CFA Newsletter

No.68 March 2015 ISSN 1750-6417

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CFA Newsletter
is the newsletter of the Commonwealth Forestry Association

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Supertrees at Singapore's Gardens by the Bay

An illustration of Architectural Biomimicry

Supertrees and aerial walkways

Located 1° N of the Equator, Singapore is found in the realm of high tropical biodiversity, where rainforests and mangrove forests dominate. Like many other cities in the equatorial belt, much of its natural habitats were already cleared for agriculture and urbanisation by the time it gained independence in 1965.

In the next 50 years, a nationwide concerted effort in greening Singapore ensued. It is today a verdant city-state, an archetype of urban forestry, intertwined with nature conservation and restoration ecology. It prides itself as a 'City in a Garden', comprising 4000ha of native rainforest, mangroves and coastal habitats, more than 300 gardens and parks, more than 800 community gardens, 260km of greenways, streetscapes with close to three million trees, and more than 60ha of skyrise gardens. Singapore's vegetation cover takes up close to 45% of its land area (Auger 2013).

It was in this context that the Gardens by the Bay was conceived in the heart of its new Downtown, as a national garden of horticultural exposition and vibrant outdoor recreational space for Singaporeans and visitors. Beyond its remit as a national garden, it sought to incorporate innovative and smart technologies that would lead the way in the sustainable development and management of gardens for the future.

Occupying 101ha of land reclaimed some 30 years ago, the Gardens by the Bay comprises three distinct but connected waterfront gardens – Bay South (54ha), Bay East (32ha) and Bay Central (15ha). First phase of the Gardens' development was focused on Bay South, which opened in June 2012.

Bay South was designed around the themes of Plants & Planet, Plants &

People, and Nature's Balance[1]. These themes are replicated in a series of horticultural show gardens and a landscaped lake system that incorporates the latest technology in the use of plants to cleanse water. Central to the themes of the Gardens are the cooled conservatories, which utilise renewable energy from horticultural waste to replicate the conditions necessary to grow and bring to flower plants unique to the Mediterranean and Tropical Montane so as to tell the story of Man's impact on the environment in these regions. Complementing the cooled conservatories are the Supertrees, which draw inspiration from the dominants in the tropical rainforests. They bring immediate attention to the aura that surrounds these trees, which cannot be grown to similar top heights of 50m in the urban environment due to the lack of a micro-climate found in the close tropical forest ecosystem. These Supertrees were designed to bring scale to the Gardens as a counterbalance to the buildings around it; support a typology of vertical gardens; and provide functions integrated with the Gardens' sustainable ecosystem (Koh 2012).

The Supertrees are 18 tree-like steel structures varying between 25m to 50m (nine to 16 storeys) in height, and arranged in two clusters of three trees at strategic gateways into the Gardens and a cluster of 12 trees at the heart of the Gardens.

Each individual Supertree takes the form of a tree. It is made up of a concrete core on the inside, and an external steel frame on the outside. This external frame is defined by a series of radial and diagonal members which give the appearance of branches growing from the ground, increasing in number from the trunk and radiating outwards in the canopy. The design of the Supertrees has been lauded as an engineering feat, with the different structural components acting mutually as a system to ensure that it remains light.

The Supertrees are interpretations of Man's attempt to recreate Nature's Balance. Like real trees, the trunk of each Supertree is cloaked in a living skin of ferns, epiphytes and tropical flowering climbers. The canopies carry photovoltaic cells and collect rainwater, mimicking the functions of photosynthesis and rain harvesting in trees. These sustainable technologies are further integrated with the conservatories. The two clusters of Supertrees at the Gardens' gateways serve as air intake and exhaust receptacles. The cluster closest to the main arrival incorporates a chimney with air scrubbing technologies to support the onsite biomass generator facility that produces renewable energy to cool the conservatories, while the cluster at the lake edge contains the discharge chimneys that throw out expired air from the conservatories. These Supertrees therefore illustrate how trees help to absorb pollutants from the air and produce cleaner air in urban areas.

To better allow visitors to appreciate the Supertrees as architectural biomimicry of the trees in nature, the story of the Supertrees and the functions of trees in our ecosystems are re-told graphically around the bases of these vertical gardens. An aerial walkway measuring 128m long and connecting two Supertrees, not only gives visitors a bird's eye view of the Gardens 22m above ground, but also features storyboards that provide interpretation of canopy ecology. To add further drama and interest, the Supertrees come to life in a nightly light and sound show. The tallest Supertree, at 50m, also supports a bistro at the top.

The Supertrees are an illustration of how architecture, engineering, landscape design, forestry, ecology, horticulture and interpretation are brought to bear. They evoke awe and an almost child-like reverence for Nature, thereby leaving an indelible impression on visitors of the importance of trees and forests in our midst.

[1] The gardens at Bay South, including the Supertrees, were designed by Grant Associates (UK), Wilkinson Eyre Architects (UK), Atelier One (UK), Atelier 10 (UK), CPG Consultants (Singapore), Meinhardt Infrastructure (Singapore), Langdon & Seah (Singapore), Land Design Studios (UK).

REFERENCES

Auger, T. (2013). Living in a Garden. The Greening of Singapore. Editions Didier Millet, Singapore, 200 pp.

Koh, B.S. (2012). Perpetual Spring. Singapore's Gardens by the Bay. Marshall Cavendish Editions, Singapore, 227 pp.

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Light and sound show at the Supertree Grove

Association news

CFA Young Scientist Award winner receives IUFRO Award

Sharif Mukul carrying out fieldwork with farmers in Nepal

I was fortunate to attend the IUFRO 2014 World Congress held in Salt Lake City, Utah, United States in October 2014 where I received the IUFRO Students Award for Excellence in Forest Sciences (Division 6) from IUFRO president Prof. Sirong Liu for my masters thesis conducted in Nepal on indigenous *Chepang* farmers and their traditional swidden practice. As a **CFA Young Scientist Award** winner I received a small grant from the CFA to assist my study of the changes, local understanding and perceptions of swidden agriculture amongst swidden farmers in two central districts of Nepal, namely *Dhading* and *Chitwan*. My study revealed that, although the land-use practice was changing rapidly in both areas, and cash crop based sedentary agriculture were becoming the prominent land-use, the role of swidden agriculture in food security was still important to most of the farmers. The main reasons why farmers in the two areas practice swidden agriculture were, in an order of importance: lack of secure tenure; poverty and unemployment; cultural identity; absence of alternative land-use options and as their traditional right. On the other hand, swiddening was negatively affected by its labor intensiveness; lack of manpower available for work; negative government policy and attitudes; low economic returns and shrinking land-base for swiddening. My study emphasized the need for more equitable land-use options, tenure security, access to government support and in allowing rural *Chepang* farmers to perform long-lasting, environmental friendly land-use.

The award ceremony was accompanied by a plenary session where all the IUFRO student award winners share their research experiences, career plans and dreams. At the conference I also gave a talk from my ongoing PhD project conducted in the upland Philippines on bio-physical aspects of tropical secondary forests after being used for swidden by small-holder farmers. The conference gave me an ample opportunity to share ideas, networking, and seek advices from experts for the future research. I now look forward for the next IUFRO congress to be held in Brazil in 2019!

Sharif A. Mukul

Youth

Our Roots, Our Future: Highlights from the 42nd International Forestry Students' Symposium

IFSS 2014 Biocultural diversity in action
(Photo: Sarah Dickson-Hoyle)

From August 6–21, 2014, 110 students from 51 universities, spread over 32 countries and 6 continents, came together in British Colombia (B.C.), Canada, for the 42nd International Forestry Students' Symposium (IFSS). As a global, not-for-profit network connecting students of forestry and related sciences, the International Forestry Students' Association (IFSA) works to enhance forestry education, promote cultural and knowledge sharing, and provide a voice for youth in international forestry processes. As the largest and most important event on IFSA's annual calendar, IFSS brings officials and student members together to learn about forests and forests industries in the host IFSA chapter's country, and to discuss IFSA's goals and activities for the coming year.

In 2014, IFSS was jointly hosted by the University of British Colombia (UBC), the University of Northern British Colombia (UNBC), and Thompson Rivers University (TRU). The theme of

this IFSS was *Our Roots, Our Future*, reflecting the historical significance of B.C.'s forests to its First Nations peoples and early European settlement, and the continuing importance of an increasingly diversified forestry sector to the province's economy.

Forests and field trips

For many students, the highlight of IFSS was the chance to learn about the diverse range of forest ecosystems and industries of B.C., from the urban and coastal forests of Vancouver's Stanley Park, to tree breeding facilities on Vancouver Island, and sawmills in the province's interior. On Vancouver Island, we were taken on a guided tour of Cathedral Grove, a stand of up to 800 year old Douglas Fir within the 'Coastal Western Hemlock Biogeoclimatic Zone'. During this visit we learnt about the forest fire history and ecology, and heard from a B.C. based environment group promoting sustainable logging of second-growth forests in the province. As we travelled north into interior B.C., we were introduced to different approaches to integrated resource management, silviculture systems such as shelterwood, and an innovative forestry-based biofuel industry.

An interactive story map of our route, produced by ESRI, can be found at: http://www.forestrygis.com/ifss/

Forestry education and knowledge exchange

IFSS not only gave us a better understanding of the cultural importance of B.C. forests, but also, by bringing together 110 students from diverse disciplinary backgrounds (ranging from forestry engineering or wood products to natural resource management or ecology), it broadened our horizons as to the many ways forestry is understood and practised globally.

During our stay at UBC, we had the chance to learn about the research projects of various IFSA students through a series of oral and poster presentations. For students, this provided an opportunity to get professional and academic feedback and practise their presentation skills, while for the audience, it was fascinating to hear of the diverse research being conducted throughout the IFSA network.

However, opportunities for knowledge exchange and professional development were not limited to formal presentations or guided field trips; being able to engage and share knowledge with students from around the world was also one of the highlights. For many participants, IFSS was their first international experience of forestry and forestry education systems. This experience encourages students to take a greater disciplinary interest via new learning opportunities, which can lead us to becoming more informed when entering the increasingly globalised forestry sector.

IFSA activities and processes

While much of IFSS centres around exploring and learning about forests and forestry in the host country, the primary driver of this annual event is to hold the IFSA General Assembly (GA), during which participants represent their local committee in IFSA's decision-making processes. This process is important as it not only allows IFSA members to contribute to shaping IFSA's goals and direction for the coming year, but also provides students with valuable experience in facilitating discussions and negotiating outcomes.

IFSA also held a number of workshops during IFSS, focusing on key topics such as regional cooperation, forestry education, and many more. Particularly for first time participants, this was a great way to develop a better understanding of IFSA's structure and its various commissions and regions.

Conclusion

IFSS – and IFSA as a whole – provides forestry students with significant opportunities for cultural and knowledge exchange, professional development, and networking with both international peers and professionals. Since IFSS 2014, IFSA members and officials have continued working at both local and international levels; from connecting with forestry students through local committee memberships, to advocating for youth participation and engagement in international forest events and policy processes. IFSA's formal partnerships with international organisations, including the CFA, are key to the success of these activities and initiatives, and we look forward to continuing to build these partnerships over the coming years, and at IFSS 2015 in the Philippines!

