CFA Newsletter

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Young foresters at COP 21

Main Plenary Hall at COP 21

The recent 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP 21) provided an international platform for UN Member Countries to meet, discuss and agree to a new international agreement on climate. Beyond the official negotiations, COP21 also brought together nearly 50 000 participants to one of the largest environmentally focused conferences in history, drawing in people from government, industry, academia, the non-profit sector and civil society, all to discuss one of the preeminent issues of our day – climate change. COP 21 also provided an opportunity for youth to gain exposure to and learn up close and firsthand about the details and nuances of how these international governance processes function and operate.

The International Forestry Students Association (IFSA) had the opportunity to send ten youth delegates from around the world to take part in this momentous event. IFSA is an international non-profit, non-governmental student organization with Local Committees at universities across the world. IFSA aims to connect youth from all corners of the globe that are studying, working, and more generally just interested in forests, the forest industry and other natural resource sectors and environmental issues. As an organization under the United Nations Major Group 'Children and Youth' IFSA was allocated five 'Observer Status' delegate positions to attend each week of the event, allowing for ten youth to go to Paris as IFSA delegates to COP21. (They documented their experiences in their blog, found at https://ifsacop21.wordpress.com/)

The COP21 venue, held at Le Bourget, an airport northeast of the city of Paris converted to host these climate negotiations, was split into two main sections: a 'Blue Zone', and a 'Green Zone'. The 'Blue Zone was the official venue for negotiations with proper accreditation needed to enter while the 'Green Zone' was entirely open to the public. Within both zones were pavilions and information booths hosted by various organizations, companies, countries and civil society groups. Side events with panels of speakers from a variety of backgrounds and discussing a wide range of topics were running constantly throughout the two weeks of the event. These side events allowed for participants to learn from and interact directly with many of the government officials, leading scientists and industry experts that were in Paris to discuss the various

Polar bear sculpture at COP 21

climate related projects and initiatives that are being put in place and carried out around the world.

As youth delegates with 'Observer Status' accreditation we were able to enter the 'Blue Zone' where we were free to browse the Country Pavilions, attend media sessions and side events but our opportunities for viewing any of the actual negotiations were limited – or more accurately described as non-existent. All official negotiations for the new Paris Agreement were held behind closed doors with only official country delegates able to participate. Some of the plenary sessions could be attended or in some cases viewed on large screen T.V.'s from a secondary plenary hall.

The setup of the event and venue felt simultaneously interactive yet exclusive. Knowing that within the same walls that we were walking, negotiations that could lead to a landmark agreement for our international community to move forward on the tumultuous issue of climate change was highly energizing and exciting! Yet it was also hard not to feel that all of these side events and the grandeur of the process was merely a façade for promoting the idea of civil society engagement without having to actually allow us to have any direct input into the agreement. We could access firsthand the media briefs and listen in to the news reports as they were happening on the latest developments in the negotiations and yet as close as we were the negotiations themselves still seemed so far away and out of reach.

In truth however COP 21 was about far more than just negotiating a new agreement on climate. When dealing with an issue as integrated and intertwined with the very fabric of our society as climate change is, COP21 was inevitably also about many other issues – human rights, food security, gender equality, economic development, socio-economic inequality, emerging technologies, land tenure and the rights of Indigenous and Local Communities. The list can go on and on as climate change is not so much a cause but a symptom of the many social, economic and environmental challenges we face in our world today.

In the early stages of COP it became evident that although progress was being made in regards to universal recognition for the need to limit carbon emissions, a divide was developing on to what degree something must be done, the logistics of how and of course, who will pay. In the lead up to Paris and for many countries negotiating the agreement a limit of increase in average global temperatures to no more than 2 degrees Celsius compared to pre-industrial levels was viewed as the desired target. However it became clear as COP21 progressed that a large number of countries did not think such a target was sufficient. A movement led by a number of Small Island Developing States, with much credit being given to the Marshall Islands, brought forth a 'high ambition coalition' for which as the name suggests, pushed for more ambitious measures on a number of issues to be included in the agreement. This included recognizing the need for limiting the increase in average global temperature to only 1.5 degrees Celsius as opposed to 2.

Many countries that are already facing the detrimental consequences of a warmer world, such as these low lying island nations, know that an increase in temperature of 2 Celsius would be catastrophic, with sea level rise and increasingly more devastating natural disasters having the potential to literally wipe them off the map.

In order to achieve the goal of "holding the increase in the global average temperature to well below 2 °C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above preindustrial levels" the importance of promoting positive incentives and policies for reducing emissions from deforestation and degradation and the role of conservation, sustainable forest management and enhancing forest carbon stocks was acknowledged within the agreement.

UN forest carbon marketing program REDD+ received a boost during COP with additional commitments of several billion dollars over the coming years being announced from countries including Norway, Germany and the UK. One of the most beneficial aspects of the highly interdisciplinary nature of the COP event was the dialogue and discussions that followed any headline grabbing pledges and commitments that were made in Paris. One such example was as on the topic of REDD+ with the benefits of its carbon sequestering potential being highly touted alongside strong criticisms of the program that must also be considered when evaluating the effectiveness of these initiatives and the merit of allocating billions of dollars towards them.

