ANALYSIS OF THE EMERGENCY RESPONSE TO THE 2006 YOGYAKARTA & CENTRAL JAVA EARTHQUAKE

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Abstract


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1. Introduction

On 27 May 2006, an earthquake measuring 6.3 on the Richter scale struck Yogyakarta and Central Java Province, Indonesia (IFRC 2007, p. 1). This essay evaluates the first week of the emergency response to this earthquake and finds that in general it was relatively well coordinated and effective, but that improvements could be made.

Following an examination of some of the ethical, legal, financial, cultural and social implications of the emergency response and the impact of technology on the emergency and the response, the major implications for emergency management from this disaster are discussed. These implications include the need for adequate preparation for emergencies at community, local, national and international levels, particularly the need for buildings to be constructed so as to withstand local hazards and for international organisations to develop local knowledge and connections prior to an emergency.

The review of this emergency response highlights the importance of communication and coordination mechanisms, including the need for local agencies to be heard in coordination meetings and the necessity for better communication between response agencies and communities in the future. Another implication for emergency management is that resource management will need to include mechanisms for minimising corruption and an understanding that diversion of resources from one emergency to a newer emergency are likely to occur.

2. Overview of Key Issues

The 2006 Yogyakarta and Central Java earthquake affected 11 densely populated urban and rural districts, home to more than 8.3 million people, killing over 5,700 and
injuring an estimated 40,000 to 60,000 (BAPPENAS 2006, pp. i & 7). The number of injured and the damage or destruction of almost 2000 medical facilities (BAPPENAS 2006, p. 36) made provision of medical treatment a key issue for the emergency response (BAPPENAS 2006, p. 37 and Leitmann 2007, p.146).

The earthquake completely destroyed or significantly damaged over 577,000 houses (IFRC 2007, p.1), leaving an estimated 1.6 million people without a home (UNCC 2007, p. 4). This made provision of emergency shelter a major issue for the emergency response. Damage to buildings also affected over 30,000 small and medium enterprises and therefore affected over 650,000 workers and 2.5 million dependants (BAPPENAS 2006, p. 49). The earthquake damage to 160,000 wells made access to clean water another significant issue for the emergency response (BAPPENAS 2006, p. 21 and UNCC 2007, p. 19).

Issues for communities in relation to the emergency response included; slowness or lack of response in some areas; lack of information about how to access government and international services; and equity in distribution of money and supplies (MacRae 2008, pp. 191-195).

The involvement of a large number of local, national and international organisations in the emergency response made coordination of the response a significant issue (BAPPENAS 2006, pp. 4-5).

A particular issue for some international organisations was the difficulties staff faced when implementing an emergency response when they did not have familiarity with the culture, language and government systems or any pre-existing local connections.

Corruption or at least the potential for corruption was a significant issue during the emergency response (Meo 2006 and Lingga 2008). Due to limited funds and the need for quick action, diversion of resources from other emergencies was an issue during the response (ADB c.2006, p. 4 and UNCC 2007, p. 25).

3. Evaluation of the Response to the Earthquake

The emergency response effort to the May 2006 Yogyakarta and Central Java earthquake was considered generally effective as there was widespread medical care and limited disease outbreaks, timely distribution of food and water to those in need and provision of emergency shelters to those who became homeless (Leitmann 2007, p. 146). However, there were criticisms of the emergency response and acknowledgements that improvements could be made (MacRae 2008 pp. 191-196 and UNCC 2007, p. 28).

In this evaluation the response of local, national and international agencies are considered separately. However, a number of factors assisted the emergency response across these levels. The relatively minor damage to roads, airports and railways meant emergency responders could access most communities affected by the earthquake and
allowed for easier transport of emergency supplies (BAPPENAS 2006, pp. 27-30). Also, limited damage to telecommunications systems allowed easier communication between emergency responders, affected communities and the outside world (BAPPENAS 2006, p. 20). In addition, active preparations for the predicted eruption of nearby Mt. Merapi assisted agencies to respond more quickly to the earthquake (BAPPENAS 2006, p. 5 and OCHA 2006a, p. 1).

The local response to the earthquake included the community response and the provincial governments’ response. Community members in affected and nearby areas often provided the initial response to the earthquake, sharing food, water, clothing, cooking equipment and labour (MacRae 2008, p. 191). The community response was assisted by the fact that in most areas there were a large number of community members who remained unharmed and able to provide assistance to others (Manfield 2007, p. 4).

