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Citizen Science for Post-disaster Sustainable Community Development in Ecologically Fragile Regions - A Case from China

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The world's mountains host some of the most complex, dynamic, and diverse ecosystems and are also hotspots for natural disasters, such as earthquake, landslide and flood. One factor that limits the mountain communities to recover from disasters and pursue sustainable development is the lack of locally relevant scientific knowledge, which is hard to gain from global and regional scale observations and models. The rapid advances in ICT, computing, communication technologies and the emergence of citizen science is changing the situation. Here we report a case from Sichuan Giant Panda Sanctuary World Natural Heritage in China on the application of citizen science in a community reconstruction project. Dahe, a mountainous community (ca. 8000 ha in size) is located covering part of the World Heritage's core and buffer zones, with an elevation range of 1000-3000 meters. The community suffered from two major earthquakes of 7.9 and 6.9 Mw in 2008 and 2013 respectively. Landslides and flooding threat the community and significantly limit their livelihood options. We integrated participatory disaster risk mapping (e.g., community vulnerability and capacity assessment) and mobile assisted natural hazards and natural resources mapping (e.g., using free APP GeoODK) into more conventional community reconstruction and livelihood building activities. We showed that better decisions are made based on results from these activities and local residents have a high level of buy-in in these new knowledge. We suggest that initiatives like this, if successfully scale-up, can also help generate much needed data and knowledge in similar less-developed and data deficient regions of the world.