

## Presentation #2

### **Title: Rebuilding Coupled with Sustainable Land Use, Food Security, and Agri-business for Community Resiliency in the Gurkha Earthquake Devastated Region in Nepal.**

#### **Dr. Durga D. Poudel**

Professor and Assistant Director  
School of Geosciences  
Coordinator, Environmental Science Program  
Director, Ag. Auxiliary Units  
Regents Professor in Applied Life Sciences  
South Louisiana Mid-Winter Fair/BORSF  
University of Louisiana at Lafayette, Lafayette, Louisiana, USA  
Tel: (337) 482-6163 Office, Fax: (337) 482-5395  
Email: [ddpoudel@louisiana.edu](mailto:ddpoudel@louisiana.edu)



#### **Abstract**

On April 25, 2015, Nepal was struck by a devastating 7.8 magnitude earthquake (the Gurkha earthquake), followed by a second, 7.3 magnitude earthquake on May 12 and hundreds of aftershocks. This has destroyed thousands of villages, causing 8,790 deaths and 22,300 injuries across the 23 districts of Nepal. This study was conducted to assess geohazards risk, food security, and agri-business following the earthquake devastation in the region. Based on the Landsat images, large number of post-earthquake landslides occurred especially in the high slope and high elevation areas suggesting that such areas pose very high risk for settlement as well as other developmental initiatives. While food security was already a national issue even before the earthquake, the destruction of grain storage facilities, loss of stored grains, loss of agricultural manpower due to deaths and injuries, destruction of irrigation canals and farmlands due to landslides, and interruption of the supply of agricultural inputs, the food security problem has been further intensified in the region. In addition, rural agro-industries such as handcrafts, garments, herbs and medicinal products, dairy and meat products, fruits, and food processing were also devastated. While rebuilding villages, hospitals, schools, roads, and other infrastructures are well established priorities, developing sustainable land uses, ensuring food safety and security using climate smart tools as well as promoting agri-business is equally critical for enhancing community resiliency in the region. Therefore, developmental challenges such as minimizing risks of geohazards, generating employment and income, and increasing future preparedness to natural disasters must be addressed concurrently while rebuilding the region. Since agriculture is the main occupation of earthquake devastated communities, it is quite logical to have a major emphasis on agricultural sector for rural reconstruction and development. Because traditional agriculture has failed to address many challenges such as ensuring food security, increasing farm income, minimizing climate change risks, and raising crop/farm productivity, it is important to have a well thought-out intervention in traditional agriculture so that it can address these challenges while increasing community resiliency for future natural disasters. As agri-business encompasses many facets of agriculture such as commercialized agricultural production, processing/packaging industries, storage, marketing, input supplies, and employment and income generation, using agri-business as a catalyst for agricultural development is quite appropriate. Considering the importance of agri-business in rebuilding Nepal from within, the Nepal Agri-business Information System (NAIS) project has been launched. The NAIS project has begun cataloging information related to earthquake-devastated cottage industries, slope, elevation, settlement, land use types, and

agricultural production (e.g., soil types, geology, irrigation, cropping system, livestock, geohazards, climate, farming communities) in the region. By using GIS, we intend to identify potential small to medium size agro-industries and businesses of rural Nepal that will most efficiently use the resources immediately available. Because agri-business offers tremendous opportunities for increasing food security, raising living standards, and enhancing community resiliency, sufficient attention must be given to agri-business development while rebuilding the region. In order to enhance community resiliency and develop a resilient Nepal, concurrent initiatives for rebuilding and sustainable land use planning, food security, and agri-business development is suggested.

## **Biography**

Dr. Poudel was born on October 10, 1960 (Aswin 24, 2017 B.S.) in Sange, Chudher, Tanahu, Nepal. He spent his childhood in Sange Chudher, Tanahu, and in Jeeta Deurali in Lamjung, both in Mid-Hills of Nepal. Dr. Poudel passed his S.L.C. exam from Nirmal Vocational High School, Damauli, Tanahu in 1977 (2034 B.S.). Dr. Poudel received an I.Sc. in Agriculture at Tribhuvan University at Rampur (IAAS), Chitwan, Nepal in 1980; a B.Sc. in Agriculture (Major: Agricultural Economics) at University of Agriculture, Faisalabad, Pakistan in 1987; an M. Sc. in Natural Resource Development and Management at Asian Institute of Technology, Bangkok, Thailand in 1991; and a Ph.D. in Soil Science, University of Georgia, Athens, GA, U.S.A. in 1998.

Dr. Poudel is an expert in soil physical, chemical, and mineralogical characterization; soil classification; and soil and water conservation. His research and teaching interests include soil erosion control, soil mineralogy, water conservation, water quality monitoring and modeling, climate change adaptation, geohazards, and environmental soil chemistry. Dr. Poudel has assembled more than three dozen publications in peer-reviewed journals and conference proceedings and has received more than \$6.8 million in external funding as a PI and more than \$2.1 million in external funding as a CO-PI. He is the Founder of the Asta-Ja Framework.

Dr. Poudel's professional experience consists of Research Fellow at Asian Vegetable Research and Development Center, Taiwan (1991-1994); Graduate Research Assistant in Sustainable Agricultural and Natural Resource Management Collaborative Research Support Program, University of Georgia (1994-1998); and Visiting Research Scholar, University of California Davis (1998-2000). Dr. Poudel joined the University of Louisiana at Lafayette, USA, as an Assistant Professor of Soil Science in August 2000, and currently is a Professor and Assistant Director of School of Geosciences, Coordinator of Environmental Science Program, Director of Ag. Auxiliary Units (Model Sustainable Agriculture Complex (600-acre Cade Farm), Crawfish Research Center, and Ira Nelson Horticulture Center), and Regents Professor in Applied Life Sciences at the University of Louisiana at Lafayette.

Dr. Poudel's professional affiliations include membership in Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Geological Society of America, American Geophysical Union, and Soil and Water Conservation Society, USA. Dr. Poudel is the life member of Nepalese Association in Southeast America (NASeA), Asta-Ja Abhiyan Nepal, and Association of Nepalese Agricultural Professionals of Americas (NAPA). Dr. Poudel is the founding member of Asta-Ja Abhiyan Nepal, and the founding President of Asta-Ja Research and Development Center (Asta-Ja RDC), Kathmandu, Nepal.

Dr. Poudel is a Board Member of the Bayou Vermillion Preservation Association (BVPA), Lafayette, Louisiana, USA, Advisor of the NASeA, Resource Person of Louisiana Organics, and a member of the Louisiana Technical Advisory Committee, USDA-NRCS, Louisiana, USA.