The provincial governments mobilized assessment and search teams soon after the earthquake (OCHA 2006b, p. 2). Provincial government health facilities provided medical services immediately after the earthquake (OCHA 2006b, p. 2). The provincial governments distributed food and small cash payments to those affected by the earthquake (BAPPENAS 2006, p. 5). Manfield (2007, p. 3) considered that there was strong coordination, management and action from the provincial governments in the emergency response.

The provincial governments’ response to the earthquake was assisted by the relatively low damage to government infrastructure and relatively low number of injuries to government staff (Manfield 2007, p. 3). The provincial governments’ response was significantly assisted by the planning, coordination and implementation capacity provided by the Provincial Disaster Response Agency (SATKORLAK) (OCHA 2006b, p. 2) and support from the national government (BAPPENAS 2006, p. 5).

In the first week following the earthquake the national response focused on rescue, medical treatment, supply of food & water, provision of shelter and security (OCHA 2006b-e). The national emergency response included government agencies such as the Indonesian military (TNI), the Departments of Health and Social Affairs, the National Disaster Management Agency (BAKORNAS) and the National Development Planning Board (BAPPENAS), as well as national organisations such as the Indonesian Red Cross (PMI) and Muhammadiyah (OCHA 2006b-e and Sulistiyanto 2006, p. 266).

The national government emergency response was supported by the strong planning and implementation capacity of agencies such as BAKORNAS and BAPPENAS (Manfield 2007, p. 3 and Leitmann 2007, p. 146). The speed and extent
of the response was also assisted by direct support from senior politicians such as the President and Vice-President of Indonesia (OCHA 2006a, p. 4).

Although most literature on the Yogyakarta and Central Java earthquake that discusses the government response is generally positive (see for example: Manfield 2007, p. 3, OCHA 2006a, p. 28 and ADB c. 2006, pp. 2-3), there was still criticism. McRae (2008, pp. 191 & 199) states that the consensus opinion amongst villages he visited was that the government response to the earthquake was "neither fast nor decisive". McRae (2008, p. 199) also indicates that the opinions of international non-government organisation (NGO) workers varied about the government response.

A balanced evaluation would therefore be that, working with the resources available, the provincial and national governments conducted a reasonable response to the earthquake. However, communities were not able to rely solely on this assistance. Communities therefore also required assistance from other agencies, as well as self-help within communities.

The International Federation of the Red Cross and Red Crescent Societies (IFRC), various UN agencies and at least 35 NGOs mobilized essential emergency relief supplies and personnel within a week after the earthquake (BAPENNAS 2006, p. 5). The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) was responsible for the coordination of the international emergency response (UNCC 2007, p. 4).

OCHA applied the cluster approach to coordinate the emergency response to the earthquake (UNCC 2007, p. 4). The cluster approach involves grouping organisations that are working in the same field of humanitarian response, with one organisation designated as the lead for the cluster and therefore responsible for coordinating the work of the cluster (UNCC 2007, p. 4). The cluster meets to jointly develop the emergency response strategy for that cluster and to share information on activities. The clusters most involved in this emergency response were emergency shelter, health, water & sanitation, food & nutrition and logistics (UNCC 2007, pp. 5-6).

A number of factors assisted the international emergency response to the earthquake. Coordination and cooperation between international organisations and Indonesian government bodies through the cluster system helped to make the emergency response more efficient and reduce duplication of work (UNCC 2007, p. 5). A number of organisations, such as the World Food Programme (WFP), had plans and supplies in place for disasters in Indonesia (UNCC 2007, p. 25). Organisations such as Oxfam Great Britain already had offices in Yogyakarta, with local staff and connections with local organisations (MacRae 2008, p. 192). A number of international
organisations had staff in Indonesia that could be quickly deployed to the disaster site (OCHA 2006b, p. 2).

There were also a number of factors that hindered the international emergency response. Despite the efforts to coordinate there was still overlap between agencies in undertaking assessments and providing supplies. This led to oversupply in some areas (UNCC 2007, p. 12). There were also reports that local voices were not heard in the cluster coordination system (UNCC 2007, p. 28). Despite attempts to set quality standards, there was disparity between the quality of supplies distributed between some organisations, leading to dissatisfaction by some recipients (Manfield 2007, p.14). Despite the rapid response, after three months emergency shelter had only been provided for 80% of families who had lost their homes (UNCC 2007, p. 12).