Sarah Dickson-Hoyle, IFSA

IFSS group at Steam Donkey

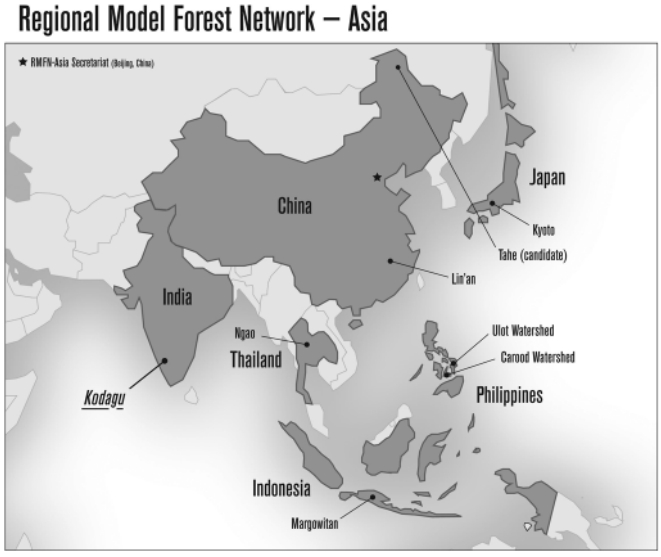
Forest Scenes

Model Forests and Sentinel Landscapes: living laboratories for practical results

Kodagu landscape

Kodagu Model Forest partners with CIFOR's Sentinel Landscapes program for long-term research benefitting forest-dependent communities in India

Agroforestry systems influence much of the Western Ghats landscape and economy. Coffee, pepper, cardamom, tea and rubber have long been cultivated in and around forested areas there, including the district of Kodagu, home to Kodagu Model Forest. Kodagu is one of the 'hottest hot spots' of biodiversity in the world. Yet pressure on the land and forests is strong, commensurate with the challenges of securing and improving the livelihood of inhabitants. In some areas, only small tracts of forest land remain, such as sacred groves or private holdings. Forest loss is affecting biodiversity conservation, spurring human-wildlife conflict, and threatening water quality and supply.



Kodagu map

Ecological research has been ongoing in the region for some 40 years to address a multitude of issues ranging from the quality of shade grown coffee to documenting traditional ecological knowledge of local stakeholders to exploring changing tree rights. Given its rich history, the Western Ghats region was selected as the first landscape in South Asia to participate in the Sentinel Landscapes program.

The Sentinel Landscapes initiative was launched in 2012 by CGIAR Research Program Forests, Trees and Agroforestry, led by the Center for International Forestry Research (CIFOR), the World Agroforestry Centre (ICRAF) and their partners. The research program uses a landscape approach to combine long-term ecological research with long-term socio-economic research to effect positive change for forest-dependent and farming communities across the region. The collection of both biophysical and socio-economic data over a large yet specific area will allow for assessing long-term trends with a view to informed policy and land use decisions.

The Western Ghats Sentinel Landscape covers Kodagu; Chamrajanagar, Nilgiris and Waynad, and was built on the premise of inclusive partnerships, participatory governance and an integrated landscape approach to sustainability. Kodagu Model Forest joined the International Model Forest Network in 2004. Including it as a partner in the Western Ghats Sentinel Landscape brought clear advantages. For example, partners were already well advanced in undertaking research into a payments for ecosystem services (PES) pilot program for Kodagu and influencing PES is an objective of the Sentinel Landscapes Initiative locally.

"Model Forests are designed to act as long-term 'living laboratories' for both biophysical and social science research, which is also what Sentinel Landscapes are about," said Peter Besseau, Executive Director of the IMFN Secretariat. "Kodagu Model Forest participation in this initiative will bring valuable insight, particularly around questions regarding PES and local land use."

Sacred grove

"[Indian and international] partners have been working with local communities, promoting socially just environmental conservation and sustainable development for a long time in Kodagu," said Dr. Claude Garcia, lead for the Sentinel Landscapes program in India on its first two years. "We are now joining hands to learn how these landscapes evolve, and how forests, trees and agroforests contribute to the livelihoods of local people."

Dr. Garcia added that the lessons to be drawn from the Sentinel Landscapes initiative will be of interest to the global community as the knowledge generated is expected to help society meet some of its most pressing challenges – the environmental and social impacts of land use and climate changes – through better policy and practice.

The work in Kodagu Model Forest and the rest of the Western Ghats Sentinel Landscape will provide lessons and opportunities for south-south exchange, including potentially through other Sentinel Landscape sites of the International Model Forest Network, possibly affecting the livelihoods and resilience of communities worldwide.

For more information about Kodagu Model Forest visit: www.imfn.net/asia

For more information about the Sentinel Landscapes Initiative visit: http://www1.cifor.org/sentinel-landscapes/home.html

For more information on the CGIAR Research Program Forests, Trees and Agroforestry visit: http://foreststreesagroforestry.org/

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Forests conservation and management in Rwanda

Background

The Republic of Rwanda, is a landlocked country located in east-central Africa, and has a young but fast growing population estimated at 11.6 million in 2012 and estimated to grow to 16 million by 2020. With a land area 26,338 km^2 this makes the country the most densely populated in Africa. Rwanda is a country endowed with diverse natural resources ranging from land, minerals, water and forests. However, these resources including mainly forests have not been properly and sustainably utilized to improve the livelihood of the population of which more than 85% depend on agricultural and farming related activities to survive. These activities put pressure on physical environment such as natural habitat, natural parks, reserves, wetlands, etc. and evidenced by heavy deforestation, natural habitat degradation, habitat loss and fragmentation.

The Vision 2020 and EDPRS set clear target to increase national forest cover and for the forestry sector to play increasing role in national economy. However, due to high population density, farming and agricultural activities, there is a high competition for land between forestry, agriculture and other developmental activities. All these impact negatively the implementation of the national forestry policy with the overall goal of having the country forest coverage of 30% by 2020.

Rwanda map and location

Case Study: Nyungwe National Park and Cyamudongo Forest patch

The Nyungwe was established in 1933 as a forest reserve and gazetted as a national park in 2005. It is a high-altitude,

mountainous tropical rainforest covering at total area estimated at 970 km^2 in Southwest Rwanda. Together with neighbouring Kibira National Park in Burundi, it forms one of the largest tropical mountain forests in Africa. Nyungwe is one of the most important area for bird conservation and holds thirteen species of primates, including chimpanzees, owl-faced guenons and Angolan black and white colobus monkeys. To enhance its long term conservation and management, the small forest patch of Cyamudongo was annexed to Nyungwe in 2005.

Cyamudongo forest

The Cyamudongo forest patch was once a big forest and connected to the Nyungwe National Park, but has significantly decreased in size over the past decades. This deforestation has occurred for multiple reasons, including increasing human population, the use of wood as a primary source of fuel by subsistence farmers, making bricks, firewood and charcoal. These antropogenic activities have resulted in the reduction of Cyamudongo primary forests which in turn has had a great negative impact of the survival of fauna and flora species of the forest.

The problem: habitat fragmentation

Habitat fragmentation is the principal result of human activities such as farming, agricultural and deforestation, and endangers many species' populations. One critically impacted species is the chimpanzee which is particularly vulnerable to habitat fragmentation due to its low population density and fecundity rate. Current research aims to increase knowledge about how habitat fragmentation affects the chimpanzee population in their natural habitat. The research findings will serve as baseline data against which short and long impact of fragmentation on chimpanzee population can be assessed to better conserve, ensure long term management of these endangered species in their natural habitat in Rwanda.

Research Objectives

With the application of Geographic Information System and Remote Sensing tools/techniques, the specific objectives of the research project are to analyze changes to the forest habitat over the last 30 years and how this has affected chimpanzee numbers. For more information please contact the author at dmvunabandi2020@gmail.com.

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The controversy over forest plantations and water use in Chile

Myths, realities, international experience, and recommendations

With extremely high tree growth rates, Chile has now nearly 3 million hectares of forest plantations, mostly comprised of *Eucalyptus* spp. and *Pinus* spp. Despite great contributions to the economy of the country, forest plantations consume water, which has given rise to countless conflicts for the resource, between the forestry sector and other water users, such as agriculture and individual owner and municipal water supplies. There are often accusations made such as "since forest plantations were established, my well dried out". On the surface this seems to be a clear cause and effect relationship since both plantation establishment and ground water depletion may have occurred simultaneously. But the situation is not as simple as it seems, because climates are changing worldwide and the demands for water resources are increasing by orders of magnitude. Chile is a clear example of both climate change and increasing water demand depleting water resources.

Situations like the above have resulted in hundreds of research studies around the world, all based mostly on experimental watersheds, sap flow measurements, hydrological

modeling, remote sensing, and/or water efficiency. Currently, the world leaders in the topic (plantation forestry and water) are South Africa and Australia, where results have been incorporated into the creation of new laws and regulations. The purpose of these actions is minimizing water consumption from forest plantations. However, countries like Argentina, Brazil, France, Finland, Germany, Holland, Indonesia, New Zealand, Peru, Spain, Thailand, United States, Russia, and Chile, among many others, have significantly advanced the topic of the effects of forest plantations in water yield and water quality due to climate change-related reductions in water availability.

Learned lessons

Even though forest plantations are considered a problem because they consume water, forest ecosystems also play an important role in the conservation of water resources and the supply of sustainable, high quality water. Current tendencies to increase land surface with forest plantation due to carbon bonus programs and market demands result in a growing necessity of foresters to contribute in the conservation of water resources. This is being accomplished through the implementation of watershed management plans, in which one must consider the economy (productivity and growth), social (water availability and conflict avoidance), and environmental (climate change) aspects of a given watershed. However, even though the science of forest hydrology has advanced tremendously during the last decades, only recently results have been transferred into political action. In the next few paragraphs, the main conclusions based on studies done in South Africa, Australia, United States, Finland, Switzerland, Brazil, and China, among others, are described relative to Chile's current forestry practices.

The effects of forest plantations on water resources depend upon the proportion of the watershed that is forested. Thus, plantations equivalent to less than 20% of the watershed area have not shown significant changes in water availability due to the statistical and practical inability of existing methods to detect significant changes at low levels of any one land use or condition. However, such reality does not coincide with Chile's current forestry situation, where forest plantations occupy large portions of watersheds, even nearly 100% of their area in some cases. However, afforestation in countries like South Africa is based on "forestation permits" in which the local Government gives such permits based on the effects of the future plantation on the watershed's water resources.

Even though the effects of forest plantations on water resources are a function of the topographic, geologic, and edaphic characteristics of the watershed, as well as the distribution of precipitations around the year, it is now known that forest plantations do not have significant effects on the hydrologic cycle on watersheds located in dry climates (i.e. where annual precipitation is less than 500 mm/year). In climates with higher annual rainfall, the effects of forest plantations increase as annual precipitation increases, when comparing forest plantations with grassland. As an example, China has increased tremendously its area occupied by forest plantations in the last three decades and is now planting nearly 4 million hectares per year. Since the country intends to conserve its water resources, the tendency is to concentrate plantations in dryer regions. The same principle is being applied in Australia and other countries, but not in Chile. In fact, Chile's dryer areas are either totally

A view of infiltration trenches, one of the many conservation techniques that can improve a forested watershed's capacity to recharge water tables. Picture (c) by Roberto Pizarro.

deforested (or severely affected by the process of desertification) or deserts incapable of supporting tree growth without irrigation.