Within one perspective REDD+ offers an answer to the devaluing of our planets natural resources; through programs such as REDD+ and by putting a price on carbon there becomes economic incentives to protect our world's precious forests. But through another lens we can see that forests are much more than their carbon content, they are living, breathing entities that are home to an abundance of flora and fauna in addition to many Indigenous and Local Communities whose rights and way of knowing are jeopardized when faced with industrial development and economic focused carbon sequestering programs. COP 21 provided an international platform for discussion to evaluate such initiatives from multiple perspectives, allowing for a heightened level of insight moving forward.

The value to youth in being exposed and engaged in dialogue on such contentious issues on a global stage is immeasurable. The diversity of perspectives that were heard and the insight into the priorities and objectives of such a wide ranging group of people all contribute to the expansion of one's world view and a heightened appreciation of not only the privilege, but also the responsibility of those of us that were fortunate enough to be provided such an opportunity.

With the Paris Agreement reached and ratification to follow the true value of COP21 will take decades to fully appreciate as an immense amount of work remains to meet the commitments laid out in Paris. It will take more than the signing of an international agreement by 195 member countries at a high-level policy forum such as that of the UNFCCC COP21 to truly combat the tremendous challenge of a changing climate. It will take each of us, every day, to acknowledge our inadequacies and promote our strengths, to alter our behaviours and even adjust our way of thinking, to live more harmoniously with nature so that together we can move forward in creating a more climate just world.

Jesse Way
CFA-IFSA Liaison Officer

Association news

XIX$_{th}$ Commonwealth Forestry Conference – First Announcement

The world today is undergoing rapid socio-economic and technological changes, which have implications for the forest and environment sector, in turn affecting the ecological, economic and social wellbeing of the people. The forestry sector must keep pace and adapt to these changes.

The "Commonwealth" refers to the Commonwealth of Nations, an association of 53 sovereign nations that works together to achieve international goals such as Peace, Democracy and Consensus-building, Law, Human Rights and Development, Environmentally Sustainable Economic Development with greater trust and mutual understanding. Environment and forests are global resources and need to be focused upon by the global fraternity due to the pressures they are under as a result of the alarming growth in the human population, pressures that are being exacerbated by climate and environmental change.

The year 2017 will be a key occasion for forestry professionals, academicians and all those interested in and associated with forestry sector in the Commonwealth; they will gather and share their experiences with a view to learn and develop a vision for the future that will involve inclusive and sustainable growth and development. The commonwealth forestry conferences have been held since 1920, when the first (Empire) Forestry Conference was held in London. Since then, the conferences have been held regularly to discuss various aspects of management of forests and focus the action on the changing priorities of the forestry sector.

The **19th Commonwealth Forestry Conference** is scheduled to be held at Forest Research Institute, Dehradun, India from **3rd to 7th April, 2017**. The ICFRE and FRI will be the Focal point of the conference, with support from MOEF&CC, Government of India and Commonwealth Forestry Association. The major theme of the conference will be:

"Forests for Prosperity and Posterity"

The conference aims to:

- Serve as a key forum for all those concerned with the forestry sector to share their experience and expertise and pave the way for effective translation of forestry research into actions for its sustainability.
- Provide a platform to encourage and strengthen forestry research and development for the benefit of the people and industry that depend on forests and related sectors for their economic and social well being.
- Identify and address critical issues in the management of forests for the sustenance of rural, tribal and indigenous communities.
- To provide a stageforall stakeholders to collaborate over the better management of forests and ensure food, water and energy security, thereby contributing to the global Sustainable Development Goals.

Visit the CFC website to keep updated with developments at www.cfc2017.in

Young CFA member develops leadership skills

Nellie Amosi at a role modelling event held in December 2015 at Chinguni Primary School in the southern region of Malawi. The school was chosen due to the high rate of early pregnancies and school drop-out, especially for female pupils. After mentoring them, Nellie awarded 1st and 2nd positions for female pupils in standard 8 (last class in primary school) and standard 7 (last but one class) as a way of encouraging them and others to work hard.

Nellie Titani Amosi admits that she was a somewhat reluctant forestry student during her first days at university, and chose this sunject because it was the only science course open to her at the university to which she applied. Now she is happy that she studied forestry, and is one of the African Women in the Agricultural Research and Development (AWARD) fellowship programme, which is a career-development programme that enables women agricultural scientists across sub-Saharan Africa to accelerate agricultural gains by strengthening their research and leadership skills through tailored fellowships.

AWARD fellows are expected to have a vision, and Nellie wants to become an Environmental specialist working with international development agencies although she acknowledges "I have to study more to achieve this goal," It is through AWARD that Nellie became aware of professional associations and their importance, and subsequently she has joined several, including the CFA and the Organization for Women in Science for the Developing World (OWSD).

As an AWARD fellow, she presented her research findings at an international conference in England, fully sponsored by AWARD. As she finishes her two-year career development program in February 2016 she has developed her leadership capacity, science and communication skills and fostered mentoring partnerships. As a result of this she conducts role modeling events on career talk in primary schools, secondary schools and colleges.

Today, Nellie is pursuing a master of science in Forestry and Environmental Management at Mzuzu University in Malawi. Her research area is focusing on Value Chain Analysis of baobab products in Malawi. The goal of the study is to contribute to the improvement of income and livelihoods of the rural communities through the enhancement of indigenous fruit tree enterprises in Malawi.

