

area management. Graduate were satisfied with their training but University of Yaounde I graduates were not comfortable with the administrative disorder surrounding the program which may be the reason of the dwindling enrollment number. Harmonization of forest science curriculum should be considered when designing policies to improve forest education to provide graduate with equal opportunities in the job market.

Necessary competencies in forest soils for superior education in forestry: a new perspective for future generations / Competencias requeridas en suelos forestales para la educación forestal superior desde una nueva perspectiva para futuras generaciones

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En el marco de los objetivos de desarrollo sostenible, los objetivos de la convención de lucha contra la desertificación, sequía y de cambio climático la educación forestal superior debiera incorporar las siguientes funciones asociadas a suelos de acuerdo a paradigmas: i) funciones de protección, preservación y conservación de suelos y aguas en áreas protegidas y bosque naturales ii) las funciones de recuperación y recuperación de suelos devastados por el flagelo de la erosión y la desertificación iii) las funciones de fomento a la forestación y recuperación de suelos degradados, procesos de con técnicas de conservación de suelos y aguas, iv) Las funciones de ordenamiento territorial de cuencas hidrográficas, de sitios y suelos forestales. Se recomienda incluir en curriculum académico la formación de las competencias que se indican: a) cartografía, inventarios, catastros, clasificación y pedo- genética de suelos, sistemas de información de suelos b) nutrición, fertilidad, manejo de nutrientes, permacultura, agricultura biodinámica y orgánica, biofiltros, zonas buffer, eutroficación c) conservación de suelos y aguas, control de erosión, recuperación, rehabilitación y restauración, manejo integral de suelos y cuencas hidrográficas d) descontaminación de suelos, bioremediación, desalinización, manejo de relaves, pasivos ambientales, oasisificación, enmiendas, estándares de eco-calidad de suelos y certificación ambiental e) suelos y ecosistemas naturales, ciclos y balances, asociaciones e interrelaciones suelo-sitio-agua- bosque-vegetación - biodiversidad /cuencas hidrográficas en áreas silvestres f) legislación y ordenamiento territorial en suelos urbanos, rurales, cuencas hidrográficas pre- cordilleras y cordilleranas, borde costero g) suelos y cambio climático, captura de carbono, servicios ambientales, manejo adaptativo y mitigación.

Modernization of the study at the Czech University of Life Sciences Prague with an emphasis on forestry and environmental fields of study

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The aim of the contribution is to inform about the project, which is focused on the modernization of study and increasing the quality of study programmes on the Czech University of Life Sciences Prague (CULS). Currently the university has more than 19 000 students (15% are international students), 6 Faculties (including Faculty of Forestry and Wood Sciences and Faculty of Environmental Sciences) and 1 Institute. CULS offers over 170 accredited study programmes at BSc, MSc and PhD levels. The modernization of studies and study programs is a response to the developments and changes such as globalization of the economy, climate change and new technologies. Significant socio-economic changes that have taken place during the past years in the Czech Republic also have a major impact on the demands that society places on education. The new education strategy is based on the development of teaching facilities (teaching laboratories equipped with the most modern technology) together with new educational methods (requiring an increase in the competencies of academic staff) and study programme innovation (including preparation of new study programs). A key role is played by a new way of university accreditation which was adopted in the Czech Republic in 2016. With the acquisition of institutional accreditation, the possibility of creating multidisciplinary and international study programs was opened for the CULS.

