

SPRING 2014

Humanitarian Engineering Guest Lecture Series presents



The Role of Humanitarian Engineering and Sustainability Assessment for the Master Planning of Kigali, Rwanda

By Dr. Mark Reiner*

THURSDAY APRIL 10, 2014

11am to 12.15 pm Marquez Hall 222

In developing cities, planned communities are juxtaposed to informal (unplanned) communities and the level of delivering basic services to residents varies widely in very close proximity. This creates a dichotomy of infrastructure delivery within the boundaries of developing cities and provides the backdrop of discussion regarding the integration of humanitarian engineering and formal engineering approaches. In addition, how does an engineer incorporate the realities of limited resources and different cultural norms into design? Until recently, relatively little has been taught to American engineers regarding the necessity of incorporating humanitarian engineering and social justice into design considerations. However, the challenge of providing long-term survival of infrastructure in developing nations provides solutions for sustainable infrastructure in more developed nations. These points are presented as separate discussion items, and reflected upon in discussing the master planning efforts for the capital city of Kigali, Rwanda

*Prior to starting Non Sequitur, Mark Reiner was a founding Principal and CEO of Symbiotic Engineering in Boulder, Colorado, a utility data tracking and life-cycle assessment based company that was acquired in September of 2012. Mark received his BS in Geologic Engineering from the Colorado School of Mines (1996) and his PhD in Civil Engineering at the Urban Sustainable Infrastructure Engineering Program (USIEP) at the University of Colorado Denver (2007). There he focused on the life-cycle energy and GHG emission impacts associated with many of the primary sectors in the urban environment (e.g. building energy use, transportation, water/wastewater, and materials). Prior to starting Symbiotic, Dr. Reiner served as an engineer with an international engineering firm where he had dual roles as co-lead for the infrastructure assessment for the Master Plan of Kigali, Rwanda, while also serving as the Projects Director for Engineers Without Borders USA. While in Rwanda, he was a team member for the development of low-cost housing design and workshops. He has also served as adjunct faculty at the University of Colorado at Denver where he taught "Urbanization of Developing Nations."

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