

Narayan Dhital (Ph. D.)
101-2121, Chapdelaine Avenue, Quebec, QC, G1V 1M8
(418)-353-6319
narayan-prasad.dhital.1@ulaval.ca

Summary

Trained in forest science with bachelor, master and doctoral degrees and business administration with a bachelor degree. Professional as well as research based experience on timber supply analyses, financial analyses of silvicultural options, climate change adaptation and mitigation (including REDD+ and CDM afforestation/reforestation), participatory rural development planning, natural resource management and community forestry (including protected area planning and management). Research based experience in assessing the impact of climate change on growth and productivity of boreal forests in Canada. Career included the experience from Canada, Germany, China and Nepal. Skilled with timber supply modeling in Woodstock application, mapping tools such as ArcGIS and statistical analyses using SAS and R packages. Research interests include investigating the role of disturbances such as fire and climate change in shaping the structure and composition of different forest types and their economic as well as carbon sequestration potential.

Education and Training

- Doctor of Philosophy in Forest Science, Laval University, Canada (2013)
- Master of Science Tropical Forestry, Wageningen University, The Netherlands (2002)
- Bachelor of Science in Forestry, Tribhuvan University, Nepal (1999)
- Bachelor of Business Administration, Tribhuvan University, Nepal (1997)
- Certificate in Forestry, Tribhuvan University, Nepal (1991)
- Professional GIS course on national park conservation and management, ICIMOD, Kathmandu, Nepal (4-23 June, 2005)
- e-course on Climate Change (covering climate change science, policy, adaptation, mitigation, finance and planning), UN: CC Learn (2014)

Language competence

English, French, Nepali (mother tongue), Hindi and Tibetan

Information technology

MS Office suit, SAS and R packages, Woodstock harvest scheduling application and GIS program ArcGIS

Awards and recognitions

- **Postdoctoral fellowship** (MITACS industrial fellowship, UQAT, Canada, 2013)
- **Doctoral fellowships** (NSERC project funding to pursue Ph. D. at Laval University, Canada)
- **Netherland's Fellowship** (Awarded by Nuffic (www.nuffic.nl) for master level study in the Netherlands)
- **Territorial Education Fellowship** (Awarded by the AUSAid to pursue B. Sc. Forestry in Tribhuvan University, Nepal)
- **Tribhuvan University (Nepal) Merit Scholarship** (while pursuing certificate level course in forestry)

Employment history

- **Post-doctoral research fellow with Prof. Osvaldo Valeria, UQAT (March 2014 to date)**
 1. Financial analysis of partial cutting under ecosystem-based management in a boreal forest in Quebec
- **Research Associate with Prof. Damase Khasa, Université Laval (November 2013 – March 2014)**
 1. Assisted on manuscript writing

2. Training material preparation and training delivery in international forestry (IUCN, Cameroon)
3. Assisted in grant proposal writing on REDD+ transaction cost and value chain analyses

- **Timber Supply Analysis Intern** (June to November 2013)

Bureau du Forestier en Chef de Quebec, D-323 - 5700 4e Avenue Ouest, Quebec

- **Community Development Specialist** (2003-2006)

Qomolangma (Mt. Everest) Conservation Project, the Mountain Institute, Tibet, PR China

- **Monitoring and Evaluation Specialist** (March – November 2002)

NewERA Ltd. Kathmandu, Nepal

- **Environment Officer** (Sep. 1999 – Aug. 2000)

Rural Energy Development Program of United Nations Development Program, Nepal

- **Forest Ranger** (Aug. 1991 – July 1995)

Department of Forests, Nepal

Independent consultancies

- **Project based mechanism (clean development mechanism, CDM, and joint implementation, JI) expert of the Kyoto Protocol** (2007 – to date)

UNFCCC secretariat, Bonn, Germany

- **Agriculture and Environment specialist (Feb. – May 2009)**

Tetra tech international development (Formerly ARDInc.), Vermont, United States

- **Teaching assistant (Jan 2007 – May 2008)**

Laval University, Faculty of wood and forest sciences, Quebec, Canada

- **Community Forestry Consultant (May – Sept. 2001)**

Bagmati integrated watershed management project, Nepal

- **Intern (Nov 2001 – Jan 2002)** - Danida Forest Seed Centre, Copenhagen, Denmark

