Dr. Yeshey Khandu

Current Position

- Lecturer and Programme Coordinator for MSc Natural Resource Management
- Department of Forest Science
- College of Natural Resources (CNR)
- Royal University of Bhutan (RUB), Lobesa
- Punakha, Bhutan
- P.O. Punakha, E-mail: ykhandu.cnr@rub.edu.bt
- Alt. email: ykhandu71@gmail.com and ykhandu68@yahoo.co.uk
- Phone: +975 17805492

Educational Qualification

Degree of Doctor of Philosophy in Dendro Forest-Climate Sciences (2017 - 2022), Khon Kaen University, Thailand
Degree of Master of Science in Forestry (2007 - 2008), University of Aberdeen, Scotland, United Kingdom (UK)
Postgraduate Diploma in Forestry (2006), University of Aberdeen, Scotland, United Kingdom (UK)
Degree of Bachelor of Science in Forestry General (Higher Standard Certificate), (1995-1997), NEFC, India.
ISC (Class XII Science, Biology, Chemistry, Physics and Mathematics) (1992-94), Sherubtse College (Affiliated to University of Delhi, India), Bhutan.

Current Responsibilities in CNR, RUB

- Programme Coordinator for MSc Natural Resource Management (NRM), CNR, RUB, Lobesa.
- Lecturer at College of Natural Resources; for BSc Forest Science, BSc Environment and Climate Studies, MSc NRM, and PhD Climate Studies; in the fields of Dendrochronology, Wood Anatomy, Dendro-Paleoclimatology, Forest Ecology, Sustainable Forest Management (FMU), Statistics, Silviculture, Geological Science, Geological Formation and Vegetation, Soil Science, Scientific Writing and Communication (2003 – 2024).
- Supervising BSc, MSc and PhD students in their dissertation and research projects.
- Reviewing and developing programs (modules/syllabus) for degree programmes (BSc Forest Science, BSc Environment and Climate Studies and MSc NRM).
- Reviewing Research Degree Framework, RUB and RUB Research Policies ZHIB TSHOL (2023 – 2024).
- Developing, operating, and maintaining Tree-Ring Laboratory at CNR for researchers and students.
- Principal Supervisor and examiner for PhD Research Thesis in dendrohydroclimatic variabilities and their impacts on hydro power plant energy generation in Bhutan; and Phytochemical Dynamics of *Houttuynia cordata* driven under climate and ecological factors (PhD Climate Studies Programme).

- Thesis Committee and Examiner for PhD research thesis on Permafrost Distribution and Occurrence and its Associated Risks in Bhutan (PhD Climate Studies Programme).
- Dissertation Committee and Examiner for MSc Research in Natural Resource Management and Conservation Biology (MSc Programme), CNR, RUB, Lobesa.
- Research in dendrochronological application in paleoclimate reconstruction, forest-climate dynamics (climate change), and treeline ecotone ecology, reconstruction of wild-fire history and ecology, and cryosphere (glaciers, permafrost, GLOF), dendrohydroclimatic measurements and dynamics in relation to energy generation of hydropower plant, etc.

Publications

Nidup, D., Khandu, Y., Dendup, T., Chozang, J., & Wangmo, U. (2024). Determination of Growth Performance of Mandarin (*Citrus reticulata* Blanco) in Relation to Surrounding Chir pine (Pinus roxburghii Sarg.) in Dagana District Through Dendrochronological Analysis. International Journal of Environment, 13(1), 1–20 (https://doi.org/10.3126/ije.v13i1.70624) and ISSN 2091-2854.

Khandu, Y. (2020). Dendrochronological analysis of ecological dynamics and regeneration expansion of treeline ecotones in response to climate change in Northern Bhutan Himalaya. [PhD Thesis]. Department of Plant Science and Agriculture Resources, Faculty of Agriculture, Khon Kaen University, Khon Kaen, Thailand (https://opac.kku.ac.th/catalog/BibItem.aspx?BibID=b00469442).

Khandu, Y.; Polthanee, A. and Isarangkool Na Ayutthaya, S. (2022). Dendroclimatic Reconstruction of Mean Annual Temperatures over Treeline Regions of Northern Bhutan Himalayas. *MDPI, Forests*, *13*, 1794 (https://doi.org/10.3390/f13111794).

