Disaster Relief Role Evolution of the Sichuan Provincial Government

A Longitudinal Comparative Study of Wenchuan, Lushan and Jiuzhaigou Earthquakes

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Abstract. Due to its special geographical location, three major earthquakes have been experienced in Sichuan Province, China over the past two decades. In response to the three earthquakes, the provincial government has served as a connective link between the central government and the county governments, thus demonstrating its unique and indispensable role in the disaster relief process. Taking the 2008 Wenchuan earthquake, the 2013 Lushan earthquake and the 2017 Jiuzhaigou earthquake as the research objects, this paper used the field research and interview method to make a longitudinal comparison of the roles and functions of the Sichuan Provincial Government in terms of policy, funding and emergency rescue in the three major earthquakes. It was found that (1) the role of Sichuan Provincial Government in the disaster relief process has changed; (2) although the government’s earthquake relief investment decreased, the proportion of the total investment in Sichuan earthquake disaster relief from the government’s own expenditure generally rose; (3) the emergency response and disposal capacity of Sichuan Provincial Government has been greatly improved. References and suggestions were also given for disaster relief and mitigation system construction for other disasters and other areas from a provincial government perspective. Keywords: Disasters, Earthquakes, Construction.

1 Introduction

In the past twenty years, three serious earthquakes have been experienced in Sichuan Province, China; the 2008 Wenchuan earthquake, the 2013 Lushan earthquake, and the 2017 Jiuzhaigou earthquake. As it is extremely uncommon for three earthquakes to occur in the same region within a decade, these three earthquakes provide important information for studying models of earthquake relief systems [1].

As the government is the main manager of public social affairs, it has the responsibility to protect the safety and well-being of all citizens and therefore must assume responsibilities that cannot be fulfilled by individuals, businesses, or other social organizations [2]. The government has multiple functions of disaster prevention and disaster relief. Strengthening the crisis-handling skills displayed by local and national governments is a key aspect of development [3]. Whether the government can play a role in disasters will directly affect the
people’s sense of trust and collaboration, thus further affecting the effect of disaster relief [4]. The constitution of the People’s Republic of China divides the government into a central government, provincial governments, county governments, and township governments. The provincial governments, which play a crucial role in the system, are responsible for carrying out directives from the higher government levels to the lower government levels and transmitting information upward from the lower to the higher levels. The main provincial government obligations include delivering health, education, emergency management, and economic development services. However, when faced with disaster, governments on all levels have similar and different influences on disaster relief and disaster mitigation; however, in this article, we mainly discuss the provincial government functions because the earthquake response capability level of a county is directly related to the success or failure of the entire earthquake emergency response and is the key to improving the overall earthquake response capabilities. Therefore, as the central government is limited to providing policy guidelines and lending support, the decision-making authority is the responsibility of the affected states/regions and local authorities.

Based on a longitudinal comparison of the three major earthquake disasters, this article examines the functions of the provincial government from three aspects; policy, funding, and emergency rescue. By analyzing the optimization disaster relief processes, our aim was to provide a reference for the system construction of disaster relief and mitigation for other disasters in other areas.

2 Literature Review

Many scholars have elaborated on the government functions during the three recent earthquakes. Based on the Overall Plan for Post-Wenchuan Earthquake Recovery and Reconstruction, Liu developed an evaluation indicator system that encompassed livelihood, urban housing, infrastructure, public services, the eco-environment, and spiritual homeland considerations [5, 6]. Apart from the independent actions of the provincial government, intergovernmental cooperation is of vital importance in disaster relief. By building an effective network, governments can better exert a positive effect on the disaster relief processes [7]. Dunford claimed that good local government could more effectively address the needs of poor households by mobilizing and taking advantage of human, material, and financial resources as well as by harnessing institutional effectiveness [8]. Although these studies were focused on the three Sichuan earthquakes, there was no clear government hierarchy and the functions were relatively complex and diverse.

When disasters hit, governments and especially local governments often have little time to implement sound decision-making [9]; as there is an urgency to bring relief and ‘get back to normal’, governments see speed as the most urgent requirement. They endeavor to quickly reduce risk, rebuild communities, and reinstate permanence [10]. Therefore, guidelines, finance, resources, human resources, know-how, detailed plans, and disaster analyses are needed as soon as possible [9]. Besides, the communication of emergency information shortly before or after the manifestation of seismic hazards is also crucial [11]. Hossain also thought that it was necessary to strengthen the protection of emergency power and communications; that is, it is necessary to strengthen the resilience of the power and communication infrastructure [12–15], and also establish emergency communication systems at the grassroots level to harness wired, wireless, mobile network, and satellite communications.