Before going back to school, Nellie worked with the World Agroforestry Centre (International Centre for Research in Agroforestry) as a Technical Officer. She was involved in several projects, including the Gender-specific Appreciation of Landscape Multi-functionality, an assessment of carbon and nutrient dynamics after a three-year tephrosia-fallow agroforestry system and. She was also involved in the Agricultural Food Security Program II (AFSP II), part of her institution's green fertilizer subsidy program. AFSP II aims to use an effective partnership to increase food and nutrition security, as well as the incomes and livelihoods of resource-constrained smallholder farmers, while increasing the resilience of the farm environment. Nellie's work involved facilitating the planning and implementation of data collection and processing about agriculture and environmental activities, as well as strengthening collaboration among programme partners. This work has inspired her to broaden her research from generic agroforestry and soil science to gender mainstreaming in the agriculture sector.

"Men and women make different decisions regarding land use, and their preferences on environmental services differ in ways that affect both groups," she says. "We considered this so we could design and implement projects that reduce gender inequality in terms of access, control, and the benefits of resources." Working with communities gives Nellie great satisfaction. "My biggest challenge is that community members tend to doubt my ability when I stand before them as a trainer because of my young age, but with time they have come to accept me," she says. "Working in a research institution really excited me because I could apply what I studied at university, and I also learnt new things."

Forest Scenes

Forestry research – more important now than ever

The UK is one of the least forested countries in the EU. Yet this is more than in the past, as the forest area has increased from less than 5% in the early 1900s to 13% currently. This expansion has only been possible on the basis of sound research into species choice, nutrition, establishment techniques, and forest protection. Through public funding of Forest Research, an agency of the Forestry Commission, ground breaking science has been delivered since the 1930s, and the UK has become a world leader in afforestation practice.

Modern forestry is a complex discipline, and the research to underpin it has to be both broad in the subject areas it covers, and deep in the understanding of natural and societal processes. The concept of sustainable forest management is the foundation of the UK Forestry Standard, the expression of how forestry is undertaken in the UK. In a heavily populated country, with a low level of forest cover, this requires both sound silviculture and a deep appreciation of societal and environmental pressures. Added to this is the need to understand and mitigate the implications of climate change, increasing pressure on forests and trees from new pests and diseases, and the capability to support a globally competitive wood and timber processing sector, and the need for high quality, timely research is self-evident.

In recent decades, the reduction in public spending has led to a significant decrease in research expenditure in the Forestry Commission. Spending in 2000 was £11.3m. In 2015 it was just under £9m. At 2015 values, the research spend in 2000 is worth £17.5m today. While efficiencies can be made, and have been, the net result over many years has been a reduction in the numbers of scientists undertaking forestry research, and a consequent reduction in the scope of the research which can be carried out. In some areas, this has left the UK perilously short of expertise. For example, the recent surge in new pests and diseases of trees has exposed the lack of forest entomologists and pathologists. This was discussed at a recent Institute conference, and whilst some steps have been taken to try to address this, expertise cannot be developed overnight and the pressure on research resources has been intense.

New areas for study have emerged in recent years. There is a need to look at the species used in UK forestry, and find others which will provide greater resilience in the future. The widespread incidence of Dothistroma needle blight has had a severe impact on Corsican, Lodgepole, and increasingly Scots pine. These are three of the principal tree species used in the UK. Thousands of hectares of Japanese larch have had to be felled as a result of *Phytophthora ramorum*, and many other trees are under threat. This work is long term and expensive.

Understanding the impacts of climate change on resilience and the continued provision of services from UK forests is still in the early stages, and the research has to adapt to new and emerging challenges posed by these. Whether this is pests and diseases, as mentioned above, or understanding how forests can mitigate flood events and/or sequester carbon, both above and below ground, adds to the research pressure, which is only increased with reducing resources.

Complex problems, such as we face, frequently demand complex solutions. These can only be found through in-depth understanding of the natural processes at play, and this requires well-designed, and well-funded research. If policy is to be properly evidence based, then the evidence base needs to be developed. This cannot be done by constantly reducing the resources available to it.

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Chinese Theft from Myanmar's Forests

The *Economist* of 19th September 2015, under the heading *Chinese firms are still stealing Myanmar's forests*, reports that Chinese "gangsters", *driven by their compatriots' insatiable appetite for timber* have doubled the rate of Myanmar's forest loss. Ten years ago both countries thought that they had solved the problem, after a crackdown on both sides of their common border. But now a recent study, titled *Organised chaos: the illicit overland timber trade between Myanmar and China*, by the Environmental Investigation Agency (EIA), a London-based charity, shows that the illicit trade has grown, and may even have reached a new height. See https://eia-international.org/report-category/forests This article is based on both the piece in the *Economist* and on the EIA study.

In the broader, regional context, Myanmar lies in the Greater Mekong sub-region, which includes Cambodia, southern China, Laos, Thailand and Vietnam, an area which has some of the greatest areas of remaining natural forest in the world. But Myanmar is in environmental crisis, with forest loss predicted to reach 30 million ha by 2030. The major causes of deforestation at present are:

- the expansion of agri-businesses (including rubber, oil palm and sugar cane plantations);
- unregulated infrastructure development; and
- illegal logging – although strictly, illegal logging, which removes a few trees/ha does not lead directly to deforestation but to forest degradation, opens up the area to small-scale farming and thus leads indirectly to loss of forest.