Generally speaking, international experience suggests that replacing native forests with plantations, a practice that is no longer allowed in Chile but was very popular for several centuries (as occurred in most countries), does not significantly affect water productivity of watersheds, except during the first few years while the new trees are getting established. This is an important point of view when blaming forest plantations for decreases in water yield on watersheds that used to be occupied by native forests. In fact, practically most of Chile's continental area (with the exclusion of parts of the Atacama Desert) used to be covered by native forests; but those forests were removed to habilitate terrains for agriculture and grazing. Some of this area is now being converted to plantation forests. Hence, this is the root of the water controversy.

On the other hand, significant streamflow increases have been documented after clear cutting forest plantations. This change is greater in conifer plantations (*Pinus*), compared to *Eucalyptus*. Such effects clearly point out that forest plantations, or forest ecosystems in general, consume much more water than if the tree biomass wasn't there. In fact, the vegetation type that yields more water in a watershed is grassland. Eroded or degraded watersheds (with absence of plant cover) generate much more water yield during storms, but in between storms water yield drops drastically. It is plant and litter cover that are

responsible for creating the conditions for water to infiltrate into the soil, traveling underground recharging water tables, and making streams run for longer periods towards the year in steady baseflow instead of flashy storm runoff. In fact, forest plantations can actually increase water table levels in watersheds, because they produce less surface runoff. However, the variability of results is such that all we can conclude is that each case is different, since hydrogeology is the important variable and vegetation, soils, and climate are important factors. To summarize, the effects of forest plantations on water tables are a function of area planted, deepness of water tables, hydrogeology, climate, and forest management practices. Often the impacts of other land uses are not fully taken into consideration and it becomes all too easy to blame plantation forests for the problem.

Since the age of the planted trees strongly affects the water cycle on a watershed, and that *Eucalyptus* has a shorter rotation age compared to *Pinus* species, the latter is considered of greater impact over the total water yield produced in a watershed during a rotation period. Water consumption by trees is often a function of leaf area index. Thus, countries like Australia are giving the priority to forestation using species with shorter rotation ages. Similarly, the effects of plantations on water resources are minimal when the ages are distributed among smaller areas, because with this approach land managers can have terrains with young trees, thinned trees, and pruned trees in the same geographical area within the watershed, encouraging more water to infiltrate into the soil.

A view of an experimental watershed located in central Chile. Picture (c) by Pablo Garcia-Chevesich

Under the same principle, it is recommended to establish thinning schedules so that fewer trees per hectare can be obtained as early as possible. Here is where genetic management has played a crucial role on water conservation programs, because there is now a tendency to plant less trees per hectare. Using genetically improved individuals, a topic that Brazil has been working on for decades, large trees at lower densities can be achieved in just a few years. However, though Chile's forestry companies have been working on genetic improvement for a long time, the purpose of such genetic manipulation has not been on water conservation. It is important that countries realize the relevance of genes on water conservation, and start selecting individuals that consume less water, rather than the ones that grow faster or are better shaped.

The relative position of the forest plantations in the watershed and the plantation design can strongly affect water yield in a watershed. Studies indicate that those effects can be minimized by planting away from water courses and, mostly, by planting on the higher portions of the watershed. Additionally, it has been suggested that planting following the contour lines can increase the plantation's water consumption, compared to forest plantations established perpendicular to the contour lines. This is because planting following the slope (and not the contour lines) generates "sub-surface water ways" that can be less likely reached by the roots of the trees, meaning more water reaching water tables and streams. Under the same approach, it is now recognized that for extended forest plantations the best way to proceed is by landscape transformation through the creation of vertical cleared areas, which have been successfully used as firebreaks. However, this topic still remains controversial among the scientific community and more research is necessary to determine the real effects of plantation design on water yield.

Despite the above, studies indicate that plantations established in blocks minimize water consumption in the watershed. In fact, the most widely accepted management practice is having a watershed with different land uses, where only a portion of the land is designated for forestry activities, and the rest to other uses.

The above paragraphs are general conclusions, based on studies done under multiple site conditions. However, their applicability in Chile is only a recommendation, because understanding and application of forest hydrology in the country is still in its initial stages. It is necessary to establish experimental watersheds under different site conditions (climates, soils, geology, etc.) because we simply don't have a good understanding of how our planted watersheds behave hydrologically. We are now in close communication with scientists from different countries around the world, and we are advancing slowly but surely. As climate change concentrates precipitation in fewer events, bringing more draughts and more wildfires, forest plantations in Chile continue to grow in area, while water availability keeps decreasing. In this sense, Chilean foresters have the mission to manage forest plantations so that the country can adapt to coming climate change.

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News from Guyana

The parliamentary paralysis mentioned in the 'News from Guyana' in *CFA Newsletter* of September 2014 deepened in the last quarter of 2014. Faced with the likelihood of defeat in a no-confidence motion presented by the Opposition parties, the President prorogued parliament rather than have a debate in the first session after the long summer recess. The President must formally gazette an election date in 2015 because the National Constitution allows only three months after the start of the calendar year for government spending on essential items before a budget must be debated and approved. Political speeches and public statements do not substitute for the required gazette notice, so the expected date for elections in May 2015 is not yet official and the electoral lists are still very imperfect. The Guyana Government labelled the outgoing UK High Commissioner "a pariah" after he opined that the suspension of parliament was a violation of the Commonwealth Charter.[1]

Meanwhile, the Government carries on spending large amounts of money illegally because the National Assembly did not approve large portions of the 2014 budget. The Minister of Finance simply provided insufficient explanation of what the money was to be used for. The Opposition parties urged the Minister to separate uncontroversial from doubtful items in budget lines. Instead, he appeared to combine them deliberately and then protested when the combined Opposition disapproved the combinations. The parliamentary attempt to sanction the errant Minister has failed because the National Assembly was prorogued, thus stopping all parliamentary business including the work of the sectoral committees. The Guyana Forestry Commission (GFC) has thus again escaped parliamentary questioning.

The pre-eminent economist of Guyana, Clive Thomas who retired from leading the Institute of Development Studies at the University of Guyana at the end of 2014, has increased his estimate of the proportion of illegal money in the economy from 40–50 per cent in 2008 to some 60 per cent.[2] The UK High Commissioner opined that the government needed to take more action to tackle corruption.[3] This money is derived mostly but not entirely from drug smuggling and money laundering. Moreover, tax revenue which should be paid by Government agencies into the Consolidated Fund are being channelled into pockets which are unrelated to the agencies' mandates and are therefore illegal. For example, US$ 600,000 was transferred from the income of the GFC at some time in the last three years to prop up the almost bankrupt Iwokrama International Centre for Rainforest Conservation and Development, during which time Iwokrama has been almost dormant.[4] However, this pales against the US$ 15 million transferred from the Guyana Geology and Mines Commission (mostly royalty from artisanal gold mining) to an urban housing development authority.[5]

Lack of clarity over statistics from government agencies for calendar year 2014 affected the forest sector. The GFC has issued itself or through the parent Ministry of Natural Resources and the Environment a variety of estimates for declared forest production in 2014, without clarifying the reasons for the variety. Given that log exports to Asia almost doubled in volume in 2014 compared with 2013, it is very likely that production will again exceed the threshold agreed under the Norway-Guyana Memorandum of Understanding (MoU) on forest conservation and reduction in emissions of forest carbon. Summing FAO-type roundwood equivalent volumes for logs, chainsawn lumber and poles+piling, the MoU sets a limit as the average declared production for 2003–2008 as 481,000 m^3. Only 2009 production of 468,000 m^3 was recorded below that limit. Later figures were 2010 – 532,000 m^3, 2011 – 500,000 m^3, 2012 – 493,000 m^3, 2013 – 568,000 m^3. Log production alone rose from 305,000 m^3 in 2013 to 406,000 m^3 in 2014, with over 1/3 being exported unprocessed and almost all for Asian flooring and furniture factories.[6] Chainsawn lumber volumes for 2014 have not yet been declared.

No progress was made in 2014 towards achievement of the national policy for on-shore value-added processing of forest products. The main Chinese transnational logger continued to export flooring-grade logs and to focus on creating suburban housing estates on floodable land formerly used for sugar cane plantations. It is unclear how this logger acquired such State land, or who are the expected purchasers of what the brochures suggest will be high-priced leased homes.

There was no recorded progress in 2014 on the REDD Readiness Preparation project coordinated by the World Bank's Forest Carbon Partnership Facility, and only slow progress on the voluntary partnership agreement under the EU Forest Law Enforcement, Governance and Trade (FLEGT) action plan. Promised planning in 2013 for a revival of national integrated

[1] Stabroek News. 'Govt labels outgoing UK envoy "pariah"'. Stabroek News, 16 January 2015. http://www.stabroeknews.com/2015/news/stories/01/16/govt-labels-outgoing-uk-envoy-pariah/

[2] Wilburg, Kiana. '60 per cent of the economy is run by the underworld. Kaieteur News.' 31 December 2014. http://www.kaieteurnewsonline.com/2014/12/31/60-percent-of-the-economy-is-run-by-the-underworld-dr-clive-thomas/

[3] Sutherland, Gaulbert. 'Gov't not doing enough to fight corruption -outgoing UK envoy.' Stabroek News, 1 February 2015. http://www.stabroeknews.com/2015/news/stories/02/01/govt-not-enough-fight-corruption/

[4] GINA. Government Information Agency. 'Government of Guyana provided financial support to Iwokrama over past three years.' 7 February 2015. http://www.gina.gov.gy/home/index.php/home/all-news/item/1833-government-of-guyana-provided-financial-support-to-iwokrama-over-past-three-years

[5] Stabroek News. 'AFC protests at GGMC over G$3B housing loan, 4 February 2015. http://www.stabroeknews.com/2015/news/stories/02/04/afc-protests-ggmc-3b-housing-loan/

[6] GINA. Government Information Agency. 'Log export value for 2014 recorded at US$ 54 million – almost doubles that of previous year', 4 February 2015. http://www.gina.gov.gy/home/index.php/home/all-news/item/1816-log-export-value-for-2014-recorded-at-us-24-4-million-almost-doubles-that-of-previous-year

land use planning, which had been abandoned in 1997, stalled in 2014.

The main focus of the GFC in 2014 in projects continued to be those associated with the Norway-Guyana MoU 2009. The second evaluation or independent forest monitoring by the GFA Consulting Group encountered the same difficulties as before: a great reluctance of the GFC to allow study of actual practices as opposed to paper procedures, or to open the data files, data bases and detailed maps.[7] The problem is not that the GFC does not have recording, monitoring and checking procedures – indeed it has many and complex schemes – but they are implemented selectively depending on political direction. Everyone knows what is going on, and who is benefitting, but those who are disadvantaged are too frightened to protest publicly because of the well-known vindictive actions of the government agencies which can easily ruin the hand-to-mouth local businesses.

Janette Bulkan
CFA Governing Council

[7] GFA Consulting Group. 2014. Independent forest monitoring. Guyana. Public summary report of second independent forest monitoring. Hamburg.