For long-term recovery, local governments need to emphasize policy, strengthen the coordination between national and local stakeholders [16], improve the quality of the relationship between government and various publics [17], be committed to innovative research, development, and implementation [18], and develop databases of past disaster debris management
strategies and operations. Governments’ funding can function as a mechanism to mitigate such revenue or expenditure shocks due to disasters [19]. Insurance could also offer a desirable mitigation approach against the fiscal consequences of disasters [20]. Some fiscal policies such as budget deficits and public debt could be adopted to deal with disasters and improve economic development [21].

Although the above research has examined the role of local governments in disaster relief, there has been no systematic summary. However, there have been three related commonalities in previous research; policy, funding, and emergency rescue. First, disaster mitigation policies have played an extremely important role in natural disaster responses [22]. Governments need to establish a reasonable and legal management system to ensure an effective operating system, proper centralization, a clear definition of powers and responsibilities, and an integration of synergies [23–25]. Second, as responding to sudden events requires funding, it is impossible for social organizations to provide such financial support. Third, as the core leader for disaster relief collection and distribution, local governments have a strong social organizational capability that is pervasive in every aspect of the society. As the organizational structure is similar to the military organizations, if accurate decisions are made and appropriate measures taken, the entire society can respond in a relatively short period of time and concentrate on emergency response.

In times of crisis, emergency management is rarely seen as part of daily public or private functions, such as planning, social welfare, investment or financial responsibility [26]. For emergency management, these responsibilities can be grouped into four phases: preparation, mitigation, response, and recovery [27]. Though these four phases are all necessary emergency management components, in practice, they are not always clearly demarcated or linear. To facilitate the comparison, the roles and functions of the Sichuan provincial government in terms of policy, funding, and emergency rescue were compared.

This paper focuses on the evolution of the disaster relief role of Sichuan Provincial Government by comparing the policies, funding and emergency rescues supported by the Sichuan Provincial Government in the last three earthquakes, in order to supplement the literature on the evolution of the provincial government’s role in emergencies. More importantly, we hope to serve as a reference for other countries and regions to respond to such disasters.

### 3 Methodology and Data

Based on field research and a literature review, this paper examined the evolution of the Sichuan Provincial Government’s disaster relief role by comparing the three Sichuan earthquakes. First, historical data were collected from government gazettes, press releases, a literature review, and other related published or unpublished third-party evaluation reports. The qualitative section primarily consisted of researcher field notes and interviews with government officials. After the Jiuzhaigou Earthquake, we were invited to conduct field research in Jiuzhaigou, after which we were involved in a seminar on related earthquake issues. The meeting participants were leaders from the General Office of the Sichuan Provincial Government, the Water Resources Department, the Department of Finance, and the Audit Office, as well as leaders from the Earthquake Administration and Disaster Reduction Committee of Sichuan Province. The relevant policies and regulations promulgated by the government after the Jiuzhaigou Earthquake were raised in the meeting, which highlighted the main role taken by the provincial government in the three major disasters; therefore, comparative studies and interviews with the leaders at the meeting were held to gain a firmer understanding of the effects of the government’s mitigation measures (see table 1).
Table 1. Basic information from the field research on government officials

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luo</td>
<td>Male</td>
<td>Civil Affairs Department of Sichuan Province (Deputy director-general)</td>
</tr>
<tr>
<td>Zhang</td>
<td>Male</td>
<td>Deputy Director of Sichuan Provincial Department of Water Resources</td>
</tr>
<tr>
<td>Tang</td>
<td>Female</td>
<td>Deputy Director of Audit Bureau of Sichuan Province</td>
</tr>
<tr>
<td>Wang</td>
<td>Male</td>
<td>Director of the Sichuan Disaster Reduction Committee Office, Director of Disaster Relief Office of the Sichuan Civil Affairs Department</td>
</tr>
<tr>
<td>Lan</td>
<td>Male</td>
<td>Sichuan Province Disaster Reduction Committee Expert Committee Deputy Director, Director of the Disaster Reduction Center of Sichuan Province</td>
</tr>
<tr>
<td>Chen</td>
<td>Male</td>
<td>Deputy Director of the Sichuan Provincial Department of Finance</td>
</tr>
<tr>
<td>Han</td>
<td>Male</td>
<td>Deputy director of the Department of Earthquake Damage and Defense in the Sichuan Seismological Bureau</td>
</tr>
<tr>
<td>Zhang</td>
<td>Male</td>
<td>Director of the Development and Finance Department of the Sichuan Seismological Bureau</td>
</tr>
</tbody>
</table>

4 Wenchuan Earthquake

4.1 Policy

When the Wenchuan earthquake struck, the CPC Central Committee and the State Council paid attention to it nationwide, and party committees and governments at all levels were working hard to rescue the affected people as soon as possible. In the process of earthquake relief, the Sichuan Provincial Government issued a series of policies under the guidance of the CPC Central Committee and the State Council to ensure the orderly and efficient development of the post-disaster reconstruction and to protect the interests of the people in the affected area (see table 2).