International organisations that did not have existing connections with local organisations had difficulties forming partnerships with local organisations in the emergency response phase (MacRae 2008, p. 192). International organisations that did not have knowledge, experience and contacts with the Indonesian government experienced confusion, frustration and delays (MacRae 2008, p. 193). Staff of international organisations had to spend a lot of time on internal processes and communication with head offices. This limited the amount of time available for contact with affected communities (MacRae 2008, p. 193).

Overall, the international emergency response to the Yogyakarta and Central Java earthquake was rapid and relatively well organised. However, there were still significant issues, particularly the delays experienced by some communities in receiving emergency shelters. Lack of local knowledge and contacts by international organisations appears to have contributed to these delays.

4. Ethical, Legal, Financial, Cultural and Social Implications of the Response to the Disaster

The relatively low number of casualties and displaced people meant that the majority of social structures at the community level remained intact (Manfield 2007, p. 4). This contributed to the maintenance of traditional Javanese cultural values such as “gotong royong (spirit of helping one another through good and bad) and kekeluargaan (feeling of extended kinship in which the community is considered to be one big family)”, which meant that many families and communities organised their own emergency response, independent of external assistance (Ohno & Syam 2007, p.5 and Manfield 2007, p. 4).

The damage to houses and shallow wells was a humanitarian and socio-economic issue in that this damage tended to most adversely affect the poor, those least likely to be able to afford to rebuild (BAPPENAS 2006, p. xii and
McRae 2008, p. 191). This necessitated large scale reconstruction programs by government and non-government agencies, with various levels of community control (Manfield 2007, pp. 10-14). The destruction also raised legal issues about the enforcement of appropriate building codes (BAPPENAS 2006, p. xii).

Due to the prevalence of home-based industries in Yogyakarta and Central Java, the destruction of homes had a significant effect on livelihoods as well (BAPPENAS 2006, p. xiii). Over 30,000 small and medium enterprises were affected by the earthquake. An estimated 130,000 people lost their jobs due to damage caused by the earthquake, which had social as well as financial implications (BAPPENAS 2006, p. 75).

Corruption and misuse of funds was an ethical and financial concern in the use of donated funds following the Yogyakarta and Central Java earthquake (Meo 2006). Corruption in relation to the response to the disaster has been described as “low” by DFID (2008), but “widespread” by Lingga (2008). According to local legislators, journalists and NGO activists, program managers and victims fabricated data on the extent of damage to houses in order to claim greater compensation (Lingga 2008). Local legislators stated that many facilitators who were hired to help empower community groups turned out to be corrupt, colluding with officials in the embezzlement of reconstruction funds (Lingga 2008).

Corruption created a number of issues, including the financial issue of devoting resources to effective control systems to prevent and detect corruption. There were also ethical and legal issues in terms of prosecuting victims of the earthquake for fraud. Local government responded by announcing an amnesty for those who returned embezzled funds. The Yogyakarta-based Institute for Development and Economic Analysis suggested that this was also a cultural issue, as corruption has become accepted as a part of life by many Indonesians (Lingga 2008).

Despite the Government of Indonesia's attempts to dissuade donors, there was at least a temporary flow of resources away from recovery efforts in other parts of Indonesia, in particular Aceh, to the emergency response effort for the Yogyakarta and Central Java earthquake (OCHA 2006b p. 2 and ADB c.2006, p. 4). There was also use of international resources that could otherwise have been applied to other emergencies. For example the WFP had to divert food from other activities to meet the needs of families left homeless by the Yogyakarta and Central Java earthquake (UNCC 2007, p. 25). This is obviously a financial issue in terms of lack of availability of funds to meet all emergency needs and also raises an ethical issue. What makes one group of people affected by a “new” disaster more deserving of help than a group of people affected by an “old”
disaster in another part of a country or the world?

The emergency response also created another ethical issue in terms of equal distribution of aid across those in need. McRae (2008, p. 199) reported a widespread perception that remote areas were “least well served by the relief effort.” This and lack of information about the emergency response reportedly led to social issues, such as conflicts between communities and refusals of aid that were not distributed equally (McRae 2008, p. 195).

5. Technological Elements of the Disaster

As discussed above, relatively minor damage to telecommunication systems allowed easier communication between emergency responders, affected communities and the outside world (BAPPENAS 2006, p. 20). This allowed reports on the disaster to reach the media quickly and raise the profile of the Yogyakarta and Central Java earthquake, which would have attracted additional resources to the disaster (Massey 1994, cited in Bennett & Kottasz 2000, p. 354).