Officials check legality of wood leaving Myanmar

Although Myanmar still has 50% natural forest cover, with an estimated 10% of primary forest, there is about 2% loss of natural forest every year and illegal logging is a significant driver of deforestation. Since 2009 deforestation in the country has risen from 97,000 ha to 185,000 ha yearly while between 2001 and 2013 it is reported to have lost 1.7 million ha of forest. Some Myanmar states in the north of the country have especially significant areas of natural forest remaining, and it is in Kachin state, which shares a 1,000 km border with China, with scores of crossing points, ranging from formal international routes to dirt roads, where most of the illegal logging seems to be carried out. China, is the main source of the illegal trade in timber, and its three prefectures in Yunnan state, of Nujiang, Baoshan and Dehong abut the border with Kachin and are the centre for the illegal trade. As recently as May 2015 the Deputy Director-General of the Forests Department told the media "Every time I visit China, they pledge ato do what they can. But we've seen no effective action. (Myanmar Times, 25 May 2015)"

Ministerial responsibility for the control of the Myanmar forest sector lies with the Ministry of Environmental Conservation and Forestry (MOECAF) which has delegated the conservation and management of forests to the Forests Department (FD) and the extraction and trading of timber to the Myanmar Timber Enterprise (MTE). It is evidently the more powerful of the two bodies, since it is the only authority allowed to deal in timber. But, although MTE holds the right to logging, harvesting is usually sub-contracted to any one or more of around 100 enterprises that carry out the felling and log haulage. MTE also implements the hammer-marking of logs and timber, a robust system which in theory provides traceability in the supply chain but because MTE does not differentiate logs between the forests from which they have been removed it is simple to insert timber or logs into the chain with all the official documentation but without the steps required to demonstrate legitimacy.

In 2014 Transparency International ranked Myanmar 156th out of 175 countries surveyed for corruption and corruption in the forest sector appears to be endemic. The problem of control of logging is compounded since MTE's priority is to generate revenue both for the Government and for the contractors subcontracted to it. The solution to much of Myanmar's problem lies close to home, with its own army. The national laws state that wood and wood products must be exported solely through the post of Yangon, the capital, and never to its neighbours over land and the sale of logs in athe round to foreign countries was banned completely in April 2014. But none of these laws are obeyed by members of the army which controls around 60% of the area of Kachin, a war-torn state in the north of the country, who sell safe passage to loggers from China. And the rules mean even less to the ethnic-Kachin rebels, such as the Kachin Independence Organisation and its Kachin Independence Army, who control the other 40% of the area of Kachin and are said to sell access to the forests to the Chinese as one means of paying for the purchase of arms to fund their rebellion. But even if Myanmar could control its army the solution to the problem would require support from China, whose three prefectures of Nujiang, Baoshan and Dehong abut the border and are the centre for the illegal trade. Demand for decorative foreign timber is increasing due to the growth in China's economy, while at the same time improved protection of its own forests (and in neighbouring Thailand and Cambodia) is leading to decreased supply at home.

The two principal species being illicitly traded include two rosewood species, known as tamalan *(Dalbergia oliveri* and *D. bariensis*) as well as padauk *(Pterocarpus macrocarpus*) and obviously teak (*Tectona grandis*). In 2013, trade in timber products between Myanmar and China had reached 1.7 million m^3 and concerns regarding heavy dependence of the former's economy on China were evidently a major reason for its generals to open their country, long- isolated from the rest of the world. from 1962 until the beginning of political reform in 2010. Furthermore, 938,000 m^3 (55%) of the total exported were in the form of logs, trade in which has been banned since 2014 and by land, in contravention of the law that laid down Yangon as the only export port.

Before concluding, however, it is worth making a point about "illegal" logging. On reflection, I have used the term "illegal logging" to cover not only the logging of timber but also its transport where there is a ban on the export of logs – which is strictly smuggling. For better or worse, I have left it as I originally drafted it, since that is what the original report called it.

The EIA report concludes with some sound recommendations, addressed to both countries:

China should:

- observe Myanmar's log export ban by putting in place reciprocal measures;
- institute a clear legal prohibition on all imports of illegally logged timber;
- reform the industry to ensure it stops stimulating demand for endangered species, and trading in illicit timber;
- investigate the activities of the well-connected and influential culprits behind the cross-border timber trade.

Myanmar should:

- clarify all forestry and timber trade laws to all export markets, particularly China;
- reduce logging operations countrywide pending a full assessment of current forest conditions;
- develop a mechanism for dialogue in conflict areas that includes natural resources;
- continue to develop a multi-stakeholder process including representatives from ethnic states as part of the Forest Law Enforcement Governance and Trade discussions with the European Union;
- abolish the current role of the Myanmar Timber Enterprise in the oversight of logging operations and work towards greater transparency of information to all stakeholders;
- list rosewood species (tamalan and padauk) on Appendix III of the UN Convention on International Trade in Endangered Species.