Additionally, in 2009, the Sichuan Province pioneered a provincial disaster reduction committee whose coordination function was to rationalize the province’s disaster prevention and mitigation system and mechanism. On these policies and measures by the Sichuan provincial government, Luo claimed that “with the strong leadership of the CPC Central Committee and the State Council, the Sichuan Provincial Party Committee and the Provincial Government made decisions to speed up the construction of a new homes and accelerate the economic development in the western regions. In addition, we are committed to coordinating scientific disaster relief, scientific reconstruction, and scientific development, thereby allowing for effective earthquake relief, post-disaster recovery and reconstruction, and economic development. Over the years, the affected areas have concentrated on consolidating and developing the achievements of post-disaster recovery and reconstruction, earnestly implemented the requirements of the "Wenchuan Earthquake-Stricken Area Development and Revitalization Plan", further increased investment, vigorously promoted the sustainable development capacity, accelerated industrial development, and striven to improve people’s livelihoods. In this case, the economic development achievements in the disaster-stricken areas has been remarkable and impressive.”

4.2 Funding

In 2008, Sichuan’s Gross Domestic Product (GDP) was 1.26 trillion CNY, the local general budget revenue of the province was 104.117 billion CNY, and the province’s general budget expenditure was 296.518 billion CNY. Three hundred million CNY of the 500 million CNY provincial financial reserves were appropriated for earthquake relief and emergency rescue.

In 2008, the finances at all levels raised a total of 104.8 billion CNY for the disaster relief funds, which included a central government grant of 83.357 billion CNY, with the provincial government raising the remaining 16.521 billion CNY (including 3.749 billion CNY of donated funds that were transferred into the provincial treasury).
Table 2. Summary of the policies issued by the Sichuan provincial government as part of the Wenchuan earthquake relief efforts

<table>
<thead>
<tr>
<th>Policy</th>
<th>Date of issue</th>
<th>Department</th>
<th>Field</th>
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<tbody>
<tr>
<td>Earthquake Disaster Prevention and Rehabilitation Planning after the Wenchuan Earthquake in Sichuan Province (2008-2015)</td>
<td>2008.06.05</td>
<td>Sichuan Provincial Government</td>
<td>Post-disaster reconstruction long-term planning</td>
</tr>
<tr>
<td>Reconstruction Plan for Rural Housing after the &quot;5. 12&quot; Wenchuan Earthquake in Sichuan Province</td>
<td>2008.06.20</td>
<td>Sichuan Provincial Government</td>
<td>Rural House Reconstruction</td>
</tr>
<tr>
<td>Opinions Issued by the Sichuan Provincial Government on Supporting Wenchuan Earthquake Recovery and Reconstruction Policy</td>
<td>2008.07.10</td>
<td>Sichuan Provincial Government</td>
<td>Post-disaster recovery and reconstruction</td>
</tr>
<tr>
<td>Urban Housing Reconstruction Plan after Wenchuan Earthquake in Sichuan Province</td>
<td>2008.09.28</td>
<td>Sichuan Provincial Government</td>
<td>Urban housing reconstruction</td>
</tr>
<tr>
<td>Opinions on Making Full Use of Insurance Functions to Support and Serve Disaster Recovery and Reconstruction Work</td>
<td>2008.10.30</td>
<td>General Office of Sichuan Provincial Government</td>
<td>Social insurance</td>
</tr>
<tr>
<td>Notice Concerning Enterprise Income Tax Policies Related to Post-Wenchuan Earthquake Restoration and Reconstruction</td>
<td>2009.02.18</td>
<td>Sichuan Provincial State Tax Bureau &amp; Sichuan Provincial Local Taxation Bureau</td>
<td>Tax policy</td>
</tr>
<tr>
<td>Provincial Direct Management Project Annual Plan for Sichuan Wenchuan Earthquake Disaster Recovery and Rehabilitation</td>
<td>2009.08.21</td>
<td>General Office of Sichuan Provincial Government</td>
<td>Post-disaster reconstruction long-term planning</td>
</tr>
<tr>
<td>Wenchuan Earthquake Development and Revitalization Plan (2011-2015)</td>
<td>2011.08.05</td>
<td>Sichuan Provincial Government</td>
<td>Post-disaster reconstruction long-term planning</td>
</tr>
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</table>

A total of 103.475 billion CNY was transferred from provincial finances to earthquake relief funds, of which emergency rescue expenditure was 21.912 billion CNY and post-disaster recovery and reconstruction expenditure was 81.563 billion CNY.