Work related experiences

Forest Ecology, Silviculture and Modeling

- Calibrated tree-level and stand-level growth models using permanent sample plot data from the Quebec Ministry of Natural Resources and identified the sources of errors in the models and their implication in timber supply analyses
- Integrated the climate effects in the tree growth model and quantified the impact of projected climate scenarios in the productivity of a boreal forest
- Developed the wood supply models in Woodstock application and compared the model outputs under conventional sustained yield timber production and ecosystem based management scenarios
- Integrated the fire in wood supply models (in FMUs 85-51, 26-62 and 27-51 in Quebec) and quantified the impact of stochastic fire events in future wood supply under projected climate scenarios
- Designed and carried out forest inventories using random and systematic sampling techniques and stem analysis
- Designed a thinning regime based on stem analyses and forest inventory data for a tropical forest dominated by *Shorea robusta*.
- Carried out an analysis of the persistence of woodland caribou population in the context of natural and anthropogenic disturbances in their habitats

Forest Policy and Governance

- Research based experience on forest certification schemes in Canada (Forest Stewardship Council standards, Canadian Standard Association criteria, sustainable forestry initiative standards and ISO 14001 standards)
- Participated in introducing and piloting the participatory forest management in Nepal and Tibet
- Carried out an analysis of the forest governance in Madagascar in the face of recent policy evolution and persistent political crisis in the country
- Analyzed a policy of forest inventory in the context of community forestry in Nepal
- Analyzed productivity and current management practices of boreal forests in Quebec, Canada in the context of projected climate change
- Visited India to learn joint forest management
- Explored the potential of reducing emission from deforestation and forest degradation (REDD) as a mechanism to keep the forests in Nepal standing
- Working on opportunity cost analysis of REDD (Brazil, Congo basin and Indonesia), private sector involvement in REDD mechanism (Congo Basin) and value chain analysis of REDD (Congo basin)
- Working on an analysis of different models of participatory forest management at global scale focusing on three essences of participation: control over resources, autonomy in decision making and equity in benefit sharing. This is a review study and a study on the series of contrasting cases will follow.

Forest Management

- Analyzed forest management plan of FMU 85-51 in Quebec, Canada as a part of Ph D research
- Formulated timber supply models in the Woodstock application (www.remsoft.com) and analyzed the future wood supply under different management, disturbance and climate change scenarios in boreal forests of Quebec, Canada
- Provided policy support and conducted compliance monitoring of forestry programs including monitoring and evaluation of community forestry programs in different parts of Nepal
- Developed a monitoring system and evaluation framework for the forest based enterprises in western Nepal
- Contributed as member of team for resource inventory, public consultation, wood supply assessment and writing of forest management plans in different parts of Nepal
- Organized local people in the form of community forest user groups (CFUG), community conservation committees (CCC) and watershed user groups and raised awareness on the importance of their participation in forest resources conservation and management
- Facilitated and assisted in formulating the constitutions of CFUGs as a legal entity to manage forests locally
- Facilitated and assisted in the formulation of community forest management plans (CFMP) to the CFUGs in different parts of Nepal (about 30 CFMPs) and community conservation plans (4) in Tibet

Forest Industry

- Established a database of licensed forest resource processing facilities and regularly updated timber supply in different parts Nepal
- Performed compliance monitoring of forest management activities and forest processing facilities in different parts of Nepal
- Developed business plans for a number of small scale forestry based enterprises in western Nepal
- Skilled with the development of timber supply models in Woodstock harvest scheduling platform

Climate Change

- Integrated climate variables in tree growth model and quantified the impact of different climate scenarios in periodic wood supply of a boreal forest in eastern Canada

- Assessed the performance of 2 afforestation/reforestation projects and a carbon stock enhancement project registered under CDM and JI respectively of the Kyoto Protocol
- Working on REDD+ opportunity cost, value chain and private sector involvement projects
- Update on the latest international climate change negotiations including REDD+
- Assessed the compliance of 8 CDM and JI accredited companies to the CDM/JI rules, procedures, manuals and standards

