Multidisciplinary Project CIE 4061-09

Shock Safe Nepal team 5, KTM/Ratankot, Nepal

The earthquake
It was April 2015 when all of Nepal was hit by a huge natural disaster. A sequence of powerful earthquakes devastated both the homes and the lives of many people. A huge effort has been made to recover and rebuild the destroyed houses and families. However, not all possess the necessary means and not all areas are well accessible. The fact remains that a large portion of the Nepali population lives in rural areas, which have very few expedients and poor accessibility. These people have in turn little knowledge and expertise regarding the (re)construction of earthquake safe housing. Both the lack of knowledge and resources resulted in total devastation in rural areas, with little or no centralised or organized aid at their disposal. Yet it is inevitable that an earthquake or earthquakes will recur, the only uncertainty remains when.

Initiative
Following the initiative of Cas de Stoppelaar, the Consul General of Nepal to the Netherlands, TU Delft commenced the multidisciplinary student program “Shock Safe Nepal” – a program that allows engineering students of any specialty to apply and expand TU Delft’s research on earthquakes and earthquake safe constructions through field and volunteer work in disaster areas.

Objective
This project serves the purpose of helping to rebuild the rural areas of Nepal, in such a way that the houses will be shock safe and the Nepalese people are supported in the development of their country. With the help of this project a bridge can be formed between the people of Nepal and shock safe building.

Previous
Already four teams have gone before us as they have done their specific research which is as follows. Primarily team one undertook a reconnaissance mission. They performed a thorough analysis of the local context through which they derived a systematic documentation of the current state of affairs in post-disaster Nepal. Team two explored possible improvements in the rural and remote areas. They focussed herein on which aspects are missing in the current construction method and in the local knowledge. The third team built upon these insights and performed a case study in the village Ratankot, resulting in multiple designs of a house, embedded in the local context, which can function as an example of a safe construction in Nepal. Team four took the designs of the preceding team, researched alternative construction materials and altered them in such a way that they are now feasible. The pilot building is in the making and under construction.

Our team
We were the fifth team that went to Nepal to perform research. Our focus was to optimize the pilot building through material analysis, statical and quasi-static calculations and to create and generalize a long-term plan for upscaling and implementation of earthquake resilient buildings in rural areas in Nepal.

Future
Team 6 is going to Nepal in Q2 2017-2018 to perform more specific research on CSEB.

Website
http://shocksafenepal.wordpress.com

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Period:
Q3 2016-2017