



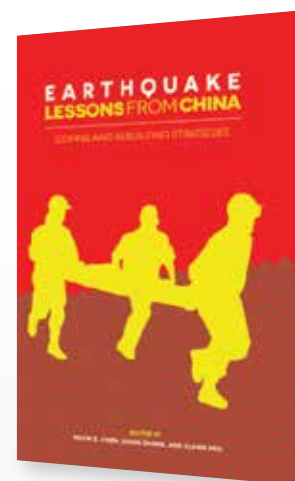
EARTHQUAKE LESSONS FROM CHINA

Coping and Rebuilding Strategies

Kevin Z. Chen, Qiang Zhang, and Claire Hsu

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Wenchuan County, in the Sichuan Province of China, was struck on May 12, 2008, by an earthquake that measured 8.0 on the Richter scale—the largest earthquake in the history of the People’s Republic of China. Almost 90,000 people—including more than 5,000 children—died or disappeared as a result of the quake, which encompassed 500,000 square kilometers and affected nine other provinces outside Sichuan. Economic losses came to renminbi (RMB) 845 billion (US\$132 billion).



The catastrophe triggered an enormous response from public, private, and nonprofit actors. This response was effective in many respects while also revealing the need to reform China’s disaster response. Such reform is critical given that the number of severe earthquakes has increased globally since the 1970s and that ongoing urbanization exposes more people to the effects of these disasters. *Earthquake Lessons from China: Coping and Rebuilding Strategies* reviews the important elements of Chinese disaster response and identifies both successful elements and those that need improvement.

The Wenchuan quake response was innovative in the way it widely distributed disaster management efforts. The efforts were distributed across time, going beyond immediate aid to those affected by the quake to include measures such as long-term reconstruction, mitigating damage from future earthquakes, and poverty reduction.

Disaster management efforts were also distributed across the policy environment so as to include a greater number of agencies and actors.

Some of these diffuse efforts were successful. The pair-wise aid model, a system of providing aid to earthquake-affected regions, proved effective and could be used, under the right circumstances, in responding to future disasters. The high level of involvement in the earthquake response by volunteers and nongovernmental groups was also an unprecedented accomplishment. Government efforts to support the incomes of earthquake-affected people prevented them from falling into poverty and also prevented income inequality from increasing.

Widely distributed disaster management efforts will require further reforms of how disaster response is handled in China, however. Chinese policy makers need

to encourage greater involvement from nongovernmental organizations (NGOs), for example, and work to integrate such responses with longer-term efforts to reduce poverty.

Four aspects of a broader earthquake response—pair-wise aid, nongovernmental involvement, income support, and integrating disaster response and poverty reduction—are examined below.

PAIR-WISE AID

The government adopted a pair-wise aid policy, in which one donor province or city is assigned to a recipient area. Relatively wealthy provincial governments of regions not stricken by the disaster used their resources to aid a county or city on a one-to-one basis. This province-to-county aid model was designed to offer direct aid to disaster-hit areas and to simplify lengthy and redundant administrative procedures.

Evidence shows the pair-wise model to be more efficient and effective, measuring by metrics such as organizational coordination and the scope of assistance, than other typical mechanisms—such as central government-oriented aid and international humanitarian aid. Nevertheless, the pair-wise province-to-county aid model has significant limitations. The model requires wealthier areas that can provide aid to assist impoverished areas that have suffered a disaster; one poor area cannot help another. Also, pair-wise aid is not legally guaranteed: if the promised aid is not forthcoming, a recipient cannot compel a donor to provide it.

