2016 World Wood Day Symposium

ABSTRACT & BIO BOOKLET

Kathmandu, Nepal
21-23 March, 2016

CATALOGUE

2016 World Wood Day Symposium

Date: 21st-23rd March

Venue: Nepal Academy, Kathmandu, Nepal

Theme

Nature and Culture:

Interdisciplinary Approaches to Peaceful Coexistence and Sustainable Development

2016 World Wood Day Symposium intends to draw a close attention to the way nature and culture interrelate, and to encourage exchange of ideas, knowledge, and experiences derived from wood-related research, strategy and practice exploring peaceful coexistence and sustainable development. Focused topics are designed to raise awareness upon current issues facing Nepal and the world, and to enhance multidisciplinary discussions for a sustainable future.

Topics

1. Historical Utilization and Cultural Heritage
2. Wood Products and Traditional Practice
3. Recovery and Restoration
4. Economic Growth and Sustainable Development
5. International and Domestic Challenges
6. Art, Design and Architecture

Agenda

Day One: 21 March		
Time	**Topic**	**Speaker**
13:30-13:40	**Opening of the Symposium**	**Andrew Wong**
13:40-14:10	**KEYNOTE SPEECH**	**Chung-Yun Hse**
14:10-17:30	**Topic: Historical Utilization and Cultural Heritage** ***Chair: Andrew Wong*** ***Moderator: Bodh Raj Subedi & Laxmi Dutt Bhatta***	
14:10-14:25	Wood Selection from Temple Structures in Sikkim, located in the Tibetan Culture Sphere of the Eastern Himalaya	Mechtild Mertz
14:25-14:40	Natural Grown Stem Forms – Examples of Past Utilization in Austria	Michael Grabner
14:40-14:55	Wood and Wood Utilization of Some Ethnic Minorities in Central Highlands (Southern) of Vietnam	Kien Nguyen Trong
14:55-15:40	General Discussion	
15:40-15:50	Coffee Break	
15:50-16:05	Wood Cultural Heritage of Newar Dynasty in Nepal since Pre-historic Era	Siddhi Bir Karmacharya
16:05-16:20	Cultural Heritage Pearl and Perl-Workmanship Implementation Processes in Turkey: From the Past to Present	Mehmet YÜKSEL
16:20-16:35	Rhododendrons Wood Utilization and Its Future in the Anthropocene	Sailesh Ranjitkar
16:35-16:50	Cultural Heritage and Tree Diversity in Pashupati Sacred Grove of Kathmandu, Nepal	Laxmi Joshi Shrestha
16:50-17:05	Wood and Culture: A case study of Bungmati, Lalitpur District, Nepal	Ila shrestha
17:05-17:20	Discussion	
17:20-17:30	Closing by Chair	

Day Two: 22 March		
09:00-09:30	**KEYNOTE SPEECH**	**Rajan Kotru**
09:30-12:00	**Topic: Historical Utilization and Cultural Heritage** ***Chair: Mon Lin Kuo*** ***Moderator: Rajendra Khanal/ Sagar Rimal***	
09:30-9:45	Tradition, Culture and Biodiversity	Laxmi Dutt Bhatta
09:45-10:00	Traditional Uses of Prunus africana (Pegium africanum) Tree Species by Different Kenyan Ethnic Tribes and Chemical Analysis of the Extracts	Francis Gichuhi Mburu
10:00-11:00	Holi Celebration	
11:00-11:15	Historic Uses of Spalted Wood: Tracing the Influence of Europe to South American Countries	Sara C. Robinson
11:15-11:30	Wood-based Bioenergy Production from Degraded and Marginal Land for Landscape Restoration, Economic Growth and Sustainable Development	Kiran Poudyal
11:30-12:00	Discussion and Closing by Chair	
12:00-13:30	Lunch	
13:30-16:40	**Topic: Art, Design and Architecture** ***Chair: Weijen Wang*** ***Moderator: Nabin Upadhyay/ Nakul Chetri***	
13:30-13:45	Nature and Culture: An Ecological Aspect of the Buddhist Iconography	Svetlana Batyreva
13:45-14:00	Journey of Indian Wood Craft : From Wooden Built Heritage to the Contemporary Wood Craftdesign Innovations	Jay Thakkar
14:00-14:15	Wood Deign: many faces of wood	Wendy Maruyama
14:15-14:30	Wood Design: to communicate	Yuri Kobayashi
14:30-14:45	Wood Design: wood translated	Jennifer Anderson
14:45-15:00	Discussion	
15:00-15:10	Coffee Break	
15:10-15:25	Indigenous building Culture of Nepalese Architecture: A case of Tiered temples in Kathmandu Valley	Shyamsunder Kawan
15:25-15:40	Structural Characteristic of Japanese Traditional Timber Pagoda	Kaori Fujita
15:40-15:55	Typology of Timber Pagoda in East Asia	Xu Zhu
15:55-16:10	Discussion	
16:10-16:25	Shingle making - First steps of documentary filming	Michael Grabner
16:25-16:30	Closing by Chair	

16:30-17:40	**Topic: Wood Products and Traditional Practice** ***Chair: Prof.Ram Prasad Chaudhary*** ***Moderator: Yagya Nath Dahal/ Indra Sapkota***	
16:30-16:45	Firewood Use in Sikkim Himalayas	Nakul Chhetri
16:45-17:00	Contribution to the Return of the Traditional Practice of the Use of Wood of the Palm and Rattan in the Structures of the Buildings in the Context of the Modernization of the Habitat in West Africa: Case of Bioclimatic Floors	Edmond Codjo Adjovi
17:00-17:15	Woods and Wood Products Used by Tharu Ethnic Community of Dang District, Western Nepal	Prabin Bhandari
17:15-17:30	Discussion	
17:30-17:40	Closing by Chair	
Day Three: 23 March		
09:00-09:30	**KEYNOTE SPEECH: Wood is Good for Livelihood**	**Tirtha Bahadur Shrestha**
09:30-11:00	**Topic: Recovery and Restoration** ***Chair: Bishwo Nath Oli*** ***Moderator: Indra Sapkota/ Rajendra Khanal***	
09:30-09:45	The Pallasboy Project: Re-making an Iron Age Wooden Artefact	Benjamin Gearey
09:45-10:00	Problems Associated with Hardwood Plantation Forest in the Tropics-focussing on Tension Wood	Sujan K.C.
10:00-10:15	Understanding effects of Land use and Climate change on distribution of Himalayan Yew *(Taxus Wallichiana Zucc.)* in Nepal Himalaya	Jyoti Prasad Gajurel
10:15-10:30	Anatomical Study of Archaeological Woods: A case study of MehtabBagh Near TajMahal, Agra, India	Sangeeta Gupta
10:30-10:45	Proposals for Post Earthquake structural repair and Conservation of the 6th century Changu Narayan Temple a UNESCO World Heritage Site	John Sanday
10:45-11:00	Discussion and Closing by Chair	
11:00-11:10	Coffee Break	
11:10-12:40	**Topic: International and Domestic Challenges** ***Chair: Yam Malla*** ***Moderator: Krishna Prasad Osti/ Laxmi Dutt Bhatt***	
11:10-11:25	Wood Imprints of Climate Change in Nepal Himalaya	Dinesh Raj Bhuju
11:25-11:40	Trends and Status of Timber Supply in Nepal	Ishwari Prasad poudel
11:40-11:55	Forest Fires – How They Affect Human Interaction with Forested Land and Forest Products	Howard N Rosen
11:55-12:10	Family forestry in Nepal: Status, Challenges and Opportunity	Jog Raj Giri

12:10-12:25	Geospatial Distribution of Drought and Drought Induced Tree Mortality in East Texas of USA: Implication for Sustainable Forest Management	Mukti Ram Subedi
12:25-12:40	Discussion and Closing by Chair	
12:40-13:30	Lunch	
13:30-14:00	**KEYNOTE SPEECH: Maintaining BioCultural Diversity for Sustainable Development**	**Shengji Pei**
14:00-15:15	**Topic: Economic Growth and Sustainable Development** ***Chair: Resham Dangi*** ***Moderator: Binod Devkota/ Nabin Upadhyay***	
14:00-14:15	Tannins from Moroccan Acacia Barks Natural Adhesive for Wood	El Moussaouiti Mohammed
14:15-14:30	Long- term Monitoring of a Temperate mixed-oak Forest in the Kailash Sacred Landscape, Western Himalaya	Chandra Kanta Subedi
14:30-14:45	Laboratory Testing of Performance of Various Types of Adhesives in Various Conditions	Louxiong Siakor
14:45-15:00	Common Labor, Common Lands: Farmers, Lumberjacks, and the Rise of Industrial Capitalism in the 'Wooden World' of the Northern Forest, 1900-1950	Jason Newton
15:00-15:15	Discussion and Closing by Chair	
15:15-15:30	Coffee Break	
15:30-17:00	**Topic: Wood Products and Traditional Practice** ***Chair: Krishna Kumar Shrestha*** ***Moderator: Sagar Rimal/ Rajendra Khanal***	
15:30-15:45	Woodcarving and the War – Handicraft at the Finnish Front Line during the World War II	Visa Immonen
15:45-16:00	Traditional Use and Management Practice of Tree Species in Manaslu Conservation Area, Central Nepal	Sanjeev Kumar Rai
16:00-16:15	Music in Ancient Egypt : The Wood of Harps and Lutes	Maria Victoria, Asensi Amoros
16:15-16:30	Seeing the Wood (and other products) from the Trees: Deriving Modern Luxury Products that You Might Not Expect from Traditional Tree Uses	Allan David Schwarz
16:30-16:45	Traditional Wood Use in Agriculture in Western Himalayas	Kamal Aryal
16:45-17:00	Discussion and Closing by Chair	

Poster session (March 21-23, 2016)

10:00 - 18:00	Ethnic uses of woody plant species in Thabang, VDC Rolpa district, Western Nepal	Shanta Buda Magar
	Trees outside Forests in Kathmandu Valley	Babita Shrestha
	Energy Gardens : Diversifying livelihoods opportunities through sustainable utilization of Traditional wood resource	Laxmi Raj Joshi
	Use of Wooden Materials in Processing and Production of Fiber Products from Himalayan Giant Nettle (Girardinia diversifolia (Link) Friis in Kailash Sacred Landscape, Nepal	Bijay Raj Subedi

Abstract

Wood Selection from Temple Structures in Sikkim, Located in the Tibetan Culture Sphere of the Eastern Himalaya

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Abstract

Sikkim, a former independent Kingdom, is now an Indian state, located in the Eastern Himalayas.

The Eastern Himalayas extend from Central Nepal through North Bengal, over Sikkim, Buthan and Arunachal Pradesh. The mountain enclosure of the Himalayas in the Darjeeling-, Sikkim-, Bhutan- and Arunachal-corner, captures the moisture-laden clouds blown over from the Bay of Bengal, thereby providing the Eastern Himalayas with heavy rainfall from June to October, the so-called monsoon. Therefore, the forest flora is rich in trees species, providing the country with a great timber selection. The study of the wood species used in traditional buildings teaches us how humans made use of the wealth of the forest flora.

Six temple structures from several regions and altitudes have been investigated. Samples were collected from important structural elements, and identified by means of a microscope. By knowing the wood species the criteria of wood selection could be understood. Besides the environmental factor, religious and social factors also played a role. This study will show, the relationship of the local people with the forest environment in the present and in the past.

Natural Grown Stem Forms – Examples of Past Utilization in Austria

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Abstract

In former times, there was a huge knowledge on the advantage and proper usage of “abnormal” growth patterns and the utilization of all parts of a tree. People of numerous crafts were ambitiously searching for curved and bended tree stems, branch-stem junctions of specific angles and root-stem junctions.

The growth of trees is reacting to various parameters, like mechanical stress, changing the supply of sun light, etc. The shape of trees is mechanically optimized– often described within the scientific filed of bionics: learning from the nature to utilize with the lowest amount of material.