Recognizing traditional knowledge and forest practices in the Cochabamba Valley, Bolivia / Reconocimiento de saberes y practicas forestales tradicionales en el Valle de Cochabamba, Bolivia

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La Constitución Política del Estado Plurinacional de Bolivia, declara que los bosques naturales y los suelos forestales son de carácter estratégico para el desarrollo del estado, y se plantea como política la promoción del manejo sustentable e integral de los bosques con participación de las comunidades, que acepte la complejidad y diversidad de los sistemas boscosos y el reconocimiento de los saberes y prácticas tradicionales. La Universidad Mayor de San Simón, han implementado programas académicos desconcentrados, que responden a las demandas de formación, las necesidades y potencialidades locales, siendo una de ellas el Programa de Técnicos Básicos Forestales. Se ha desarrollado el programa, dirigido a personas de instituciones públicas (Gobernación y Municipios de Cochabamba, Bolivia); que se dedican al sector forestal, a la producción de plantines y al manejo de plantaciones forestales; la mayoría eran personas que no han tenido formación formal pero si han desarrollado capacidades de forma empírica, sus edades oscilan los 20 a 60 años. Producto de cada curso, se observaba el intercambio de información y conocimiento que se daba entre los docentes y los alumnos; reconociendo los saberes y prácticas que tradicionalmente habían aprendido y por otro lado adquirir conocimientos científicos de los docentes. Cada estudiante realiza una investigación, sobre acciones que realizan cotidianamente pero ajustadas al método científico, siendo sorprendente los resultados obtenidos y que fueron plasmados en documentos técnicos, se otorgó un título de Técnico Básico Forestal como reconocimiento a los saberes y prácticas forestales tradicionales de personas que promueven el sector forestal.

A tunnel to virtual reality: an immersive experience with knowledge on integrated crop-livestock-forest systems / Túnel de realidade virtual : uma experiência de imersão e conhecimento sobre a ILPF

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Como forma de atrair a atenção do público e de proporcionar uma experiência imersiva e de conhecimento, em 2018 trabalhou-se na adaptação do conteúdo do aplicativo “Maquete Virtual de ILPF em Realidade Aumentada” para um formato de realidade virtual (RV). Pensando-se na participação da Associação Rede ILPF no Congresso Mundial de Ciência do Solo, realizado no Rio de Janeiro, criou-se um túnel por onde os visitantes passavam por dezesseis painéis utilizando óculos de RV. Em cada painel uma cena mostrava uma etapa de um sistema ILPF ou abordava algum aspecto do sistema, como comportamento de raízes, infiltração de água, ciclagem de nutrientes, ciclo de gases de efeito estufa, etc. Um áudio, em português ou inglês, explica cada imagem. Além da experiência imersiva da RV, foram utilizadas também experiências sensoriais, como iluminação diferenciada, vento simulando o conforto térmico da sombra e uso de essência de eucalipto e folhas espalhadas pelo chão nas cenas com o componente arbóreo. No Congresso de Solos, 370 pessoas, de 30 países passaram

pelo túnel. A experiência levou a várias requisições para sua instalação em eventos do setor agropecuário e em exposições voltadas para público urbano. Uma grande vantagem dessa ferramenta é a facilidade de ser replicada. Basta imprimir os 16 targets e montá-los num caminho sequencial. Também é necessário ter um smartphone com o aplicativo baixado, fone de ouvido e óculos de RV. Modelos simples, vendidos por R\$ 25 na internet, são suficientes. Tanto o aplicativo quanto os targets estão disponíveis para download gratuito em www.ilpf.com.br.

F8b: WOOD AND FOREST CULTURE: ADDRESSING A SUSTAINABLE FUTURE

Immortal Wood Traditions in India and their contemporary relevance

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Wood has been part of Indian culture since time immemorial. Most religious and domestic architecture in India, from its very inception, was wood-based. In the year 1918 a detail account was published on Indian timbers mentioning the usage of over 1400 tree species. This knowledge became the basis for furthering scientific studies on wood identification, their properties and efficient utilization. Indian Standards were formulated to list wood species recommended for various purposes like Railway sleepers, Defense tools, construction, cooling towers, sports goods etc. The presentation shall draw a chronology of wood traditions in India through pre-historic period and would throw light on how this knowledge has been utilized in recent time. An account shall be given on woods used traditionally for construction, dockyard, mortars, coffins, charcoal, sculptures, wicker work, toys, musical instruments, agriculture implements, incense etc. utilizing various properties of wood like strength, durability, shock absorbance, self lubricating, weight, calorific value etc. It shall also throw light on how this already prevailing age old knowledge has been presently useful in efficient utilization of the wood. Wood species used in temples, shipbuilding, furniture, musical instruments, toys etc. suggest well-developed and immortal wood traditions in India that still holds relevance today. The tradition of usage of various medicinal woods is still in practice today, the account of which dates back to several centuries. The wood explorations have also led in throwing light on broad distribution of trees and thus provide useful information for their rehabilitation. ■

Schwarzenberg Floating Canal: An unwanted forest cultural heritage?