The two governments were due to meet on 24th September to discuss illegal logging, but no report of that meeting has yet been seen by the author. Readers with information are requested to advise the editor.

Jim Ball
President, CFA

Restoring the landscape to improve livelihoods in the Chorotega Model Forest

Chorotega restored forest

International Model Forest Network

The Chorotega Model Forest, established in 2011, covers 508,400 hectares on the Nicoya Peninsula on the Pacific coast of Costa Rica. The Model Forest was established to promote and strengthen new areas of action towards the sustainable development of the region by building on positive efforts already underway.

Government policy between the 1930s and 1960s encouraged large-scale land clearing for intensive agriculture and cattle ranching. Particularly hard hit by deforestation was the area surrounding the headwaters of the Nosara River Basin, a source of drinking water for Hojancha, a small town in the highlands of the peninsula.

By the 1990s, the flow of the Nosara River was reduced by approximately 90%, leading to an acute water shortage and the out-migration of more than 50% of the population.

Responding to the pressures of deforestation and out-migration, in 1993 a group of local farmers created the Monte Alto Forest Reserve Foundation with the goal of preserving the lands in the river basin to restore the water flow. Working with the Ministry of Environment, they designated the Monte Alto Reserve, a 900 ha protected zone along the watershed. The Reserve is one of 30 protected areas in the Model Forest.

The Foundation purchases parcels of land, one hectare at a time from local farmers along the steepest slopes within the

Monte Alto Reserve where springs originate. To date, over 300 hectares of land have been purchased and restored.

Through the environmental protection and gradual reforestation of degraded lands, the Foundation has overseen the recovery of an important watershed, resurgence in several plant and animal species and improvement in local livelihoods within the Model Forest.

However, the Foundation was challenged in its ability to promote the benefits of their work and their approach beyond the boundaries of the reserve. The Model Forest played a key role in broadening the partnerships, enhancing the positive efforts already underway, and exploring new opportunities to benefit stakeholders in the region.

For example, once the landscape had been restored in the Reserve, ecotourism arose as a way to accommodate requests for visits from a range of groups – schools, universities, scientists, researchers, members of government and, of course, tourists. It has created jobs and income to various sectors of the local population while enabling the Foundation to purchase more land to continue its forest landscape restoration work.

The Model Forest created a space for discussion from which several local small businesses developed, providing lodging, food, goods and services, and recreational and informational activities.

For more Information:

Chorotega Model Forest: http://bosquemodelochorotega.org/
Monte Alto Natural Reserve: http://nicoyapeninsula.com/montealto/index.php
https://www.facebook.com/reservamontealto?ref=ts&fref=ts

Training forestry workers in reduced-impact logging (RIL) techniques: direct social benefits to worker health and safety.

The technical training in forestry that can increase both worker safety and productivity is not available to the majority of forest workers in the tropics. This lack of training is especially unfortunate given that, according to the International Labour organization (ILO), forestry is one of the most hazardous professions in the world, with fatalities as high as 1 in every 10 forest workers in the tropics (Alli 2008). Although the safety of workers in any industry should be of the highest priority, logging companies justify their unwillingness to invest in training programs on the basis of costs and the itinerant nature of the workforce. I hope this article will reinvigorate efforts to improve technical training in the forestry sector so as to improve occupational health and safety in tropical timber producing countries.

While the majority of tropical forest workers remain untrained and consequently exposed to avoidable risks of injury and fatality, I was fortunate to be trained in reduced-impact logging techniques (RIL), including those related to worker safety. While the environmental benefits of RIL attract the most attention (see Putz et al. 2008), I want to focus on its social welfare benefits. Technical training for workers in an accident prone work environment and a low safety culture could improve the dismal occupational health and safety record associated with the logging industry.

High stakes job

Tropical forestry is a high risk profession that often involves the felling of large trees and the processing and extraction of logs from challenging terrain and under extreme climate conditions. These risks are further exacerbated as workers have to operate and maneuver high powered pieces of equipment. Felling trees with chainsaws is an especially hazardous activity as poor felling cuts can lead to the feller losing control of the falling tree that result in tree kickbacks, trees that pivot and fall towards the feller, trees that pull surrounding trees down as well as falling branches (the latter colloquially known as 'widow-makers'; Fig. 1). Chainsaw operators seem especially prone to accidents as they account for the lion's share of forestry related injuries and fatalities, accounting for over 70 percent of all reported accidents (Dickson 1987; Thelin 2002).

Technical training to improve occupational health and safety

A majority of risks faced by fellers can be at least partially mitigated if unsafe felling methods are replaced with directional felling techniques, improved bucking practices, and workers are properly attired in personal protective equipment (PPE; Fig. 2). Other unsafe aspects of timber harvesting can be reduced by improved planning and operational guidelines at the managerial level as advocated by RIL guidelines (see Dykstra 2001). In instances when risks are inherent to the job, the use of PPE is a precautionary measure that can prevent debilitating and fatal injuries. Many of these recommendations have led to minimum standards for occupational health and safety in codes of practice in the forest sector. However, the forest sector cannot meet these standards without some minimal level of technical training of forest workers (Fig. 3). RIL training for all forest workers will surely have immediate positive impacts on occupational health and safety in the forest sector.