Khandu, Y.; Polthanee, A. and Isarangkool Na Ayutthaya, S. (2022). Ecological Dynamics and Regeneration Expansion of Treeline Ecotones in Response to Climate Change in Northern Bhutan Himalayas. *Forests* 2022, *13*, 1062 (https://www.mdpi.com/1999-4907/13/7/1062).

James H. Speer, Achim Bräuning, Qi-Bin Zhang, Kambiz Pourtahmasi, Khandu, Y., Narayan P. Gaire, *et al*. (2016). *Pinus roxburghii* stand dynamics at a heavily impacted site in Nepal: Research through an educational fieldweek. ELSEVER, *Dendrochronologia*, 2016, (https://doi.org/10.1016/j.dendro.2016.01.005)

Khandu, Y. (2007). Regeneration and Expansion of Native Pinewoods of Birse Forest, Scotland. [MSc Research Thesis]. University of Aberdeen, Scotland, UK.

Dukpa, D., Katel, O., & Khandu, Y. (2017). Wood Anatomical Structure of *Rhododendron arboreum* Sm. in a Drought Manipulated Experiment under two Forest Types in Western Bhutan Himalaya. *Bhutan Journal of Natural Resources & Development*, 4(1), 1–11. (https://doi.org/10.17102/cnr.2017.01).

Kaka.; Gurung, D. B.; Khandu, Y.; Katel, O.; Chhetri, P. B.; Wangda, P. (2014). Population Structure of *Cupressus tortulosa* Griffith along the Altitudinal Gradients of Tsendenanag Ridge in Punakha, Bhutan. *Bhutan Journal of Natural Resources and Development*, 1(1): 24-31. (https://doi:10.17102/cnr.2014.04)

Dukpa, D., Khandu, Y., Darabant, A., & Cook, E. R. (2012). Growth release of retained Fir (*Abies densa*) trees in the group opening and single tree selection logging. *Bhutan Journal of Renewable Natural Resource*, 8(1), 113–119. (https://www.researchgate.net/publication/267664341 and https://www.academia.edu/20070926/)

Om Katel, O.; Khandu,Y.; and Gurung, D. B. (2016). Farmers Vulnerability to Climate Variability in Punakha Wangdue Valley, Bhutan, CRDS, CNR, Lobesa. A research poster presentation and publication. (http://dx.doi.org/10.13140/RG.2.1.2975.7043).

Khandu, Y. (2013). Forest Nursery Technical Guidelines on Transformation of Conventional Polythene Containerized System to Modern Root Trainer Containerized System. College of Natural Resources, Lobesa, Bhutan. (http://library.cnr.edu.bt/cgi-bin/koha/opac-detail.pl?biblionumber=4803)

Khandu, Y. (2006). Effectiveness of Present Nursery Techniques in Production of Good Quality Seedlings in Wangdue and Thimphu, Bhutan. [Mini Research Thesis]. University of Aberdeen, Scotland, UK.

Khandu, Y. (2006). Diversity, Distribution and Uses of *Rhodopdendron* species in Bhutan. [Mini Research Thesis]. University of Aberdeen, Scotland, UK.

Conference - Oral Presentation and abstract publication

Dechen, N. and Khandu, Y. (2019). Tree-ring reconstruction of river floods and their effects over the past 123 years using *Pinus roxburghii* Sargent along Phochu river banks (Oral Presentation and abstract publication). The 6th Asian Dendrochronology Conference, 2019 (A window to the world of Asian Dendrochronology). Asian Dendrochronology Association, Birbal Sahni Institute of Palaeosciences, Lucknow, Utter Pradesh, India (https://www.bsip.res.in/old/ada2019/pdf/ABSTRACT_AsianDendro.-2019_BSIP-Lucknow-India.pdf).

Khandu, Y.; Polthanee, A.; and Isarangkool Na Ayuthaya, S. (2018). Dendrochronogical analysis of dynamics of conifer treeline ecotones under influence of changing climate in North Western mountainous regions of Bhutan Himalaya (Oral presentation and abstract publication). The 10th World Dendro Conference 2018, Tree Ring Society, University of Cambridge, UK and Columbia University, USA and UWICER, Thimphu, Bhutan. (https://www.geog.cam.ac.uk/events/worlddendro2018/programme/)

Khand, Y., Gurung, D. B., and Katel, O. (2015). Influence of temperature variability on tree rings of *Abies densa* in Bhutan Himalaya (Oral presentation and abstract publication). The 4th Asian international Dendrochronology Conference, 2015, Asian Dendrochronological Association, International Tree Ring Society of USA and European Dendrochronological Association, Tribhuvan Univeresity, Kathmandu, Nepal. (http://www.pastglobalchanges.org/calendar/2015/127-pages/1304-the-4th-international-asian-dendrochronology-conference) Or (https://10times.com/ada-kathmandu).