Insect Threat to *Eucalyptus* sp in Ireland – and potentially worldwide

The eucalyptus leaf beetle (*Paropsisterna selmani*), evidently a native of Tasmania, which feeds on the leaves of Eucalyptus species, was accidentally imported in 2007 into Ireland; it is now widespread in the Cork area and has appeared in the Counties of Wexford and Wicklow. It has also appeared in a garden in London in 2012, and appears to have the potential to reach epidemic proportions quite rapidly and thus to be capable of causing considerable economic damage worldwide where eucalypts are grown in large single species plantations.

It is a Chrysomeline Leaf Beetle, which is one of the most diverse and widespread groups, with over 35 000 described species from across the globe. They feed on living plant matter, and many species, such as the Colorado Beetle (*Leptinotarsa decemlineata*), are significant agricultural pests, either due to direct damage to crops or by acting as vectors for plant diseases. It may be recognised as a brilliantly coloured red and green beetle, 7–9 mm long (see picture), feeding, in Ireland at least, on *E. parvula* and *E. moorei*, which are grown for foliage and wood production. In view of its rapid spread in Ireland it will sortly be added to the UK's Plant Health Risk Register.

Researchers at University College, Dublin and the Irish Agriculture and Food Development Authority are investigating the use of a parasitic wasp *Enoggera nassaui* as a biological control.

My attention was first drawn to this beetle through an article in *The Garden* of December 2014 (p. 9) but I acknowledge a fuller description which appears in http://sciencythoughts.blogspot.co.uk/2013/07/a-new-species-of-chrysomeline-leaf.html dated 27.7.2013, including the picture below and others of the adults and larvae.

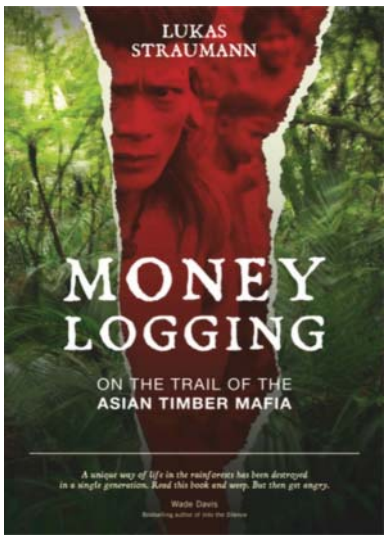
Paropsisterna selmani *new adult shortly after emerging from pupae, County Kerry, Ireland. Finbarr Horgan in Reid & de Little (2013).*

Jim Ball
Chair, CFA

Publications

Money logging – on the trail of the Asian Timber Mafia

Lukas Straumann

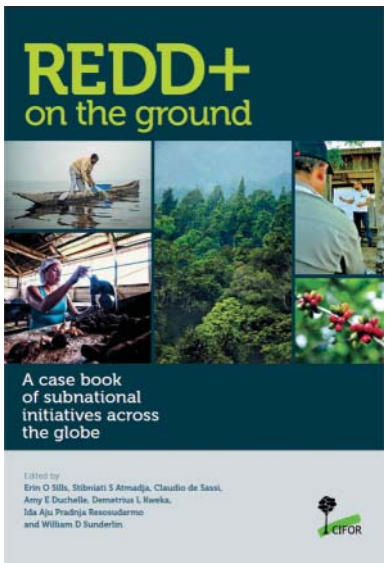


Money Logging investigates what Gordon Brown has called 'probably the biggest environmental crime of our times' – the massive destruction of the Borneo rainforest by Malaysian loggers. Historian and campaigner Lukas Straumann goes in search not only of the lost forests and the people who used to call them home, but also the network of criminals who have earned billions through illegal timber sales and corruption.

Straumann singles out Abdul Taib Mahmud, current governor of the Malaysian state of Sarawak, as the kingpin of this Asian timber mafia, while he shows that Taib's family – with the complicity of global financial institutions – have profited to the tune of 15 billion US dollars. Money Logging is a story of a people who have lost their ancient paradise to a wasteland of oil palm plantations, pollution, and corruption – and how they hope to take it back.

REDD+ on the ground

CIFOR



REDD+ is one of the leading near-term options for global climate change mitigation. More than 300 subnational REDD+ initiatives have been launched across the tropics, responding to both the call for demonstration activities in the Bali Action Plan and the market for voluntary carbon offset credits.

This book describes 23 initiatives in six different countries, including their:

- diverse biogeographic and socioeconomic contexts
- strategies to reduce emissions over the three or more years that they have been in operation
- local populations of smallholders, whose agricultural activities are important drivers of deforestation in most sites and who are thus key stakeholders in these initiatives
- efforts to overcome or work around challenges in financing, implementing and monitoring REDD+

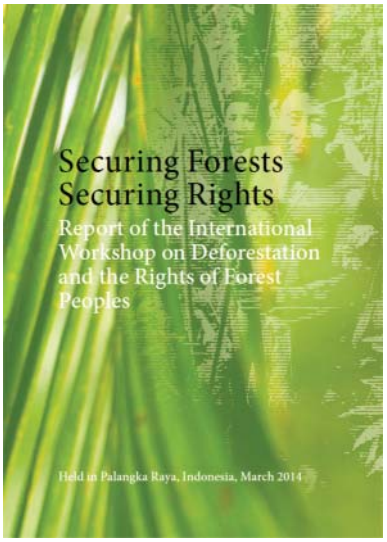
Early expectations of significant funding for REDD+ encouraged proponent organizations to test a wide range of strategies to reduce emissions while also delivering co-benefits. Only some have chosen the strategy of direct payments conditional on actions to reduce deforestation or degradation, and only a very few have sold carbon credits, demonstrating how REDD+ on the ground is actually a mix of old and new strategies. Faced with enormous challenges, proponents have developed a menu of ways to: secure financial support; clarify forest tenure; cooperate and act across scales; measure, report and verify emissions; and respond to the imperative of safeguarding local livelihoods.

While subnational initiatives have successfully piloted and generated lessons for REDD+, many now face the choice of either ending or transforming into something else, due to the political uncertainty and funding constraints stemming from the failure to reach a global climate change agreement. This book highlights both the critical importance of such an agreement and in its absence, the creative ways that subnational initiatives are operating on the ground.

Download from www.cifor.org/redd-case-book/

Securing Forests, Securing rights: Report of the International Workshop on Deforestation and the Rights of Forest Peoples

Forest Peoples Programme



A new report provides alarming evidence of serious rights violations associated with deforestation, and first-hand community testimony of the impact of environmental destruction on the wellbeing and cultural survival of forest-dependent communities. It highlights recommendations from indigenous peoples to support community-led initiatives to address deforestation in their own territories.

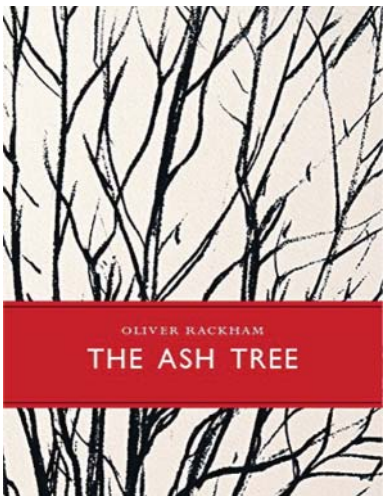
'Securing Forests, Securing Rights' was compiled following research and investigations conducted by more than sixty indigenous and forest communities from Africa, Asia and Latin America. Convening in Central Kalimantan, Indonesia, in March 2014, rights holders themselves spoke independently of the direct and indirect drivers of forest loss and shared their own assessments of the grave human rights violations and atrocities facing their communities and lands today.

The report evidences alarming infringements of the rights of forest communities in nine countries (Indonesia, Malaysia, Cameroon, Democratic Republic of Congo, Liberia, Colombia, Guyana, Paraguay, and Peru). In all nine countries, industrial forest concession and land-leasing models were identified as responsible for systemic rights violations and forest destruction. The effectiveness of 'zero deforestation' pledges made by governments and business were also critiqued by authors who identified a huge gap between policies on biodiversity and forest conservation, on the one hand, and prevailing unsustainable development models and practices, on the other.

Download the report at www.forestpeoples.org/topics/rights-land-natural-resources/publication/2014/securing-forests-securing-rights-report-intern

The Ash Tree

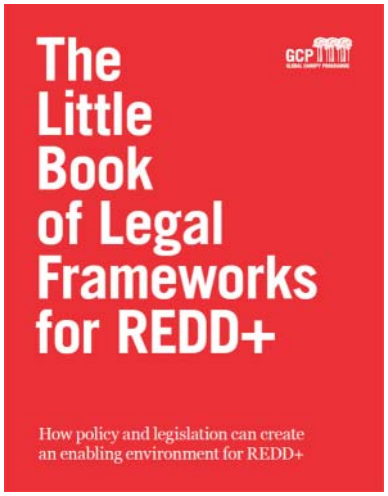
Oliver Rackham – Little Toller Books



Ash is one of the commonest trees in the British Isles – there are nearly as many ash trees as there are people. Perhaps this is why we take them for granted. Poets write of oak, yew, elm, willow, rarely ash. No books have been written about ash trees before. Yet ash is one of the most productive hardwoods in Europe. Its strength and elasticity are qualities our Neolithic ancestors recognised while building their tracks across the marshlands of Somerset. Ash has been used ever since, to build and warm homes, to feed livestock, to cure. Before steel it was used to make ploughs and rakes, wheel rims, boat frames, tent pegs and weapons. The human population is not alone finding sustenance and shelter in ash: woodpeckers bore nest holes into them, bats breed in veteran trees, insects, lichens, mosses and liverworts thrive on ash bark, as do hares and rabbits in winter. The first noticing of Ash Disease in 2012 brought this underappreciated tree to our attention. In response, Oliver Rackham has written this first history and ecology of the ash tree, exploring its place in human culture, explaining Ash Disease, and arguing that globalisation is now the single greatest threat to the world's trees and forests. We cannot go on treating trees like tins of paint or cars to be traded around the world. Neither can we assume that planting a tree is, by default, a good thing. Industrial planting and irresponsible trade are already devastating the world's tree populations. The Ash Tree is Oliver Rackham's call for a radical shift in our attitude to trees – how we plant them, how we care for them after they are planted. There is no more urgent message for our times.

The Little Book of Legal Frameworks for REDD+

Global Canopy Progamme



A new book – *The Little Book of Legal Frameworks for REDD+* – published by the Global Canopy Programme (GCP) and launched at the UNFCCC's 20th Climate Change negotiations in Lima, Peru, highlights the importance of clear domestic legal frameworks to prepare for REDD+ implementation, and presents a range of flexible solutions which can be adapted to the needs of individual countries as they work towards reducing forest emissions.

Louisa Denier, Senior Manager – Policy and lead author, the Global Canopy Programme, says "It is important to understand that the development of legal frameworks for REDD+ – the policies, laws and regulations that support its design and implementation – cannot be limited to the development of a standalone REDD+ law if REDD+ is to be truly effective."

The publication illustrates how, instead, the development of legal frameworks for REDD+ must build on existing domestic policies, laws and regulations in place in a country. Such an approach may also contribute to the realisation of other relevant goals such as national sustainable development.

Furthermore the publication also highlights how the legal framework for REDD+ can serve to address key governance challenges, such as corruption and transparency, without which REDD+ implementation will not be successful. Addressing these governance challenges can also be seen as a way of reducing uncertainty and risk for potential REDD+ investors, which is much needed as demand for REDD+ is currently lacking.

