the work will be intimated to MHA periodically.
- (vi) **Rapid Response to suggest immediate measures in the event of Landslides**:- There are about 30 incidences of landslides which occur near habitation or along the communication routes which require immediate appraisal and mitigation advise. GSI with its field network would attend to these incidences. For the purpose, GSI will set up control rooms in the headquarters and field offices in the landslide prone areas. GSI will also upgrade its communication links and link their control rooms with the Control Rooms of MHA and the State Govts. These control rooms need to be 24 x 7 operational during the season when incidences of landslides are reported. All incidences of landslides will also be reported by the State Government and Central agencies such as BRO, CPWD etc. to the GSI. GSI will share a copy of the format for reporting on incidences on landslides with the State Govts. and other Central agencies immediately.
- (vii) **Evolving an Early Warning System**:- There is a need to evolve an early warning system for landslides. Some work has been done in this regard by CSIO, Chandigarh. For the prediction model for landslides early warning system to be effective, a landslide incidence inventory will be developed by GSI in consultation with the State Governments and other agencies such as BRO, CPWD. For the entire framework of the early warning system to be developed and implemented, it has been decided to constitute a Technical Committee comprising of IIT Roorkee, IIT Kharagpur, CSIO, CBRI, CRRI, NIRM, THDC, IMD, CWC, NRRNWF and DST. GSI will be the convenor of this Committee and report periodically to MHA on the progress of the work.

- (viii) **Awareness generation:-** It has been decided that GSI will develop awareness generation strategy in consultation with the Ministry of Home Affairs and take up awareness programmes in the hazard prone areas to raise awareness at various levels through media campaigns, development and distribution of leaflet posters, meetings, workshops on a priority basis. GSI will also hold discussions with All-India Radio, Doordarshan and other channels of television for spreading awareness in landslide hazard prone areas.
- (ix) **Coordination:-** GSI has been declared as the nodal agency for landslides by Govt. of India vide Ministry of Coal and Mines communication No. 11[5]04-M.I dated 29th January, 2004. It has been decided that any landslide hazard zonation will be carried out only with approval from GSI so as to avoid duplication of work and ensure that landslide hazard zonation is carried out in line with the prescribed parameters.
- (x) **Reporting:-** Periodical reports on the progress in the implementation of the action plan as mentioned above will be submitted to Ministry of Home Affairs for discussion and review by the National Core Group for Landslide Mitigation in the Ministry of Home Affairs.



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As per distribution list.