Electronic distribution of information and appeals for funds were widely used by UN and international non-government agencies (for example IFRC 2006a).

Geospatial information systems (GIS) were widely used by international donors to understand the distribution of damage and to plan and coordinate the emergency response (UN 2006).

Radios were distributed to communities in areas affected by the earthquake. Communities indicated that this was useful for fact-checking rumours that circulated after the disaster (INI 2006). In addition donors worked with commercial and community radio stations to ensure relevant information was broadcast (INI 2006 and UNESCO 2006).

On a more basic level, poor use of building technology was found to be a key contributing factor to the damage caused by the disaster (BAPPENAS 2006, p. xii). This was connected to a lack of money for building materials, a lack of knowledge of construction techniques (Ohno & Syam 2007, p. 7) and minimal enforcement of building codes (BAPPENAS 2006, p. xii).

6. Implications for Emergency Management

There are a number of implications and lessons learnt from the Yogyakarta and Central Java earthquake that apply to other communities, countries and emergency management worldwide.

Preparation and planning for emergencies is of obvious benefit to governments and local and international organisations, but also needs to take place at the community level (Ohno & Syam 2007, p. 7). For this to occur communities are likely to require information and training about
preparation and planning for emergencies from governments or other organisations.

Buildings need to be constructed to be resistant to local hazards. This requires community knowledge about appropriate construction techniques and building materials (Ohno & Syam 2007, p. 7). It also requires creation and enforcement of appropriate building codes by governments (BAPPENAS 2006, p. xii). Destruction of homes leads to the major financial implication that communities may require additional funds from governments or international bodies to enable them to rebuild to appropriate standards, particularly in low socio-economic areas (BAPPENAS 2006, p. 18). The related destruction of livelihoods was also a major source of concern for local communities and needs to be considered in this context (BAPPENAS 2006, p. 74).

The organisations with staff and supplies already in the local area are in the best position to respond to a disaster. A local presence not only reduces the time taken to reach a disaster area, but also helps to establish relationships with local organisations and officials that can increase the speed and efficiency of the emergency response. Local presence also helps to provide local knowledge, which helps to ensure an emergency response is culturally appropriate and therefore more effective (MacRae 2008, pp. 192-193 and Luna et al 2005, p. 447).

High levels of coordination by government bodies and international organisations, through methods such as the "cluster approach", improve the efficiency of the emergency response to disasters (UNCC 2007, p. 27). A major implication from the feedback on the use of the cluster approach is that international coordination mechanisms need to ensure input from local organisations (UNCC 2007, p. 28). Sufficient coordination would help to reduce inequitable distribution of aid, an issue which angered local communities (MacRae 2008, p.195).

Whilst the use of email and internet to distribute information about the disaster and response appears to have worked well on an international level, it did not function at the community level. MacRae (2008, p. 195) reported that communities who lacked information on the emergency response felt frustrated and confused and this led to community conflicts. This leads to the implication that there needs to be increased communication with communities during an emergency response.

As with any large expenditure of money, to avoid or at least reduce the possibility of corruption, emergency response organisations need to have appropriate financial and monitoring systems in place (Meo 2006 and Lingga 2008).

Despite the efforts of the Government of Indonesia, there was at least a temporary flow of resources away from recovery efforts in other parts of Indonesia, in particular Aceh, to the emergency response effort for the Yogyakarta and Central Java earthquake
Due to the finite amount of money available for emergencies, this diversion of resources is likely to apply in future emergency response actions.

7. Conclusion

The first week of the emergency response to the 2006 Yogyakarta and Central Java earthquake was relatively well coordinated and effective, but improvements could be made in future emergency responses. Issues from the emergency response raised a range of ethical, legal, financial, cultural and social implications. Use of technology such as the internet, radio and GIS assisted the community response, but use of inappropriate building technologies was one of the key reasons that the earthquake caused a large amount of damage.

The major implications for emergency management from this disaster include the need for improved prevention and preparation, particularly the need for buildings to be constructed so as to withstand local hazards and the need for adequate preparation for emergencies at community, local, national and international levels. International agencies that are prepared with local knowledge and connections are likely to be more effective in an emergency response. It is also clear from this emergency response that coordination and communication mechanisms are important and that work is required to ensure there is increased coordination and communication with local organisations and communities. In addition, this emergency response teaches us that the management of resources during an emergency response will need to include mechanisms for preventing or reducing corruption and an understanding that diversion of resources from one emergency to a newer emergency are likely to occur.

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