The provincial government allocated 98.553 billion CNY to earthquake relief funds; 584 million CNY for disaster relief materials procurement, storage and transportation, 56.703 billion CNY for disaster-affected resettlement, living assistance, and housing construction, 3.238 billion CNY for medical hygiene and disease prevention and environmental monitoring, 11.652 billion CNY for school maintenance and student subsidies, 5.502 billion CNY for public service facilities, 7.382 billion CNY for urban-rural development, 6.28 billion CNY for disaster relief and disaster reduction system construction, 3.072 billion CNY for production disaster relief and reconstruction, 2.65 billion CNY for transitional financial subsidies in the disaster-hit areas, 1 billion CNY for comprehensive financial aid, and 540 million CNY to other areas.

By September 2011, Sichuan Province had invested 17.7 trillion CNY in disaster reconstruction, 39 disaster-relief counties included in the national plan had successfully completed reconstruction tasks, and tremendous changes had taken place in the affected areas, with the main economic indicators having exceeded pre-earthquake levels.

4.3 Emergency Rescue

Under the leadership of the Central State Council and the provincial earthquake relief headquarters, hundreds of people in the departments of health, drug administration, transportation,
and agriculture were quickly assembled and their duties and responsibilities organizationally clarified to ensure that the arduous relief work was carried out in an orderly manner.

Nine minutes after the Wenchuan earthquake, the Sichuan Earthquake Disaster Relief Team urgently gathered and rushed to Wenchuan. The Sichuan military region launched an earthquake relief emergency plan 10 minutes after the earthquake, and established earthquake relief headquarters. Forty minutes after the earthquake, the Sichuan Armed Forces sent 3,000 troops to Dujiangyan and by 6:30 on the 13th, 16,760 People’s Liberation Army and armed police forces were sent to the disaster-affected areas.

The Sichuan Provincial Health Department immediately launched an emergency response plan, and one hour after the disaster, the first emergency mobilization order was issued to the provincial health system. Two hours after the disaster, a relief and medical disaster relief headquarters was established and the first batch of 90 people from 28 medical teams put in charge of medical rescue and disease control. Twenty-eight ambulances were quickly dispatched to the disaster area carrying emergency medicine and equipment. By 15:00 on May 30, 2008, 50,456 first-line medical personnel were involved in the treatment of the wounded, 41,240 of which were from Sichuan province, accounting for 81.73%, with more than 45,000 ambulances being dispatched.

5 Lushan Earthquake

5.1 Policy

After the Lushan earthquake, Premier Li Keqiang issued instructions to “strive to save lives while preparing for disasters and rebuild their homes in a timely manner”, which prompted the Sichuan provincial government to quickly issue a series of policies to guide the post-disaster reconstruction (see table 3).

In addition, the Sichuan Provincial Party Committee and the Provincial Government of the Chinese Communist Party established a provincial post-disaster reconstruction committee immediately after the disaster to build a command system for provincial, city, and county linkages. Zhang pointed out that “provinces, cities, and counties played a main role in the decision-making, implementation, supervision, and evaluation. They arranged projects and funds independently, constructed and managed projects on their own, giving full play to the enthusiasm and initiative of the local subjects, and ensuring the smooth implementation of the post-disaster restoration and reconstruction and the scientific, comprehensive, and sustainable development of the earthquake-stricken area. The disaster prevention and reduction management system and coordination mechanisms, which were mainly led by the government, divided by departments, and managed by territory, was initially formed.”

5.2 Funding

In 2013, Sichuan’s Gross Domestic Product (GDP) was 2.64 trillion CNY, the local public finance revenue was 278.11 billion CNY, and the province’s public financial expenditure was 619.429 billion CNY. The 1.4 billion CNY reserve for the provincial financial arrangements appropriated 376 million CNY for earthquake relief and emergency rescue. Over a year, the total funds allocated for central disaster relief were 4.731 billion CNY, and the total disaster relief funds arranged at the provincial level were 2.504 billion CNY.