MSc Dissertation under supervision of Dr. Yeshey Khandu

Dukpa, D. (2017). Wood Anatomical Structure of *Rhododendron arboreum* Sm. in a Drought Manipulated Experiment under two Forest Types in Western Bhutan Himalaya [MSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=6717)

BSc Dissertations/Research Projects under supervision of Dr. Yeshey Khandu

Rai, M. (2024). Tree-Ring Reconstruction of Flood Variabilities and Their Effects on Tree Growth along Chhoekhor Riverbank, Bumthang. [BSc Research Project]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-ISBDdetail.pl?biblionumber=11097)

Dorji, J. (2024). Dendropyrochronological Reconstruction of Forest Fire and its Influence on the Growth of *Pinus roxburghii* in Sherichu valley, Mongar. [BSc Research Project]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=11105)

Tashi, T. (2024). Assessment of the Growth Performance of *Piceae spinulosa* and *Pinus wallichinana* in Response to Climate Change in Chhumey Valley, Bumthang. [BSc Research Project]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=11127)

Dendup, P. (2024). Dendrochronological Analysis on Growth Performance of Hemlock (*Tsuga dumosa*) Under Different Forest Types at Phobjikha, Wangdue. [BSc Research Project]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=11115)

Wangmo, D. (2023). Species distribution modeling to predict the potential distribution of *Gastrochilus calceolaris* in Bhutan. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=10776)

Norbu, P. (2023). Distribution and Host Tree Preferences of *Scurrula parasitica* (Linn) in Gesarling Gewog, Dagana. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=10762)

Rabgay, D. (2023). Comparing the growth performance of *Tsuga dumosa* (D. Don) and *Picea Spinulosa* (Griffith) in mixed conifer forest at Khotokha, Wangdue. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=10789)

Yangchen, S. (2023). Growth performance of *Larix griffithii* in response to forest type and climate in Phobjikha. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=10766)

Tshering, L. (2022). Fire history and growth response of Chir pine (*Pinus roxburghii* Sarg.) under influence of wild fires and climate in Kamichu Daga, Wangdue. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=10074)

Nidup, D. (2022). Dendrochronological analysis and Growth Performance of *Citrus reticulata* Blanco in Different Habitat Regions at Dagana District, a west-central Bhutan. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=10107)

Choden, T. D. (2022). Radial growth performance *Pinus wallichiana* in the vicinity of Memelakha landfill, Thimphu. [B Sc. Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=10083)

Wangchuk, P. (2022). Dendrochronological Assessment of Dwarf Mistletoe (*Arceuthobium minutissimum)* Influence on Blue pine (Pinus wallichiana A.B. Jacks) in Yusipang, Thimphu. [B Sc. Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=10100)

Tenzin, U. (2022). Regeneration and Growth Dynamics of *Abies densa* at Dochula Locality, Bhutan. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=10099)

Dechen, N. (2019). Tree-ring reconstruction of river floods and their effects over the past 123 years using *Pinus roxburghii* Sargent along Phochu river banks. [B Sc. Dissertation]. Department of Forest Science, College of Natural Resource, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=7753)

Tshering, K. (2016). Habitat Ecology, Regeneration Structure and Radial Growth Performance of *Tetracentron sinense* at Lamperi and Nobding in Western Bhutan. [B Sc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=6084)

Rangdel, C. (2016). Regeneration structure and growth performance of *Abies densa* and *Tsuga dumosa* along the topographical gradient at Dingshong under Gasa Dzongkhag. [B Sc. Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.

Wangdi, K. (2016). Glaciers outburst and its impact to vegetation and radial growth of Chir pine forest along the Punatshangchhu river basin, Toewang Geog, Punakha-Dzongkhag. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.

