IUFRO World Congress Bulletin

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XXIII IUFRO World Congress Highlights: Wednesday, 25 August 2010

On Wednesday, participants dug deep into technical issues following a keynote speech in plenary by José Joaquín Campos Arce, Director General of CATIE. The day continued with three sub-plenaries on forest genetic resources, forest monitoring for climate change, and forest biomass utilization. Thirty-nine technical sessions met, along with multiple side and business events, as well as the final official poster session. Thursday's Congress will be held outdoors, with participants hoping for a break in the constant rainy weather for their eight field trips before returning to the COEX complex on Friday.

IUFRO delegates with the IUFRO Congress mascot mixing a giant serving of "Bibimbap". Photo courtesy of Reem Hajjar.

Plenary Session

John Parrotta, US Forest Service, chaired Wednesday's plenary, introducing Keynote Speaker José Joaquín Campos Arce, Centro Agronómico Tropical de Investigación y Enseñanza (CATIE).

Campos Arce presented on the integration of scales and sectors to improve sustainability of livelihoods, landscapes and forests. He highlighted that system approaches are necessary for addressing the complex set of challenges facing the world, as well as achieving sustainable development, which requires interdisciplinary multi-stakeholder platforms, mechanisms and intense coordination. Campos Arce said there is a need to find sustainable rural solutions to global challenges and local needs, requiring integrated and collaborative solutions on all scales, from local to global. He underlined that rural areas provide important ecological services.

José Joaquín Campos Arce, CATIE, accepted a token of appreciation from IUFRO President **Don Koo Lee.**

Agroforestry systems, he said, are key to improving livelihoods of poor rural families. He identified several components of such systems including: managing tree density and growth to enhance carbon storage without affecting yields; linking local communities with socially responsible companies; finding innovative approaches to lower transaction costs; and ecosystem approaches to SFM, forest conservation, and establishment of biological corridors.

Campos Arce stressed the importance of PES, especially for small farmers and forest-dependent people. Scientific support, he said, will improve effectiveness of SFM, and he underlined the importance of forestry education and training of new forestry professionals.

Campos Arce concluded that social and ecological resilience are interdependent and the key for sustainable livelihoods, landscapes and forests.

Sub-Plenary Sessions

On Wednesday afternoon, three simultaneous sub-plenary sessions convened around the bustling COEX complex in Seoul.

IUFRO DIRECTORS FORUM: FOREST MONITORING IN TIMES OF CLIMATE CHANGE: Co-moderator Konstantin von Teuffel, Forest Research Institute Baden Württemberg, called the Forum a place to exchange views on management of forest research. Co-moderator Ann Bartuska, US Forest Service, added that another aim of the Forum is to make the theoretical practical.

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Mette Loyche Wilkie, FAO

Peter Mayer, IUFRO, discussed the outcome of the 2009 World Forestry Congress regarding forest monitoring, emphasizing funding, climate change and significant regional differences in monitoring capacities.

Mette Loyche Wilkie, FAO, reminded participants that monitoring takes place on different scales under different conditions. She said FAO supports formation of technologically-centralized but bottom-up global monitoring. Wilkie underscored the enormous data gaps researchers faced preparing for FAO's Global Forest Resources Assessment (FRA) 2010, especially on: net changes in carbon stocks; previous and current deforestation rates; and carbon emissions from deforestation.

Ben Chikamei, Kenya Forestry Research Institute, spoke on forest monitoring in Kenya and Africa. He noted that despite progress made in his country, only 11 African countries are set to benefit from REDD projects through the World Bank, saying complicated procedures and methodologies hinder expansion of CDM and REDD activities, recalling that according to UNEP's methodology, Kenya has 2 % forest cover but using FAO's it has 5.9 %.

José Joaquín Campos Arce, discussed forest monitoring in Latin and Mesoamerica, stressing it is an adaptive management tool, not a luxury. Aside from capacity deficits outside Mexico, he also noted difficulties agreeing on regional definitions for indicators, criteria and principles due to differences in Latin American national interests.

Joon Hwan Shin, Korea Forest Research Institute, stressed the need to address four questions: what forest information is important for climate change? What is the appropriate structure of a global forest monitoring system? How can the needs of developing countries be met? Who will pay for such a system?

Klaus-Herman von Wilpert, Forest Research Institute Baden Württemberg, presented the outcome of forest monitoring in Central Europe as a basis for SFM. He purported that forest decline is the result of air pollution and soil degradation, and emphasized that monitoring should be a continuous bottom-up endeavor. He concluded by voicing frustration that the EU refused to fund regional monitoring because of a lack of political appeal, and urged IUFRO to send a clear message to policymakers on this issue.