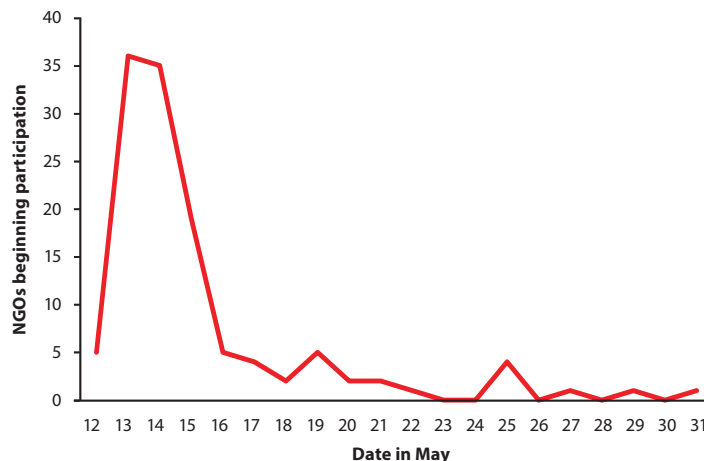
INCREASING NGO INVOLVEMENT

Responses to large-scale disasters need to involve the private sector, volunteers, and NGOs, as well as the government. In China's emergency management system, as in most public policy systems, the government plays a central part in the process, whereas regular citizens and NGOs are rarely involved. However, following the devastation of the Wenchuan earthquake, a large number of volunteers, NGOs, corporations, and media organizations provided an outpouring of time, money, and material supplies to relieve the pain experienced in the aftermath of the disaster and contribute to reconstruction (Figure 1).

Autonomous social participation reached its peak following the earthquake, with a total of RMB 79.02 billion (US\$12.02 billion) in private donations received nationwide in 2008. Individual volunteers became an important disaster relief force: Altogether, a total of 1.3 million volunteers

helped with rescue and relief work in the zone affected by the Wenchuan earthquake.

FIGURE 1 NGOs beginning participation in earthquake relief operations, May 12–31, 2008



Source: Zhang et al. (2008).

Note: NGOs = nongovernmental organizations.

In addition, over 6,000 nonprofit organizations from within the province participated directly or indirectly in the rescue and relief work. NGOs are well positioned to establish platforms for coordinating resources; set up community service centers; and provide personalized care for the disabled, widowed, and elderly within communities and help them rebuild their lives. Also, NGOs can tap the potential of community residents and grow grassroots democracy through the organization of a variety of participatory activities.

The ability of NGOs to generate grassroots political actions was demonstrated most clearly by the post-earthquake reconstruction campaign of Mianzhu City. NGO participation in the city reached such a level that the relationship between the government and NGOs evolved from a supplementary and complementary relationship into an adversarial one: the NGOs prodded the government into formulating and adjusting public policies to ensure that public officials would be held accountable.

While the Mianzhu campaign shows how increased NGO participation in disaster relief could bring about long-term changes in China's institutional policies related to disaster response mechanisms and civil society, Chinese policy makers may not take advantage of the opportunity created by the earthquake response. The central government has moved past disaster

response and reentered the sphere of normal national governance. Given the central government's aggressive adoption of the pair-wise aid model that encourages government-to-government assistance, some NGOs are beginning to be "squeezed" out of the post-earthquake reconstruction campaign at the local level.

Despite an historic level of civil society engagement in relief efforts following the earthquake, the number of NGOs active in the region decreased from 300 to 50 between 2008 and 2009 and the number of volunteers shrank from 3 million to 50,000. The emergence of China's civil society may take longer than was hoped.

INCOME SUPPORT

Natural disasters such as the Wenchuan earthquake disrupt social and economic systems, and the poorer a country struck by a natural disaster is, the more people die. Besides deaths, natural disasters can also lead to losses in income and declines in consumption for households that may in turn reduce human capital accumulation and long-run growth.

Because they have worse infrastructure, poorer health facilities, and less advanced economies, the rural areas of developing countries are much more likely than urban areas to suffer a severe negative shock from natural disasters. Changes in income and consumption could worsen inequality in rural areas, or lead to an increase in poverty, or both. Therefore, when a natural disaster strikes, it is essential that effective aid be targeted appropriately and delivered quickly to rural areas.

In response to the disaster, the Chinese government provided immediate humanitarian aid—such as food and other necessities—to households and communities affected by the earthquake. The government also provided temporary living subsidies to families, adjusted according to how severely the earthquake affected them. It also provided a mix of aid and bank loans for home reconstruction. RMB 40 billion (US\$6.1 billion) went to reconstruction, and RMB 24 billion (US\$3.7 billion) went to low-interest loans to farmers for rebuilding their homes.