Tshewang, P. (2015). Regeneration and stand structure of *Pinus wallichiana* along elevation gradient in Bumthang Dzongkhag. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.
(http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=5607)

Tshering, S. (2015). Assessment of natural regeneration in mixed conifer forest of forest management unit, Khotokha, Wangdude. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.
(http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=5579)

Namgyel, T. (2015). Assessment of Chirpine (*Pinus roxburghii*) radial growth and Forest composition under the influence of forest fire in South-East and South-West aspect of Langthelgeog, Trongsa. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.
(http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=5573)

Dorji, C. (2014). Effect of Himalayan Dwarf Mistletoe on the Growth Performance of Blue Pine stands in Thimphu. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.
(http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=5262)

Dorji, T. (2014). Radial Growth of Blue pine (*Pinus wallichiana* A. B. Jacks) along the Altitude Gradients in Thimphu Valley. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.
(http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=5258)

Dorji, T (2013). Conifer Species advance Regeneration Assessment in Chamgang Forest Management Unit after Logging Operation, Thimphu. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.
(http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=4701)

Gempa (2014). Growth performance of Blue pine forest (*Pinus wallichiana*) at different altitudinal zones in Northern and Southern aspect of Chendebji. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.
(http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=5277)

Nado (2013). Population dynamics of *Cycas pectinata* and its response to climate change in Western Bhutan. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.
(http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=4697)

Kaka (2013). Population Dynamic of Native Tsenden (*Cupressus corneyana*) in Relation to Climate Change. [BSc Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa.
(http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=4691)

Dukpa, D. (2012). Growth Release under the Influence of Two Silvicultural Systems [BSc. Dissertation]. Department of Forest Science, College of Natural Resources, Royal University of Bhutan, Lobesa. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=3276)

Book Publication of Dr. Yeshey Khandu

Dukpa, D., Tenzin, K., Krusic, P.J., and Khandu., Y. (2017). Dendrochronology Manual (Book - ISBN-978-99936-743-0-6). Ugyen Wangchuck Institute for Conservation and Environmental Research, UWICER Press, Lamai Goempa, Department of Forest and Park Services, Bumthang, Bhutan. (http://library.cnr.edu.bt/cgi-bin/koha/opac-MARCdetail.pl?biblionumber=6720)

Khandu, Y. (2018). Dendrochronology in Bhutan Himalaya. A video clip production and publication, in you tube, on teaching and learning of dendrochronology (https://www.youtube.com/watch?v=QIv8xkzIt4Q).

Work Expereinces and Consultany Services (1998 – 2024)

- Programme Coordinator for MSc Natural Resource Management (NRM), CNR, RUB, Lobesa (2020 – till date)
- Lecturer/Faculty Head at College of Natural Resources, for BSc Forest Science, BSc Environment and Climate Studies and MSc NRM, in the fields of Dendrochronology, Wood Anatomy, Forest Ecology, Sustainable Forest Management (FMU), Research Methods and Statistics, Geographical Information System (GIS) and Remote Sensing (RS), Forest Survey, Forest Road, Silviculture, Forest Nursery and Plantation, Geological Science, Geological Formation and Vegetation, Community Forest management and Planning, Soil Science, Scientific Writing and Communication (2003 – 2024).
- Developed and reviewed modules and programmes of BSc Forest Science, BSc Environment and Climate Studies, and MSc Natural Resource Management (2009 – 2023).
- Reviewed Research Degree Framework 2021 (MSc and PhD), Royal University of Bhutan, RUB Research Policies ZHIB TSHOL 2018, and Definitive Programme Document for MSc in Natural Resource Management (2022 - 2023).
- Forest Manager/Range Officer under Department of Forest and Park Services, Ministry of Agriculture and Forests, Royal Government of Bhutan (1998 – 2003) - Activities were management & protection of Government Reserved Forest, management of forest nursery & plantation, forest fire fighting, inventorying & mapping the forest resources (FMU), preparing and implementing forest management plans (operational plans), anti-poaching activities, reforestation & afforestation programmes; enforcing the forestry laws and policies, etc.
- Founder and builder of Dendrochronology Laboratory at CNR, Lobesa (2004 – 20024).
- Designed and developed a plan on Establishment and Operation of Forest Nursery at CNR for Punatsangchu Hydroelectric Project Authority (PHPA) for production of seedlings, (2013).
- Scientific and technical advisor to PHPA in management of forest nursery and production of seedlings,
- Conducted in-service training course on community and private forest management planning process. CNR Lobesa