Handicrafts of former times were aware of these advantages using crooked or bended trees and using the junctions of stem with the branches or roots. The stiffness of branch-stem junctions for handles or other tools will never be reached by any other manmade wood junction.
Due to the process of industrialization and the wish for standardization and fast processing, hardly any wood deviating from a more or less straight design is used any more. This means, that just a small amount of the mechanical potential is used nowadays. This might furthermore lead to a replacement of wood. It is important to realize that there is a specific application for every habitus, for every part of a tree and for every tree species. Being aware of this knowledge, the highest performance of wood for every application is possible.

During the analyses of various wooden goods dating between 1500 BC to modern times, these natural grown assortments were found often. This paper will present a kind of classification of possible utilizations and some examples.
Stem-branch-junctions were often used as tool handles and to carry high loads using small sized parts. Stem-root-junctions were used for any kinds of skids and to set up boats and ships.

Wood and Wood Utilization of Some Ethnic Minorities in Central Highlands (Southern) of Vietnam

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Abstract

Vietnam has 54 ethnic groups, is located from Nourtherm to Southerm of Vietnam, in which the largest is Kinh ethnic. Central Highland located at Southerm of Vietnam, where some ethnic minorities have been lived. The life of them has enclsose relationship with forest and wood from forest. This paper researched on the way to utilize wood of some ethnic in the Central Highland of Vietnam, in Gialai and Kontum province.

The research showed this ethnic used wood mainly in architecture and grave house. In architecture, The Rong house is the most famous architecture, it is a symbol of the culture of Central Highland, an age-old and stable culture. The bigger the house, the wealthier the village is. It is a pride of the whole village. The Rong house can only be found in villages in Gialai and Kontum provinces. It is a large, imposing, beautifully decorated stilt house built in the middle of the village. It is where community activities take place, reception of guests, meetings, wedding ceremonies, or praying ceremonies.

The Rong House of each ethnic group has its own architectural style, design, and decor. In the village, it is often the biggest house roofed and having 8 big wood columns. The connection of wood frame house is used by tenon. The wood ussually used for house is high quality wood. In the grave house, according to aged old customs of ethnic minority groups in the Central Highland, after the burial of the deceased they built house to shelter from rain and sunshine. The grave house is surrounded with a wooden fence within there is a wooden statue resembling a human being, a bird or an animal. Expressiveness and shape of the statue reflects the daily activities and cultural of human, like as couples embracing, pregnant women, and people in mourning, elephants and birds.

Wood Culture Heritage of Newar Dynasty in Nepal since Pre-historic era

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Abstract

Wood is a porous and fibrous structural tissues found in the stems and roots of trees and other woody trees. The trunks or main stems of trees are suitable for architectural and other practices. Many different species of trees are being used in cultural and religious practices in Newar community of Nepal. These woods are derived or produced from various forests of different physiogeographic zones of Nepal, which are being used in rituals, festivals, construction of musical instruments, and temples, etc. Wood is integral part of Nepalese (particularly Newars) traditional culture and architecture, and evidence of its role can be found date back to the Lichhabi period (e.g. Changu Narayan temple), fourth century to Ninth century. Most of the wood carvings that have prevailed throughout Nepal (particularly in Kathmandu Valley) around the temples and other heritage sites are from 13th to 18th century, particularly during Malla period of Newar dynasty. High quality of wood carving craftmanship of Kathmandu Valley are reflected in various wood architecture such as 55 windows palace, Nyatapola (Five-storey) temple, Bhairabnath temple, Dattatraya square, Bhaktapur Durbar square, Hanumandhoka (Kathmandu Durbar square), Patan Durbar square, etc. and mythological figures, boxes, figures of gods and goddesses, animals and birds. 'Linga Jatra' is the auspicious festival of Newar community in Bhaktapur, completed by standing strong 48 feet long wood of *Pinus roxburghii* and laying down in the first day of Nepali New year, which is known as 'Bisket Jatra'. Similarly the same ceremony is completed during 'Indra Jatra' festival in Kathmandu. Music is inevitable in Nepali culture (particularly in Newars). Musical instruments and music like Pancha baja (five instruments), Nau baja (nine instruments) is played in special rituals and places like Bhajan, Dapha, temples, festivals, and functions, etc. from mountain hills and hills to Madhesh (low land). The wood carving craftmanship languished for sometime has seen resurgence since the 1960s with the increasing influx of tourists.

Keywords: Craftmanship, festivals, musical instruments, rituals, temples.

Cultural Heritage Pearl and Perl-Workmanship Implementation Processes in Turkey: From the Past to Present

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Abstract

The objective of this study was to investigate pearl-workmanship manufacture processes and to observe past and present situation with furniture production. For this purpose, the history of this art craft is reviewd and production process of pearl-workmanship is investigated step by step. First samples of pearl-workmanship were made in the 15th and 17th centuries Ottoman empire. The pearl-workmanship motifs were generally used on the surface of different furniture belong to Seljuk and Ottoman periods. This tradition known as the "pearl-workmanship", was gradually obsolete by the end of the 18th century. Till today valuable pearl-workmanship furniture was used over the lengthy time segment encompassing the Ottoman period. Contrarily, architectural elements of religious structures dating from the Ottoman period, as well as pearl-workmanship furniture used in these buildings, are adequate in number to give a good idea of Turkish pearl-work. Particularly furniture, doors and pulpits of mosques, Quran stands, decoration stuff and lecterns display highly advanced pearl-workmanship.

To make pearl-workmanship furniture, the following steps should be folowed: first designing a motif, which is then transferred to the surface of furniture. After that the surface of furniture is carved to place each pearl; such pearls are pasted into the cavities and the final process is polishing. The Turkish history shows that pearlwork furniture was highly valued in the society and used for a long time.

It is a fact that pearl-work developed following the immigration of the Turks to Anatolia, from 15th until 17th century a phenomenon in which the influence of geography and the cultural surroundings can not be refused. Although pearl-wormanship has lost popularity at the end of 18th century, itwas renewed in the 19th century. Today pearl-workmanship is developed in a few cities in Turkey. This production is very important for pearl-workmanship art for it is contribute significantly to the world economy.

Cultural Heritage and Tree Diversity in Pashupati Sacred Grove of Kathmandu, Nepal

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Abstract

Dedication of small piece of sacred forest to the local deities is widespread practices in the past and has been contributing for the conservation of biodiversity. Sacred groves, established by the local communities, have a centuries old tradition of conserving the forest diversity in Nepal. Acknowledging the traditional practices of the forest management by the local communities, Government of Nepal has recognized sacred grove as one of the important management practice among 11 other forest management regimes. Aiming to analyze diversity of tree species and their role in conserving biodiversity the study was conducted in Pashupati Sacred Grove (PSG) a world heritage site, located around the Pashupatinath temple in the famous Hindu pilgrimage site of Kathmandu District, Nepal, having historical and cultural significance. Parallel transects (n=8) with concentric circular plots (n=19) were applied for data collection. In total 23 tree species belonging to 15 families were recorded in PSG. Based on the phyto-sociological characters three forest types were recorded from PSG, namely Schima-Pyrus forest, *Myrsine-Persea* forest and *Quercus-Myrsine* forest. In these forest *Schima wallichii* was recorded as the tree with maximum diameter (DBH= 135 cm) followed by *Choerospondias axillaris* (DBH= 106 cm).The Shannon-Weiner diversity index and evenness was H=1.91 and E=0.67 respectively. Since PSG is an important pilgrimage site for domestic and international pilgrims, it has been facing more anthropogenic disturbances due to belief system like, establishment of deer park, forest encroachment for temples and cemetery site, threatening the biodiversity of the grove. Inadequate forest management and enforcement of conservation practices are major causes of threats to the tree diversity of Pashupati Sacred Grove.

Wood and Culture: A case study of Bungmati, Lalitpur District, Nepal

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Abstract

Bungamati is a famous historical city where Rato Machhendranath temple is located. Chariot-procession festival of Rato Machhendra Nath is held after every 12 years, which is celebrated from Bungamati to Patan. Wood is an important material for the construction of cultural stuff of Nepal.

The Chariot of Rata Machhendra Nath is entirely made of wood using various types of plant species and rope. During the building of the chariot, nail or a piece of iron is not allowed to be used. The main fixture of the chariot is the Ghama (Newari), a long wooden trunk with Bhairab face in front on which the person leading the chariot sits. The wood of *Betula alnoids* is use for this fixture of Chariot. Sixteen pieces of pillars are requirements to set up Khat (Body of the chairiot). *Alnus nepalensis*, *Schima wallichii*, *Quercus lanata* and *Terminalia alata* are used to prepared the 32 feet tall Khat. The seat where the God Machhendra Nath is placed is surrounded by four pillars made of *Fraxinus floribunda*. The woods of *Desmodium oojeinense* are used for particular four wheels of Chariot. The wood kept under the wheel time to time during procession which is used as the brake (to control the wheels) is made from the wood of *Pyrus pashia* and *Calamus acanthospathus* is used for binding purposes. The culture is still continued up to dates. Altogether nine species of wood have been found to be used for the construction of Rata Machhendra Chariot.

Local people have sufficient knowledge on wood plants is under threat due to haphazard utilization of forest resources. This paper attempts to provide the detail information on the documentation of the plants species used for the building of the Chariot of Rata Machhendra Nath.

Key words: Wood, Culture, Bungamati, Chariot

Tradition, Culture and Biodiversity

Laxmi Dutt Bhatta

Traditional Uses of Prunus Africana (Pegium africanum) Tree Species by Different Kenyan Ethnic Tribes and Chemical Analysis of the Extracts

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Abstract

A study was carried out on traditional herbal use of *Prunus africana* wood species by different Kenyan tribes. Interviews were conducted and questionnaires administered to groups of respondents from different ethnic groups in Kenya. Analysis of Variance (ANOVA) was used to analyze and synthesize the qualitative data. Spectroscopic analysis of dichloromethane extract of the bark was performed using NMR equipment to determine the active compounds.

Results showed that *Prunus africana* species is widely used traditionally by Kenyan tribes for treatment of different health problems. Administration as herbal medicine to patients is slightly different based on cultural believes for the tribes depending on the ailment and the part of tree utilized. A total of twelve different health problems were found to be treatable using different tree parts of this species. Prostrate hyperplasia was a major health problem cutting across all the tribes and bark decoction was the common treatment. Chemical analysis of bark extract showed presence of triterpenic acids like oleanolic and ursolic acid.

These findings are important documentation of indigenous herbal knowledge by some Kenyan tribes. Further research can be carried out to relate such knowledge to science by chemically analyzing extracts to determine the natural active ingredients from different parts of *Prunus africana* tree species.

Key Words: *Prunus africana*, herbal medicine, tribes

Historic Uses of Spalted Wood: Tracing the Influence of Europe to South American Countries

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Abstract

Spalted wood, wood colored through fungal colonization, was used extensively throughout Europe from the 1400s through the 1800s. The movement of the art form to North America has been extensively documented, however, nothing is known about how European immigrants, specifically those from Spain, Germany, and England, influenced wood design (intarsia and marquetry) during this same time frame. It is also unknown if South Americans natively used spalted wood. While the research is still ongoing, preliminary results indicate that the guild secrets of spalted wood from Europe did not carry over into South America, as the only artifacts found are in private collections and were brought over from Europe by the colonists. While spalted wood occurs with a high frequency in South American forests, from the rainforest to cloud forest, there is also no evidence yet to suggest that the wood was used natively. These results suggest that the interest in spalted wood in South America is a recent phenomenon driven by global economic trends and a new interest in unusual wood.

Wood-Based Bioenergy Production from Degraded and Marginal Land for Landscape Restoration, Economic Growth and Sustainable Development

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Abstract

Sustainable production of energy is a fundamental component for modern human development and also a vital requirement for nations in achieving new UN sustainable development goals. Wood or tree-based bioenergy can enhance sustainable diversity in fuel supplies and safeguards national energy security; it can reduce dependence on fossil-based and foreign energy sources, and can generate green job opportunities in rural areas.

In recent years, Nepalese government and various business firms are looking to bioenergy as an essential energy option in dealing with increasing energy demand, high oil prices, and the urgent reduction in greenhouse emissions. Bioenergy systems are expected to expand in the coming decades for various reasons: (i) they can be more secure and environmentally sustainable than systems relying on (often imported) fossil fuels, (ii) population and economic growth expected to increase overall energy demand, (iii) technological advances continue to increase the efficiency and affordability of bioenergy, and (iv) properly managed bioenergy systems can support rural development, employment and provide environmental benefits.