International Development

- Developed and tested participatory rural development planning tools in Tibet
- Planned, implemented, monitored the progress and evaluated the impacts of village conservation and development projects (VCDP) using participatory methodologies for three consecutive years in Tibet
- Mainstreamed the gender in community forestry and national park management plan as a gender focal point in Nepal and Tibet
- Developed and implemented a project monitoring system in Tibet
- Participated as member of the team that developed ecotourism plans in the circuit of Mt. Everest and Mt. Shishapangma in Tibet
- Worked as a team member to draft the Mt. Everest National park management plan in Nepal Carried out feasibility study, designed and commissioned a micro-hydro project in Tibet
- Carried out a rural energy demand survey in Nepal and Tibet
- Carried out an evaluation of USAID funded livelihood, conservation and cultural projects in Tibet

Capacity building

- Followed a series of trainings for trainers at different levels
- Followed a series of 8 trainings on compliance and determination/ validation and verification performance assessment of JI and CDM projects under Kyoto Protocol
- Carried out training need assessments, designed training and capacity building programs accordingly and delivered to community forest users groups and facilitators including forest rangers in Nepal and government employees in Tibet, China
- Developed a training package for government employees and civil society actors on carbon market and climate change (including REDD+) negotiations and delivered that training to the participants from 5 countries in central African region

Research

- Skilled with both the social and ecological research methods
- Skilled with forest financial analyses of different silvicultural options in forest management
- Carried out an academic research on the impacts of implementing community forestry program in the livelihood of local people and the condition of the forests in Nepal as a requirement for the end of the study project to complete undergraduate forestry program in Tribhuvan University, Nepal
- Developed a thinning regime for the *Shorea robusta* forest in Nepal as an M Sc thesis project. I designed the research and collected data through forest inventory and stem analysis
- Carried out a social survey to assess the impact of forest inventory policy in Nepal
- Analyzed the current forest management policies in the context of climate change in Quebec, Canada and challenges of forest governance in Madagascar
- Involved in the researches that include the analyses of the essence of participation in different models of participatory forestry including First Nations Forestry in Canada, opportunity costs, value chain and private sector involvement in REDD+ in Africa, Asia and South America

- Skilled with writing programs in SAS and R for the statistical analyses and designing graphics, developing the regression models, working with large databases such as forest inventory data and spatial analysis using ArcGIS

Professional affiliations

- Member – Nepal Foresters Association (1999 to date)
- Member – centre d'étude de la forêt (Centre for Forest Research) – 2007 - 2013
- Executive member – Collaboration Quebec Nepal (2013 – to date)
- Associate member (2002 – 2006) – ForestAction Nepal
- Elected vice-chair (2000 – 2001) – International Student's Panel, Wageningen, The Netherlands

Other professional engagements

- Reviewed part of the IPCC fifth assessment report from working group II (2013)
- Reviewed applications of “Land for Life” award of UNCCD (2012, 2013)
- Reviewer of the journals (Environment, Development and Sustainability, Journal of Forest and Livelihood, Forestry, Forests (2013))

Communication and outreach

Published, accepted or submitted scientific articles/theses

Dhital, N; F Raulier; P Y Bernier; M P Lapointe-Garant, F. Berninger and Y Bergeron. Adaptability of an ecosystem-based management strategy to climate induced increase in the fire burn rate and growth anomalies in an eastern Canadian boreal forest (Submitted to *environment planning and management*).

Vololomboahangy, R. R., **Dhital, N.** and Khasa, D. P. 2013. Issues and challenges of forest governance in Madagascar (Submitted to Canadian journal of development studies)

Dhital, N. 2013. Feasibility of an ecosystem-based management in an eastern Canadian boreal forest: testing for ecological suitability, economic viability, social acceptability and adaptability to wildfire and climate change. Thesis submitted to Université Laval for the partial fulfillment of the doctoral degree (Ph D) in forest science

Dhital, N; F Raulier; H Asselin; O Valeria; L Imbeau and Y Bergeron 2013. Emulating natural forest disturbance dynamics: can we maintain timber supply, aboriginal land use and woodland caribou habitat? *Forestry Chronicle* 89:54-65