Governments, as the largest owner of production forests in the tropics and ultimately responsible for public health and safety, should ensure technical forestry schools are there to meet those standards. Worker organizations and civil society should exert pressure on policy-makers to ensure the quality of training meets the needs of the workers. These conditions should provide logging companies with the motivation to train workers and incentivize safety adherence in order to change the poor worker safety culture in the sector.

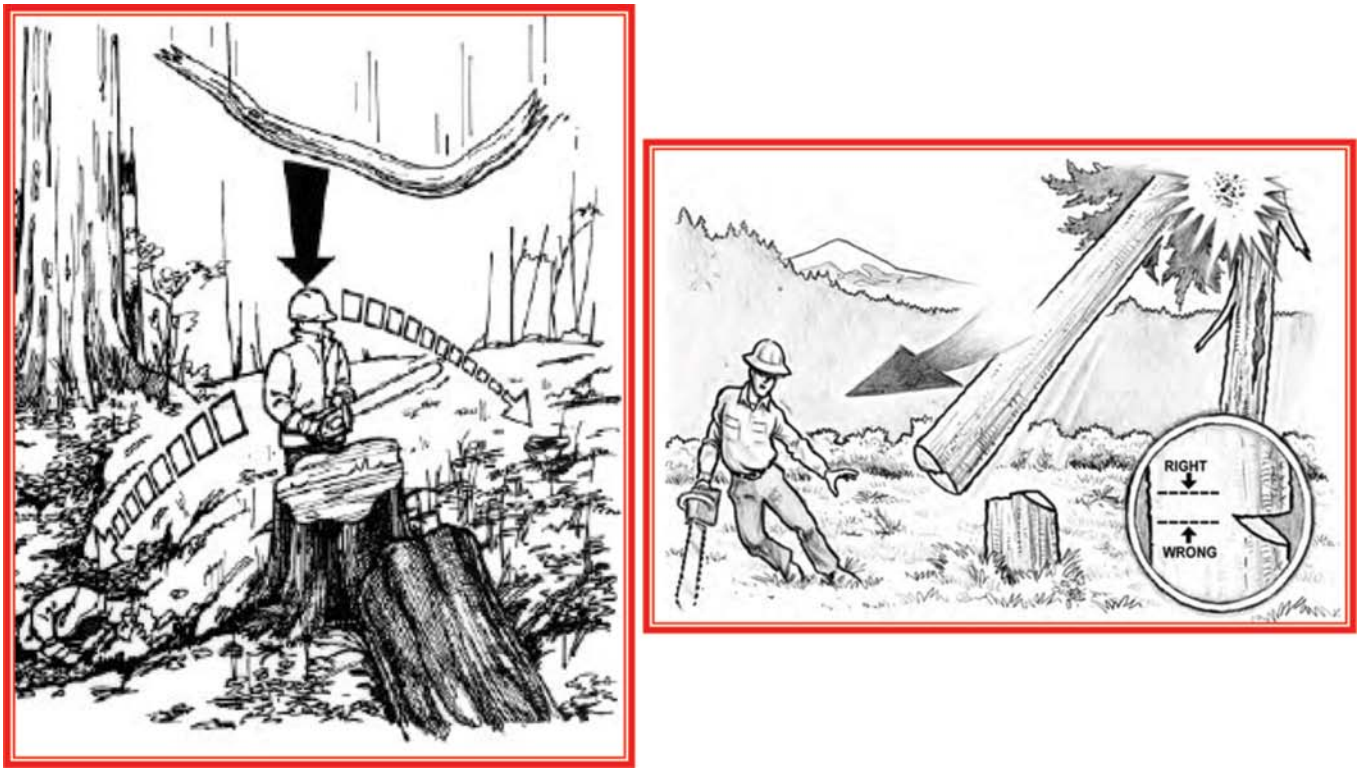

Fig. 1: Safety risks associated with tree felling. Falling branches from above (window-makers; left image) poses a severe risk to tree fellers especially when tree crowns are intertwined. Tree kickback (right image) is associated with poor cutting techniques and is most common when the backcut is lower than the directional notch.

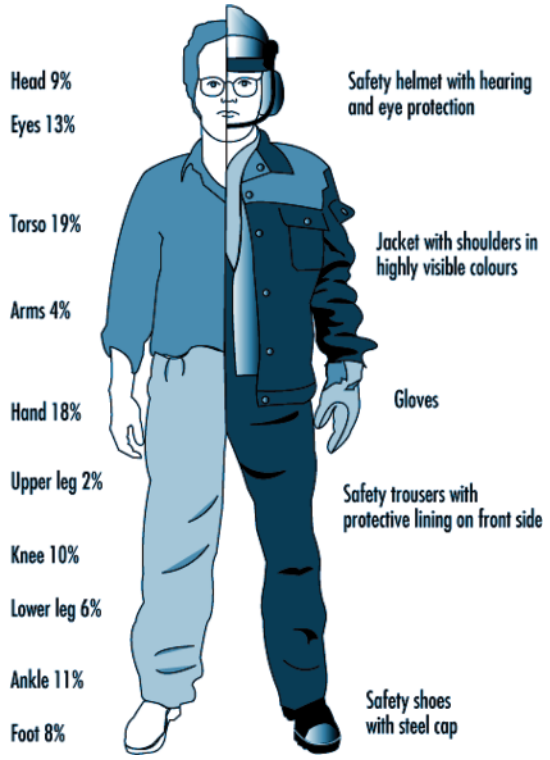

Fig. 2: Location and frequency of injuries associated with chainsaw use and personal protective equipment (PPE) recommended for forestry workers operating chainsaws (Sourced: Encyclopedia of Occupational Health and Safety, 2012).

