

## Dr Rajendra Prasad Shrestha



**Position:** Associate Professor , Coordinator, NRM

**Country of Origin:** Nepal

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### Academic Affiliation

Natural Resources Management  
School of Environment, Resources and Development

### Areas of Expertise (Keywords)

Land use/cover and change  
GIS/RS applications in NRM

### Education

Ph.D. (Natural Resources Management), Asian Institute of Technology, Thailand.

M. Sc. (Natural Resources Planning and Management), Asian Institute of Technology, Thailand.

B. Sc. (Hons.) Ag., Haryana Agril. University, India.

### Professional Experience

- *2009 - to date:* Associate Professor, Natural Resources Management, SERD, AIT, Bangkok
- *2007 - todate:* Coordinator of Natural Resources Management, SERD, AIT, Bangkok.
- *2003 - 2007:* Assistant Professor at Natural Resources Management field of study, SERD, AIT, Bangkok.
- *2006:* Visiting Researcher, RRIAP, Nihon University, Japan [one month]
- *2007 and 2005:* Associated Faculty, Sirindhorn International Institute of Technology, Bangkok.
- *2005-2007:* Visiting Faculty, Andalas University, Sumatera, Indonesia [2 weeks per year]
- *2005:* ASEM-DUO fellow, Roskilde University, Denmark [one month].
- *2003:* UNEP/GRID fellow, Sioux Falls, USA [one month]
- *2001 - 2002:* Senior Program Officer, United Nations Environment Program Regional Resources Center for Asia and the Pacific, Bangkok.
- *1999 - 2000:* Affiliated Faculty, Natural Resources Management, School of Environment, Resources and Development, Asian Institute of Technology, Bangkok.
- *1999 - 2000:* Research Scientist, Natural Resources Management, School of Environment, Resources and Development (SERD), Asian Institute of Technology (AIT), Bangkok.
- *1993 - 1999:* Research/Teaching Associate, Natural Resources Management, SERD, AIT, Bangkok.

- 1985 - 1991: Agriculture Officer, National Agriculture Research Council, Kathmandu, Nepal.
- 1985 - 1991: Affiliated faculty, Institute of Agriculture and Animal Science, Nepal.
- 1984 - 1985: Assistant Lecturer, Institute of Agriculture and Animal Science, Nepal.

## **Present Research Involvements**

### *Sponsored projects*

1. Sustainable land management for managing soil and land resources
2. Technology needs assessment in Asia and Europe for climate change mitigation, AS Co-PI
3. Climate change and adaptation to water scarcity: strategies for integrated water and land use management to enhance the resilience of rural communities in the Gangatic basin. - As Co-PI.
4. Making the Mekong Connected (MMC): Developing carbon and biodiversity assets for multifunctional landscapes in the Upper Mekong. - As Co-PI
5. AIT support to National University of Laos (NUOL), 2007-2010 Extension - Forestry Curriculum, - As PI [Completed]
6. Development of regional TCP project on mitigating climate change through implementation of improved agricultural practices in south Asia, - As PI [Completed]
7. MSU Study Abroad Program.- As PI [Completed]
8. Downscaling global climate data for assessing the impact of climate change on Dipterocarp species in Peninsular Thailand. - As, Co-PI [Completed]
9. Roles of natural and restored forests in carbon sequestration and climate change. – As Co-PI [Completed]
10. Modeling interactions between human activities and biophysical processes in coastal ecosystem using remote sensing and GIS. – As Co-PI [Completed]
11. Tamil Nadu Agricultural University (TNAU) capacity development. – As PI [Completed]
12. Assessment and inventorying Atmospheric Brown Cloud emission. – As Co-PI [Completed]
13. National Capacity and Training Needs Assessments for Different Stakeholder Groups in order to Identify Gaps, Needs, Strengths and Opportunities for Building Capacity in Integrated Coastal Zone Management (ICM) - – As Co-PI [Completed]
14. Sustainable land management knowledge hub. – As PI [Completed]
15. Land degradation in Afghanistan. – As PI [Completed]
16. Sustainable land management and national capacity self-assessment workshop, – As PI [Completed]
17. Training course on ‘GIS Applications in Biodiversity Management’ from BISEP-ST, Nepal, – As PI [Completed]
18. Investigation of spectral properties of salt-affected soils. – As PI [Completed]

