



Building Damage and Casualties in Recent Earthquakes and Tsunamis in Asia: a Cross-event Survey of Survivors

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To plan disaster management strategies, and to develop appropriate building regulations, as well as improving the modeling of earthquake impacts, an understanding of the relationship between human casualties and building damage is crucial. However, until recently, no systematic attempt to collect such data following major earthquakes has been made. Following the development of a questionnaire after the 2004 South Asian tsunami by the team at the University of Cambridge, surveys of survivors from four Asian earthquakes and tsunamis have now been carried out to assess the experience of human casualties and their relationship to building damage and location. In the South Asian tsunami 500 questionnaires were completed, in the Pakistan earthquake a further 500 questionnaires were completed, and 120 questionnaires were completed after the Central Java tsunami in July 2006, all in collaboration with local teams. Recently, another 500 interviews were collected in the Yogyakarta province following the May 2006 earthquake. Important findings from each of these events as depicted by the survivors are drawn out and a database of the survey responses has been built.

Cross-event analyses are of importance as these highlight differences in levels of building damage and provide an insight into the relationships between building damage and extent of injuries. In addition, relationships can also be deduced between rescue times and treatment and how these are related to building damage and causes of collapse, which are crucial for emergency planning and search and rescue efforts.

The project which this paper describes (funded by the UK Engineering and Physi-

cal Sciences Research Council) was designed to compare and contrast these recent events, draw out critical differences and examine their implications for the global casualty database. For each of these events, the results have been compared with other reports describing building and infrastructure damage and intensities of earthquake in the same geographical locations as those where the survivor interviews took place.