The "+" of forestry training

Proponents of improved forest management in the tropics who focus on biodiversity and carbon reference RIL techniques as a means to achieve the dual goals of conservation and timber production (Putz et al. 2012; Bicknell et al. 2015). Worker safety, though not frequently mentioned, is also directly linked to the level of residual stand damage caused by logging. For example, application of pre-harvest liana cutting, as recommended by RIL, reduces the probability of other trees being pulled down with the tree being felled. Not only does this reduce falling debris where the feller is working but minimizes the logging footprint on the remaining forests. Whilst not deemphasizing these desired conservation outcomes that have global implications for climate and biodiversity, the direct social benefits to forest workers from higher standards of safety is just as ethically important considering the high rates of fatalities in the sector. Improved safety also makes economic sense as costs associated with worker compensation, treatment, and lost productivity from accidents increases operational costs and lowers profitability and sustainability of logging operations (Poschen 2012). Furthermore, perhaps the high rates of forest worker turnover would decline if the work was safer.

Globally, the timber sector provides an estimated 70 million jobs especially for lower level educated workforce, and much needed income for many tropical countries (Agrawal 2013). Wood and wood products will remain a demanded commodity in the foreseeable future, and thus there will continue to be forestry related jobs. The promotion of minimum standards of

Fig. 3: Trainers at the Forestry Training Centre (FTCI) located in Guyana demonstrate directional felling techniques (left) and good bucking practices (right) to forestry workers. Note use of personal protective equipment.

technical training such as RIL in the tropics would save thousands of lives, and also directly benefit households on the threshold of the poverty line by preventing the loss of income. In the forestry sector, prevention is better than cure as the costs of rehabilitation and the lack of effective social security systems in many tropical countries usually means family members also bear the responsibility as primary care givers to injured forest workers. Coupled with the biodiversity, carbon, and other environmental benefits of forest worker training, these additive social benefits represent an opportunity to pool limited resources to improve outcomes for the larger society.

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Paris Conference launches Community of Practice on Forests and Livelihoods

A new Community of Practice, the **Forests & Livelihoods: Assessment, Research, and Engagement (FLARE)** network was recently launched at a conference in Paris, France, just prior to the Climate Change Conference of 2015. The FLARE Community of Practice aims to advance the state of knowledge regarding forest-based livelihoods around the world, ultimately to generate usable information and methodologies, share new and cutting edge knowledge, and implement these to improve the efficacy of forest-dependent livelihood interventions around the world. The First Annual FLARE conference brought together a diverse group of approximately 180 scholars, practitioners, policy-makers, and donors to kick off the conversation. Between November 27–30, 2015, participants from 25 countries presented 92 oral talks and nine posters, and participated in five workshops at the Musée de l'Homme in Paris.

The conference, organized by International Forestry Resources and Institutions (IFRI), the World Bank's Program on Forests (PROFOR), the UK Department for International Development, and the Musée de l'Homme Research Group

Delegates at the FLARE meeting in Paris

on Social and Natural Evolution, addressed six broad topics: governance and landscapes; agricultural commodities; social and biological aspects of forest dependence; impact evaluations; pathways to prosperity; and climate. Several core messages emerged from the conference:

- forest-related interventions and studies need to better understand and take into account inequalities and power dynamics across scales;
- there is a need for criteria and methods to assess the effectiveness of forest-based livelihood activities as pathways to prosperity compared to other potential pathways that may involve forest clearing or non-use of forest resources;
- more and better data on forest-livelihood linkages at multiple scales are needed, including consolidating existing large-scale datasets and reconsidering perception-based data which is often dismissed in search of a quantifiable "objectivity";
- implementation contexts need to be better understood and accounted for in order to better tailor practical and policy efforts; and,
- credible, practical, and forward-looking impact evaluation tools are needed to evaluate outcomes of forest-related interventions.

It was also concluded that a community of practice on forests and livelihoods has real value added as a link among different forest-related actors, as well as to connect research with policy and practice. FLARE aims to play this role by establishing working groups to address the most pressing questions related to forests and livelihoods, producing reports, papers, and policy briefs, and will organize an annual conference around key themes that emerge.

Reem Hajjar
CFA Vice-Chair

Australian Forest History Society Conference

Delegates inspecting Eucalypt plantation at Mimosa tree farm near Mt Gambier

The 9th National Conference of the Australian Forest History Society was held in Mount Gambier, South Australia in October 2015. Attendees with a common interest in Forest History enjoyed 3 days of presentations along with 2 field trips in the Green Triangle Region which has a vibrant, well integrated softwood and hardwood plantation industry. The location was conducive to the theme of the Conference which was "Planted Landscapes".

In keeping with the Society's aim, which is to advance the historical understanding of human interactions with Australian forest and woodland environments, the presentations covered a wide range of topics along with ample opportunity for discussion and learning.