- Developed and conducted training course on farm forestry (establishing and operation of forestry nursery) for farmers of Bhutan, CNR, Lobesa (2005).
- Carried out logging operation (tree felling, conversion, measurement & transportation) in the forest, of CNR, for silviculture practices, reduction of fire hazards & utilization of timber, 2009-2010.
- Establishment, development and operation of Tree-Ring Laboratory at CNR (2007 – 2023).
- Research in dendrochronological application in forest dynamics (treeline ecotones) and climate change in collaboration with Danida researchers (DANIDA - Bhutan joint research project (2012 – 2015).
- Head of the Department of Forest Science, CNR, RUB for management of academic programmes and non-academic activities (2013 – 2016).
- Resource person for training course on tree logging techniques and silvicultural practices for sustainable forest management (funded by EU Technical Cooperation Project of Ministry of Agriculture and Forests (MoAF) for forestry officials/staff) (2017 – 2020).
- Resource person for training on nature guide in relation to geoscience (geological formation) and climate change (organized by Bhutan Institute of Himalayan Studies, Thimphu) - 2016
- Research project in collaboration with Khon Kaen University with support of Thailand International Cooperation Agency (TICA), Thailand (2017 - 2022).
- Training Needs Assessment Survey for the Field Staff of the Ministry of Agriculture. A survey report, 2008. College of Natural Resources, Royal University of Bhutan, Lobesa.
- Consultancy works - Farmers' Training on Establishing and Operating Forest Nursery at Patalay in Tsirang, 2006, Supported by Global Environment Facility (GEF) – Small Grants Programme, UNDP, Thimphu.

Training Course and Workshop

- Workshop on Networking and Regional Learning on Best Practices for Resilient Pastoralism and Sustainable Rangeland Management (Chengdu, Lanzhou University and Hong Yuan, China, 1 – 7 September 2024) supported by HUC/ICIMOD, Kathmandu.
- Inception Meeting of Himalayan University Consortium Thematic Working Group (TWG) on Rangelands, Sichuan/Gansu, Hong Yuan County, China, 1 - 7 September 2024) supported by HUC/ICIMOD, Kathmandu.
- World Dendro Field week course, Lamont-Doherty Earth Observatory, Columbia University, USA, Cambridge University, UK & Ugyen Wangchuk Institute for Conservation and Environment Research, Lamai Goempa, Bhutan (02 - 09 June 2018)
- Dendroecological research presentation: "Dendrochronogical Analysis of Dynamics of Conifer Treeline Ecotones under influence of Changing Climate in Northwestern Bhutan Himalaya" at 10th World Dendro Conference 2018, Thimphu, Bhutan (10 - 15 June 2018).
- Designing and delivering student-centred competence-based academic learning programs in Wageningen University, Netherland (03 - 07 February 2015)
- Strengthening capacity of CNR faculty in short course design, delivery and management in Wageningen University, Netherland and Royal University of Bhutan, Bhutan (06 - 10 July 2015).
- International Asian Dendrochronological Association Field week training course, Tribhuvan University, Kathmandu, Nepal (04 - 08 March, 2015)

