

MINUTES OF THE MEETING ON DESIGNING EARTHQUAKE EARLY WARNING & DISSEMINATION SYSTEM UNDER NATIONAL SEISMIC RISK MITIGATION PROGRAMME (NSRMP) HELD ON 20.01.2020 AT 3:30 PM in OPS. ROOM, NDMA BHAWAN, NDMA, NEW DELHI.

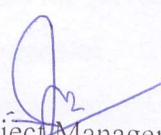
The meeting to discuss the methodology/ criteria for designing Earthquake Early Warning & Dissemination System (EEWDS) under Component-A of National Seismic Risk Mitigation Programme (NSRMP) was held on 20th January, 2020 at 3:30 PM under the Chairmanship of Dr. Pradeep Kumar, Spl. Secretary & Project Director, NDMA. The meeting was attended by Officials from NDMA, the World Bank and the Consultant (M/s DDF-AKDN JV). List of participants is attached at **Annexure-I**.

2. The meeting started with a welcome note from the Spl. Secretary & Project Director, NDMA. A presentation was made by the Consultant Team focussing on Earthquake Early Warning scenario across world, including status of EEWDS in different countries, viz.: Japan, South Korea, Taiwan, USA, Romania, Turkey, China, Chile, Israel, Italy, and India. Further, criteria proposed by the Consultant for designing EEWDS under NSRMP were also deliberated.

3. After deliberation involving views/ suggestions of participants, the following action plan/way forward was agreed to:

- i. Intensity map prepared under EEWDS will be integrated with the existing system of intensity map prepared by National Centre for Seismology (NCS), New Delhi.
- ii. The system should be designed to ensure that On-site EEWDS interfaces with and is capable of fetching data from Regional EEWDS.
- iii. A Concept note/self contained Design note on EEWDS, containing the following details should be submitted within a week:
 - (a) Detailed Literature review (with references) on international practices/design of EEWDS in various countries.
 - (b) The proposed algorithm/ DSS Software, clearly bringing out whether it would factor in depth aspect.
 - (c) The proposed 'basis of issuing warning', whether Magnitude or Intensity or a combination of both, clearly explaining the rationale.
 - (d) The accuracy of estimation of depth.

- iv. There should be Guidelines for critical intensity thresholds for different end users, viz.; Metro-rail, Power Plant, Gas, water Supply, Educational facilities, Medical facilities, etc.
 - v. Details of existing On-site Early Warning System at various vital installations facilities, with recommendation for installation of On-site Early Warning System at other vital installations facilities.
 - vi. Requisite data sets including data sets on Seismic Hazard Micro-zonation carried out for different cities of the country will be obtained by the Consultant from concerned Govt. Departments/Agencies (NCS, IIT-Roorkee, NGRI, etc.). In this regard, draft Letter (detailing out requisite data) will be provided by the Consultant.
 - vii. The Seismic Hazard Micro-zonation data should be factored-in and integrated/ incorporated in the design of EEWDS.
 - viii. The Consultant team should visit various countries at the earliest for getting an in-depth understanding of the best practices/ technology/ methodology/ algorithm/ DSS Tool, etc. used for designing EEWDS.
 - ix. Outputs of System design EEWDS will be vetted by NCS/NGRI, Hyderabad and the same may further be reviewed by International Experts in consultation with IMD-NCS.
4. The meeting ended with thanks to the Chair and all the participants.


Project Manager
NCRMP, NDMA

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