However, the social, economic and environmental benefits of replacing fossil fuels with bioenergy crops are complex and often strongly debated. In some cases, bioenergy systems may compete with food production, raise food prices and affect food security, displace rural communities, and/or contribute to environmental problems – a scenario known as the 'food, energy, and environment trilemma'. Drawing lessons from Asia and the Pacific region, this talk provides an overview of potentials of bioenergy production from degraded and marginal land to combat some of the key challenges associated to landscape degradation, climate change and energy insecurity in rural areas. Potential linkage of bioenergy production on degraded land and UN sustainable development goals is discussed.

Nature and Culture: An Ecological Aspect of the Buddhist Iconography

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Abstract

Cult art of Mongolian folks of the Central Asia is peculiar. It was formed in the course of Buddhist fine art canon by the influence of folklore. Kalmyks, as an original ethnic community, and their culture developed in the steppes of the Caspian lowland. It became a new territory of inhabitance for the oirats, who in the beginning of the XVII century had left Dzhungariya, the north-west region of Mongolia. The unique originality of the nations historical fortune determined the ethnic peculiarities of it's culture. The Kalmuk cult art is original. It's distinctive feature from culture of other Mongolian nationalities was caused by the isolation of oirats from the rest Mongolian ethnos. Old-Kalmyk Art in the historic-cultural reconstruction represents organic receivership of artistic traditions and wholeness of the traditional culture of folk.

Culture is not only the effect of the influence of the environment, as well as internal mechanism of the development, expressed in ethnic artistic traditions. Their sources are in the spiritual sphere of categories and symbols of traditional nomadic culture, representing "unique cultural world of Mongolian people". It is an interconnected system of views on harmony of Nature and Person. Generic structure of the society is considered as the base of originally made world in traditional relations of the Person and Nature. Their dominant is Nature. This phenomena of spiritual nomadic culture is deeply social.

Journey of Indian Wood Craft: From Wooden Built Heritage to the Contemporary Wood Craft-design Innovations

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Abstract

The traditional and vernacular houses constitutes a major section of built heritage in India generating a physical compendium of the rituals and culture of a civilization and its people. They were constructed by local craftspeople, using indigenous technologies which have evolved over the years. One of the most prominent natural material to be employed in these buildings is wood. The rich wooden heritage of India displays multiple types of crafts like wood carving, wood inlay, wood marquetry, wood turning and lacquer, carpentry and wood working.

The traditional wood craft practices are still thriving in India and they are embedded with an inherent empirical knowledge. The crafts people not only encompasses the knowledge of material and skills of making in wood but also holds a holistic and intuitive understanding of sustainability in the larger context. But due to the shift in the building industry over period of time, the craftspeople working in the building wood craft sector have now moved to smaller scale of furniture and objects. Further over the last few decades the industrial production has reduced the skilled based handwork resulting into disintegration of wood craft practices.

The awareness about value of crafts is emerging back in India but the craftspeople are now posed with the challenge of blending traditional knowledge with emerging design trends to cater to the new markets. Design Innovation and Craft Resource Centre (DICRC), CEPT University has developed a comprehensive mapping, documentation and innovation models, not only preserve and revive the craft skills but also to fuse design, craft and industrial process with each other to create synergies for innovation and generate new directions for crafts in current milieu.

This presentation is the journey through the traditional Indian wooden architecture to the wood craft practices to a systematic institutional model of research and innovation in the wood crafts of India.

Wood Design: many faces of wood

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Wood Design: to communicate

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Wood Design: wood translated

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Indigenous Building Culture of Nepalese Architecture: A Case of Tiered Temples in Kathmandu Valley

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Abstract

Traditional buildings, from private residences to major urban landmarks like tiered temples have been the important segment forming the skyline of Kathmandu valley. They demonstrate the incompetent building culture and inherited knowledge of building technology. Timber being inseparable from the main structure made up of mud and bricks, plays the skeletal role and have supported in the stability of these buildings. From the very ancient period, mostly the tierred temples have remained exemplary in responding to various natural circumstances like rain, wind, earthquakes, etc. So, this paper highlights the significance of the technology adopted along with timber frame in Nepalese architecture and also reflects cultural denotations in different attributes in temple structure.

Structural Characteristic of Japanese Traditional Timber Pagoda

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Abstract

Timber pagodas have been built in Japan since 8th century AD. The construction system and technology has been imported from China through the Korean peninsula. There are 21 timber pagodas existing, built before 1850, the oldest date back to the 8th century. Although Japan is a strongly seismic prone country, literature survey show that there is no record of a timber pagoda which was totally damaged by earthquake. This is contradictory to the fact that many timber-brick pagodas were heavily damaged by the 2016Gorka earthquake in Kathmandu.

The structural characteristic of the traditional timber pagodas are described through structural experiments including micro tremor measurement, earthquake response monitoring and shaking table test. The characteristics are analyzed and discussed. Finally, based on the onsite investigation by the authors, structural performance of the timber –brick pagodas in Kathmandu are discussed in comparison with those in Japan.

Typology of Timber Pagoda in East Asia

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Abstract

By revisiting important examples of timber pagoda and pagoda-like structures throughout the history of pre-modern East Asia, this presentation provides an examination of their forms and structures for the purpose of establishing a comprehensive typological understanding of East Asia's timber architectural tradition. Other than celebrating the existing consensus on the historical transformation of architectural styles, this research argues that the distinctive features of building form are more a direct result of which multi-storied structural prototypes they chose to use.

A scientific assessment of traditional knowledge on firewood values in Sikkim, India

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Abstract Communities in the Yuksam Dzongri trekking corridor of Sikkim use a wide variety of plant species as firewood with species preferences based on their local knowledge. Current practices are increasing harvest pressures on good quality firewood species leading to deteriorating forest condition along the trekking corridor. To help develop management strategies and to ensure the long term sustainability of forest resources in this region, it is important to understand local peoples' basis for their species preferences. In this paper, we compared people's preferences for species used as firewood using Participatory Rural Appraisal (PRA) tools with data on these species' chemical constituent properties to better understand the rationale for local preferences. Sixteen woody trees species (Rhododendron arboretum, R. falconeri, R. barbatum, Quercus lamellose, Q. lineate, , Schima wallichii, Prunus cerasoides, P. nepaulensis, Castanopsis hystrix, Beilschmiedia sikkimensis, Acer oblongum, Betula alnoides, Eurya acuminate, Symplocos ramosissima, Alnus nepalensis and Litsaea elongate), the most widely used species in the area, were selected for study. The tree species were evaluated for their wood properties (calorific value, wood density, moisture and ash content) based on the Firewood Value Index (FVI). Most of the highly preferred species were found to have high values for firewood properties, and a significant correlation was found between the community scores and the FVI. The study illustrates the applicability of local knowledge in relation to the chemical properties of species used for firewood and fodder.

Keywords: Local knowledge; Firewood Value Index; Chemical properties; Sikkim Himalaya.

Contribution to the Return of the Traditional Practice of the Use of Wood of the Palm and Rattan in the Structures of the Buildings in the Context of the Modernization of the Habitat in West Africa: Case of Bioclimatic Floors

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Abstract

The wood of the Palm and rattan are locally available materials in abundance in the sahelo-Sahelian zone of Africa. They are part of the best service wood used in the habitat, during the colonial period in Africa, for the realization of frame floor, beam of overlapping's for ceiling, roof framing, header in the lightweight constructions because they develop a strong mechanical resistance and resist the attack of termites. Over-exploitation and the appearance of the concrete contributed to the abandonment of their use as ecological and economic materials. However economic habitat in Africa needs is increasingly growing.
The objectives of this work are:
-Optimize the volume of wood's Palmyra used in traditional constructions;
-develop hollow floors and other elements of structure weakly inflected with new material involving both the Palmyra Palm, rattan, concrete and Earth.
-Promote the implementation by local authorities of a policy of rattan and palm plantations to make their industrial wood.
In this communication, it will be exhibited:
1. The typology of the buildings using wood's Palmyra according to traditional practices during the colonial period in Africa,
2. A few mechanical and physical characteristics of wood Palm and rattan, promoting their use as reinforcement in the ordinary concrete and late rite Earth;
3. The description of the method of sizing and the process of a reinforced floor to Palmyra and rattan frame.
Key words: wood's Palmyra Palm, rattan wood, plant frame, planting

Woods and Wood Products Used by Tharu Ethnic Community of Dang District, Western Nepal

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Abstract

Importance of indigenous people's knowledge and culture is gaining popularity these days, and much experimentation are being continued to carry this valuable property for the future. Tharu community representing one of 126 ethnic communities of Nepal, is indigenous to the southern flat land of central and western Nepal. The present study was carried in Tulsipur municipalities of Dang District, Western Nepal, focusing in identifying the specific features, traditional use and cultural significance of woody plants used by Tharu community. A list of woody tree species was prepared by emperical ethnobotanic survey. The study reveals a total of 80 plant species used by Tharu community for multiplicity of purpose. Among them, 28 were the woody tree species (24 genera and 15 families) utilized for multiple purposes. Twelve tree species were used as timber, fuelwood (10), food (9), medicine & utensil/fibre (5 each), religious (4) and fodder (3). Twenty one tree species have single use value, whereas six species have double use value and a single species (Shorea robusta) with triple use value. Shorea robusta ('Sakhuwa'), Dalbergia sisso ('Siswa'), Acacia catechu ('Khair') and Dalbergia ougeinensis ('Sadan') were the highly used plant species for rituals/cultural purpose. The woody plant products have been traditionally used in fishing (Dhadiya) and hunting purpose, as agricultural tools (Halo, Khurpa) and musical instruments (Mandra, Bansiya, Jyal). Tharu peoples of Dang district strongly depend on the local plant resources, thus their ethnic knowledge should be integrated with the scientific procedure, addressing the potential loss of traditional practices of local resources in their daily livelihood and culture.

The Pallasboy Project: Re-making an Iron Age Wooden Artefact

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Abstract

This paper will summarise the results of the Pallasboy Project funded by the International Wood Culture Society via the World Wood Day Fund, is an investigation into the skills of prehistoric woodworkers in Ireland, via the recreation of a remarkable Iron Age wooden vessel discovered in an Irish peatland. It brings together experts in archaeological wood analyses and peatland archaeology from Ireland (Cathy Moore, Ben Gearey) with a master craftsman from the United Kingdom (Mark Griffiths), with experience in reconstructing historical wooden artefacts. Professional artist and photographer (Brian McDomhnaill) documented the project from start to finish, employing both photographic and video recording. Due to their waterlogged, anoxic environments, peatlands are one of the few environments the world over where organic archaeological remains survive and such discoveries are made in Ireland on a regular basis, including all manner of wooden artefacts ranging from small everyday utensils and vessels, to large wooden structures such as the famous prehistoric trackways of Corlea, Co. Longford. These artefacts provide a wealth of information concerning the ancient woodland environment and the different ways in which it was managed, utilised and perceived by past cultures. Wooden artefacts in particular often retain evidence of the tools used in their manufacture and indicate the level of skill possessed by past wood workers. This record is therefore critical in our understanding of how past cultures used and worked wood, but to date very little work has attempted to study these skills in a practical sense. Previous investigations have focussed on techniques such as those required to fell trees using stone and metal tools, and technical aspects of archaeological tool marks, but few attempts have been made to investigate what we might describe in a contemporary context, as woodworking requiring high levels of skill and practical knowledge. The paper will consider what the re-creation of the Pallasboy Vessel has taught us about these and other questions concerning wood, woodworking and culture in the prehistoric past.

Problems Associated with Hardwood Plantation Forest in the Tropics–Focussing on Tension Wood

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Abstract

After extensive effort being directed toward conservation of natural forest, timber industry have to increasingly rely on artificial forests for raw materials. Most artificial forests in the tropics and sub-tropics are primarily comprised of hardwood species. These forests are harvested much earlier than natural forests. As such, we are faced with ever increasing proportion of juvenile wood. Furthermore, tension wood and growth stress are not exclusive attributes of juvenile wood. As ever younger forests are exploited, so wood technologists are having to devise their process to cope with this lesser known wood, that is, tension wood. Therefore, it is indispensable to understand the behavior of tension wood.