- Dendroclimatological research presentation: "Influence of temperature variability on tree rings of *Abies densa* at treelines in Bhutan Himalaya" at 4th International Conference of Asian Dendrochronological Association, Kathmandu, Nepal (09 - 12 March 2015)
- Climate and water resources data collection, analysis and management training course, Ugyen Wangchuk Institute for Conservation and Environment Research, Lamai Goenpa, Bhutan (14 – 16 September 2015).
- Impact of Climate Change on Mountain Environments, GIS Science Faculty Development Workshop and Conference, CNR, Lobesa (Supported by University of Salzburg, Austria (10 - 14 February 2012).
- Short-term Training course on Dendroecology, CNR, Bhutan (support of experts from Columbia University, USA and Cambridge University, UK (30/10/2011 - 7/11/2011).
- Training on Research Method and Statistic, CNR, Bhutan (Support of experts from Khon Kaen University, and Thailand International Cooperation Agency (TICA), Thailand) (12 - 17/7/2010)
- Short-term Training on Virtual Learning Environment, CNR, Bhutan (11 - 13/7/2011)
- Short-term Training course on Dendrochronology in Kasetsart University, Thailand (14/09/2009 - 2/10/2009)
- Basic & Advance Forest Fire Fighting Course, Natural Resource Training Institute (NRTI), Ministry of Agriculture and Forests, Punakha (support of experts from Australia, 25/11/2002 - 4/12/2002)
- Participatory Forest Management Planning Process Course, NRTI, Ministry of Agriculture and Forests, Punakha (Support from Europe, 1 – 24/1/2003).
- GPS & GIS Training, NRTI, Ministry of Agriculture and Forests, Punakha (supported by GTZ, Germany, 28/4/2003 - 5/5/2003).
- Geo-Risk Engineering: Comparison of Mass Movement between Europe & Asia, National Environment Commission Secretariate, Thimphu (April 2004).
- Teaching Methodology course, NRTI, Ministry of Agriculture and Forests, Punakha Lobesa (27 - 31/12/2005)
- Virtual Learning Environment, CNR, Royal University of Bhutan, Lobesa (25 - 29/2/2008)
- Train-the-Trainer Course on Geo-Informatics (GIS & Remote Sensing) for Mountain Environmental Management, International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal (1 - 11/9/2008).
- National workshop on policy review for the Community Forests of Bhutan, Department of Forest and Park Services, Thimphu (April 2009).

Reviewer and Editor for Journal and Conference

Tree-Ring Research International Journal, Online and Print version available, www.tree-ring.com (2022 – till date)

Bhutan Journal of Natural Resources and Development, Online and Print version available, www.bjnrd.org. (2020 – till date)

Indonesian Journal of Social and Environmental Issues (IJSEI), Online and Print version available, https://ojs.literacyinstitute.org/index.php/ijsei (2024 – till date)

Research Projects

Researcher and team member of DANIDA-RUB (DANIDA – Bhutan Joint Research Project)- "institutional capacity building research project" at the total cost of DKK. 999,413.00, 2011 - 2015. (Research Grant for DANIDA – Bhutan Joint Research Project on Sustainable Environment and Climate Change amounted to DKK 10,00000.00, 2011 – 2015).

Researcher (PhD studies) under support of Thailand International Cooperation Agency (TICA), Khon Kaen University and CNR Joint Research Project on "The Capacity Development of College of Natural Resources Project" (2017 – 2020).

Area of Research Interests:

- Dendrochronology, dendroclimatology, dendroecology, dendrohydrology, dendropyrochronology, and dendroglaciology.
- Cryosphere - glaciers, permafrost, and GLOF in relation to climate change.
- Reconstruction of paleoclimate and river flood variabilities in relation to hydropower plant energy generation.
- Treeline ecotones and their ecological dynamics in relation to climate change.
  Or
- Application of dendrochronology in paleoclimate reconstruction, forest-climatology (climate change), and treeline ecotone ecology, reconstruction of wild-fire history and ecology, and cryosphere (glaciers, permafrost, GLOF). Dendrohydrological reconstruction of river flood variabilities and their impacts on sustainably of hydropower plant in generation of energy.

Awards and Grants

- Meritorious Service Award (Bronze Medal) from His Majesty the Fifth King for ten years dedicated service to King, Nation and People in 2013.
- Meritorious Promotion and Award from Royal University of Bhutan for hard work, dedicated service and achievements (teaching and research) on 1st January 2016.
- Meritorious Service Award (Silver Medal) from His Majesty the Fifth King for twenty years dedicated service to King, Nation, and People in 2021.
- One Merit certificate for First Class Honours and six Merit certificates for Second Class Honours, University of Aberdeen, UK, 2006 – 2008.

Other Contributions

Initiated, developed, and submitted proposal on hosting of 10th World Dendro Conference, 2018 in Bhutan in collaboration with Columbia University, Sweden University, and RNR-RDC, Yusipang,

Ministry of Agriculture and Forests. Subsequent to competition among six countries, Bhutan won World Dendro Conference for hosting in Bhutan in 2018.

Initiated, developed, established, and transformed Forest Nursery from conventional polythene containerized system to modern root trainer containerized system nursery at CNR (With financial and managerial supports from Punatsangchu Hydro-Electrical Project Authority, Bhutan and India), 2013 – 2022.