The Little Book was developed in collaboration with Climate, Law and Policy, and funded by UNEP, with additional support from Baker & McKenzie and the United Nations Office for REDD+ in Indonesia (UNORCID).

To access and download the publication in English, French or Spanish, visit http://www.globalcanopy.org/materials/little-book-legal-frameworks-redd

Around the World

China's appetite for luxury Rosewood fuels illegal timber trade in Cambodia

China's voracious demand for luxury furniture is driving a multimillion-dollar illegal trade in rosewood in Cambodia, supported by a tycoon who controls an illegal logging network that exports the timber, according to a report by an environmental advocacy group.

Cambodian tycoon Okhna Try Pheap, the kingpin of the company involved in the multimillion-dollar illegal logging network, operates with the complicity of government, military, police and customs officials in felling rare trees, transporting them across Cambodia, and loading them onto boats headed for Hong Kong, the London-based environmental watchdog *Global Witness* said in an investigative report. "Buyers of lavish four-poster beds and vanity tables in China may be unwittingly lining the pockets of what can only be described as timber gangsters," said Megan MacInnes, campaign manager for the land program at *Global Witness*, in a printed statement.

The group's eight-month investigation that produced a report entitled "The Cost of Luxury: Cambodia's Illegal Trade in Precious Wood with China" found that 85 percent of Cambodia's timber exports are destined for China, where they are used to make expensive rosewood furniture. Cambodia's export of Siamese rosewood logs, which are used to make pricey reproduction Qing and Ming Dynasty furniture in China, rose 150 percent between 2013 and 2014, the report said.

Okhna Try Pheap's firm, Try Pheap Group, transports around 900 cubic meters (31,800 cubic feet) of illegally logged wood, including rosewood, every day across the country and onto boats in the international port in Sihanoukville in southwestern Cambodia. "Try Pheap and his network are destroying Cambodia's last forests and robbing indigenous communities of their livelihoods," she said. "Meanwhile the very officials in Cambodia who should be stopping them are conspiring to ensure that contraband wood enjoys safe passage, and is exported as seemingly legitimate lumber."

Global Witness said it obtained copies of shipping documents for timber valued at U.S. $5.6 million, for two lots of wood exported by Try Pheap Group to Kin Chung Transportation Company in Hong Kong. The non-governmental organization said the transportation firm has a capital shareholding of only HK $2 (U.S. $0.25) and no public presence as a timber trading company. Kin Chung Transportation's directors said they had no knowledge of the Try Pheap Group, and no idea why their company had been associated with such imports, Global Witness said.

Sao Sopheap, Cambodia's Ministry of Environment spokesman, said he had not seen any report alleging corruption involving Okhna Try Pheap's company in logging, according to *Global Witness*. "I never seen a report by Global Witness," he is quoted as saying by the group. "I don't know where the NGO

got the information from. I don't know about their work." When asked if he was familiar with Okhna Try Pheap's logging business, he said, "We didn't focus on any individual. The Ministry of Environment and authorities are working non-discriminator(ily) to prevent and preserve our natural resources." Interviews with government and industry insiders, including people who work for Okhna Try Pheap, indicated that entrenched corruption had ensured loggers in his network were given safe passage and immunity from timber confiscations and penalties, the report said.

Between 2000–2013, China imported a total of 3.5 million cubic meters (123.6 million cubic feet) of rosewood timber, almost half of it, or U.S. $2.4 billion worth, from the Mekong region, including Cambodia, Vietnam, Laos, Thailand and Myanmar. A report by the London-based green group the Environmental Investigation Agency in May 2014 found that growing Chinese demand for rosewood timber was threatening the species with extinction in the Mekong region.

rfa.org

South Korea: Forest Service's A-game to green Silk Road

The Korea Forest Service, the state-run afforestation agency, has called for more Korean corporate investment into the forestation business in foreign countries.

Forests take up about 31 percent of the world's land, yielding raw material, energy resources, food and feeds, according to recent data from the Food and Agriculture Organization. The FAO estimates that the demand for wood will more than double by 2050 from present, along with the growth of the world population, income and demand for bioenergy.

For more than 20 years, the KFS has fueled the state-supported overseas investment to the forestation in forest-rich countries worldwide. The agency's three-pronged efforts – policy revision, experience and network – has given Korea a tighter grip on the vital resource outside its territory, pioneering the "green Silk Road" for the rich fruits of the manmade forests. "The global demand and price for wood is constantly growing, while the supply is becoming weak," the KFS said, adding that the demand for wood will continue to hike in China, India and the emerging Asian economies in the next 20 to 30 years. "It is crucial that the state and nonstate corporate entities work closely to expand long-term overseas investments in forest plantation – it has both a noble cause and promising outlook," the KFS said.

The KFS sees long-term investment in overseas forest plantation as a must. Korea's speedy economic development after the Korean War owed much to the cheap and ample supply of lumber from the Indonesian woods, it said. As of 1992, Korea's sufficiency rate for wood was still as low as 5 percent, rendering the peninsular country highly dependable on imports from Southeast Asia and Australia. In 2010, the rate grew to about 17.4 percent, still far below the domestic demand for the resource. Meanwhile, the price of imported wood continued to hike steeply. The material's price soared from $79 per square meter in 2003 to $275 in 2013, creating a harsher environment for Korean manufacturers.

In this context, the Korean government has acknowledged the historical weight of forestry in the country's economic development. Under the current law, the overseas forestation business is subject to the same regulations as the domestic agricultural, fishery livestock businesses. A revised bill, dubbed the "international agricultural development cooperation act," was drafted by the Agriculture Ministry and the KFS and is about to be tabled at the National Assembly. The revision includes deregulating the staffing requirements of the investors and abolishing the compulsory request for a state approval to set up foreign operations of the forestation business. The bill also demands launching a large-scale state-led overseas forestation council and adding three more forest experts to this pending organization. If the revision passes the congress, it will redefine the country's forestation business on the global level and invigorate the industry. Endorsing active international cooperation on resource diplomacy, Korea has forged bilateral ties with a total of 29 foreign nations throughout Asia, Australia, Europe, Central and Latin America and Africa.

The Korean government's support for overseas forestation stems from the fact that the country's forest business needs cooperation and support from the local governments, especially in the forestation business in the Southeast Asia. The bulk of Korea's overseas forestation business, 81 percent, is launched in Vietnam, Indonesia and other Southeast Asian nations – with the KFS' cooperative partnerships with these governments providing a firm milestone for the Korean investors.

As of late 2013, 31 Korean companies were investing in the forest plantation business in 31 foreign countries, turning 314,000 hectares of land into lush forests, according to KFS data. In the same period, 94 companies submitted 109 business plans to seek the KFS' final approval for overseas forestation investment. In 1993, the country launched a long-term goal of fostering 1 million hectares of forest in foreign countries. In the same year, it started its first overseas plantation, a eucalyptus forest in western Australia.

The foreign plantation portfolio consists mostly of the production of industrial materials, palm oil and bio fuels. Investors are also eyeing the investment for afforestation and reforestation project as a U.N.-endorsed clean development mechanism business. "The overseas forestation business is closely related to the political, legal, cultural agendas of the partner countries," a KFS official said. The forest agency said the lumber resources must be safely secured in the foreign lands, to keep the domestic supply stable and safe.

"The private companies are the major bricks of Korea's green Silk Road, accompanied and protected by the KFS and the state authorities," he added.

koreaherald.com

Norway builds 14-storey timber home

Norway took a bigger step in the direction of prefabricated construction with the addition of timber to a 14-storey building, highlighting the growing popularity of the building material. While the country is has a well-established market for prefabricated building, this large residential unit takes it to new heights.

The building – called 'The Tree' – began receiving its first timber elements in October of last year. It is made up of mostly timber, with a prefabricated frame whereby building modules are inserted to form a 'cabinet rack'. An additional element of concrete is present on three of the 14 levels in order to provide a platform for other building materials as well as improving the dynamic behaviour.

The contractor, SWECO, explained: "To reduce the work on site and reduce building time, we wanted to prefabricate as much as possible." The project is being led by Bergen and Omegn Building Society (BOB), with the apartment block located in central Bergen, Norway. Around half of the 62 units in the apartment block have already been sold, with residents expected to be able to move in from autumn 2015.

Scandinavia, as well as other countries such as Germany, Austria and the United States, has a lengthy track record of producing buildings using prefabricated materials. The benefits of building with prefabricated components range from cost saving to efficiency in both installation and dismantling.

www.norbord.co.uk

Canada-UK: Unique Partnership between Université Laval and Oxford University is announced

Marc LePage, President and CEO of Génome Québec, was in London in January for the announcement of a partnership between Université Laval and Oxford University. The event took place in the company of Premier Philippe Couillard, who was speaking at a conference of the Canada–United Kingdom Chamber of Commerce.

The partnership was formed to create an international consortium in forest genomics. Spearheaded by Professor John MacKay, a world-renowned expert in the field, Full Professor at Université Laval and Wood Professor of Forest Science at Oxford University, the consortium will address the major scientific challenges involving the productivity and sustainability of both natural and managed forests. Expected outcomes include improved health and productivity of forests and their sustainable management. This partnership represents a major opportunity for Québec and Canada.

"I welcome this partnership, which goes to prove Québec's ability to rank among the leading global knowledge societies. It is a significant development for Québec since the forest industry has such a strong foothold in our economy and now faces the challenge of ensuring its competitiveness while pursuing its development in a sustainable manner," said Québec Premier, Philippe Couillard.

"It's an important day for genomics and for Québec, since our researchers are being recognized for their excellence and expertise," Marc LePage said. "Oxford University is home to some of the world's leading researchers, which means it has the privilege of choosing its partners. The fact that Québec was selected is an endorsement of the high quality science being conducted here," he added.

Given their economic significance, forest resources are a top government priority. The need for new approaches to enhance the value and benefits of Canadian forests has become a main concern. Genomics is a powerful tool that can be used to identify the potential of individual trees and lines of trees and, as such, offers innovative solutions to address the challenges of forest sustainability. Many relevant projects in forest genomics are currently underway in Québec – some dealing with the spruce budworm, which is considered by governments to be a major threat to forest health and the lumber industry.

International collaborations are a major force behind the strategies and successes in genomics in Québec. We have access to a rich pool of expertise through our reputable researchers, who are highly skilled in key sectors, such as forestry, but also personalized health care. We are constantly seeking international partners to complement and enhance our expertise. In this respect, the United Kingdom is a major asset. In genomics, it ranks second only to the United States and is at the cutting edge in many areas.

Québec also has several other large-scale international partnerships in areas other than forestry. For example, Professor Jacques Simard of Université Laval is leading a major research project ($13 million/4 years) on breast cancer in collaboration with researchers at Cambridge University. They have pooled their expertise in epidemiology and bioinformatics to carry forth this major endeavour.

About Génome Québec

Since May 2000, Génome Québec has been the driving force behind the development of genomics in Québec. By supporting nearly 80 projects and 900 researchers and managing the operations of the McGill University and Génome Québec Innovation Centre, Génome Québec is helping to accelerate the discovery of new applications for genomics in strategic areas, such as personalized health care, forestry, the environment and agri-food. The funds invested by Génome Québec are provided by the Government of Québec, the Government of Canada, through Genome Canada, and private partners.

genomequebec.com

Cost Rica: Climate change damaging biodiverse forest

The cloud forests of Monteverde are known around the world for their biodiversity. But locals and scientists are warning the delicate ecosystem is increasingly without the clouds. Increasing temperatures have caused the clouds in the mountain forests around Monteverde to rise, and scientists believe the warming climate is leading to the redistribution of species in the highlands, renowned for the striking biodiversity that draws in hundreds of thousands of tourists each year.