George Sam Foster, US Forest Service, said there is a critical demand for forestry monitoring information and that expanding interest is generated by rapid changes in global markets and environments. He stressed the need for, *inter alia*: further integrating satellite data with ground level information; a focus on innovations to lower monitoring costs; and better understanding what forest change really means.

FOREST BIOMASS UTILIZATION FOR BIO-ENERGY: TECHNOLOGY, ECONOMICS AND ENVIRONMENT: Woodam Chung, University of Montana, moderated this session, explaining that biomass can be used as a tool for mitigating climate change.

Nathaniel Anderson, University of Montana, explained it was cost-effective and feasible to supply timber residue at $43 per ton in Oregon. He concluded that pyrolysis production of biochar has great potential.

Christian Suchomel, University of Freiburg, described harvesting firewood via the coppice method, which generates dense and sustainable re-sprouting of forest stands, providing sustainable bioenergy. He described different harvesting technologies and concluded that coppice is good for conservation.

Han-Sup Han, Humboldt State University, emphasized that non-uniform forest residues are difficult and expensive to handle, and described challenges with four current residue collection and transport systems: centralized processing; on-site processing; slash bundling; and integrated systems.

Xueyong Ren, Beijing Forestry University, presented fast pyrolysis bio-oil production. Using this method, he said, biomass can be converted to biochar, bio-oil, or combustible gas in a single chemical reaction.

Using a life cycle approach, Young-Seop Choi, Kangwon National University, compared wood fuels, concluding that the distance to the consumer and income level of the consumer are important.

On bioenergy in Japan Kazuhiro Aruga, Utsunomiya University, lamented that although forest, sawmill, and construction waste residues largely go unused, subsidies necessary to make them economically viable, are unlikely to be introduced.

Deborah Page-Dumroese, Michigan Technological University, highlighted the importance of soil science in forestry management and biomass harvest, stating that both alter soil processes physically, chemically, and biologically. She said retaining the forest floor is key to forest health and recommended practitioners create site-specific risk ratings to promote sustainability.

Lisa Sennerby-Forse, Swedish University of Agricultural Sciences, for Helene Lundkvist, summarized bioenergy development in Sweden, noting it had surpassed hydropower and nuclear power, and accounts for more than 25% of total energy supply. She also outlined the environmental concerns of producing bioenergy.

CONSERVATION AND SUSTAINABLE USE OF FOREST GENETIC RESOURCES: Heok-Choh Sim, Asia Pacific Association of Forest Research Institutions, moderated the session.

Zohra Bennadji, Instituto Nacional de Investigación Agropecuaria, Uruguay, detailed a project identifying critical problems in forest genetic resource (FGR) conservation and sustainable use, which will inform the first FAO assessment on the global status of FGRs. She noted: the need for standardized indicators for forest species priorities and genetic diversity; a lack of good exchange mechanisms for information sharing; and weak links between policy and science


Participants posing questions to a poster presenter.

The dais during a session of the President's Discussion on forestry education.

Judy Loo, Bioversity International, presented an approach for managing conservation of genetic diversity when reliable information on variability is lacking, underscoring that due to high costs and difficulties of obtaining genetic information, it is often neglected by forest managers. She suggested assuming that genetic diversity correlates with environmental variability until more information is available on FGR.

Dag Lindgren, Swedish University of Agricultural Sciences, discussed the significance of climate change for seed orchards and said they will become more important in years to come. To account for climate change, he offered suggestions on how to deploy genetic material in Sweden, such as shifting seed ranges upwards in elevation by 3.3 meters per year to offset temperature changes.

Kyu-Suk Kang, Korea Forest Research Institute, reviewed the history and aims of tree breeding in the Republic of Korea, including work on breeding indigenous timber species and the establishment of seed orchards. He discussed advances made over the years and stressed that seed orchards play a key role in preserving FGR.

Yongqi Zheng, Chinese Academy of Forestry, reviewed changes associated with climate change, and detailed the role FGR can play in ensuring species and ecosystems are adaptable and resilient in the face of changing climatic conditions and greater variability in these conditions. He stressed that diversity is the basis for evolution and resiliency to changing demands we place on forests.

IUFRO PRESIDENT'S DISCUSSION: FUTURE CHALLENGES FOR FOREST EDUCATION:

Meeting in the late afternoon, this special session was moderated by Peter Mayer, IUFRO.