## **Research Interests**

- Land use and climate change
- Land Use Planning and Sustainable Land Management
- Natural Resources Degradation and Environmental indicators
- Poverty alleviation and livelihood
- GIS/RS applications and Geoinformation in Decision making

## Doctoral Research Supervision

**Completed** (Program Committee **Chair** of following Doctoral graduates)

1. Ms. Nalina Gnanavelrajh (2007): *Modeling sustainable land use options for enhancing carbon sequestration, crop diversity and productivity: A case of Khlong Yai watershed, Easter Region of Thailand*
2. Ms. Anisara Penshuk (2009): *Consequences of land use change on land quality, water resource and food security in Songkhla Lake Basin, Thailand*
3. Ms. Nareeluck Wannasai (2010): *Determinants of land use change in Prasae watershed, Thailand*
4. Mr. Akom Sowana (2010): *Influence of Coastal Land Use, Fisheries and Socioeconomics on Natural Resources Degradation in Pattani Bay, Thailand*
5. Mr. Somnuck Pongsai (2010): *GIS-based decision support system for soil conservation and management: a case study of Huai Nam micro-watershed, Nan province, Thailand* - Co-chair with Dr D. Schmidt-Vogt
6. Mr. Thirapong Santiphop (2011): *Biophysical and social dimensions affecting land use and reforestation in Kanachanaburi, Thailand*
7. Mr. Qasim Said (2011): *Driving forces and conservation strategies of land degradation in Pakistan: A case of Pishin Sub-basin, Balochistan*
8. Mr. E.P.N. Udayakumara (2011): *Land degradation and rural livelihood in Samnalawewa catchment, Sri Lanka*
9. Mr. Partoyo (2012): *Land use options and strategies for food availability and land conservation in Yogyakarta, Indonesia*
10. Mr. Muhammad Arshad (2012): *Evaluation of Sweet Sorghum-legume intercropping for food and bioethanol production under selected agronomic practices* -Co-chair with Dr S.L. Ranamukhrachchi
11. Mr. Muhammad Ejaz U.I. Dar (2012): *Livelihoods and impacts on the vegetation of Machira National Park, Ajad Jammu Kashmir, Pakistan* - Co-chair with Dr R. Cochard

## As PhD External examiner

1. Rice crop monitoring using new generation synthetic aperture radar (SAR) imagery [Dr Nguyen Lam Dao, University of Southern Queensland, Australia]
2. Agricultural intensification in a mid-hill watershed of Nepal: Socioeconomic and environmental implications [Dr Bedmani Dahal, Norwegian University of Life Sciences, Norway]
3. Landslide vulnerability assessment and zonation through Geoinformatics [Mr Laxmi Prasad Sharma, Birla Institute of Technology, India]
4. Climate change and variability trends in Pakistan and its environmental effects [Ms Salma, University of Peshawar, Pakistan]]

## In progress

1. Institutional factors affecting land use-decision making and peoples' livelihoods in Chiang Rai province, Northern Thailand

2. Environmental and socioeconomic effects of soil conservation in the semi-arid region of Tanzania
3. Analyzing land use change and stakeholders conflict on water resource use in Bo river watershed, Thua Thien Hue province, Vietnam
4. Effect of land use change on runoff and sediment yield using remote sensing and SWAT model in northwest Vietnam
5. Impact of climate change on tourism in Mu Ko Surin National Park, Thailand
6. Consequences of watershed degradation on watershed ecosystem services in the Northeast Thailand
7. Assessment of above-ground biomass and carbon stock of land use change using multi-temporal Landsat data in Lao PDR
8. GIS-based fuzzy multicriteria decision making approach for oil palm yield prediction, Malaysia
9. Developing Decision-making tools to support Land use planning at the district level: A case study of Lynhan district, Ha Nam province, Vietnam
10. Land use change from food crops to parareubber: effects on smallholder farmers and food security in Northeast Thailand

