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·Groundwork Institute

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Rebuilding Nepal: Demonstration project by Groundwork Board member Randolph Langenbach

Photo by Randolph Langenbach

Groundwork Spotlight: Randolph Langenbach

In April, 2015 Nepal was hit by a 7.8 earthquake that left two million people homeless. Rebuilding has been slow and the Nepalese continue to face a serious crisis in housing and recovery from the quake. Groundwork Board members have expertise that could be extremely useful to these efforts and we are currently seeking partnerships in the area.

Of particular relevance, Board member Randolph Langenbach has over 25 years of experience researching and documenting traditional earthquake-resistant building systems, including work in Kashmir (2005), Turkey (1999 and 2000), Italy (2003), Iran (2003), and Haiti (2010). He recently completed a demonstration house in Nepal, similar to the project concept Groundwork completed in Nicaragua, which is

based on the use of local labor, resources, and environmental sustainability. As a photographer, architect, and conservationist, he combines these skills to create sustainable work that is artistically and culturally significant.

His latest project in Nepal was featured in the NOVA episode, *Himalayan Megaquake*, which documents the aftermath of the 2015 earthquake that killed over 8,000 people. To rebuild safer, more resilient homes, Mr. Langenbach introduced what he has named "[Gabion Bands](#)," a technology he invented that improves stability in buildings by creating a continuous band of stone bound together by wire or polypropylene mesh. Nepal has suffered from a depletion of rot and insect resistant timber, so this concept is intended to provide a strong alternative to the demand for timber to reinforce rubble stone masonry in rural mountain regions.



This new method for introducing bands (ring-beams) into the masonry wall is easy to learn, and utilizes traditional stone masonry techniques but with the introduction of the tension-



Gabion Band wrapped with wire

bearing bands. These bands can reduce the risk of collapse of the masonry walls during earthquakes. This simple, effective technology has the potential to help the people of Nepal rebuild from the 2015 earthquake sustainably while maintaining their cultural heritage. You can view the results of the work

at: www.traditional-is-modern.net/nepal.html. We particularly wish to direct your attention to the 38 minute video of his lecture to Builders Without Borders on that page.

Mr. Langenbach's philosophy is to interfere as little as possible with the traditional way of building, saying "if you utilize what people have traditionally learned, it works better." However, the knowledge of traditional and often safer versions of building has begun to die out with the introduction of modern building techniques, such as reinforced concrete. This has proven to be a poor form of building in earthquake-prone areas, especially in the absence of engineering and formal training of the builders. Using the local knowledge of masonry construction and local resources provides a practical and economically viable solution to rebuilding in a sustainable way.



A break during construction: Pictured in the center wearing the brown shirt is Ram Sunar, the man who will live in the house that is being built using Gabion Band technology. Surrounding him are his family members and two local masons hired to help with construction.

We are currently pursuing partnerships and projects in Nepal related to rebuilding in earthquake-affected areas. Contact us at info@groundwork.org if you know communities or agencies that could use our help.

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