Florent Kaiser, International Forestry Students' Association, lamented that current forestry curricula lack: practical learning opportunities for students; a global focus; and student exchange opportunities.

Yoon Soo Kim, Chonnam National University, said forestry graduates worldwide have declined by 30% since the 1990s. Additionally, to meet industry demand, he suggested a three-year technical education as more relevant.

Hosny El-Lakany, University of British Columbia, on improving forestry education, commented on the need for: more specialized departments; increased national and international collaborations; job preparation in and outside of specific fields of training; and improved marketing by universities.

Emmanuel Ze Meka, ITTO, discussed what students should know about international forest-related agreements. He emphasized that in reality, international agreements are often constrained and undermined by sovereignty issues, and said although their overall impact has been questionable, their role and relevance is becoming more central due to concerted international efforts to resolve global problems.

Hideki Nose, Sumitomo Forestry Group, said highly specialized students often lack comprehensive judgment on contemporary forest industry issues and it must be remembered that one "cannot see the forest by only looking at the trees."

Gerald Steindlegger, WWF, stated that forestry must demonstrate that "it no longer serves only a sector but an entire landscape-of values and people." He also noted that primary drivers of deforestation lie outside the forest sector and SFM alone is not the answer.

Don Koo Lee, IUFRO President, concluded the session by proposing the creation of an IUFRO e-learning tool and IUFRO Task Force on Forest Education.

Technical Sessions

Participants bustled to 20 technical sessions first thing in the morning and again to 20 more at the close of a very busy Wednesday.

TO WHAT EXTENT CAN PAYMENTS FOR FOREST ENVIRONMENTAL SERVICES BE PRO-POOR?:

Moderator Terry Sunderland, CIFOR, opened the session by highlighting continuing controversies over the validity of PES as a pro-poor approach.

Sim Eun Suh, Seoul National University, questioned motivations for linking poverty to PES, saying that PES' focus on cost efficiency actually benefits from poverty, and theoretically incentivizes locking the poor into environmentally "sustainable poverty."

Lisa Petheram, Charles Darwin University, shared lessons from engaging communities on PES near a Vietnamese national park. She found that: lack of trust in government led respondents to favor payments from other sources; a combination of monetary and in kind payments is preferred; and continued forest access for household products is desired. Petheram also speculated that respondents' motivation to participate in PES and forest preservation was influenced by her presence.

Stephen Garnett, Charles Darwin University, on behalf of Pham Thu Thuy, shared findings of a pro-poor PES case study in Vietnam. Main messages included that: influential stakeholders can fuel inequity and inhibit participation; neutral intermediaries are hard to find; PES may not cover opportunity and transaction costs of poor households, but monetary gain is not the sole motivation to participate; and that understanding locals' definition of poverty should be central to project planning.

Marieka Sandker, CIFOR, presented on participatory modeling of potential REDD outcomes in Ghana. She discovered that in areas with high population, low forest density and valuable cash crops, REDD does not offer enough incentives to overcome planned conversion. Additionally, in her case study area, the poor have little access to REDD

proceeds because 90% of forest carbon is stored on land owned by the wealthy, creating the danger that landowners may repatriate land currently leased to poor farmers to benefit from REDD themselves.

MANAGING ASIAN BAMBOO FOREST IN A CHANGING WORLD: Yaoqi Zhang, Auburn University, moderated this session.

Jian Gao, International Center for Bamboo and Rattan, China, reviewed water quality problems in China's Chaohu Lake and described results from area forest plots. She said bamboo forests are useful for water conservation and reducing pollutant runoff because they retain more water in the litter layer than other forest types.

Masaharu Sakai, Forestry and Forest Products Research Institute, Japan, detailed a study of soil and water conditions in bamboo and conifer forests. He noted the problem of bamboo encroachment lowering soil moisture content, owing to higher water transportation in bamboo stands, and said that bamboo soils are at low risk of acidification.

Yueqin Shen, Zhejiang Forestry University, reviewed reforms in the bamboo sector. Drawing on a household survey, she discussed how different management approaches for bamboo affect economic benefits, local employment opportunities, and income distribution.

Ramasamy Yasodha, Institute of Forest Genetics and Tree Breeding, India, noted high demand for bamboo is complicated by its unpredictable reproductive cycle, limiting production. She explained the intricacies of *in vitro* micropropogation and said *Bambusa nutans* works well with these methods, but stressed that costs limit commercial production.