## Selected Publications

### *Peer reviewed journals*

1. Dar, M.E.U.I., R. Cochard, and R.P. Shrestha, 2012. Plant resource utilization by local inhabitants around Machiara National Park, district Muzaffarabad Azad Kashmir, Pakistan. *Journal of Food, Agriculture and Environment*, Vol. 10 (3 & 4), 1139-1148.
2. Udayakumara, E.P.N. and R.P. Shrestha, L. Samarakoon, and D. Schmidt-Vogt, 2012, [Mitigating Soil Erosion through Farm-level Adoption of Soil and Water Conservation Measures in Samanalawewa Watershed, Sri Lanka](#), *Acta Agriculturae Scandinavica, Section B – Soil & Plant Science*, **62**:273-285.
3. Partoyo and R.P. Shrestha, 2011. [Monitoring farmland loss and projecting the future land use of an urbanized watershed of Yogyakarta, Indonesia](#), *Journal of Land Use Science*, [Accepted 2 September 2011]. DOI:10.1080/1747423X.2011.620993
4. Thongdara, R., L. Samarakoon, R.P. Shrestha, and S.L. Ranamukhaarachchi, 2011. [Using GIS and Spatial Statistics to Target Poverty and Improve Poverty Alleviation Programs: A Case Study in Northeast Thailand](#), *Applied Spatial Analysis and Policy*, DOI: 10.1007/s12061-011-9066-8.
5. Santiphop, T., R.P. Shrestha, M. Hazarika, 2011. [An analysis of factors affecting agricultural land use patterns and livelihood strategies of farm households in Kanchanaburi Province, Thailand](#), *Journal of Land Use Science*, [Available online 24 June 2011, DOI: 10.1080/1747423X.2011.587208.
6. Udayakumara, E.P.N. and R.P. Shrestha, 2011. [Assessing livelihood for improvement: Samanalawewa reservoir environs, Sri Lanka](#), *International Journal of Sustainable Development and World Ecology*, **18**(4): 366-376.
7. Bandara, K R M U, L. Samarakoon, R.P. Shrestha, Y. Kamiya, 2011. [Automated Generation of Digital Terrain Model using Point Clouds of Digital Surface Model in Forest Area](#), *Remote Sensing*, **3**(5): 845-858.

8. Trisurat, Y., R.P. Shrestha, and R. Kjelgren, 2011. [Plant Species Vulnerability to Climate Change in Peninsular Thailand](#), *Applied Geography*, **31**: 1106-1114.
9. Thuithaisong, C., P. Parkpian, O.V. Shipin, R.P. Shrestha, K. Naklang, R. D. DeLaune and A. Jugsujinda, 2011. [Soil quality indicators for predicting sustainable organic rice production](#). *Communications in Soil Science and Plant Analysis*, **42**(5):548-568.
10. Qasim, S., R.P. Shrestha, G.P. Shivakoti and N.K. Tripathi, 2011. [Socio-economic Determinants of Land Degradation in Pishin sub-basin, Pakistan](#). *International Journal of Sustainable Development and World Ecology*. **18**(1)48-54.
11. Udayakumara, E.P.N., R.P. Shrestha, L. Samarakoon and D. Schmidt-Vogt, 2010. [Assessment, People's Perception and Socioeconomic Determinants of Soil Erosion: a Case Study of Samanalawewa Watershed, Sri Lanka](#), *International Journal of Sediment Research*, **25**(4):323-339.
12. Pongsai, S., D. Schmidt-Vogt, R. P. Shrestha, R. Clemente, and A. Eiumnoh. 2010. Calibration of MUSLE for Simulating Sediment Yield in Steeply Sloping Terrain: A Case Study in Khun Satan Catchment of Northern Thailand, *Canadian Journal of Soil Science*, **90**(4) 585-596. [doi:10.4141/CJSS09076].
13. Sowana, A., R.P. Shrestha, P. Parkpian, and S. Pongquan, 2010. Influence of Coastal Land Use on Soil Degradation in Pattani basin, Thailand. *Journal of Coastal Research* [online: 24 March 2010, <http://www.jronline.org/doi/abs/10.2112/JCOASTRES-D-09-00050.1>].
14. Pongsai, S., R. P. Shrestha, D. Schmidt-Vogt, R. Clemente, N.K. Tripathi, V. Trelo-Ges, and S. Paramee, 2010. GIS-based DSS for Optimal Multi-objectives Erosion Management: A case study of the Huai Talupkup Watershed, Thailand, *International Journal of Geoinformatics*, **6**(3): 67-78.
15. Shen, R.P. Shrestha, and J. Qian, 2010. Participatory technology development for improving animal-technical service system in Gongshan County, Northwest Yunnan Province, China, *African Journal of Agricultural Research*. **5**(16), pp. 2143-2152.
16. Pensuk, A., R.P. Shrestha, and R. Clemente, 2010. Effect of Land Use Change on Land Quality and Water Resources in Phatthalung Watershed, Thailand, *International Journal of Environment and Rural Development*, **1**(1):158-163.
17. Shrestha, R.P., D. Schmidt-Vogt, D., and N. Gnanavelrajah, 2010. [Relating plant diversity to biomass and soil erosion in a cultivated landscape of the eastern seaboard region of Thailand](#), *Applied Geography*, **30**: 606-617.
18. Ponza, S., P. Preeda Parkpian, C. Polprasert, R.P. Shrestha, and A. Jugsujinda, 2010, [Removal of trichloroethylene \(TCE\) contaminated soil using a two-stage anaerobic-aerobic composting technique](#), *Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances and Environmental Engineering*, **45**(5) 549 – 559.
19. Pensuk, A. and R.P. Shrestha, 2008. [Land Use Change and Rural Livelihoods: A Study of Phattalung Watershed in Southern Thailand](#), *Asia-Pacific Journal of Rural Development*, **18**(2),143-164.
20. Son, N.T., T. V. Hieu, R.P Shrestha, N.T. Trieu, N.V. Kien, V. T. Anh, P. A. Dung, H. N. Duc, H.N. Duc, N.M. Du and N. X. Niem, 2008. [Integrated land-use planning for sustainable agriculture and natural resources management in the Vietnamese Mekong delta](#). *Asia-Europe Journal*, **6**(2) 307–324.