Although household income decreased after the earthquake, government aid kept consumption from falling dramatically. The aid also prevented the quake from increasing household income inequality: inequality measures remained the same after the quake as they had been before. While the living subsidies were effective in maintaining consumption, the aid for home reconstruction was inadequate: government grants and loans did not meet 60 percent of rural households' reconstruction needs.

INTEGRATING DISASTER RESPONSE AND POVERTY REDUCTION

A growing awareness that poorer communities have different disaster recovery periods and requirements than more affluent ones has fostered interest in combining disaster response with poverty reduction. Integrating China's poverty reduction and disaster management policies involves improving, expanding, and integrating social safety nets and strengthening community capacity. Community capacity building will require improving awareness of disaster prevention and mitigation, increasing local knowledge of disaster management techniques, and establishing an emergency response system at all village levels.

Community-based disaster management (CBDM) approaches are particularly important for the integration of poverty alleviation and disaster management. Individual participation in the management process is essential to the success of community-based disaster reduction activities. Such participation develops when community residents are allowed to participate in the management process. Improving individuals' understanding of community disaster response plans and their personal roles in the plan will help to reduce casualty and property loss.

Participation by individuals in China's CBDM is inadequate. Despite the introduction of some public sector-led CBDM pilot programs in China, the gains from and potential for these programs are severely constrained by the current lack of legislation, funding, and implementing mechanisms. Also, the number of NGOs involved in disaster prevention needs to increase. The government should correct these problems and encourage the CBDM. This will involve refining laws and regulations to create a favorable social environment for NGOs and to outsource services to NGOs.

CONCLUSION

The authors of *Earthquake Lessons from China: Coping and Rebuilding Strategies* have identified and examined key disaster management policy innovations including the pair-wise aid policy, increased cooperation with NGOs, income support, and the integration of poverty reduction and disaster management. These four innovations have been successful in some ways and require improvement in others. Improvements could include the following:

1. Pair-wise aid should take into account recipients' perspectives and circumstances, especially their unique cultural practices. Also, it should incorporate investments in human capacity development as well as investments in infrastructure to ensure members of a community can effectively operate complex infrastructure projects after they have been reconstructed. Finally, pair-wise aid, like other disaster response programs, can benefit from increased NGO participation.
2. Policy makers can encourage NGO participation in disaster responses by reducing regulatory hurdles that currently stymie NGO and charitable organization development and growth. One promising step by the Chinese government has been to allow more NGOs to officially participate in fundraising and disaster relief efforts.
3. The government should further develop policies specifically dedicated to mitigating the income shocks induced by catastrophes (which exceed household coping ability), such as expanding and improving social safety net coverage and increasing the supply of agricultural insurance.
4. China should continue to integrate disaster reduction and poverty alleviation efforts. Its 2011 National Comprehensive Disaster Prevention and Reduction Plan (2011–2015) calls for the integration of disaster management and economic and poverty alleviation plans. This integration would involve natural disaster monitoring and early warning, risk management, civil engineering measures, community disaster reduction, emergency response, recovery and reconstruction, technology empowerment, and social mobilization.

Lessons from China's response to the 2008 earthquake can assist the continued development of not only China's disaster management capacity but also that of other countries. In particular, the concepts of widely distributed responses, leveraging external resources, and coordinating effectively with actors on multiple levels and across sectors offer great hope for improving resilience against natural disaster.

Kevin Z. Chen (k.chen@cgiar.org) is the China Program leader and a senior research fellow in the Development Strategy and Governance Division of the International Food Policy Research Institute (IFPRI), Washington, DC. **Qiang Zhang** (qz@bnu.edu.cn) is a professor at the School of Social Development and Public Policy of Beijing Normal University. **Claire Hsu** (clairehsu@bnu.edu.cn) is a consultant for the China Program of IFPRI, Washington, DC.

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