

Is “Paired Assistance Policy” reconstruction mode better than traditional mode? A simulation approach to understanding collaborative governance in post-Wenchuan Earthquake reconstruction

Linlin Wang

Institution of Ecology and Development Sciences, Shanghai Academy of Social Sciences,
Shanghai, 200020, China
Phone: 086-18301758823
Email: wanglin9004@163.com

Haiyan Yan

School of Management, Shanghai University of International Business and Economics,
Shanghai, 201620, China
Phone: 086-13761890328
Email: yanhelen@163.com

Enzo Bivona

Department of Political Science and International Relationships, University of Palermo, 90100, Italy
Phone: 039-3384381446
Email: enzo.bivona@unipa.it

Jiayin Qi

Institute of Artificial Intelligence and Change Management, Shanghai University of International Business and Economics, 90100, China
Phone: 086-13911608278
Email: qijiayin@139.com

Keyword: Collaborative governance, Post-disaster reconstruction, System Dynamics, Wenchuan Earthquake, Paired Assistance Policy

The recovery process following the 2008 Wenchuan Earthquake in China took more than 10 years. Over this period, 41 severely damaged counties and county-level cities in Sichuan, Shaanxi, and Gansu provinces have exceeded their economic, social, ecological, and cultural status from before the earthquake hit. The Wenchuan Earthquake offers an illuminating case study for better understanding the dynamic collaborative governance in post-disaster reconstruction (Guo & Kapucu, 2015; Wang *et al.*, 2020). The impacts of the Wenchuan Earthquake and the related lessons and experiences are expected to influence the way international practitioners deal with disaster reconstruction in the future.

For a long time, the centralized Chinese administrative system has been particularly active in assisting in local disaster reconstruction. For example, the Chinese central government initiated the Paired Assistance Policy (PAP) as the core policy mechanism for recovery from the Wenchuan Earthquake. Under this particular PAP, the central government paired 20 economically developed provinces or major cities with provincial status with 24 counties or county-level cities in the disaster-affected areas. For three years following the disaster, the developed provinces were required to provide more than 1% of their fiscal revenue to their corresponding partner through financial support and material resources. This policy approach can be understood from the perspective of political mobilization under the centralization of authority, which could be termed “campaign-style governance” (Lu & Xue, 2016). It is also therefore reasonable to regard the PAP in terms of vertical command-and-control relationships between governments. In the long run, however, the political mobilization associated with this type of command-and-control was only the beginning of the post-disaster recovery process following the Wenchuan Earthquake. With the gradual evolution of the recovery work and the development of both vertical and horizontal intergovernmental relationships, the collaborative governance across the governments, profit organizations, non-profit organizations and the public could not be assumed to be constant (Tang, 2019).

Post-disaster reconstruction systems involve repairing and rebuilding houses, commercial buildings, pathways, and critical infrastructure, such that populations are provided with products and residential, commercial, transportation, and public services (Olshansky *et al.*, 2012). Owing

to the complexity of the overall reconstruction system caused by dynamic and multiple interactions and feedback processes, as shown in Figure 1, the affected areas in Wenchuan Earthquake suffer fatal losses in various aspects. Enormous demand for resource determines that the reconstruction task could not be accomplished by single actor. Thereby, collaborative governance among multiple stakeholders is necessary. Effective reconstruction practices are essential to address several goals, such as the quality of civil life and the improvement of government credibility. Thus, these outcomes will affect the motivation of different stakeholders (the government, profit organization, non-profit organizations and the public) to take part in the collaborative governance practice. Combined with the analysis of PAP in post-Wenchuan earthquake reconstruction, we can conclude that PAP is the policy lever government used in Wenchuan case to enhance the collaborative governance. It can also affect the collaboration method.

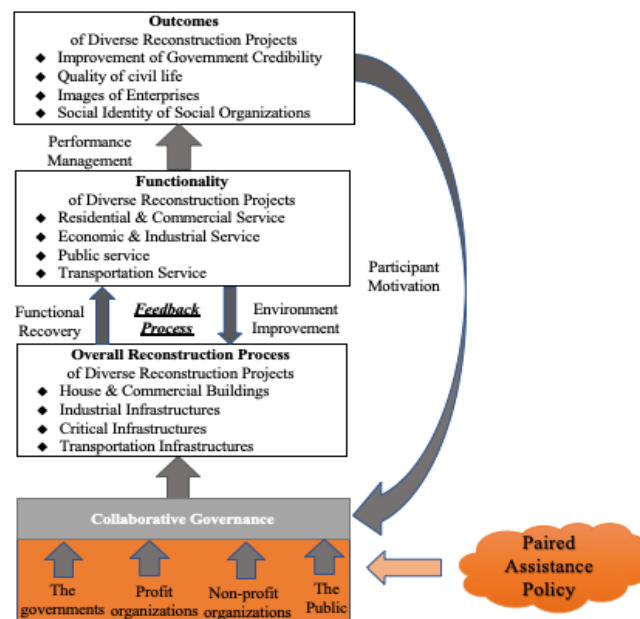


Figure 1 Collaborative governance in the post-disaster reconstruction of Wenchuan earthquake

Through the System Dynamics modeling and simulation, this paper analyzed the influence of multi-agent participation on the process of post-disaster reconstruction from the performance management aspects. Then the analysis of key variables such as government funding and government credibility was conducted, and five scenarios were set up to simulate and predict. Simulation result supports that the PAP reconstruction mode is an effective way to improve the resource allocation capacity and post-disaster reconstruction performance than the traditional way. Meanwhile, it reveals that how to balance the role of government credibility and paired assisting parties is a critical problem in the post-Wenchuan Earthquake reconstruction.

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