In 2013, a total of 560 billion CNY in disaster relief funds was raised from all levels. The central government allocated 46 billion CNY in subsidy funds over three years that included a recovery fund of 31.0 billion CNY after the disaster, and 15 billion CNY in special funds for ecological restoration, geological disaster prevention, and industrial development.
Table 3. Summary of the policies issued by the Sichuan provincial government after the Lushan earthquake

<table>
<thead>
<tr>
<th>Policy</th>
<th>Date of issue</th>
<th>Department</th>
<th>Field</th>
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<tbody>
<tr>
<td>Doing a Good Job on “4.20” Earthquake Water Relief Work in Lushan County</td>
<td>2013.04.20-24</td>
<td>Sichuan Provincial Department of Water Resources</td>
<td>Water disaster relief</td>
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<tr>
<td>Strengthening the Safety Management of Earthquake Damaged Reservoirs</td>
<td>2013.04.20-24</td>
<td>Sichuan Provincial Department of Water Resources</td>
<td>Water disaster relief</td>
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<tr>
<td>Announcement on Establishing a “4.20” Earthquake Water Relief Headquarters in Lushan County</td>
<td>2013.04.20-24</td>
<td>Sichuan Provincial Department of Water Resources</td>
<td>Water disaster relief</td>
</tr>
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<td>Notice on Strengthening the “4.20” Lushan Earthquake Disaster Intelligence Delivery and Assessment</td>
<td>2013.04.22</td>
<td>Sichuan Provincial Civil Affairs Department</td>
<td>Disaster assessment</td>
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<td>Implementation of a Temporary Livelihood Relief Policy for People Affected by the “4.20” 7.0 Earthquake Disaster Area in Lushan</td>
<td>2013.04.25</td>
<td>Sichuan Provincial Civil Affairs Department</td>
<td>Life relief</td>
</tr>
<tr>
<td>Procedures for Natural Disaster Investigation and Disaster Relief in Sichuan Province</td>
<td>2013.07.07</td>
<td>Sichuan Provincial Civil Affairs Department</td>
<td>Disaster verification</td>
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<tr>
<td>Sichuan Provincial Department of Civil Affairs Emergency Work Procedures for Disaster Relief</td>
<td>2014.9.9</td>
<td>Sichuan Provincial Civil Affairs Department</td>
<td>Emergency relief</td>
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<tr>
<td>Guiding Opinions on Standardized Management for the Centralized Resettlement Areas in Sichuan Province</td>
<td>2014.11.13</td>
<td>Sichuan Disaster Reduction Committee</td>
<td>Post-disaster resettlement</td>
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<tr>
<td>Sichuan Natural Rescue Emergency Plan</td>
<td>2016.11.7</td>
<td>General Office of Sichuan Provincial Government</td>
<td>Long-term planning</td>
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</tbody>
</table>

From 2013 to 2015, Sichuan Province raised a further 10 billion CNY for post-disaster reconstruction through budget rearrangements and expenditure structure adjustments.

Zhang said that “In the face of the strong earthquake in Lushan on April 20, the provincial finance department actively raised funds for disaster relief and made every effort to ensure emergency response. It strived for central support, proactively adjusted its expenditure structure, and endeavored to balance funds, thereby providing strong support for the reconstruction of the disaster area.”

5.3 Emergency Rescue

After the Lushan earthquake, Sichuan Province initiated a first-level earthquake relief response. At 10:04, Party Secretary Wang Dongming and Governor Wei Hong led the emergency rescue team to the affected area while the Sichuan Provincial Party Committee and the provincial government established an earthquake relief headquarters. Eighteen minutes after the earthquake, the Sichuan Military Command established the earthquake headquarters and at around 8:30, the Sichuan Armed Police Force dispatched 1,200 people to the disaster area. Around 9 o’clock, the People’s Hospital of Sichuan Province organized a medical team of 20 people and then organized a medical team with more than 200 people to go to the disaster area. At 20:00 on April 21, more than 18,000 troops, 28 helicopters and 66 vehicles, and 796 other vehicles were deployed in the disaster area.
After the Wenchuan earthquake, China had established a post-disaster psychological assistance model. Three days after the Lushan earthquake, the Sichuan Provincial Department of Health established a lead group and an expert group to provide mental health services and medical rehabilitation work for the affected people. “Psychologists used scientific knowledge to disperse the psychological shadow caused by earthquakes by classifying psychological manuals and developing counseling courses for the general public, children, rescue officers and soldiers, etc. It is a gratifying progress that the rescue forces were calm in the hour of peril and were able to deal calmly with the problems” Wang said.

6 Jiuzhaigou Earthquake

6.1 Policy

When the Jiuzhaigou earthquake occurred, based on the Sichuan earthquake emergency plan, the Sichuan Provincial Party Committee and the provincial government immediately established the “8-8” Jiuzhaigou earthquake relief emergency headquarters and initiated the first-level emergency response plan. As Jiuzhaigou is a world natural heritage area, the restoration and protection of the ecological environment was of the utmost importance. Therefore, as the earthquake relief and post-disaster reconstruction placed priority on the restoration and protection of the ecological environment and an adherence to the principle of environmental friendliness and minimum impact, they explored new techniques and methods for the restoration of the world natural heritage geology, hydrology, landscape, and ecology. Table 4 is a summary of the policies issued by Sichuan provincial government after the Jiuzhaigou earthquake.