Wood is a fascinating construction material because it has high strength-to-weight ratio, and it is easily worked with simple tools. However, it cannot be used as construction structure until it is properly dried. Wood starts to shrink with the departure of water below fiber saturation point. For temperate hardwoods, shrinkage amounts 0.1-0.2 % along the fiber direction, 3-5 % in the radial direction and 6-10 % in the tangential direction. This may not be true, specifically for tension wood which has gelatinous layer in the innermost layer of secondary cell wall of wood fibers. Timber containing tension wood tends to split, twist, bow, check during seasoning due to which yield ratio is markedly reduced.

Kiln-drying, a powerful tool to dry off timber, significantly reduces the time of drying. Nevertheless, it comes at the cost of occurrence of cell collapse or some form of drying defects. My talk will be focused on these general problems surrounding artificial forests with some updates on tension wood behavior.

Understanding Effects of Land Use and Climate Change on Distribution of Himalayan Yew (*Taxus Wallichiana Zucc.*) in Nepal Himalaya

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Abstract

The Himalayan country Nepal is rich in biodiversity including several species of mountain woody trees. *Taxus wallichiana Zucc.* (Taxaceae), locally known as 'Loutsalla', is evergreen tree growing in wild habitat as well as in arable land. The Himalayan Yew is distributed in different land-use types from 2200 to 3450 m asl. The wood of the species has been used in remote villages as substitute of metal roof as well as raw material for construction of furniture in kitchen due to high durability whereas leaves, barks have been used, after processing, for the treatment of cancer and other diseases. In the Himalayan region, including Nepal, change in climate is causing change in seasonal temperature and precipitation. This study is based on field works with direct observation in some protected areas in Nepal (Numbri valley, Manaslu Conservation Area; Dudhkunda valley, Sagarmatha region; Ghunsa valley, Kanchenjunga Conservation Area). The result elucidated that the Himalayan Yew is distributed in its natural forest, cultivated land, and meadow as well as exploited land-use types. The results from the linear model showed that there was significant combined effects of land-use types, precipitation, soil temperature, air temperature and humidity to the distribution of this species. This could be explained partly by local adaptation of populations in the study area. The change in human land-use is negatively affecting the natural population of this species; natural forest being over exploited or converted into cultivated land. The current and future distribution models based on "Maxent" showed some highly affected areas of the Taxus wallichiana in the natural habitat. As the wood and other parts of plants are usable; the cultivation practice need to be enhanced. The model developed from the study could be used to find new populations of Taxus wallichiana which could be conserved for future.

Key words: wood, medicine, habitat, temperature, precipitation, cultivation

Proposals for Post Earthquake structural repair and Conservation of the 6th Century Changu Narayan Temple a UNESCO World Heritage Site

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Abstract

Ever since Changu Narayan Temple was established in the 4th century A.D. It has suffered the ravages of time and withstood every challenge it has been subjected to - vandalism, fire and earthquakes. It is nevertheless still one of the most significant religious centers in the Kathmandu Valley and one of the most under developed of the seven World Heritage Sites in the Valley. In 1770, the main Changu Narayan Temple was damaged by fire and reconstructed on its original foundation, reusing much of its original wood structure. Over the centuries until today, the temple complex has managed to keep alive its historic traditions with special regular annual rituals maintained since the temple's dedication in the 4th century.

When founded the temple was connected to a forest of Chaap (Michelia Champaca) trees, in which legend has it, that Narayan resided. Today there are only a few Chaap trees surviving. The recent earthquakes have caused severe damage to the temple complex and a major repair and conservation Programme is being developed to restore and enhance the Changu complex and its surrounding village.

John Sanday will describe the plans for the Changu Narayan complex and its community. Changu Narayan will be featured during the celebrations on World Wood Day, as a full sized wood model of the the Kileshwor temple shrine which is part of the Changu Narayan complex, and is dedicated to the Pashupathi Shiva, will be on display. John Sanday will also explain how this typical structure is common to most temples of the same Malla style and period.

Wood imprints of Climate change in Nepal Himalaya

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Abstract

The study of natural imprints in the trees, Dendrochronology, has been identified as a trustworthy tool in revealing the evidences of climate change. This scientific application is rapidly evolving in Nepal. Since the first attempt of sample collection for tree ring research in late 1970s, nearly 100 research studies dealing dendrochronology have been carried till date. These studies have covered some 15 tree species in which the most favored tree has been *Abies spectabilis.* The longest chronology for Nepal was built from *Tsuga dumosa* with 1,141 years (856 AD to 1996 AD). The climate reconstruction studies have covered temperature from 1546 AD to 1991 AD. Yet another dimension of this science in Nepal has been the dendro-climatological study at the tree-line ecotones. In this line, studies have been carried out in at least seven high mountain protected areas of Nepal Himalaya from east to west, namely: Kanchenjungha, Sagarmatha (Everest), Langtang, Manaslu, Annapurna, Rara and Api-Nampa, to assess the impact of climate change in the tree-lines. For the purpose, more than 1200 tree core samples from major treeline species, viz. *Abies spectabilis* and *Betula utilis* were collected. Climatic response on radial growth and regeneration, recruitment and dynamics of these species were analyzed. The upward shift of *A. spectabilis* was clearly observed, the shifting rate ranged from 1.1 m to 3.6 m per year. Tree growth-climate and regeneration-climate relationship showed that warm winter and moist summer favoured the regeneration of *A. spectabilis*, while pre-monsoon (March-May) climate enhanced the radial growth. Growth of *B. utilis* in most of the sites was mainly limited by moisture stress during pre-monsoon months just before the main growth period.

Trends and Status of Timber Supply in Nepal

Ishwari Prasad poudel / Vijaya Raj Subedi

Dr. BN Oli, IP Poudel, KP Osti, BR Subedi and LD Bhatta Nepal is rich in natural resources including forest resources where timber utilization is traditional culture. Since Rana regime, the Kath Mahal was established in 1997 BS to regularize the timber supply and royalty collection which was continued as Department of Forests in 2008. The dense forest of Terai region was once used to supply railway sleepers to India and the transportation road used at that time still can be seen in many patches of forest and are also remembered as Colliar road. In the Rana Regime, the forest area was under few person's control. After democracy, the forestry sector has reformed with several acts and regulations such as forest nationalization act 2013, forest act 2018 and the most important is forest act 2049 (1993) which formally recognized the present community based approaches as public participation. The Forest regulation 1995 and subsequent directives are also important to elaborate wood collection and distribution pattern as well as legal procedures. Wood is essential and in rural livelihood. The utilization trend is increased in building construction, furniture, reconstruct historical monuments and recreation works. The timber supply volume in the market was leaded by government managed forest before 1993 however community forests and private forests are major sources since 10 years (data…). The study on potential productivity of national forests (including community managed forest) reveals that the production capacity of Nepalese forest is more than 6o million cubic feet if managed sustainably/scientific forest management. The present supply status is around 7 hundred thousand only from national forests and more than 6 million from privately managed forests. Hence there seems deficit timber in the market so Nepal is now importing timber (both logs and sawn timber) from Malaysia, Indonesia, Myanmar etc. This paper will elaborate historical timber supply, policy instruments adopted by Government of Nepal in different time series, timber supply status in different decade and potential timber production scenario of government managed forest as well as private sector. The secondary data specially from published and unpublished record of Ministry of Forests and Soil Conservation will be collected. In the final presentation, sequential and authentic data will be presented.

Forest Fires – How They Affect Human Interaction with Forested Land and Forest Products

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Abstract

Wood and Forest Culture have been greatly affected by forest fires almost since the dawn of humans on this earth. In North America, Native Americans used fire to alter the vegetation of the land by the clearing of forest and by intentional burning. The result of clearing and burning was, in many regions, the conversion of forest to grassland, savanna, scrub, open woodland, and forest with grassy openings. The Europeans who settled North America also used forest fire to significantly clear land to grow crops. As North America was settled and cities were built all across the land, forest fires became a big threat to human safety. One major wildfire in 1910 that burned about 1.2 million hectors and killed 87 people was referred to as the Big Burn. This fire was believed to be the largest in US history. From this time on, the US Forest Service has had a major role in the use of and protection from fire in the United States. Fire has become both a benefit and a burden to humans, and fire is very much part of the culture which ties mankind to forests and forest products.

This talk will describe the evolution of approaches to attempt to manage forest fire for the betterment of forests that are intertwined with human beings. Attempts to lessen impacts on wildlife, water, soil, and landscapes have not always been successful, but are improving as humans find better ways to predict and control forest fires. The impact on forest products will also be discussed.

Family Forestry in Nepal: Status, Challenges and Opportunity

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Abstract

The forest and forest products are an integral part of the agriculture and rural livelihoods of the predominately agrarian population of Nepal where, 39.6% or 5.83 million ha of land is covered by forest. It is also estimated that about 11% or 0.7 million ha of forest stands on private land. These private forests contribute approximately 40% timber needs to the Nepalese market, as it supplies almost 5million cft of timber. However, Government report indicates properly managed private forest would provide almost double of the existing value. As such, private forests generate income not only for the forest owners but also produces revenue (9.5% to GDP in 2008) from the trade of timber/non-timber forest products. Moreover Private/family forests are of great importance in regard to the environmental prospective. These forests help in conserving national forests, reducing carbon dioxide emission (a major component of Climate Change) among others at the same time opportunities like increased resilience, reduced vulnerability, job creation as well as economic benefits could be attained through the Sustainable management of private forest. Despite of its importance, Government of Nepal's legislation passed over time has made it difficult for private forest owners to use and manage the trees from private forest and private settlements. Also, forest owners are least economically benefited from the forest they own due to lack of key skills. As such, Association of Family Forest Owners Nepal (AFFON), the common umbrella platform of family forest owners, is a national forum established with the objective of ensuring rights of the owners as well as their active involvement in the process of policy-making process on the central level. A national summit of private and family forest owners was held in Kathmandu on 7th and 8th of March 2015, when the association was formally established. Today, when AFFON is about to complete one years of establishment, has almost 5000 members (family forest owners) associated with it and has 25 district chapters. The association has been playing an effective role towards eliminating policy hurdle, developing market chain and will conduct its work in the framework of the Forest Act of Nepal (1993) Appendix-8. It is actively working as a civil society network that promotes the interest and rights of family forest owners including the forest based livelihood of the poor people. Also, shortly after AFFON's inception, Nepal went through a state of national tragedy when a devastating earthquake struck the country on April 25th, 2015 that has resulted to higher demand of timbers. It is even estimated that private family forests could supply almost half of the timbers needed for post-earthquake reconstruction.

Geospatial Distribution of Drought and Drought Induced Tree Mortality in East Texas of USA: Implication for Sustainable Forest Management

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Abstract

Widespread forest die-off and increased tree mortality rates have been linked to increased drought and elevated temperature through experimental and observational researches in multiple locations throughout the globe. United States forest service's data claim that weather is the prime agent causing tree mortality in the recent decade, however, there exist a lack of scientifically informed decision making guidance for forest managers who witnessing increased tree mortality. This study was carried out in east Texas forests, which represent the more than 90 % of commercial forests responsible for lumber production, ecosystem services, and sustainable development. Analyzing drought-induced tree mortality and biomass changes is critical in the region as forests are considered viable means to mitigate climate change impacts. We evaluated spatial temporal pattern of drought-induced tree mortality and the associated aboveground biomass loss due to drought utilizing climatic and forest inventory and analysis (FIA) data. Generalized linear and nonlinear mixed models were used to investigate the relationships between drought-induced tree mortality and above ground biomass with tree attributes, key climatic variables and site characteristics. We found significant increase in annual rate of tree mortality and associated decrease in regional aboveground biomass due to drought. The spatial variation of the tree mortality and biomass loss were highly correlated with spatial drought distribution pattern. Regional drought created water stress may be the dominant contributor in increasing tree mortality rates across tree species, sizes, height and latitudes significantly affecting the wood quality, timber production, and timber markets.