Raulier, F., **N. Dhital**, P. Racine, R. Titler and A. Fall (2013). Forest age structure controls the maximum risk of timber supply disruption: an efficient means of protection against the risk of losses due to wildfires in the boreal forest. Accepted with revision in *Forest Policy and Economics*

Dhital, N and F Raulier 2010. Timber supply Analyses under conventional and ecosystem-based management scenarios in an eastern boreal forest. Sustainable Forest Management Network, Canada, Research Notes Series No. 75

Dhital N 2009. Reducing Emissions from Deforestation and Forest Degradation (REDD) in Nepal: Exploring the Possibilities. *Journal of forest and livelihood* 8 (1) 56 – 61

Dhital, N. 2006. Successful Practices of Social Inclusion in Charpala Community forest. *Hamro Ban Sampada (Nepali)*, 4(1): 29-31.

Dhital N 2005. Promoting Renewable Energy in Tibet. PLA Series 52 (August, 2005). International Institute of Environment and Development, London, UK. <http://www.iied.org/pubs/pdfs/G02144.pdf>

Dhital, N; K. P. Paudel and H. R. Ojha, 2003. Inventory Related Problems and Opportunities in Community Forestry: Findings of a survey. *Journal of Forest and Livelihood* 2 (2) 62 – 66

Dhital N 2002. Silvicultural Systems for Hill Sal(*Shorea robusta*) Forests in Nepal. MSc Thesis submitted to Wageningen University, The Netherlands

Dhital, N. 1999. Effects of thinning operations on community forests and forest users groups. Unpublished end of the study project paper for bachelor degree in forestry submitted to Tribhuvan University, Nepal.

Papers under preparation

Dhital, N., F. Raulier, P. Bernier, M. C. Lambert and X. J. Guo (2013). Adequacy of a stand-level yield model for the ecosystem-based management of boreal black spruce forests (to be submitted to *The Forestry Chronicle* after suggested major revision)

Dhital, N., Shrestha, H, Gautam, S, Rijal, B. and Shrestha, B. M. Nepal's preparation for REDD+: where are we and what needs to be done? A chapter for a book "Sustainable Livelihood System in Rural Nepal" to be published by Canada Forum for Nepal (www.cffn.ca) and IUCN, Nepal (book chapter under preparation).

Oral and poster presentations

Emulating boreal forest disturbance dynamics: can we maintain timber supply, aboriginal land use, and woodland caribou habitat?" presented at the 16th Conference of the International Boreal Forest Research Association (IBFRA) organized in October 7 to 10, 2013 in Edmonton, Alberta.

Impact of fire and climate change on timber supply in a forest management unit in western Quebec. An **oral** presentation in sixth annual conference of the Centre for Forest Research (CFR), Rouyn-Noranda, Quebec, Canada, 23 – 25 April, 2012.

Analysis of volume prediction error in black spruce (*Picea mariana*) dominated forests in Québec, Canada. An **oral** presentation in fifth annual conference of the Centre of Forest Research (CFR), Quebec, Quebec, Canada, 10 - 12 April, 2011.

Is ecosystem management feasible in boreal forests? An **oral** presentation in fifth annual conference of the Centre for Forest Research (CFR), Sherbrook, Quebec, Canada, 12 – 14 March, 2010.

Cultivation potential for the high altitude medicinal and aromatic plants in Central Nepal. An **oral** presentation in an international conference on non-timber forest products, community economic development and forest conservation, Royal Roads University, Victoria, Canada, 25 – 27 August, 2005.

"Impact of Social and Environmental Considerations on Timber Supply in the Boreal Forests". A **poster** presented in a conference "Intensive Forest Management in Quebec" organized by "Réseau Ligniculture du Québec" in Quebec, March 17 – 18, 2010.

"Ecosystem Management: is it a feasible landscape management strategy?" A **poster** presented in a conference "Envisioning tomorrow's forest: knowledge networking for sustainability" organized by Sustainable Forest Management Network, Canada, in Gatineau, Quebec, 21 – 23 April, 2009