In response to the above policies, Luo pointed out that “Scientifically formulating and implementing recovery and reconstruction plans were prerequisites for recovery and reconstruction after the disaster. The post-earthquake reconstruction conscientiously implemented the deployment requirements of the Central and Provincial Party Committees for post-disaster recovery and reconstruction. Meanwhile, a series of policies were made more scientific, more complete, and more reasonable. As Jiuzhaigou is a tourist attraction, the post-disaster reconstruction policy closely revolved around ‘lucid waters and lush mountains are invaluable assets’ and the reality of the disaster area’s natural geography, economic development, population distribution, and ecological status targeted and strengthened the research, with the efforts of all parties being coordinated to ensure that all reconstruction work was carried out in a forceful, orderly and effective manner.”

6.2 Funding

In 2017, Sichuan’s Gross Domestic Product (GDP) was 3.69 trillion CNY, the province’s local general public budget revenue was 357.98 billion CNY, and the province’s general public budget expenditure was 868.61 billion CNY. Sichuan provincial government planned to invest 11.8 billion CNY on the restoration and reconstruction of Jiuzhaigou, which included an ecological environmental protection plan investment of 859 million CNY and a scenic area restoration plan investment of 3.156 billion CNY. Around 261 million CNY was allocated to the natural disaster relief funds (including 180 million CNY for central government funds and 81 million CNY for provincial funds).

Tang said that “In the next three years, the auditing department plans to conduct a follow-up audit of all reconstruction funds and key projects, post-disaster recovery and reconstruction plan implementation, policy implementation, fund raising, distribution and management. It is necessary to promptly investigate and handle issues such as dereliction of duty, loss and
Table 4. Summary of the policies issued by Sichuan provincial government after the Jiuzhaigou earthquake

<table>
<thead>
<tr>
<th>Policy</th>
<th>Date of issue</th>
<th>Department</th>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation of Opinions on Promoting the Reform of Disaster Prevention, Mitigation and Disaster Relief Mechanisms</td>
<td>2017.09.07</td>
<td>Sichuan Provincial Committee of the Chinese Communist Party &amp; Sichuan Provincial Government</td>
<td>System reform</td>
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<td>“8 · 8” Jiuzhaigou Earthquake Recovery and Reconstruction Master Plan</td>
<td>2017.11.07</td>
<td>Sichuan Provincial Government</td>
<td>Reconstruction</td>
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<tr>
<td>Support the “8 · 8” Jiuzhaigou Post-earthquake Restoration and Reconstruction Policy Measures</td>
<td>2017.11.07</td>
<td>Sichuan Provincial Government</td>
<td>Reconstruction</td>
</tr>
<tr>
<td>Strengthening “8 · 8” Jiuzhaigou Earthquake Donation Fund Management</td>
<td>2017.11.18</td>
<td>General Office of Sichuan Provincial Government</td>
<td>Donation funds management</td>
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<tr>
<td>“8 · 8” Special Implementation Plan for the Restoration and Reconstruction of Ecological Environment after the Jiuzhaigou Earthquake</td>
<td>2017.12.10</td>
<td>General Office of Sichuan Provincial Government</td>
<td>Ecological environment protection and protection</td>
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<tr>
<td>“8 · 8” Special Implementation Plan for the Prevention and Control of Geographical Hazards After the Earthquake Recovery in Jiuzhaigou</td>
<td>2017.12.10</td>
<td>General Office of Sichuan Provincial Government</td>
<td>Geological disaster prevention</td>
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<td>“8 · 8” Special Implementation Plan for the Restoration and Reconstruction of the Jiuzhaigou Recovery and Reconstruction Area after the Earthquake and Industrial Development</td>
<td>2017.12.10</td>
<td>General Office of Sichuan Provincial Government</td>
<td>Scenic restoration</td>
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<tr>
<td>“8 · 8” Special Implementation Plan for the Reconstruction of Infrastructure and Public Services after the Jiuzhaigou Earthquake Recovery</td>
<td>2017.12.10</td>
<td>General Office of Sichuan Provincial Government</td>
<td>Reconstruction of infrastructure and reconstruction of public services</td>
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<tr>
<td>Supplementary Measures on Supporting “8 · 8” Jiuzhaigou Recovery and Reconstruction after the Earthquake</td>
<td>2018.03.01</td>
<td>Sichuan Provincial Government</td>
<td>Reconstruction</td>
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</tbody>
</table>

waste, and the violation of laws and regulations to ensure open and transparent post-disaster reconstruction. Additionally, the outstanding post-disaster reconstruction process problems must be revealed in a timely manner, and rectifications proposed to ensure smooth post-disaster recovery and reconstruction, and achieve all overall goals on schedule.”