21. Son, N.T. and R.P. Shrestha, 2008. [GIS-Assisted Land Evaluation for Agricultural Development in Mekong Delta, Southern Vietnam](#). *Journal of Sustainable Development in Africa*, 10(2)875-895.
22. Shrestha, R.P. and Roy, K. 2008. Land Degradation Assessment in the Greater Mekong Subregion. *Journal of Environmental Information Science*, **36**(5) 29-38.
23. Gnanavelrajah, N., Shrestha, R.P., Schmidt-Vogt, D. and Samarakoon, L. 2008. [Assessment of carbon stock and soil carbon management in agricultural land uses in Thailand](#). *Land Degradation and Development*, **19**(3)242-256.
24. Wannasai, N. and Shrestha, R.P. 2008. [Role of land tenure security and farm household characteristics on land use change in the Prasae watershed, Thailand](#). *Land Use Policy*. **25**(2)214-224.
25. Wannasai, N. and Shrestha, R.P. 2007. [Determinants of rural land-use change in Prasae watershed area of Thailand](#). *Asia-Pacific Journal of Rural Development*, **17**(2)47-60.
26. Jiang, Y., M. Kang, D. Schmidt-Vogt and R.P. Shrestha, 2007. [Identification of Agricultural Factors for Improving Sustainable Land Resource Management in Northern Thailand: A Casestudy in Chiangmai Province](#), *International Journal of Sustainable Development and World Ecology*. **14**, 382-390.
27. Rohlini, H., R.S. Clemente, J.K. Routray, and R.P. Shrestha, 2007. [Integration of Biophysical and Socioeconomic factors to Assess Soil Erosion Hazard in the Upper Kaligarang Watershed, Indonesia](#), *Land Degradation and Development*, **18**, 453-469.
28. Shrestha, R.P. 2006. [Relating Soil Electrical Conductivity to Remote Sensing and Other Soil Properties for Assessing soil salinity in northeast Thailand](#). *Land Degradation and Development*. **17**(6)677-689.
29. Shrestha, R.P. 2004. [Developing Indicators for Assessing Land Use Sustainability in a Tropical Agro-ecosystem: The Case of Sakaekrang Watershed, Thailand](#). *International Journal of Sustainable Development and World Ecology*. **11**, 86-98.
30. Shrestha, R. P. and S. Naikaset, 2003. Agro-spectral Models for Estimating Dry Season Paddy Yield in the Bangkok Plain of Thailand. *Asian Journal of Geo-informatics*, **4**(1) 11-19.
31. Shrestha, R. P. and A. Eiumnoh, 2000. GIS and Multi-criteria Evaluation Techniques for Land- Use Allocation: The Case of Sakae Krang Watershed, Thailand. *Asian-Pacific Remote Sensing and GIS Journal*, **13**, 39-49.
32. Shrestha, R. P. and A. Eiumnoh, 2000. Determinants of Household Earnings in Rural Economy of Thailand. *Asia-Pacific Journal of Rural Development*, **10**(1) 27-42.
33. Trisurat, Y., A. Eiumnoh, S. Murai, M. Z. Hussain and R. P. Shrestha, 2000. [Improvement of Tropical Vegetation Mapping using Remote Sensing Technique: A Case of Khao Yai National Park, Thailand](#). *International Journal of Remote Sensing*, **21**(10), 2031-2024.
34. Eiumnoh, A. and R. P. Shrestha, 2000. [Application of DEM data to Landsat Image Classification: Evaluation in Tropical Wet-dry Climate](#). *Photogrammetric Engineering and Remote Sensing*, **66**(3), 297-304.
35. Eiumnoh, A. and R. P. Shrestha, 1999. [A Study on Estimation of Cassava Area and Production using Remote Sensing and Geographic Information Systems in the Northeast Thailand](#), *Southeast Asian Studies*, 37(3): 417-430.