Benzhi Zhou, Zhejiang Forestry University, China, said bamboo is China's most important forest type, and reviewed its carbon sequestration properties. He discussed dry-weight biomass and carbon content to soil depth of 60 cm of a *Dendrocalamopsis vario-striata* plantation, finding 95.5 tonnes of carbon per hectare, with a third captured in plant biomass and two thirds by soil.

Guomo Zhou, Zhejiang Forestry University, China, discussed carbon storage of *Phyllostachys pubescens*, an economically important bamboo, which since the 1990s has come to account for 75% of Chinese and 40% of global bamboo forests. He revealed that the carbon storage capacity of this species can increase up to 40 fold in one month due to its quick growth rate.

IDENTIFYING AND MONITORING OLD GROWTH FORESTS IN BOREAL, TEMPERATE AND MEDITERRANEAN ENVIRONMENTS: Anna Barbati, University of Tuscia and Thomas Spies, US Forest Service, co-moderated the session.

Thomas Spies focused on old growth forests in the US Pacific Northwest, highlighting varied and complex definitions for old growth and different pathways by which these forests develop. For effective monitoring, he recommended a simple, structurally focused definition.

Rod Keenan, University of Melbourne, discussed events leading to Australia's policies for old growth protection. Detailing operational definitions used to map and designate protected areas, he stressed the need for adaptive approaches, particularly given climate change.

Anna Barbati said a structural approach is a fast and practical way to identify old growth forests, emphasizing that finding European old growth forests requires looking in hard to access places, at forests that have been under limited management, and at remnants of previous forests.

William Keeton, University of Vermont, explained that forests in the US Northeast were almost entirely cleared but are now re-growing. He discussed a study examining harvesting treatments designed to encourage development of old growth attributes in secondary forests.

Grant Wardell-Johnson, Curtin University, discussed tall open forests in southwest and southeast Australia. He stressed the importance of climate change when thinking about the conservation of old growth, noting, *inter alia*, carbon retained in old growth forest soils and changing temperature and precipitation affecting viability of protected forests.

Jan Bannister, University of Freiburg, reviewed research investigating the development of swamp and upland stands of old growth *Pilgerodendron uviferum* forests in Patagonia, showing the tree species is stress and shade tolerant and can regenerate without large disturbances.

Alfredo Di Filippo, Università della Tuscia, Italy, described findings from a study of old-growth beech forests in northern and central Italy that reconstructed tree-life histories to analyze the transition of these forests towards old growth status from their previous state as managed forests.

Kris Verheyen, Ghent University, discussed long-term changes in understory vegetation in European forests based on an analysis of archived plots. He offered a synthesis quantifying the rate and nature of change in understory vegetation and their key environmental drivers.

ADVANCES IN FOREST PEST SURVEILLANCE AND MONITORING: Olle Anderbrant, Lund University, talked about forest insects in pest control and conservation, and the use of pheromone trap-catch at large scales.

Richard Hofstetter, Northern Arizona University, summarized that there is a positive correlation between trap-catch and infestation density, and that trap-catch may be a good large-scale predictor of beetle abundance and tree mortality.

Hongbin Wang, Chinese Academy of Forestry, described research to identify beetle population density at different elevations and cardinal directions in a forest using pheromone bait methods.

Steven Seybold, US Forest Service, reviewed invasive beetle populations, explaining that an "improved" rather than commercial pheromone bait showed better empirical results than models predict.

Robert Rabaglia, US Forest Service, presented on an early detection and rapid response project for non-native bark beetles that can severely impact the health of US forests. He relayed that the project had identified a list of 10 high-risk species, and traps baited with either species-specific pheromones or generally attractive host volatiles had been used in forest areas around high-risk sites in 17 states every year in the country.

Zhen Zhang, Chinese Academy of Forestry, presented work on detecting and trapping the red turpentine beetle introduced to China from North and Central America that caused serious damage to the Chinese pine.

Wonhoon Lee, Korea Forest Research Institute, reported the work of his research team in the construction of a Korean Forest Insect Pest DNA barcode database. He noted that DNA barcoding has potential applications in insect pest monitoring and quarantine.

Natalia Kirichenko, Institute of Forests, Russian Federation, reported on her work in detection of alien insect pests and diseases on European and North American woody plants in Siberia. The purpose of the study was to identify poorly known pests and diseases that, if introduced to Europe or North America, may present a threat.

Choi Won IL, Korea Forest Research Institute, reported findings of a study conducted by his research group on the occurrence and distribution of invasive insect pests in Korea after 2000.