6.3 Emergency Rescue

After the earthquake, the Sichuan Provincial Party Committee and the provincial government established the “8 · 8” Jiuzhaigou earthquake relief emergency headquarters and initiated the first-level emergency response plan. The Sichuan Provincial Department of Water Resources immediately took action. At 23:00 on August 8, a working group was sent to Jiuzhaigou County in Aba Prefecture to guide and assist in the earthquake relief work.

The Sichuan Provincial Health Planning Commission launched an emergency plan to organize medical emergency rescue teams to carry out the medical rescue work, and at 9:00 on August 9, 9 ambulances were dispatched to Jiuzhaigou County, and 425 medical personnel were sent for medical rescue work. Medical rescue teams at various levels arrived at the disaster area to assist the wounded.

After the earthquake, the 13th squadron of the Aba Detachment of the Sichuan Armed Forces Corps and the Jiuzhaigou County Squadron of the Armed Police Force immediately
started to treat the wounded, evacuated tourists, and gave traffic guidance. By 10:00 on the 9th, the 166 soldiers of the armed police force had fought hard to rescue the front line, with more than 1200 soldiers and 67 sets of equipment and machinery provided for the rescue missions.

At 8 on August 9, the Sichuan Provincial Center for Disease Control and Prevention sent two emergency teams of 8 people and 2 cars to the disaster area to conduct a rapid assessment of the public health risks, formulate a post-earthquake epidemic prevention work plan, and conduct post-disaster disease prevention work.

7 Comparison and Discussion of the Three Earthquakes

It can be seen that from the magnitudes of the Wenchuan earthquake to the Jiuzhaigou earthquake that the number of affected people and the direct economic losses decreased. At the same time, Sichuan provincial government’s investment in the three earthquakes and emergency responses had been changed correspondingly.

7.1 Comparison of Sichuan Provincial Government’s Investment in the Three Earthquakes

A comparison was made of the Sichuan provincial government’s post-disaster reconstruction expenditure as a percentage of the province’s GDP, the post-disaster reconstruction expenditure as a percentage of the current fiscal expenditure, and the provincial government’s total investment in earthquake relief (see figure 1). By doing this, we were able to understand the funding assistance provided by the Sichuan Provincial Government emergency rescue and post-disaster reconstruction for the three earthquakes, which allowed us to explore the role evolution in the Sichuan Provincial Government’s earthquake relief efforts.

![Figure 1. Comparison of the Sichuan Provincial Government’s funding for the three earthquakes](https://example.com/figure1.png)
7.2 Comparison of the Efficiency of the Three Earthquake Emergency Responses

To compare the response speed and efficiency of the government’s three earthquake emergency responses, we compared the time taken to repair damaged roads, the Sichuan Provincial Government’s emergency response, the arrival of the first batch of materials in the disaster area, the arrival time of the first rescue teams and the first medical rescue teams, the air force departure time, and the communication and power recovery time, the results for which are shown in figure 2.

![Figure 2. Comparison of the three emergency rescue situations](image)

7.3 Discussion

By comparing the policies and institutions, financial aid and emergency rescue promulgated by the Sichuan Provincial Government, we can summarize the evolution of the role of the Sichuan Provincial Government in the three earthquakes.

First, the role of the Sichuan Provincial Government has undergone a transformation in the disaster relief process from following the leadership of the central government in leading disaster relief and reduction to guiding county-level governments in disaster reduction. During the Wenchuan earthquake, China’s earthquake disaster management center had a high focus. At that time, the emergency organization center was “the State Council’s Earthquake Relief Headquarters”, and the powers and resources were focused on the central government, with the local governments having few corresponding decision-making powers or resources in terms of available talent, funds, or other resources. As a result, the enthusiasm and practical abilities of the local government emergency management was relatively inadequate. After the Lushan earthquake, although the State Council established the Earthquake Relief Headquarters, it handed power to the Sichuan Provincial Government, the Sichuan Earthquake Relief Headquarters, and Sichuan’s civil affairs, public health, transportation, housing construction, public security, armed police and other departments rather than playing a major role. These departments dominated the emergency response organization network during the
Lushan earthquake as the central government moderately “backed off” in their involvement in the earthquake emergency management and clearly defined the responsibilities and powers of the local government management. After the Jiuzhaigou earthquake, the Sichuan Provincial Government had established and perfected their emergency response systems and mechanisms, effectively speeding up the emergency response and enhancing the disaster prevention and reduction capacities, indicating the overall provincial responsibility under central policy support for the local redevelopment committees at all levels.

