

Figure 2. Damage to the road network in Bandung.

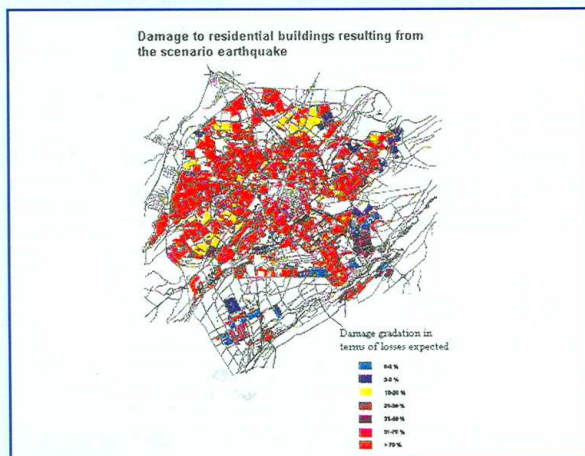


Figure 3. Damage to residential buildings in Tashkent from the scenario earthquake.

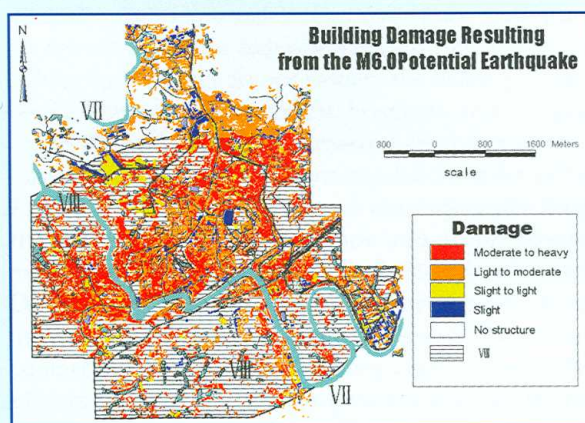


Figure 4. Damage to buildings in Zigong from the scenario earthquake.

The interview results and damage estimation output were compiled to prepare the final scenario in simple terms and written by professionals. The scenario was described in a time frame of post-earthquake and recovery over time. This scenario was presented in a workshop held between October and November 1998 in each of the case-study cities.

Earthquake risk management

The process of action planning began with identification of problems during preparation of the earthquake scenario and identification of the vulnerable elements in the city. Analyses at different stages are necessary in order to take into account available resources and the city's priorities. The overall aim of the risk management plan is to assist city decision makers on decisions about present infrastructure, existing elements, and future development. It aims to help mitigate earthquake risk through community participation and disaster education. For this, different priority areas were chosen for each city.

Emphasis has been given to improvement of emergency response planning and capability, public awareness of earthquake risk issues, seismic performance of buildings and infrastructure (including lifelines, critical buildings, and school buildings), and safety measures for school children. To achieve these objectives, several actions have been proposed. These actions include long-term actions before an earthquake (prevention and preparedness), immediate actions after an earthquake (emergency response and relief), and long-term actions after an earthquake (rehabilitation and restoration).

The current status of the actions and responsibilities related to the seismic disaster were first listed and reviewed. Intensive interviews were carried out with concerned organizations, and the results were used to prepare the draft action plan. This integrated plan was then presented in the workshop in April-June 1999, and the interdependence of different agencies were studied. Group discussions were held to reach consensus on the

proposed plan. Suggestions from these discussions were incorporated into the final version of the plan. Some of the recommendations of the action plans have already been taken into consideration in the form of new projects. In Bandung, for example, school buildings are being reinforced and public awareness is being promoted.

Evaluation and conclusion

The current project incorporates a unique methodology for mitigating seismic risk in a city. The most important part of this project is the involvement of diverse organizations and communities in mitigation efforts. It has been found that several invisible aspects, especially social and cultural features, are deeply related to the risk of the city and therefore should be taken into consideration in future disaster management plans. In each city and country there are several sensitive issues related to daily activities that are difficult for foreigners to understand or take into consideration. Involvement of the communities is a very important point.

The present project has made recommendations and has prepared ground for future studies. However, sincere and continued efforts are needed to turn those recommendations into real actions and to implement the action plan. Sustainability is an important issue in disaster management. More effort should be made to ensure that the process is continuous and meaningful. National and international development agencies should have a strong commitment to these issues and incorporate disaster issues in development planning to make it more sustainable. More activities of this type are needed and should focus on local participation to build capacity among the local community while respecting traditions.

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