KEYNOTE SPEECH

Maintaining Biodiversity and Cultural Diversity for Sustainable Development

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Abstract

With the conclusion of the CBD in 1992 by UN World Summit in Rio and the Convention on the Protection and Promotion of the Diversity of Cultural Expressions in 2005 by UNESCO in Paris, the conservation of biological and cultural diversity for environmental protection and sustainable development has now become a common concern of the international community. Biological resources are the basic nature resources for human life, plants, animals and associated ecosystem have been mixed together with human's material life and spiritual life. Today human being is highly depended on and influenced on ecosystem even much stronger than any time in its history, at same time remarkable progress has been made in science and technology over the last half century, human have more powerful to change environment. However, culture and biodiversity are intimately and inextricable linked with each other, presenting an interdependent relationship, the relationship of man and biodiversity is expressed through cultural expressions of human societies, which is the reflection of interdependency of plants, animals and ecosystems and human being. Forest culture is the culture of traditional societies about forest management traditional knowledge and practices, forest culture and wood culture are complexity and precise knowledge developed by people in forest area. As forest and wood culture is important for sustainable management of forest and at a time forest and wood culture is rapid disappearing due to land use changes and rapid urbanization developed over the last half century, therefore, maintaining biocultural diversity including forest and wood culture will significantly contribute to global sustainable development.

Key words: biodiversity, cultural diversity, forest culture, wood culture, sustainable development

Tannins from Moroccan Acacia barks Natural adhesive for wood

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Abstract

In Morocco, the Saharan acacias are well adapted to unfavorable environmental conditions, including arid and semi-arid. . They grow in the desert of southern countries in the form of trees or scattered shrubs (less than 10 trees per ha). However, they play a huge ecological and socio-economic role in the region [1¬8] through the production of wood, tannins, gums ,coal and it are used for other household uses.

The native species in Morocco are found in the semi-desert regions and are represented by four distinct species : all thorny Ac cFia gummifera Wild, Acacia tortilis (raddiana), Acacia ehrenbergiana Hayne (Seyal) Acacia albida Del (whitish)... Other acacia species were introduced in Morocco as: Acacia Willd farnesiana; Acacia cyanophylla Lindley; Acacia cyclops G. Don wire. Acacia karoo Hayne; Acacia mollissima Willd.

Acacia is a specie recognized as one of the most productive source in high quality of tannins and also of the high content of tannins, some species like Acacia mollissima can reach 70% .This content can vary depending on the thick-ness of the bark, the age of the tree and the average annual pre-cipitation[2].. Three different ways are used to extract tannin from the bark of Acacia: maceration, infusion, decoction...etc. These extracted tannins are incorporated into the formulation of natural adhesives for wood.

Extracts tannins from the acacia bark are a potential substitute to conventional adhesif ‘synthetic phenols), they are a high value-added products, environmentally friendly and consistent with sustainable development.

[1]: Fatima EL AYADI ; Diversité des Ressources Génétiques des Acacia sahariens (Acacia tortilis subsp raddiana) du Maroc: Approche Cytogénétique, Morpho-métrique et Moléculaire ; (2013) ; PP 4-14.

[1] N Green extraction process of tanin obtained from Morocan acacia Mollissima barks by microwave Naima Ghazi et al ; Arabian journal of Chemisrty, 2015 (Article in press)

Long- Term Monitoring of a Temperate Mixed-Oak Forest in the Kailash

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Abstract

The long term effects of climate change on forest structure and dynamics can be assessed through permanent monitoring plots. With the objective of contributing to the global network of long-term ecological research, one permanent forest monitoring plot was established in a temperate mixed-oak forest in Darchula District, Far-Western Nepal, in the Kailash Sacred Landscape. Within the 1 hectare (100m×100m) forest plot, all trees with DBH ≥ 10.0 cm were censused. A total of 1304 trees of 13 species were recorded. Dominant tree species were *Quercus lanata* (747 trees) and *Lyonia ovalifolia* (421 trees) which together accounted for 90 per cent of the total trees in the plot.Total basal area was 61.0 m^2 ha^{-1} with *L. ovalifolia* accounting for 66 per cent and *Q. lanata* for 27 per cent of total basal area. This study provides a baseline for long-term monitoring of this temperate forest in relation to climate change. Subsequent analyses will determine sapling, seedling, shrub and herb diversity; forest ecosystem processes including recruitment, seedfall and litterfall; and climatic and edaphic factors influencing forest ecosystem processes.

Key words: Climate change, Long-term monitoring, Kailash Sacred Landscape, Western Himalaya

Laboratory Testing of Performance of Various Types of Adhesives in Various Conditions

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Abstract

This report is one of the milestone reports within the Activity 3.2 of ACIAR funded project "Enhancing key elements of the value chains for plantation-grown wood in Lao PDR" which objective is to enhance the competitiveness and capacity of the Lao PDR wood processing industry through the development of an industry-led value-added timber market strategy. The report has been developed to determine the most appropriate practices and equipment for furniture and joinery machining, bonding, and finishing in order to meet requirements and criteria for strength and performance of glued components and products. The interest here was to test glue-bond strength of various types of adhesive (cross-linking polyvinyl acetate emulsion; polyvinyl acetate emulsion; polyurethane; and epoxy) in various climatic conditions which simulated service conditions in potential market destinations. The two species Teak (Tectona grandis) and Eucalyptus camadulensis were selected for the testing.

The shear strength mechanical property in compression loading of joints made from both species was assessed using four types of non-structural adhesive used in high value appearance wood products such as furniture and flooring used in indoor applications. The prepared joints were then submitted to four different exposure conditions before being tested in accordance with international standard ASTM D5751 Standard specification for adhesives used for laminate joints in nonstructural lumber products [6]. Other factors such as wood properties, timber preparation and adhesive application were also considered.

Both species performed reasonably well. Cross-linking PVA laminated Eucalyptus camaldulensis provided the best shear strength results compared to all the other combinations of adhesives and species. However, PVA adhesive was the only tested adhesive to meet all the requirements for all the exposure conditions for dry-use applications as recommended for indoor furniture. At this stage, the produced joints were not able to meet the requirements for wet-use applications (e.g. outdoor furniture). Both epoxy and polyurethane provided disappointing results and further testing with closely controlled pressing pressure would be required to better assess their true potential. The comparative analysis also showed that a high slope of grain in a sawn board affects the shear strength mechanical property of glued joints. Such observation suggests that secondary processing industries aiming to produce high-quality wood products should be careful when selecting or dressing sawn boards prior to gluing. Optimisation through improved

efficiencies of the primary wood processing sector could help limiting the impact of this factor by preventing the production of boards with high slope of grain. The number of knife marks when planing prior to gluing was also found to have a significant effect on the glued joint shear strength. When rough or poorly dressed surfaces are joined, uneven pressure along the bondline results in the adhesive to flow from the areas of very high pressure to those of little to no pressure resulting in very thick bondlines [4]. Both starved and thick areas of the bondline lead to weak bonds. The best finish surface is produced with 12 to 25 knife marks per 25.4 mm and the height of the marks, also known as chip thickness, should never be higher than 2 mm for a finished surface [7].

If such recommendations are implemented, improved product quality and compliance with market quality requirements will not only facilitate access to higher value markets and global markets but also improve competitiveness of wood processing industries by promoting adoption of industry best standards already used in major neighbouring markets. Improved quality control procedures will also provide additional tools to improve product development. The quality of wood products can be significantly improved through the implementation of optimal gluing and surface preparation parameters and methods. Based on that, a gluing workshop is highly recommended for workers and factory managers. Such workshop will provide a better understanding about efficient wood joining methods and practices to improve quality and productivity in wood processing and manufacturing.

Common Labor, Common Lands: Farmers, Lumberjacks and the Rise of Industrial Capitalism in the 'Wooden World' of the Northern Forest, 1850-1900

Jason Newton

Situated in the emerging scholarship on the history of capitalism, this project demonstrates the important role that wood product production played in America's transition from an agrarian nation to an industrial nation. In the Northern Forest, a 26 million acre bioregion extending 460 miles from the Atlantic coast of Maine to the eastern shores of Lake Ontario, poor farmers relied on their extensive knowledge of the Laurentian Mixed Forest to supplement their income as farming alone became economically untenable between 1850 and 1900. Their knowledge of woodcraft allowed them to adapt to changing markets and produce an array of products, from ship masts, to long lumber and niche item like shoe last blocks and spruce gum. Without the ability to manufacture this diversity of products, the Northern Forest would have been an uninhabitable region.

As industrialism forced these "farmer-loggers" to produce more products cheaper and quicker, farmers constructed facilities, fashioned ingenious tools and made simple machines entirely out of wood to keep pace with industrial quotas. These devices ranged from the logging camps workers lived in, to the sleds they hauled logs on, and even large, water tight, "sprinkler boxes," which covered roads with ice to speed up log transport. Nineteenth century loggers avoided the popular and growing corporate business form and instead contracted their labor out to financiers, giving them the ability to maintain independence in production. Using data from one large land owner in Maine, I show that saw-log production remained in the hands of small producers even as the rest of the country's industries became corporate and concentrated. It was in this "wooden world" of their own making that these men transitioned from agriculturalist to industrial wage workers.

Woodcarving and the War – Handicraft at the Finnish front line during the World War II

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Abstract

Soldiers engaging in handicrafts during the more tranquil moments of wartime is not an uncommon phenomenon, but the scale in which Finnish soldiers produced wooden objects during the World War II is unique. Especially in the stand-still phase of the war in 1942–1944, millions of objects were made, mainly of wood. Soldiers manufactured a variety of things at their free time or when duties permitted: boxes, cutlery, toys, ashtrays, sculptures, pieces of furniture, and even boats. Such products could then be sent home or sold. For some, handicrafts became a profitable business. The war administration soon noticed the popularity of the hobby. Its reactions were somewhat mixed: at best, it was thought, woodworking boosted mood and morals, but at worst it stole time from vital duties. Nevertheless, the army officials encouraged the making of wooden objects by organising competitions and rewarding the best craftsmen, and an official centre for the sale and distribution of the soldiers' products was founded. Some items were sold to as far as Germany. Propaganda newspapers that were circulated at the front line provided guidance to craftsmen, and tried to direct the soldiers' efforts from producing ornaments and 'knickknacks' to utilitarian objects. Already during the war soldiers recognised the special character of their work, marking artefacts with dates and places of production. After the war, they became treasured family heirlooms, and symbols of wartime efforts. Many soldiers continued their woodworking hobby at home. It has been suggested that this might have been crucial for the rise of Finnish design in the 1950s. Wood objects made during the war are circulating in antique markets, but museums and academics did not become interested in the wartime woodworking until recently.

Traditional Use and Management practice of Tree species in Manaslu Conservation Area, Central Nepal

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Abstract

The Manaslu Conservation Area (MCA) is located in Gorkha District, Central Nepal. The upstream of MCA bifurcates into Nubri Valley towards North-West side and Tsum valley towards North-East side, and inhabited by Gurung and Lama ethnic groups. Collaborative study between the Central Department of Botany, Tribhuvan Universiy (CDB, TU) and Federal Institute of Snow Landscape and Forest Research (WSL), Switzerland was carried out in MCA, from 2200m – 3800m, during 2011 to 2013. Current presentation is based on the observation at Nubri valley only. The study found out a total of 504 species of plant species ranging from 2200 m at Ghap to 3700m neat Samagaun. Out of these, 34 species are trees (6.7 %) and 64 species are shrubs (12.7%). The main tree species of the region are Pinus wallichaiana (18.3%) and Abies spectabilis (7.17%), Juniperus indica (5.5%) and Betula utilis (4.5%). Although next frequent species is Eurya acuminata, the timber and firewood values of Tsuga dumosa is more important. Abies spectabilis population at high altitude is highly threatened due to rampant logging for timber. IUCN has also assessed it as "Near Threatened" species.

The study found out that the main use of wood in the upper settlements is the firewood. The people also use the timber for construction materials such as roofing, doors, windows, fence and indoor furniture. The agricultural fields are also fenced by the poles obtained from the forest. There are some unique practices of the forest management in MCA. For example, certain area of the forest at Lho is managed by the local Gumba (a Buddhist monastery) there. The forest is denser than the adjoining ones which is used for supplying the daily needs of people living there. The energy needs of growing population and tourists' stay have added pressure on the forest for firewood and construction material. The regeneration capacity of the forest in the high Himalaya is slow and the rate of felling is high. This may lead to severe deforestation if the conservation priorities are not set and acted immediately. Although, the Manaslu Conservation Area is running awareness campaigns there, some energy alternatives could help conserve the forest area. This study aims to depict the usage and conservation practices of woods in the Manaslu Conservation area.