## Book

1. Trisurat, Y., Shrestha R.P. and R. Alkamade (Eds.). 2011. Land Use, Climate Change and Biodiversity Modeling: Perspective and Applications, edited book volume, IGI Publishers. p.489 [ISBN 978-1-60960-619-0].
2. Shrestha, R.M., Kim Oanh, N.T., Shrestha, R. P., Rupakheti, M., Rajbhandari, S., Permadi, D.A., Kanabkaew, T. and Iyngararasan, M. 2012. *Atmospheric Brown Cloud (ABC) Emission Inventory Manual*, United Nations Environment Programme, Nairobi, Kenya.

## Memberships/Credentials

- Guest Researcher (Forskningsnemnd fellow), Norwegian University of Life Sciences, Norway
- Asian Scientific Award 2009 Recipient of the World Association of Soil and Water Conservation
- AIT/SERD Teaching Award 2005 recipient
- RRIAP exchange researcher, Nihon University, Japan, May/June 2006
- ASEM-DUO Denmark Fellow, May 2005
- UNEP/GRID fellow, April 2003
- Senior Associate Editor, *Journal of WASWC*
- Associate Editor, *International Journal of Environment and Development*, since May 2006
- Editorial Board Member, *Asian Journal of Geoinformatics*, since July 2005
- Life Member, Associate editor for Newsletter and Journal of the World Association of Soil and Water Conservation [WASWC]
- Manuscript reviews (Journals, Book chapters)
  - Asian Journal of Geoinformatics
  - Advances in Geocology 39 - Land Degradation and Rehabilitation of Dryland Ecosystems
  - Advances in Space Research
  - Arabian Journal of GeoSciences
  - Arsenic Calamity of Groundwater in Bangladesh: Contamination in Water, Soil and Plants
  - Biotechnology and Molecular Biology Reviews
  - Development in Practice
  - International Journal of Ecology and Development
  - International Journal of Remote Sensing
  - Journal of Ecology and the Natural Environment
  - Journal of Land Use Science
  - Journal of World Association of Soil and Conservation
  - Journal of Food, Agriculture and Food Engineering
  - Natural Resources Forum
  - Pedosphere
  - Singapore Journal of Tropical Geography
  - The Philippine Agricultural Scientist
  - Scientific Research and Essays
  - SENSORS
- Member, IGU/COMLAND

- Member - The Remote Sensing Society
- Recipient of Mahendra Vidya Bhusan Class I (from Late Nepal King Birendra)
- CIDA scholar [1992-1993]
- USAID scholar [1981-1984]

## **Other**

### **Courses taught [Post graduate level]**

- Land use and climate change
- Land resources management
- Natural resources degradation and conservation
- Geospatial techniques for NRM
- Land evaluation and resource management
- Land degradation monitoring and management
- Spatial information systems in NRM
- Natural resources mapping techniques
- Spatial analysis for INRM
- Principles of NRM
- NRM Issues in Asia
- Climate, energy and food security
- Integrated watershed development and management workshop
- Environmental studies [for undergraduate]