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The aim of presentation is to describe and analyse history and current status, including ongoing conflicts and future prospects, of perception and protection of Schwarzenberg Floating Canal as an important cultural monument and heritage object of forestry, timber and wood utilisation in the Central Europe. The paper is based on study of historical sources, analysis of current conservation and heritage policies in the Czech Republic, public and media coverage of the topic and field anthropological research. The Canal - one of the most remarkable water structures of its times - was built in two phases from 1789 to 1822 to transport firewood and timber from the Šumava (Böhmerwald) mountains to Vienna, thus enabling utilization of formerly inaccessible parts of the Šumava forests. Total length of the waterway was 89,7 km and was complemented with hundreds of bridges, sluices, water moats and gates. Construction of the Canal intensified logging in the South-Western Šumava, provoked the colonisation of area and led to gradual transformation of the Šumava forests in the course of 19th Century. However only a shorter part of the Canal was used in the 20th Century and after the 2nd WW the waterway was abandoned and heavily damaged. On the other hand it has been listed as a cultural monument since 1963 and partly renovated from 1980s to 2001. After the establishment of Šumava national park in 1991, however, the Canal became an unwanted heritage: it clearly shows that forests in Šumava are much more of a biocultural heritage than untouched nature.

Wood culture programs: paving the way for responsible wood usage and a sustainable future

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Wood culture can be defined as “The value and the way we use wood in our society.” The International Wood Culture Society (IWCS) was established over a decade ago to raise public awareness of wood as an eco-friendly biomaterial and encourage academic research and responsible wood usage for a sustainable wood future. The Society established World Wood Day (WWD) on March 21st each year to celebrate the human use of and activities with wood, as well as attitudes toward wood, wood products and wood-related environments. To manage these celebrations, the World Wood Day Foundation (WWDF) was established in 2013. The Foundation also manages funds and grants for World Wood Day and the global research, education and promotion of wood culture. The first World Wood Day (WWD) celebration was held in Dar Es Salam, Tanzania in 2013; followed by a new country each year. Activities at each celebration include wood carving, wood turning, a technical symposium, tree planting, a wooden instrument musical festival, furniture making, wooden folk art, a children’s program, wood design, and a collaborative project. These programs continue our wood heritage and traditions with creative new ideas for our daily development and provide a greater appreciation for the interplay between wood, nature, and the people who work with and use wood. This talk will give examples of how these goals are accomplished.

Characterization of municipalities in the timber production chain in the north of Mato Grosso, Brazil

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Selective logging have been occurred for more than three centuries in the Amazon and, in the past, it was made for subsistence in lowland forests and, therefore, it was very low impact. The intensification of logging occurred in the 1970s, mainly due to the construction of roads, depletion of southern and southeastern stocks, and uncontrolled exploitation. These factors led the Amazon to the position of the world’s second largest producer of tropical timber, in which Pará and Mato Grosso the main producing states. At Mato Grosso state, timber sector plays an important economic role, contributing strongly to the state’s revenues and generating jobs. In this context, the present study aimed to characterize the municipalities in the north of the state of Mato Grosso considering their participation in the wood production chain, according to a typology of municipalities’ influence patterns in the state’s timber sector, and the profile socioeconomic context in which they are inserted. The results showed that there are five different patterns: 1) municipalities with highly developed industry, 2) municipalities with primary industries with high wood processing capacity, 3) municipalities with industries with low processing capacity and high lumber stock, 4) few lumber and small