Key words: Forest, Himalaya, Firewood, Energy, Regeneration

Music in Ancient Egypt: The Wood of Harps and Lutes

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Abstract

Musical instruments from ancient Egypt, well known by the iconography of the tombs decoration and their presence in several international collections are characterized among other things by the diversity of their constitutive materials, particularly by the different woods used in their manufacture. Analyses of materials still remain infrequent, however they can certainly bring further light on this type of objects. It is this aspect that we wish to deepen in the three harps from the New Kingdom unearthed in Dra 'Abu el-Naga' by the excavation team led by Daniel Polz, and in harps and lutes of those preserved in the Louvre (the New Kingdom to the Late Period) and the Byzantine era lute of the "*Prophétesse d'Antinoé* " in the Musée des Beaux-Arts, Grenoble.

Native woods (sycomore fig tree, *Mimusops*, caper, jujube, tamarisk and acacia) and imported (cedar, boxwood, pine, beech or "pharaohs' ebony") come together to provide strength, flexibility, tone and aesthetics to these exceptional instruments. Their anatomical analysis is difficult but necessary to the knowledge of the presence of these species in ancient Egypt; moreover it will bring unprecedented complementary elements on the techniques of manufacture of these objects; it finally will guide any conservation and restoration interventions indicating which modern species could profitably be used in this context.

Seeing the Wood (and Other Products) from the Trees:

Deriving Modern Luxury Products that You Might Not Expect from Traditional Tree Uses

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Abstract

Amongst other things Mezimbite Forest Centre is a practical research program, finding ways of using tree resources sustainably and locally to incentivise conservation and restoration for forests.

In 2005 we presented a range of wooden jewellery at Paris Fashion Week, A year later the same range was voted amongst the top ten accessories at NewYork Fashion Week, funny because we are a bunch of woodworkers, not fashionistas. But we used the exquisite nature of our timber combined with traditional high quality craftsmanship and state of the art design to create accessories which just everywoman wanted. But trees do not only contain wood, there are fruits and nuts and spices and essential oils and a lot more ….what I learned from participating in the fashion world, was that even bigger than fashion itself is personal body care. The use of tree essences dates back as far as recorded history even before…..

In 2010, UNDP, Year of Biodiversity, it was used in the Eco-chic fashionshow and exhibition at the launch of the year of Biodiversity as a best case study for a “biodiversity product”.

This paper demonstrates how a traditional use of indigenous tree based ingredients, and hand crafted wooden packaging have entered the luxury goods market in a biologically and socially sustainable way.

Agricultural tools the only source of traditional agricultural practice are in the verge of extinction from Kailash Sacred Landscape of Nepal

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The Blacksmiths are among the most socially excluded and deprived groups in Api-Nampa Conservation. Area of Kailash Sacred Landscape Nepal. These people are the main suppliers of agricultural tools used for traditional agricultural farming. Blacksmithing is a craft which practiced and inherited their occupation mainly within the families and passed down from generation to generation. Key informants interview, Focus Group Discussions and interaction with the users were done during the two field visits. It is estimated that about 95% of the tools used for agricultural purposes in Darchula districts are made by the blacksmiths. Indigenous wooden plough, local hoes, spade, sickle are the major tools used for agricultural operation by the locals. The tree species used for making these tools comprise Quercus leucotrichophora and Pinus roxburghii and are the major tree species used for making these tools.

Besides, a heavy amount of wood is used to prepare charcoal for recycling used metal. On an average a blacksmith workshop earns NRs 35,000 a year (equivalent of crop product through barter system). Despite this as one of the major sources of livelihood support, indigenous skill and technology are at the verge of extinction from the community, due to lack of commercialization, modernization of their skills and the control on the wood collection by the authority.

Key words: Agricultural tools, Traditional agriculture, Balcksmith, Socially exluded

Poster

Ethnic Uses of Woody Plant Species in Thabang, VDC Rolpa District, Western Nepal

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Abstract

Nepal is a hotspot for cultural and biological diversities. Documentation of useful plants and quantitative assessment of their importance is a major focus in ethnobotanical research in the country. This study aimed to document useful wood species, analyze their importance and assess their diversity along elevation gradient in Jaljala Mountain, Rolpa, Nepal.

A list of wood species was prepared through empirical ethnobotanical study. Richness of woody species was studied through plot sampling (n = 42; size 100 m^2) along elevation gradient (2200-3400 m asl) covering different vegetation types. A total of 44 wood species, belonging to 21 families and 34 genera, identified in this study as useful, were grouped under nine major use categories with highest number of species under fuelwood (29), timber and fodder (20 each), food (16) and social and religious (14) use categories. Most of the wood species were harvested for their shoots (32) followed by leaves (22), fruits (16) and bark (3).

Based on the use value index, the most important species were Juglans regia (UV=0.12), Brucea javanica, Lindera neesiana, Pinus roxburghii, Quercus lanaata, Quercus mespilifolioides, Quercus semecarpifolia, Rhododendron arboreum, Rhododendron campanulatum (UV= 0.10 each) and Abies spectabilis, Cinnamomum glandulierum, Lyonia ovaliolia, Pyrush pashia, Rhododendron barbatum, Rhus javanica, Tsuga dumosa (0.08 each).The ethnic magar people are rich in ethnobotanical knowledge and highly dependent on natural resources for their livelihood.

The high degree of use value (UV) in the study area suggests that current use and knowledge are still strong and thus preservation of indigenous knowledge shows good forecasting in acting before much has been lost.

Trees Outside Forests in Kathmandu Valley

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Abstract

Local people of Nepal depend upon forest products as different resources for their subsistence. Trees outside forests act as the substitutes of forest resources and also help for the forest conservation. They provide almost same ecological and ecosystem services as that of natural forests and hence help in economic growth and sustainable development of the local people. Aiming to assess diversity of trees, sequestrated carbon, provided services and economic value of TOF this study was conducted in Kathmandu valley. Grids of 0.5×0.5 km (n=2800) were prepared for the whole valley. Plots were systematically distributed inside each grid. After visual interpretation of the plots, 20% were selected randomly to conduct inventory. Circular plots were used to conduct inventory. TOF are the less studied land use types in Nepal. This research will provide the tree species diversity, accumulated carbon and services provided by the TOF for local community. Local communities postulate the services. The data of TOF assessment will be available to the policy makers which will be useful for biodiversity conservation and development planning for sustainable livelihood.

Key words: Ecosystem services, carbon sequestration, livelihood, biodiversity conservation.

Energy Gardens: Diversifying Livelihoods Opportunities through Sustainable Utilization of Traditional Wood Resource

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Abstract

This study was aimed to assess the availability of common indigenous energy yielding plant species in Nepal under different physiographic zones. Based on review of existing scientific information and repeated field studies in Mid Hills ecosystems, our study showed high potentials of diversifying livelihoods opportunities through the sustainable utilization of indigenous plant resources. We conducted cursory surveys (including 300 household surveys) in three VDCs of Dolakha, Lamjung and Gorkha districts, and a detailed survey in six VDCs of Dhading district with in altitudinal ranges of 500-2900 m asl. Our study come up with a preliminary listing of 68 indigenous oil yielding plant species, 158 indigenous fuelwood species, eight species of high value charcoal producing species, and 65 indigenous timber producing species. In all categories we assessed high proportions of local endemics (Himalaya endemics). Analyses further revealed that the proportion of indigenous energy yielding plant species is relatively higher in case of Mid-Hills ecosystems compared to other physiographic zones. More than half of the sampled HH were small landholders, 23.1% were medium and 25.6% were larger landholders. Similarly, we found more than 77 % HH rely on firewood. A significant proportion of the respondents (96%) considered community forestry to be the very important and viable areas for introducing biofuel plant species. Almost 87% of the respondents agreed that there are plant species in the local community forests, which can be used for producing biofuels. There are many degraded and fallow lands available nearby the settlement, which can also be utilized for the purpose of bioenergy plantations in larger tradable scale.

Use of Wooden Materials in Processing and Production of Fiber Products from Himalayan Giant Nettle (Girardinia diversifolia (Link) Friis in Kailash Sacred Landscape, Nepal

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Abstract

The Himalayan Giant Nettle (*Girardinia diversifolia* (Link) Friis), locally known as 'allo' is one of the important fiber bearing plant species of Kailash Sacred Landscape (KSL) which comprises four districts in Western Nepal such as Darchula, Baitadi, Bajhang and Humla. This study was carried out to document traditional use of wooden materials in processing and production of 'allo' products by indigenous and local communities (ILCs) such as Thagunna, Bohora, Manyal living in ApiNampa Conservation Area (ANCA). Focus group discussion, informal meetings, field observations were used for data collection. Different types of traditional equipments such as; wooden hammer (*Mungro*), hand spindles (*Katuwa*) and spinning wheel (Charkha) were used for extracting the fiber from the bark of 'allo'. Hand looms are still manufactured using the wood collected from nearby community forests and national forests. ILCS mostly use the equipments made up of Pinus wallichiana, Prunus cerasoides, Quercus lanata, Dendrocalamus sp. to prepare fiber products such as porter strap (*Namlo*), rope for a domesticated animal (*Damlo*), coat, pant, bag, shawl, purse and many more items in Darchula district. The study revealed that ILCs of ANCA extensively use wooden materials for the production of fiber from 'allo'.

Key words: Himalayan Giant Nettle; Kailash Sacred Landscape; Traditional use

Speaker Biography

Andrew H.H. Wong, D.Phil (Oxon.)
Deputy Coordinator, IUFRO D5 (Forest Products), www.iufro.org
Executive Council, IRGWP, www.irg-wp.com

Dr. Andrew Wong, Associate Professor of Universiti Malaysia Sarawak, Malaysia Mr. Andrew H.H. Wong worked at Forest Products Research at Forest Research Institute of Malaysia (FRIM) and Forest Products Division (D5), International Union of Forest Research Organizations (IUFRO). Executive Council of the International Research Group on Wood Protection (2013-2016). Research interest: wood durability and wood protection of tropical timbers Mr. Andrew H.H. Wong is now the associate professor of wood protection, Universiti Malaysia Sarawak (Unimas). He is also the Lecturer of Faculty of Resource Science & Technology, Universiti Malaysia Sarawak. His research area is wood technologist, especially wood biodeterioration and protection.

Mon-Lin Kuo
Iowa State University, Retired

Dr. Kuo's research interests are in the area of wood adhesion and adhesives. He is currently conducting research on the use of starches and soy proteins for wood composite products.

Mechtild MERTZ
Researcher of East Asia Civilisations Research Center (CRCAO), Paris FRANCE

After having trained as a cabinetmaker and furniture restorer in Germany, Mechtild Mertz decided to pursue Japanese Studies and East Asian Art History at the University of Heidelberg and the Sorbonne (Paris IV). She also studied wood anatomy at the Pierre and Marie Curie University (Paris VII). While working towards a PhD in ethnobotany from the National Museum of Natural History, Paris, she came to Japan to interview wood craftsmen under the auspices of Kyoto University's Research Institute for Sustainable Humanosphere (formerly the Wood Research Institute). She is presently an associate researcher at the East Asia Civilisations Research Centre (CRCAO), Paris. In fall 2012, in a three-week fieldtrip to Sikkim, located in the Eastern Himalayas - India, she investigated the wood species of temple structures slated for restoration.

Michael GRABNER

Senior Scientist of University of Natural Resources and Life Sciences, Vienna, Austria

Michael Grabner, born 6th of October 1968. Higher Technical School for Wood Technology, Studying Wood Sciences and Technology at the University of Natural Resources and Life Sciences (Diploma 2002). Finishing a PhD at the University of Natural Resources and Life Sciences (PhD 2005). Michael Grabner is heading the Tree Ring Lab since 1996. Due to the contact with "old wood", the scientific field of "Historical Wood Utilization" was opened. Setting up a national network in 2008 and organizing the first international meeting on "Historical Wood Utilization" in 2011; followed by meetings and excursions in 2012, 2014, 2015 and 2016. Due to common interests, there is a good contact to the IUFRO group as well as to the International Wood Culture Society.