That is bad news. Monteverde's cloudless cloud forests are a symptom of a regional change in climate with ecological and economic implications, since farming patterns change and the tourism industry could be hit. Data collected since the 1970s by bat biologist Richard LaVal show that the average minimum temperature of Monteverde increased nearly 3 degrees Celsius from 1990 to 2000 – which can expand the range of tropical lowland species 400 vertical meters into the cooler highlands. While the average temperature has decreased in recent years, the data continue to indicate a long-term trend of increasing temperatures, researchers say.

The increasing temperatures in the highlands have opened the door for lowland flora and fauna – which are adapted to warmer temperatures – to move into highland ecosystems where they were not usually found before. "We have at least 25 new bat species on the mountain from the tropical lowlands [that] are now here in Monteverde," said Vino De Backer, a Belgian zoologist who has studied bats in Monteverde under Laval for the past eight years. His recent research has focused on upward elevation changes when increasing temperatures contribute to the vertical expansion of lowland species' range.

Lowland species of flora and fauna have moved into the highlands as well, causing problems for area farmers. Oldemar Salazar Picado grows coffee just below the famed Monteverde Cloud Forest Reserve. Over the past two years, the unprecedented number and abundance of fungi have destroyed approximately 80 percent of his crop. The roya fungus, also called coffee rust, has attacked his coffee plants at an unprecedented level, and he suspects the warmer temperatures and irregular weather patterns in recent years are to blame. "I've been here 20 years, and it's never been as strong as it has been the last two years," he said. Salazar has had to plant more coffee to compensate for losses to the fungus.

Lelo Mata Leiton, who also runs a small farm in the same region, has also noticed changes. Over the past few years he has seen an increase in the number of birds around his farm, including the Montezuma oropendula, a species adapted to the warmer climates closer to the coast. He said that the birds decimated most of his orange crop this year. "Toucans are here now," De Backer said. "Toucans were never here. They were in the lowlands."

"We don't escape the effects of climate change," said Aníbal Torres, vice president of the Monteverde Institute, a regional education and resource center. "The whole ecology of the area has changed."

costaricantimes.com

Brazil: The science is clear – forest loss behind Brazil's drought

New research is showing the effects of forests on rainfall in the Amazon, and as deforestation in the region continues, rainfall in the southern part of Brazil will continue to be affected.

The role of tropical deforestation in global climate change has been the subject of much international discussion and debate in the media and in policy forums like the UN Climate Change Convention. However, the role of deforestation in local climate change has received much less attention. Now, with southern Brazil suffering from unprecedented drought, attention is turning toward more localized impacts of deforestation. Dr. Antonio Nobre, a scientist at the Brazilian National Space Research Institute, released a report, "The Future Climate of Amazonia," that linked the current drought to deforestation in the Amazon Basin. Politicians are questioning these conclusions. What does the science say?

In 2009, CIFOR scientists Douglas Sheil and Daniel Murdiyarso summarized the scientific understanding of the relationship between forests and rainfall in an article in BioScience. At the time, the link between deforestation and declining rainfall was still uncertain. There were indications in the scientific literature that deforestation disrupted cloud formation and accentuated rainfall seasonality in areas that have distinct wet and dry seasons. Evidence was accumulating that a significant amount of rain falling in the interior of continents was recycled – meaning that the water had previously fallen near the continental margins, been pumped back into the atmosphere by vegetation, and was falling again.

This was true of many areas of the world. In the US, 50 percent of the rainfall in the Midwest was recycled; in the Sahel of West Africa, the figure was 90 percent. However, a significant amount of water falling as rainfall in some areas is not recycled. For example, only about 30 percent to 60 percent of the rainfall is recycled water in the Amazon Basin.

One of the mysteries at the time of Sheil and Murdiyarso's article was how flat lowlands in the interior of continents maintained wet environments. If recycling is the key mechanism for rainfall reaching the interior of continents, then rainfall should decrease as distance from the coast increases. Indeed, in many places in the world, this phenomenon can be observed – except where there are extensive areas of natural forests.

In the mid-2000s, two physicists – Anastassia Makarieva and Victor Gorshkov of the Petersburg Nuclear Physics Institute – proposed a novel physical phenomenon to explain how tropical

rainforests keep the interior of continents humid. In these regions, forests have higher evaporation rates than other vegetation types. As the humid air rises from forests into the atmosphere, the water vapor condenses. This decreases the volume of the air, and the air pressure plummets. Because air flows from places of high pressure to those of low pressure, this decrease in pressure sucks additional dense air in, and so forests draw in moist air from elsewhere (for example, from over the oceans). This additional moist air rises and condenses in turn, generating a situation where a large proportion of the water condensing as clouds over wet areas is drawn in from elsewhere.

Makarieva and Gorshkov call this phenomenon a "biotic pump," and they demonstrated it with data from the Amazon River Basin and the Congo River Basin in Equatorial Africa. Other scientists began looking at this phenomenon and provided additional evidence for the existence of a biotic pump. In 2012, Dominick Spracklen and others looked across the tropics and found that when air passed over extensive vegetation, it produced at least twice as much rain as air that passed over little vegetation.

Spracklen and others went further and integrated Makarieva and Gorshkov's physical phenomenon into a climate model to see the effect of deforestation on rainfall. (*Corrected*) Makarieva and others went further and integrated this physical phenomenon into a climate model to see the effect of deforestation on rainfall. Because the primary air flow into the Amazon Basin is from the Atlantic Ocean, and because most of the deforestation occurs on the eastern and southern flanks of the Basin, there is cause for concern. Their simulation showed that continued deforestation in the Amazon Basin would lead to decreased rainfall.

The idea that water flows around the atmosphere in observable pathways is not new; it was first proposed in an article by Reginald Newell and others in Geophysical Research Letters in 1992. Several studies have confirmed these and show, in addition, that these "aerial rivers" are responsible for the rainfall in southeastern Brazil. Contrary to surface rivers, these aerial rivers gain water from the vegetation as it pumps water out of the soil and lose it through rainfall. Several groups have been working on this phenomenon during the past decade, and our understanding of the importance of these aerial rivers has grown. In particular, we now understand how these massive flows of water through the atmosphere relate to rainfall around the South American continent.

The governor of São Paulo expressed skepticism over the role of the Amazonian deforestation in the drought affecting his state in an article that appeared in The Wall Street Journal last month. Yet the science is clear, and it goes beyond simple correlation among observations: The mechanisms of water circulation between the Amazon Basin and the southern regions east of the Andes are well established.

As deforestation in the Amazon continues, rainfall in the southern part of Brazil will continue to be affected. The Amazonian forest will continue to lose its ability to regulate the climate and ensure a flow of water to the southeastern part of the country. Additionally, deforestation in the Brazilian Amazon will affect northern Argentina, so the problem has an international dimension.

Politicians need to balance development objectives and environmental concerns, but in this case it is fairly clear that the two go hand in hand. Thus, there appear to be two options for wise action. On the one hand, politicians can decide to stop the problem at its root cause by decreasing Amazonian deforestation and promoting rehabilitation of degraded forest in order to maintain the atmospheric circulation patterns. A second possibility is to integrate expected shortfalls of rainfall into planning and adapt the economic systems of the south to accommodate more frequent droughts. This means improving water storage and distribution while reducing waste. A combination of these two approaches is probably warranted.

There is a third option: One could ignore the problem until it goes away. Climate is variable, and this drought will eventually end. However, it is very likely that this is not an isolated event, and the science suggests that there is more to come.

blog.cifor.org

India: Who ate my forest?

"Have you ever seen an adivasi begging?" asks an old woman in a scene from *I cannot give you my forest*, National Award-winning filmmaker couple Nandan Saxena and Kavita Bahl's latest film. "That's because we don't need to beg for food, as long as our forests are alive," she says. But today, many from her tribe cannot say that with the same sense of pride. And this is what the film deals with, the dependence of tribals on uncultivated forest food, which is fast depleting. While the 30-minute film is in its post-production stage, a part of it was screened in Bhubaneswar earlier this month, at a national-level seminar focusing on tribal malnutrition in India.

The film has been shot in Orissa's Rayagada district, where 70 per cent of the population depends on forest food. "With vast swathes of forests being acquired daily in India, the tribals are not only being displaced from their homes, but it is also affecting their eating habits and nutrition," says Debjeet Sarangi of Living Farms, an Orissa-based initiative researching on tribal food.

Sarangi met the Delhi-based couple during one of their film-making workshops and the idea took shape. *I cannot give you my forest* is the story of original dwellers who have nurtured the forests, which in turn have sustained them. Filmed in the jungles and villages inhabited by Kondh adivasis, it talks about uncultivated forest food as a gift of nature. The film, supported by Living Farms, has been produced and directed by the couple.

Says Bahl, "Even in their folk songs, the adivasis extol the forests that give them fruits, millets, roots and honey. Not once do they talk about forests in terms of timber, minerals or any commercial activity. The film is an effort to showcase how it's best to leave these people alone with their forests." Sarangi adds, "During the 1886 famine in Orissa, it is said that but for adivasis, everyone else was in food relief camps."

The film, which will be screened at film festivals in India and abroad, has also been entered for the National Film Awards, to be announced in March.

indianexpress.com

Europe: Soil Association's Woodmark becomes Monitoring Organisation for EU Timber Regulation on illegal logging

Soil Association Woodmark has announced that it has been recognised as a Monitoring Organisation for the European Union Timber Regulation (EUTR) on illegal logging. As one of only four other Monitoring Organisations with capacity to cover all EU states, Woodmark will help companies meet EUTR obligations providing them with a cost effective pre-approved Due Diligence System and the support to implement this. Woodmark is the Soil Association's certification scheme for forest management and chain of custody for forest products.

Since March 2013, the EUTR has made it a crime to introduce illegally harvested timber and wood products into the EU market. Importing companies are required to have a Due Diligence System to show that they have taken steps to ensure that their timber based products have a negligible risk of originating from forests where harvesting breaks national laws or is subject to corruption.

Woodmark's comprehensive Due Diligence System allows companies importing timber products into the EU to show they comply with the EU Timber Regulation. This Due Diligence System has been carefully scrutinised by the European Commission as part of the approvals process to become a Monitoring Organisation. The system will help companies ensure that products have been through a rigorous process of risk mitigation to screen out all potentially illegal sources.

Meriel Robson, certification manager of Woodmark said; *"We are pleased to become a monitoring organisation for the EUTR – the regulation is good news for the world's forest ecosystems and for the people that depend on them. We are looking forward to helping companies meet their EUTR obligations by providing them with the innovative Due Diligence System and the support to implement this. This will speed up the process of regulating legally harvested timber and also represent a cost-effective and efficient approach for companies."*

Woodmark has been engaged in forest and timber certification for 20 years and delivers this throughout the world through an international network. In addition to providing a Due Diligence System to meet the EUTR, Woodmark also offers a wide range of services from Verification of Legal Compliance to full FSC and PEFC certification.

www.soilassociation.org

Global: New global ratings agency ranks the 500 institutions with the power to end deforestation

The Global Canopy Programme's 'Forest 500', launched 11th February, identifies, ranks, and tracks the governments, companies and financial institutions worldwide that together could virtually eradicate tropical deforestation. Results from the project show that only a small number of actors worldwide have comprehensive policies in place to protect tropical forests.