Second, as can be seen from the line chart for the Sichuan government investment as a proportion of total post-disaster reconstruction investment, because of the lower magnitude and the diverse situations in the affected areas, the government’s earthquake relief investment decreased; however, the proportion of the total investment in Sichuan earthquake disaster relief from the government’s own expenditure generally rose. In the Wenchuan earthquake, the Sichuan provincial government relied heavily on financial support from the Central and State Council. Before the Lushan earthquake, the Sichuan provincial government had continued to improve their fiscal, taxation, finance, and insurance policies, actively raised funds after the earthquake, and took the lead in the disaster relief. After the Jiuzhaigou earthquake, the provincial government provided significant financial aid to the municipal and county governments. Therefore, the Sichuan Provincial Government’s role in disaster relief and mitigation has significantly expanded.

Third, the emergency response and disposition capabilities of the Sichuan Provincial Government have greatly increased. The comparison of the three earthquake emergency rescue situations indicated that Sichuan Province has made significant progress and development in various aspects of disaster relief and rescue. After the Wenchuan Earthquake, Sichuan built the first four-level comprehensive disaster reduction and disaster relief emergency command system in counties and townships in China, which uses advanced technology such as computer networks, satellite communications, and space geographical information to cover 21 cities (prefectures) and 183 counties (municipalities), and achieve an interconnectedness between the provinces, cities and counties. Since 2009, a new provincial disaster reduction center, a provincial disaster relief reserve materials center, a provincial education center for disaster prevention and reduction, and provincial social forces to participate in disaster prevention, disaster reduction, and a disaster relief coordination center were established. The Provincial Disaster Reduction Center conducts disaster information management and publicity training, has taken the “Four First-Class construction” as its development direction, and has become the nation’s first-class comprehensive disaster reduction center. In 2014, the Provincial Disaster Reduction Center established the “Southwest Disaster Recovery Center” and the “Sichuan Satellite Disaster Reduction Application Center”, which has significantly improved the ability to reduce science and technology disasters.

8 Conclusion

Through the above analysis, the disaster planning and response role of the Sichuan Provincial Government in terms of policy, funding and emergency rescue was compared. Over the years, Sichuan Province has implemented profound reforms and transformed from a central direct arrangement to a local system and from a national system to the local subject. This has been a major reform and innovation in China’s post-disaster recovery and reconstruction mechanism. The local responsibility system not only displays the trust and encouragement of the central government in the local government, but is also a kind of constraint. With the support of the central government, the initiative and the ability to respond to major natural disasters has been greatly enhanced and as a result, Sichuan’s emergency treatment model for
Earthquake disasters and post-disaster reconstruction methods have played a significant role in the handling of similar problems in other countries and regions.

Institutionally, formulate a far-sighted strategy and solid systematic planning. Strategy and planning are the essential precursors to successful recovery and reconstruction.

Financially, strive to obtain support from the central government, adjust the expenditure structure actively, and implement the disaster relief funds effectively. To start with, it is necessary to focus on the reconstruction of people’s livelihoods. Second, we must attach importance to infrastructure reconstruction, urban reconstruction, and the reconstruction of public service facilities. Third, industrial economic reconstruction is crucial as it is the basis for people’s livelihood improvements. Therefore, provincial governments need to strengthen investment in the reconstruction of industry, agriculture, eco-cultural tourism, and other aspects. Fourth, rebuilding the ecological environment is the key to the sustainable development of disaster areas. All in all, the main task of the provincial governments is the rational use of earthquake relief funds to ensure the future of the local population.

In terms of emergency response, strengthen the construction of the local earthquake disaster system. From the three earthquake emergency rescue cases in Sichuan Province, it was found that provincial governments have an obligation to achieve three emergency rescue transitions; a transition from ‘emergency’ to ‘normal’; a transition from ‘compensation’ to ‘integration’; and a transition from ‘departmentalization’ to ‘socialization’. It is necessary to establish a solid foundation for earthquake disaster prevention, an effective and scientific monitoring and forecasting system, and an emergency rescue mechanism for rapid response.

Earthquakes are global natural disasters, and mitigating their effects is essential. Therefore, in order to improve the capacity to prevent and mitigate earthquakes, it is necessary to make full use of existing experience, technology and knowledge and to strengthen national and regional cooperation in order to give full play to the functions of all levels of government and to reduce the impact of earthquakes and disasters.

References