KIEN NGUYEN TRONG

Lecturer of Vietnam Forestry University

From 1991 to 1996, get engineer degree on Wood science and processing at Vietnam Forestry University.

From 1996 to 2003, worked at factory of Wood processing of Vietnam.

From 2004 to 2007, get Master degree on Wood technology at Vietnam Forestry University.

Siddhi Bir Karmacharya

Professor of Botany, Khwopa College, Dekocha, Bhaktapur

Mehmet YUKSEL

Lecture of Department of Wood Working Endustrial Engineering, Faculty of Technology, Mugla University

Mr. Mehmet YUKSEL, was born at Nigde in 1967. Years of education and training during the years after the end of cultivars studied at schools. Gazi University, Faculty of Technical Education Department of Furniture and Decoration. Immediately after graduating from university worked at Vocational high school. He returned to Mugla Sitki Kocman University Faculty of Technich Education as an assistant and he got here his master degree at Furniture and design education in 2002. He started to work as a lecturer after soldier duty. He still is a Ph.D. student at Mugla Sitki Kocman University. He has a great number of academic publications. He still is working the duty as a Lecturer of Technology Faculty of Mugla Sıtkı Koçman University

Laxmi Joshi Shrestha

PhD Scholar, Department of Botany, Tribhuvan University

Ms Laxmi Joshi Shrestha- PhD Scholar at Tribhuvan University, got Master degree in Botany from T.U, Nepal. My PhD is focused in the role of Sacred Groves in Plant Diversity Conservation. My research article has been published in national and international journals. Currently working as Teaching Assistant in Botany Department, with 19 years of teaching experience.

Ila Shrestha

Associate Professor, Patan Multiple Campus, Tribhuvan University, Kirtipur, Kathmandu, Nepal

Laxmi Dutt Bhatta

Francis Gichuhi Mburu
Associate Professor, University of Eldoret, KENYA

Dr. Francis Mburu is Associate Professor at the University of Eldoret, Kenya. Currently teaching postgraduates and undergraduate students in the Department of Forestry and Wood Science for the last 15 years. My research interest is in wood processing, wood biodeterioration and protection, fiber science and forest products. Educational background: Bsc and Msc Degrees in Wood science and Technology from Moi University, Kenya, PhD in Wood and fiber Science from Universite Henri Poincare, Nancy 1, France. I served as head of department between 2009 and 2013and as member of University senate. Privately has been working as a consultant for varied wood processing industries in East Africa.

Sara Robinson
Professor of Oregon State University

Sara Robinson is an assistant professor of wood anatomy at Oregon State University. Her research interests are in historic and modern uses of spalted wood, as well as applications for extracted pigments from spalting fungi. She is also an artist and avid woodturner.

Kiran Poudyal
Researcher, The University of Melbourne

Batyreva Svetlana

Head of Zaya-pandita's Museum of Kalmyk traditional culture of the Kalmyk Institute for Humanitarian studies of the Russian Academy of Sciences. Elista, Kalmykia (Russia).

I was born in Kazakhstan in 1949, graduated at the Institute of Painting, Sculpture and Architecture named after I. Repin in St. Petersburg speciality "art.studies". I work in the Kalmyk Institute for Humanities of the Russian Academy of Sciences and also teache at Kalmyk State University, department of social and cultural activities. I have been researching Kalmyk national arts and crafts, Buddhist and contemporary fine art. The author of 8 monographies

Jay Thakkar

Professor and Head of Research, Faculty of Design and Design Innovation and Craft Resource Centre (DICRC), CEPT University

Jay Thakkar is an Assistant Professor at Faculty of Design, and Head of Research at Design Innovation and Craft Resource Centre (DICRC) at CEPT University, Ahmedabad, India. He has a Master in Visual Communication from the Birmingham Institute of Art and Design (BIAD), United Kingdom and a Diploma in Interior Design from the School of Interior Design, CEPT University. He received gold medals from the CEPT University and the Gujarat Institute for Civil Engineers and Architects (GICEA) for his research work. Jay Thakkar has coauthored "Prathaa : KathKhuni Architecture of Himachal Pradesh" (2013, coauthored with Bharat Dave & Mansi Shah). He has recently received Charles Wallace India Trust (CWIT) / Simon Digby Memorial Charity (SDMC) Research Award from United kingdom.

Wendy Lynn Maruyama

Professor Emeritus of San Diego State University

Furniture maker, artist and educator Wendy Maruyama has been making innovative work for 40 years. While her early work combined ideologies of feminism and traditional craft objects, her newer work moves beyond the boundaries of traditional studio craft and into the realm of social practice. Her latest work, The wildLIFE Project, focuses on the endangerment of elephants, a cause that is very personal to the artist. She recently took a sojourn to Kenya and met with wildlife advocates to investigate the dangers of the continued poaching of these magnificent animals. The trip served as a source of inspiration for the artist to create a new body of work and incorporate a strong societal message.

Yuri Kobayashi

Artist and College Instructor, Rhode Island School of Art

I am a New England based artist / educator. Born and raised in Japan, I spent most of my life in Tokyo, surrounded with excessive information and ceaselessly evolving technology. I had little interest in them and instead, I longed for something more indigenous and diverse. With a fondness of making things, and an education in architectural design, I found my way to woodworking in the rural town of Takayama.

Jennifer Anderson

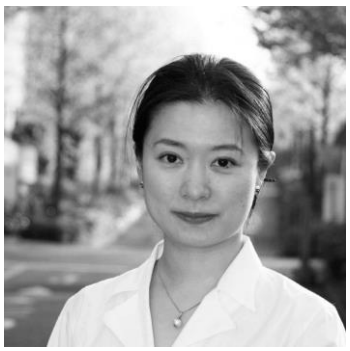
Artist and College Professor, Palomar College

Jennifer Anderson is an artist and designer based in San Diego, CA. Anderson divides her time between her studio art practice and teaching at Palomar College in San Marcos, CA. Her art is exhibited nationally and internationally and can be seen in publications including Interior Design, American Craft and Fine Woodworking. Anderson has been the recipient of two Windgate Residencies and most recently completed a permanent installation for the Milwaukee art Museum. Jennifer Anderson investigates the history and meaning of functional objects by working with a variety of processes and media. Her art is rooted by tradition, yet fueled by experimentation. Always pushing the idea of furniture beyond its most common perception as something purely functional, she creates objects that people live and interact with on a daily basis. These objects not only serve the basic needs of people, but more importantly, encourage them to reconsider their relationship with objects that they use everyday.

Shyam Sunder Kawan

Assistant Professor of Nepal Engineering College

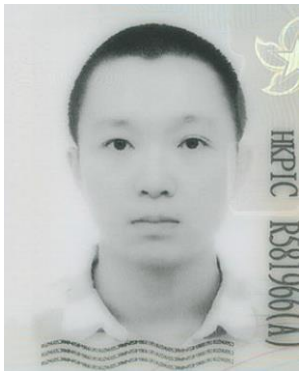
Shyam Sunder Kawan is an assistant professor at Nepal Engineering College. He pursued his Master of Science in Urban Planning from the University of Hong Kong with an Asian Development Bank Scholarship in the year 2012. He completed his Bachelor in Architecture from Khwopa Engineering College in the year 2006. He was also awarded a Daayitwa Winter Fellowship in the year 2015 for conducting a research on "Cultural heritage sensitive urban development strategy". As an architect and urban planner he has been involved in various professional activities for numerous public and private sectors and also been in collaborative works with international agencies in the field urban development and conservation.



Kaori Fujita

Associate Professor of Department of Architecture, Graduate School of Engineering, The University of Tokyo

1970 Born in Tokyo
1999 Graduated from the Department of Architecture Graduate School of Engineering, The University of Tokyo with Doctor of Engineering
1999 Researcher at Tokyo Institute of Technology
1999 Assistant researcher at Tokyo Metropolitan University
2000 Assistant Professor at Tokyo Metropolitan University
2005 Associate Professor at Tokyo Metropolitan University
2007 Associate Professor at the University of Tokyo (until today)
2008 IABSE prize, 2005 JAABE best paper award



Xu Zhu

Postdoctoral Fellow, Department of architecture, University of Hong Kong

Currently a post-doctoral fellow in architectural history at the University of Hong Kong, Zhu Xu is a specialist in Chinese Buddhist architecture, but his broader interest also lies in cross-cultural relationships between architecture and ritual extends to other countries of the Asia Pacific. Xu studied architecture in Zhejiang University and obtained his M. Arch from the University of Hong Kong. His practiced architecture in China and Hong Kong, and conducted a series of district renovation and architectural heritage conservation programs in the Historic Centre of Macao.

Nakul Chhetri

Programme Coordinator - Kanchenjunga Landscape Initiative Transboundary Landscapes

Dr Chettri has an MSc (1995) and a PhD in Zoology (2000) from North Bengal University, India. He is currently leading a team of multidisciplinary professionals working on climate change science, the economic valuation of ecosystem services, biodiversity informatics, and the up-scaling and promotion of transboundary landscapes and trans-Himalayan transects. Before joining ICIMOD, Dr Chettri served as a Fellow at the Ashoka Trust for Research in Ecology and the Environment in its Eastern Himalayan Programme.

Edmond Codjo ADJOVI
Professor of Polytechnic University Of Abomey

I am engineer of civil engineering of training and Professor in Sciences for the engineer. I teach wooden buildings at the Polytechnic University of Abomey I lead a research team that work on the design of innovative composite materials of construction such as: wood plastics, cement balls of rice, wood plastics, cement balls of rice, wood concrete.

Prabin Bhandari
Student of Central Department of Botany, Tribhuvan University

Mr. Prabin Bhandari is a permanent resident of Pokhara-17, Mahatgaunda, Kaski District, Nepal, currently working as a research assistant in Kanchenjunga Landscape and Development Initiative, Research Centre for Applied Science and Technology (RECAST), Tribhuvan University, Kirtipur, Nepal. Mr. Bhandari has passed M.Sc. in Botany (Plant Systematics and Biodiversity) in 2015 with distinction. He has carried out his dissertation work in the title "Flora of Panchase Protected Forest, Kaski District, Central Nepal". He has travelled to different parts of Nepal as a research assistant from 2013 to 2015 and published a paper (Phreatia elegans Lindl. (Orchidaceae)- a new record for Flora of Nepal. Pleione, 9(2): 365-368.). His fields of interests are Plant Systematics, Biodiversity Conservation, Ethnobotany, Ecology and Climate change.

Benjamin Gearey
Lecturer in Environmental Archaeology, Dept of Archaeology, University College Cork, Cork, Ireland

Dr. Benjamin Gearey is Lecturer in Environmental Archaeology in the Department of Archaeology, University College Cork, Ireland. He has a broad range of research interests and publications in the fields of palaeoecology, alluvial geoarchaeology and the archaeology of peatland landscapes.

Sujan K.C.

Student of Nagoya University, school of bio-agriculture sciences, Japan

2011-2016 (Expected) PhD in Agriculture science from Nagoya University. 2009-2011 Masters in Agriculture science from Miyazaki University. 2005-2009 Bachelor in Agriculture science from Miyazaki University. Continuum contraction of tension wood fiber induced by repetitive hygrothermal treatment. Wood Science and Technology (2015).

Jyoti Prasad Gajurel

PhD Scholar,Central Department of Botany, Tribhuvan University

Mr. Jyoti Prasad Gajurel, completed his M.Sc. degree in Botany in 2007, with a thesis entitled "Taxonomy of Family Commelinaceae in Nepal". This M.Sc. degree was awarded with distinction and also won a university-wide award as best thesis of the year at Tribhuvan University of Nepal. He is currently PhD Scholar in the Central Department of Botany, Tribhuvan University. He also is a lecturer in Botany at Golden Gate International College. His English is fluent. His research interests include population genetics (*Taxus wallichiana* Zucc.), molecular systematics, floristics of Nepal (Monocotyledons) and herbarium management. He also has interest in photography and nature conservation and volunteer in teaching methodological parts.