The majority of tropical forest loss and degradation is driven by the production of just a handful of globally traded 'forest risk' commodities: namely palm oil, soya, beef, leather, timber, and pulp and paper. These commodities move along complex global supply chains that are largely controlled by 500 powerbrokers in business, finance and government.

In September 2014, leaders from governments, major multinationals, indigenous communities and civil society signed the landmark New York Declaration on Forests. It spells out ambitious commitments to end deforestation, including by eliminating it from the production of agricultural commodities by 2020. This mirrors an earlier pledge by the Consumer Goods Forum, a global alliance of 400 companies with combined sales of three trillion dollars, to achieve net zero deforestation supply chains by 2020. Similar commitments have been made within the financial community, most notably through the Banking Environment Initiative.

To measure progress towards these goals the Global Canopy Programme has developed rigorous methodologies to identify and rank governments, companies and financial institutions based on their public policies and potential impacts on forests related to forest risk commodities.

The Forest 500 ranking and analysis will be repeated annually until 2020, to help inform, enable and track progress towards this urgent global goal.

forest500.org

India: Tiger numbers grow by 30% in 4 years – Can forests sustain India's Big Cat boom?

The latest tiger census results showing a 30% increase in Big Cat numbers in four years throws up a crucial question for conservationists and policy-makers: how many tigers can India's forests hold without large scale man-animal conflicts coming into play? Experts say although more than 5,000 tigers can be accommodated across Indian forests through effective protection, a manageable number would be between 3,000 and 3,500. However, they add that sustaining even the current tiger population requires an economic agenda that's sensitive to conservation.

"Another 1,000–1,500 tigers would be manageable," said Yadvendra Jhala, wildlife biologist at Dehradun's Wildlife Institute of India and one of the men behind the tiger census. "But we require infrastructure development to be smart and green." Jhala said the biggest conservation challenge was to strengthen forest corridors to enable movement of tigers across forests – migrations that add genetic diversity to local tiger populations and are key to their long-term survival.

"Most forest corridors today are degraded. Yet, studies have shown they are still being used by tigers to move from one protected forest to another. But any further degradation and they would become barriers," Jhala said.

Veteran tiger biologist K Ullas Karanth, director for science-Asia at Wildlife Conservation Society, felt tiger numbers could multiply manifold if more forest areas are brought under protection. "Total area under forests that can support tigers exceeds 2,00,000 sq km. Less than 25% of that is well protected at the moment. We can have 5,000–10,000 tigers if we can increase the area under effective protection," Karanth said.

However, that remains a distant dream. The 2010 tiger census had shown an alarming drop in tiger numbers outside protected areas, implying that these forests had become too degraded to support tigers, mainly due to pressure of human population and development.

With development and growth being a prime focus of the NDA government, wildlife activists fear forests would become a casualty and human-animal conflicts would rise. "The tiger is a symbol of our entire forests. What we need is smart infrastructure development that's sensitive to forests and wildlife. For instance, if there's a road being built through a green area, it should have overpasses and underpasses that enable movement of animals," said Jhala.

Other experts wanted the momentum of increased tiger numbers to be sustained through higher budgetary support for conservation. "I hope governments will increase budget allocations to employ more forest guards and proper training," said Hemendra Kothari, chairman of Wildlife Conservation Trust. "Around 600 of India's rivers either originate or are fed by tiger forests. Their protection is not only for the tiger but also for water security and protection of the environment," he added.

timesofindia.indiatimes.com

Global: Going deforestation-free: can it protect our forests?

So here is the good news. Asia Pulp and Paper, one of the world's largest pulp and paper producers, wants to go deforestation-free. For them that means stopping the conversion of natural forests, protecting high conservation value areas and good community relations, among other efforts. The company has worked with Greenpeace and TFT to develop its zero-deforestation programme, and invited Rainforest Alliance to evaluate progress thus far. That evaluation was just released, and the news is that APP suppliers have stopped destroying natural forests.

Unfortunately, forest clearance by other third parties is still occurring. The reasons are complex, and include communities carving out space for homes and subsistence farming, overlapping tenures where natural forest might get replaced with oil palm, and selective illegal logging. Completely eliminating deforestation across APP's huge supply chain will take time and collaboration with other players, including government.

Between the New York Declaration on Forests, the Consumer Goods Forum and individual corporate announcements, hundreds of companies are committing to sourcing commodities from suppliers that don't destroy forests to produce them – especially beef, pulp and paper, palm oil and soy, which collectively cause about half of global deforestation.

That's exciting because trees are critical for protecting water, soil and biodiversity, as well as creating resilience to extreme weather events and sequestering carbon. It is also a testament to constructive partnerships between corporate leaders and civil society groups, such as the World Wildlife Fund, Greenpeace, World Resources Institute and Rainforest Alliance.

But the devil is in the detail. Zero deforestation policies don't change the fact that sourcing forest products always involves cutting trees – it's just a question of which trees where and how. And where there is a cultivated crop, most likely there once stood forests. Without a shared definition and approach, siloed deforestation-free commitments risk simply shifting forest destruction from one company or producer area to another, confusing consumers in the process.

It's well recognised that declaring logging off limits in a given area and throwing communities that depend on forest-based livelihoods out of work can be a recipe for illegal logging and net forest loss. Stopping deforestation requires carrots as well as sticks – deterring forest destruction as well as helping foresters and farmers make a living, protecting high-value areas and managing trees sustainably. In the case of agriculture, growing demand for food also requires sustainable intensification – in other words, producing more on less land, without unacceptable uses of chemicals and water to do so.

Take Guatemala's Maya Biosphere Reserve, which has areas of government-run "strict-protection" forest that are theoretically deforestation-free, but in practice lose an average 1% of their forest to encroachment annually. Some of those protected areas have even higher rates of illegal forest conversion than areas outside the reserve. But adjacent to these areas, also inside the reserve, are forestry concessions where communities run sustainably managed working forests certified by the Forest Stewardship Council (FSC). Here, net deforestation rates are near zero. In other words, those logging concessions are more deforestation-free than parts of the strict-protection zones.

For North American paper company Domtar, which has been employing sustainable forest management practices for 10 years, not to mention thousands of other FSC certified companies, deforestation-free means harvesting trees in a way that protects water, soil, indigenous rights and wildlife, as well as ensuring reforestation and good community and labour relations. Currently, 20% of the paper Domtar sells is FSC certified, and it is also working to create transparency through its new Paper Trail® tool, which lets customers track environmental, social and economic impacts of their individual order.

Since agriculture causes 70% of global deforestation, and rising population and food demand increase pressure to convert forests, pursuing deforestation-free goals must also mean finding sustainable ways of increasing yields on existing cropland and grazing land without cutting forests. To feed nine billion people by mid-century, developing countries must increase food production by over 50%.

There's evidence we can achieve that without cannibalising forests. In 2006, after Greenpeace published a report exposing deforestation from soy production in Brazil (pdf), major soy producers agreed to a moratorium on forest clearing. A new study confirms that since then, deforestation from soy fell to near zero, while soy production still doubled.

For now, deforestation-free can mean anything from stopping conversion of natural forests to active stewardship of conserved forests to intensifying agricultural yields sustainably. To really stop deforestation, we need to get on the same page. Commodity production and supply chains should respect common, key criteria, starting with no conversion of natural forests. But they should also extend further: protecting non-forest ecosystems, preventing severe pollution or over-exploitation of water, upholding community and worker rights, and progressively improving farmers' productivity, efficiency and livelihood benefits.

theguardian.com

Global: World Bank's forest carbon program falls short on indigenous peoples' rights, argues report

Countries poised to receive World Bank funds for achieving reductions in deforestation have insufficient safeguards for ensuring that local communities don't lose out in the rush to score money from the forest carbon market, argues a new report published by the Rights and Resources Initiative (RRI).

The report, released last week, says that without laws defining who has what rights to forest carbon, the influx of money via the World Bank's Forest Carbon Partnership Facility (FCPF) could increase land-grabbing, jeopardizing livelihoods of local communities and potentially further marginalizing already underserved groups.

"For centuries, governments have been handing out Indigenous Peoples' forests to supply the next commodity boom – whether rubber, oil palm, cattle or soy," said Andy White, coordinator of the Rights and Resources Initiative. "The carbon market is the next global commodity from tropical forests and, once again, there is a major risk that Indigenous Peoples are not recognized as the owners of the forest. The World Bank sets the investment standards that many national governments and private companies follow. They are now proposing to weaken their own safeguards and are encouraging governments to sell carbon rights without first ensuring human rights. This puts at risk both the forests and the credibility of the carbon market."

"On its current path, carbon trading will allow governments to make the decisions, and control the proceeds of the market, undermining local peoples' rights, and putting at risk the protection of the forest itself," added Joji Cariño, director of Forest Peoples Programme, in a press statement. "Indigenous Peoples and local communities, who have been stewards of the land for generations, are likely to be further marginalized and dispossessed. Stronger leadership is needed by the World Bank to respect local rights and help governments direct benefits to support local forest owners."

The report, based on analysis of legal systems in eight of 11 countries the World Bank has declared "ready" to sell forest carbon credits, says that models for recognizing and securing land indigenous peoples' and local communities' land rights already exist.

"Mexico respects indigenous land rights and has established national funds to compensate forest communities for their carbon, as has Costa Rica," stated RRI. "El Salvador is planning such a system as well."

For example, in Mexico, the government controls only 4 percent of the country's forests while indigenous peoples and local communities have rights to 70 percent. That is a stark contrast to other FCPF countries like Democratic Republic of the Congo (100 percent of forests 'owned' by the government), Republic of the Congo (98 percent), Vietnam (98 percent), Indonesia (96 percent;), Peru (71 percent), and Nepal (68 percent).

That ownership structure allows the government to sell forests for commodity production – whether its palm oil, timber, or carbon credits – irregardless of who actually uses and lives in those forests, argues RRI.

"We've got to learn this lesson: you can't get democracy or development, and you can't stop deforestation, without respecting citizens' human rights, including local peoples' rights to their land and forests," said White. "Without rights you get the resource curse – whether you are talking about oil palm, forests, mining or carbon."

news.mongabay.com

Vietnam: First forest leased for research and conservation purposes

The management board of Dong Chau Protective Forest in central Quang Binh province has signed a contract for the Viet Nature Conservation Centre to lease forest land for scientific research and conservation. Leasing protected forests for scientific research and long-term biodiversity conservation is a pioneering model that is being applied in Vietnam for the first time.

This step is part of a project, planned to last 30 years, titled "Protection of biodiversity and enhancement of ecosystem services of the Dong Chau-Khe Nuoc Trong Forest," which is in Le Thuy district. Under the contract, the Viet Nature Conservation Centre will lease more than 700ha of lowland broadleaved evergreen forests – Forest Compartment 528 specifically – for 30 years, from 2015 to 2045, at a price of 200,000 VND (9.5 USD) per hectare per year.

