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Tornado Disaster Impacts and Management: Learning from the 2016 Tornado Catastrophe in Jiangsu Province, China

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Abstract : As a key component of disaster reduction management, disaster emergency relief and reconstruction is an important process. Based on disaster system theory, this study analyzed the Jiangsu tornado from the formation mechanism of disasters, through to the economic losses, loss of life, and social infrastructure losses along the tornado disaster chain. The study then assessed the emergency relief and reconstruction efforts, based on an analytic hierarchy process method. The results were as follows: (1) An unstable weather system was the root cause of the tornado. The potentially hazardous local environment, acting in concert with the terrain and the river network, was able to gather energy from the unstable atmosphere. The wind belt passed through a densely populated district, with vulnerable infrastructure and other hazard-prone elements, which led to an accumulative disaster situation and the triggering of a catastrophe. (2) The tornado was accompanied by a hailstorm, which is an important triggering factor for a tornado catastrophe chain reaction. (3) The evaluation index (EI) of the emergency relief and reconstruction effect for the ‘‘6.23’’ tornado disaster in Yancheng was 91.5. Compared to other relief work in areas affected by disasters of the same magnitude, there was a more successful response than has previously been experienced. The results provide new insights for studies of disaster systems and the recovery measures in response to tornado catastrophe in China.

Keywords : China, disaster system, emergency relief, tornado catastrophe
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