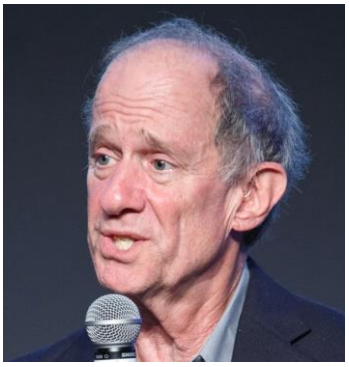
John SANDAY

Chairman of Associates (JSA), Architectural Practice in Nepal

Conservation Architect architect - based in Nepal for 35 years and working all over Asia, with a focus on training both professionals and craftsmen in conserving their built heritage Consultant to UNESCO, The World Monuments Fund New York, Global Heritage Fund California, Projects in Nepal – The Hanuman Dhoka Palace Kathmandu; Prepared Masterplans for Swayambhu and for Patan Durbar Square; and the; Buddhist Monasteries in Upper Mustang; Projects in Cambodia – Three sites in the Historic City of Angkor; The 12th Century Monastic Complex of Banteay Chhmar. Projects in Bangladesh: Paharpur 8th Century Bhuddist Monastic Site and the 14th Century Muslim Mosques of Kalifathabad. John Sanday was awarded the Order of the British Empire in 2003, by Her Majesty Queen Elizabeth II for his services to conservation training in Nepal and Cambodia.

Dinesh Raj Bhuju
PhD Scholar / Nepal Academy of Science & Technology

Ishwari Prasad Poudel
Ministry of Forest and Soil Conservation
Vijaya Raj Subedi
Under Secretary MSFP, PCO, Babarmahal



Howard N Rosen
Staff Specialist, US Forest Service

Dr. Rosen received his BSc from the University of Maryland and MSc and PhD from Northwestern University in Chemical Engineering. He joined the US Forest Service as a research scientist working in hardwood utilization, wood drying, wood physics, and energy production from forest biomass before moving to the administrative headquarters of the Forest Service to perform technical oversight duties in the national forest products and utilization program. Dr. Rosen is an officer and active in several professional organizations and is Chairman of the World Wood Day Foundation. Dr. Rosen has over 100 technical publications, over 130 technical presentations at meetings, and 6 patents in the area of wood products, drying, and energy. He has been retired for over 10 years and serves as a volunteer for the US Forest Service.

Jog Raj Giri
Chairman of Association of Family Forest Owners Nepal (AFFON)

Mr. Giri from Dang, mid western Development Region of Nepal, holds Masters Degree in Political science and has an experience of over 25 years of work involving the community. He has visited 65 districts out of the total 75 districts of Nepal. Furthermore, his core area of competency includes formulation and implementation of program and strategies, action plans; overall project management, capacity strengthening of NGOs/CBOs. He is aware of the international policies and status of forestry regime including the family forest as an outcome of his exposure visits.

Mukti Ram Subedi
Texas A&M University, Kingsville

Education
MS candidate in the Department of Biological and Health Sciences, Texas A&M University, Kingsville, USA

Research interest
Biomass and bioenergy, disturbance and restoration ecology, ecological modelling and ecosystem management, geospatial modelling, human dimension in forestry.

Career
Worked as research assistant in Community Based Forests and Tree Management in the Himalaya (ComForM) project in 2010. Assisted as co-investigator in the community based forest carbon mapping project in 2011. Served at Federation of Community Forests Users, Nepal (FECOFUN) as documentation officer for 18 months (Feb-2012-Augutst 2013). Currently, working as graduate teaching assistant in the department of physics and geosciences at Texas A&M University, Kingsville

Award/Scholarship
Graduate scholarship, Texas A&M University-Kingsville (2014)
Green Hands: Student sustainability competition Award (Prickly pear), Office of campus sustainability Texas A&M University-Kingsville, Texas (2015)

Member
Nepal Foresters Association
Ecological Society of America

Pei Shengji
Professor, Kunming Institute of Botany, Chinese Academy of Sciences

Pei Shengji is a research professor at Kunming Institute of Botany, Chinese Academy of Sciences, founder of Chinese ethnobotany, fellow of Linnean Society, member of IUCN-WCPA-CSVPA; ex-President of International Society of Ethnobiology (ISE, 1998-2002); Division chief of Mountain 1 Natural Resource, International Center for Integrated Mountain Development(1990-1998); Director of Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences (1978-1986); After retirement in 2003, he is still active in BioCultural Diversity research and traditional botanical knowledge studies and biocultural diversity conservation in China and Southeast Asia.

El Moussaouiti MOHAMMED

Professor of University Mohammed V, faculte des Sciences- Rabat, Morocco

PhD Chemistry 1983

CHEMICAL MODIFICATION OF CELLULOSE BY ACYLATION: APPLICATION TO ADSORPTION OF METHYLENE BLUE

R. Bouhdadi1, S. Benhadi2, S. Molina2, B. George2, M. El Moussaouiti1 , A. Merlin2.

Maderas: Ciencia y tecnología, ISSN 0717-3644, Vol. 13, Nº. 1, 2011 , págs. 105-116

KINETIC AND ISOTHERM MODELING OF METHYLENE BLUE SORPTION ONTO KRAFT PULP MODIFIED BY ACYLATION

Rachid Bouhdadi, Mohammed El Moussouiti, Siham Benhadi, Beatrice George, Stéphane Molina, André Merlin

WOOD RESEARCH Vol.56 No.3 2011

Chemical composition and antibacterial activity of essential oils from six Moroccan plants

Ahmed Talbaoui[1], Naoual Jamaly[1,2], M'hamed Aneb[1], Abdelkader Il Idrissi[3], Mohammed Bouksaim[2], Said Gmouh[4], Saaïd Amzazi[1], Mohammed El Moussaouiti[5], Abdelaziz Benjouad[1] and Youssef Bakri[1]*

Journal of Medicinal Plants Research Vol. 6(31), pp. 4593-4600, 15 August, 2012

KRAFT PULPING CHARACTERISTICS OF THREE MOROCCAN EUCALYPTI. PART 1. PHYSICAL AND CHEMICAL PROPERTIES OF WOODS AND PULPS

Mohammed El Moussaouiti, *Badr. Barcha, Ericka F. Alves, Raymond C. Francis*

BioResouces, Vol 7, N° 2'2012)

Trapping of p-coumaryl and coniferyl alcohol during soda-anthraquinone treatment: a means of estimating uncondensed β-O-4 structures in native lignin.

Ericka F EF Alves, Samar K SK Bose, Raymond C RC Francis, **Mohammed M El Moussaouiti**

Journal of Agricultural and Food Chemistry 2012-09-12

Chandra Kanta Subedi

Teaching Assistant,RECAST, Tribhuvan University, Kathmandu

Louxiong SIAKOR
Deputy of Wood tech Laborartoy & Lecturer Assistant,
Faculty of Forestry, National University of Laos, Lao PDR

Jason L. Newton
PhD Candidate- U.S. History
Syracuse University

Jason L. Newton is a PhD candidate in history at Syracuse University in the U.S. His dissertation, titled "Forging Titans: Masculinity, Myth, and the Rise of Industrial Capitalism in the Northern Forest, 1850-1950", is a history of capitalism and environment in the forests of the U.S. and has been funded by numerous grants and awards. He has recently published part of this work in the Canadian labor history journal *Labour/Le Travail*. He currently lives in Portland, Maine.

Visa Immonen
Postdoctoral Fellow / Assistant Professor, The Getty Research Institute (GRI) / University of Helsinki

Dr Visa Immonen is a postdoctoral fellow at the Getty Research Institute, Los Angeles, and an assistant professor in cultural heritage studies at the University of Helsinki. He has worked extensively on Northern European medieval and post-medieval archaeology. Immonen's doctoral dissertation *Golden Moments – Artefacts of Precious Metals as Products of Luxury Consumption in Finland c. 1200–1600* was published in 2009. In 2010–2011, he was a visiting scholar at the Stanford Archaeology Center, Stanford University. Immonen worked as a research fellow at the Helsinki Collegium for Advanced Studies, University of Helsinki in 2011–2014, and a senior research fellow at the Turku Institute for Advanced Studies, University of Turku in 2015. In 2015–2016, he works at the Getty Research Institute, and studies the interconnections and disjunctions of art historical and scientific notions of materiality by surveying the scientific analyses carried out on late medieval relics in Europe. Immonen is also actively engaged in critical heritage studies, and his 318-page monograph on the development of Finnish cultural heritage legislation and administration during the 20th century was published in 2016.

Sanjeev Kumar Rai

Ph.D. Student, Central Department of Botany, Tribhuvan University

I am a Botanist with M.Sc. degree from Tribhuvan University. Currently, I am doing Ph.D. on Ecological Modelling of Vascular Plants and Effect of Climate Change and Land Use Change.
I am also a Deputy Director General of the Department of Plant Resources, Thapathali

ASENSI AMOROS, Maria Victoria

Scientific Director of Xylodata

Egyptologist and wood anatomist, Dr. M. Victoria Asensi Amorós works with International Museums and Archaeological teams in order to identify wood artist artifacts made by different civilizations. At the moment she is involved in archaeological programs in Egypt (identifications of woods came from the first Arab installation in Cairo or some excavations from pharaonic and byzantine Period), in France with the Louvre Museum or the Quai Branly Museum (African an Oceanian Objects) as an example, or with the Vatican Museums in Italy. She is also working with the Music Museum in Paris for the identification of several music instruments from diferents historical periods and Civilizations.

Allan David Schwarz

Founder and director of Mezimbite Forest Centre

Allan Schwarz qualified as a cabinet maker as a boy, chose to study architecture and practiced professionally in South Africa where he also taught at the University of the Witwatersrand. he left for the USA for political reasons in 1985 to take up a role as a teaching fellow at MIT in Cambridge MA. Where he again built a flourishing professional practice, mainly designing large projects with delicate environmental implications. In the early nineties he semi-retired from formal practice and academia to return to his firs love woodwork and forest conservation. Mezimbite Forest Centre which was founded 21 years ago includes the first indigenous specie nurseries in Mozambique and is the larger replanted of indigenous trees in the entire Miombo Woodland Biome. The products from Mezimbite have won a number of design awards and feature in leading private collections and museums. He was elected an Ashoka Fellow for his work in environment and development in 2010, and lectures regularly at major universities in the Africa and America.

Kamal Aryal
Natural Resources Management Analyst / ICIMOD

Shanta Buda Magar
Central Department of Botany, Tribhuvan University, tipurKathmandu

Ms. Shanta Budha Magar is Master,s scholar in Central Department of Botany, Tribhuvan University, Kirtipur, Kattmandu, Nepal. She is permanent resident of Ghorahi-8, Dang, Nepal. She involved in several researches as a research assistant like: Research assistant in Flora of Panchase, Kaski, Research assistant in GLORIYA project, Research assistant in NTFPs (Non-Timber Forest Products) in Api Nampa Conservation Area in Darchula and Annapurna Conservation area in Kaski, etc. Presently she is doing her dissertation entitled: “FLORISTIC DIVERSITY AND ETHNOBOTANICAL STUDY OF JALJALA MOUNTAIN, ROLPA DISTRICT, WESTERN NEPAL”. Her field of interest are; Plant science, Biodiversity, Conservation, Ethonobotany, Culture.

Babita Shrestha
PHD Student, Tribhuvan University

I'm Babita shrestha. I'd finished M.Sc.in Botany from Central Department of Botany, Tribhuvan University, Kirtipur in 1991. I'd worked as the Mushroom Spawn Production Officer in CATT (Centre for Agricultural Technology and Training), Mushroom Cultivation Training Officer in WIST (Women in Science and Technology). I've been involved in teaching Botany in different Higher Secondary Schools. Nowadays I'm engaged with the Ph.D. research entitled "Trees outside Forests in Kathmandu Valley".

Laxmi Raj Joshi
National Trust for Nature Conservation, Bardiya Conservation Program

Bijay Raj Subedi
Teaching assistant, Research Centre for Applied Science and Technology, Tribhuvan University, Kirtipur, Kathmandu, Nepal