Forest Compartment 528 was chosen because it supports moist evergreen forests at low elevations, which is a suitable habitat for Edwards's Pheasant – a critically endangered species endemic to Vietnam that is on the verge of extinction in the wild – and a potentially good site for its reintroduction, if deemed necessary.

For the last three years, the Viet Nature Conservation Centre has conducted biodiversity surveys using camera traps and has recorded 63 species in the forest, many of which are globally endangered or critically endangered. These include saola, pangolin, large-antlered muntjac, red-shanked douc langur, and others.

Director of the management board Pham Duc Hoa said that this was a significant opportunity for both sides to better protect the forests, the living conditions of the endangered species, and the unique biodiversity of the forest, even though only a small-scale contract was signed.

english.vietnamnet.vn

Global: Ranking the best and worst companies in terms of deforestation

While a number of high profile companies have adopted policies designed to exclude deforestation from their commodity supply chains, such commitments remain outside the norm, indicating that most companies still lack forest-friendly safeguards, finds a comprehensive survey conducted by the Global Canopy Programme. The assessment, dubbed The Forest 500', ranks 250 companies, 50 jurisdictions, 150 banks and investors, and 50 'powerbrokers' by the extent and scope of their souring policies for six 'forest risk commodities': soy palm oil, beef, leather, timber, pulp and paper.

The Global Canopy Programme says the aim of the initiative is to improve accountability across key commodity sectors that are responsible for driving the bulk of global deforestation.

"We are currently all part of a global deforestation economy. Deforestation is in our chocolate and our toothpaste, our animal feed and our textbooks, our buildings and our furniture, our investments and our pensions," said Mario Rautner, The Global Canopy Programme's Drivers of Deforestation Programme Manager, in a statement. "Our goal with the Forest 500 is to provide precise and actionable information to measure the progress of society to achieve zero deforestation. Together, these 500 countries, companies and investors have the power to clean up global supply chains and virtually put an end to tropical deforestation."

Broadly 'Forest 500' finds that larger, consumer-facing companies with strong brand recognition are doing a better job cleaning up their supply chains than smaller firms and companies whose primary customers aren't mass-market consumers. Companies in China, India, Russia, and the Middle East rank the worst. Publicly-listed companies generally score better than privately-held companies.

A handful of companies scored the maximum number of points: Groupe Danone (France), Kao Corp. (Japan), Nestle S. A. (Switzerland), Procter & Gamble (US) and Reckitt Benckiser Group (UK), Unilever (UK) and HSBC (UK). Among forest countries, Latin America scored higher than other regions.

Financial institutions generally lagged other sectors, according to the analysis.

The Global Canopy Programme says the recent trend of big companies adopting zero deforestation policies is an important first step toward meeting pledges to cut forest loss by 2020, including last year's New York Declaration on Forests which aims to halve deforestation and the "zero net deforestation by 2020" target set by the Consumer Goods Forum (CGF) in 2010. But it warns that unless more companies jump on the bandwagon, these targets will be missed. Furthermore, the group says companies that have made commitments will have to transition from talk to action.

"Though the Forest 500 findings highlight that much work needs to be done, the good news is that a number of big players across sectors are demonstrating the leadership that is needed," said Rautner. "Putting policies in place is just the necessary first step in addressing tropical deforestation and their implementation will be critical in order to transition to deforestation free supply chains by 2020."

news.mongabay.com

Brazil detains man accused of being Amazon's biggest deforester

Brazil has detained a land-grabber thought to be the Amazon's single biggest deforester, the country's environmental protection agency said. The Brazilian Institute of Environment and Renewable Natural Resources said Ezequiel Antônio Castanha, who was detained on Saturday in the state of Pará, operated a network that illegally seized federal lands, clear-cut them and sold them to cattle grazers.

The agency blames the network for 20% of the deforestation in Brazil's Amazon in recent years, though the statement issued did not provide the estimated scale of the devastation. It quoted the agency's head of environmental protection, Luciano Evaristo, as saying he hopes Castanha's arrest will "contribute significantly to controlling deforestation in the region".

Castanha will face charges including illegal deforestation and money laundering, and could be sentenced to up to 46 years in prison, the statement said.

Officials said late last year that 1,870 square miles (4,848 sq km) of rain forest were destroyed between August 2013 and July 2014. That's a bit larger than the US state of Rhode Island. In addition to being home to around one-third of the planet's biodiversity, the Amazon is considered one of the world's most important natural defenses against global warming because of its capacity to absorb huge amounts of carbon dioxide. Rain forest clearing is responsible for about 75% of Brazil's emissions as vegetation is burned and felled trees rot.

The Amazon extends over 3.8m square miles (6.1m sq km), with more than 60% of the forest within Brazil.

theguardian.com

Zimbabwe's famed forests could soon be desert

There's a buzz in Zimbabwe's lush forests, home to many animal species, but it's not bees, bugs or other wildlife. It's the sound of a high-speed saw, slicing through the heart of these ancient stands to clear land for tobacco growing, to log wood for commercial export and to supply local area charcoal sellers. This, despite Zimbabwe being obliged under the United Nations' Millennium Development Goals (MDGs) to ensure environmental sustainability by the end of this year.

"The rate at which deforestation is occurring here will convert Zimbabwe into an outright desert in just 35 years if pragmatic solutions are not proffered urgently and also if people keep razing down trees for firewood without regulation," Marylin Smith, an independent conservationist based in Masvingo, Zimbabwe's oldest town, and former staffer in the government of President Robert Mugabe, told IPS.

According to the United Nations Environment Programme (UNEP), Zimbabwe lost an annual average of 327,000 hectares of forests between 1990 and 2010. Smith blamed Zimbabwe's deforestation on the growing numbers of tobacco farmers who were cutting "millions of tonnes of firewood each year to treat the cash crop."

According to the country's Tobacco Industry Marketing Board, Zimbabwe currently has 88,167 tobacco growers, whom environmental activists say are the catalysts of looming desertification here. "Curing tobacco using huge quantities of firewood and even increased domestic use of firewood in both rural and urban areas will leave Zimbabwe without forests and one has to imagine how the country would look like after the demise of the forests," Thabilise Mlotshwa, an ecologist from Save the Environment Association, an environmental lobby group here, told IPS. "But really, it is difficult to object to firewood use when this is the only energy source most rural people have despite the environment being the worst casualty," Mlotshwa added.

Zimbabwe's deforestation crisis is linked to several factors. "There are thousands of timber merchants who have no mercy with our trees as they see ready cash in almost every tree and therefore don't spare the trees in order to earn money," Raymond Siziba, an agricultural extension officer based in Mvurwi, a district approximately 100 kilometres north of the Zimbabwean capital Harare, told IPS. According to the Zimbabwe National Statistics Agency (ZimStat), there were 66,250 timber merchants nationwide last year alone.

Deforestation is a complex issue. A recent study by the Food and Agriculture Organization (FAO) reported that during the decade from 1980 to 1990, the world's tropical forests were reduced by an average of 15.4 million hectares per year (an 0.8 percent annual rate of deforestation).

The area of land cleared during the decade is equivalent to nearly three times the size of France.

Developing countries rely heavily on wood fuel, the major energy source for cooking and heating. In Africa, the statistics are striking: an estimated 90 percent of the entire continent's population uses fuelwood for cooking, and in sub-Saharan Africa, firewood and brush supply approximately 52 percent of all energy sources.

Zimbabwe is not the only sub-Saharan country facing a crisis in its forests. A panel run by the United Nations and the African Union and led by former South African President Thabo Mbeki found that in Mozambique thousands more logs were exported to China than were legally reported.

Disappearing forest cover is a particular problem in Ghana, where non-timber forest products provide sustenance and income for 2.5 million people living in or near forest communities. Between 1990 and 2005, Ghana lost over one-quarter of its total national forest cover. At the current rate of deforestation, the country's forests could completely disappear in less than 25 years. Current attempts to address deforestation have stalled

due to lack of collaboration between stakeholders and policy makers.

In west equatorial Africa, a study by Greenpeace has called logging the single biggest threat to the Congo Basin rainforest. At the moment, logging companies working mostly in the Democratic Republic of the Congo (DRC) are busy cutting down trees in over 50 million hectares of rainforest, or an area the size of France, according to its website.

An estimated 20 to 25 percent of annual deforestation is thought to be due to commercial logging. Another 15 to 20 percent is attributed to other activities such as cattle ranching, cash crop plantations and the construction of dams, roads, and mines. However, deforestation is primarily caused by the activities of the general population. As the Zimbabwe economy plummets, indigenous timber merchants are on the rise, battling to eke a living, with environmentalists accusing them of fuelling deforestation.

For many rural dwellers, lack of electricity in most rural areas is creating unsustainable pressures on forests in Zimbabwe. "Like several other remote parts of Zimbabwe, we have no electricity here and for years we have been depending on firewood, which is the main source of energy for rural dwellers even for the past generations, and you can just imagine the amount of deforestation remote areas continue to suffer," 61-year-old Irene Chikono, a teacher from Mutoko, 143 kilometres east of Harare, told IPS.

Even Zimbabweans with access to electricity are at the mercy of erratic power supplies from the state-owned Zimbabwe Electricity Supply Authority (ZESA), which is failing to meet electricity demand owing to inadequate finances to import power.

"With increasing electricity outages here, I often resort to buying firewood from vendors at local market stalls, who get this from farms neighbouring the city," 31-year-old Collina Hokonya, a single mother of three residing in Harare's high density Mbare suburb, told IPS.

Government claims it is doing all it can to combat deforestation but, faced with this country's faltering economy, indigenous timber merchants and villagers say it may be hard for them to refrain from tree-felling. "We are into the timber business not by choice, but because of joblessness and we therefore want to make money in order to survive," Mevion Javangwe, an indigenous timber merchant based in Harare, told IPS.

"A gradual return of people from cities to lead rural life as the economy worsens is adding pressure on rural forests as more and more people cut down trees for firewood," Elson Moyo, a village head in Vesera village in Mwenezi, 144 kilometres south-west of Masvingo, told IPS.

"Politicians are plundering and looting the hardwood forest reserves since they own most sawmills, with their relatives fronting for them," Owen Dliwayo, a civil society activist based in Chipinge, an eastern border town of Zimbabwe, told IPS.

"For all the forests that politicians plunder, they don't pay a cent to council authorities and truly how do people get motivated to play a part in conserving hardwood forests?" Dliwayo asked. "We will only manage to fight deforestation if government brings electricity to our doorsteps because without electricity we will keep cutting down trees for firewood," said Chikono.

ipsnews.net

Kenya lifts ban on forest logging

Kenya has announced it has lifted a ban on timber harvesting after imposing the ban last December following illegal logging concerns. The government has however outlined tougher raft of rules to be followed and threatened to reinstate the ban if the rules are flouted, among them logging of immature trees.

"The Ministry has undertaken an audit on forest management, focusing on available stocks, reviewed and analysed players including equity in allocation of resources" said Cabinet Secretary for Environment, Water and Natural Resources, Judy Wakhungu. "Only those with saw milling machinery and who have demonstrated a capacity for investments in the industry would be allowed to harvest timber" she added. "Forest materials shall be harvested only from authorised mature plantations and thinning implemented as prescribed in the felling plan, in accordance with the relevant technical orders" she added.

A recent survey by the Kenya Forest Services, says the country's forest cover stands at 6.6 percent while the aim is to attain 10 percent mark by 2030.

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