The Keynote speaker, Jennifer Gardner, set the scene by tracing the history of the University of Adelaide's Waite Arboretum which was established in 1928. The Arboretum is a "rain–fed" living tree museum and repository for species now considered rare and endangered in the wild. It has become a valuable resource for teaching and research, for the nursery industry and for planners of urban forests. The collection can be studied using an innovative 'app' which has information on every specimen, and interactive map with GPS positions, themed walks and everything needed to enhance the visitors experience to this pleasant well located publicly accessible space.

Several of the presenters made use of the historical perspectives of their topic, to draw parallels and inform related present day issues – for example:

- Sybil Jack spoke about the significant impact of human activity on Scottish woodlands and the expansion of forest plantations during the 18th and 19th centuries on land where woods had been absent for many years. She included the challenges faced by the present day forestry department to preserve the distinctive ecological character of various forms of native woodland, particularly in the current economic environment.
- Lizzie Summerfield presented a fascinating historical case study of how two different innovative leaders handled the environmental 'Wicked Problems' of their time. George Goyder (SA Surveyor General 1860's) and Gifford Pinchot (First Chief of US Forest Service early 1900's) and the holistic approach that each took as environmental entrepreneurs.
- Brian Gepp outlined the history of plantation development in South Australia and the impacts on remnant native forest. This included rare examples of long uncut and long unburnt stringybark forest for interesting comparison. He also posed silvicultural options to increase the number of nesting hollows for the local woodland birdlife.
- Stephen Legg's paper examined the influence that the South Australian press (and the consequent debate) had in the mid 19th century on the topic that the establishment of forests could improve climate, particularly in a State with a history of challenging droughts.

To further illustrate the variety of other topics at the conference, some of the additional presentations were:

The changing forest landscape in New Zealand (Ewan McGregor),
Connections between Indigenous Australians and the forest sector (Sue Feary),
A prominent Australian woman sawmiller (Peter Evans),
A review of the early years of Jarrah Dieback in Western Australia (Elaine Davison),
A pictorial history of Forestry in South Australia (Rob Robinson),
The lives of 40 South Australian Foresters (John Dargavel),
The evolution of sawmill productivity in East coast Eucalypt forests (Curly Humphreys), Trials of Cork Oak plantations in Australia (John Taylor),
How the development of Victoria's railway network affected forests (André Brett).

The two field trips included visits to see local farm forestry activity, historical sites, a local sawmill, a Forestry & Logging museum, the World Heritage Naracoorte fossil cave, and several native forest areas. Social activity included a splendid dinner, and a lunch in the famous red wine district of the Coonawarra.

The Australian Forest History Society has held conferences every 3–4 years and publishes a very readable newsletter 3 times per year. www.foresthistory.org.au

Michael Bleby
CFA Regional Coordinator – SE Asia & Pacific

Indonesian free smoke/haze from forest and land fires

About 2.6 Million ha of forest and land had been burned during 2015 Indonesian fires that occurs in Sumatera, Kalimantan, Sulawesi, Papua, Java, Bali and Nusatenggara, Maluku, both in peat and non peat land area. The biggest area burned was found in South Sumatera province with more than 350,000 ha; Central Kalimantan more than 330,000 ha and Papua more than 344,000 ha. The haze produced during burning across Malaysia, Singapore, Thailand and Philippines, and also blanketed about 70–80 percent of Indonesian space. Biodiversity, wildlife, and the relationship between neighboring countries also affected At least 60 million peoples in Indonesia alone affected which 600,000 of them were hospitalized due to the health problems and another 24 persons dead. Airport closed for a while as it happened also to the schools because of the haze blanketed and for several city which peat land burnt quite serious hence PSI more than 1000.. Based on the World Bank report, the total economic lost was about US$ 16 Billion that equal to double sum spent for rebuilding Tsunami Aceh 2004. The fires actually started at early January 2015 in Pelalawan district in Riau Province which finally blanketed the city at the third week, then fires occurs also at other districts in Riau Province until March 2015. At February 2015 there was warning come from Japan Meteorological Agency (JMA) predicted that dry season will worsen double compare to the 2014 condition. Unfortunately not so many agency really cares about this, which then finally it become real as it can be

Clearing forest with fires in the forest concession in Pelalawan district, Riau Province

seen from hotspot data which shown that 1252 detected in May, 2187 in June, 7399 in July, 18,319 in September and 48,636 in October and lower in November with 35,050 hotspot detected. If compared to hotspot data in the year 2014 it clearly shown the significantly because until October 2015 about 119,914 hotspot detected while in the year 2014 only about 90,581 and 40,419 in the year 2013. To fight the fires, Indonesian President ordered Police and military to go to the burnt area together with the local peoples and company and others participants to fight the fires together. Investigation made by the Ministry of Environment and Forestry and police, shown that the causes of fire were arson mostly due to land preparation using fire for oil palm, pulp and paper plantation, communities and unprotected area from fire invasion. Because of that about 23 companies being punished and another 33 companies being prepared for the punishment and according to the police that about 300 cases being process to bring to the court for law enforcement.

Smoke blanketed City of Palembang, October 2014 (Photo: BH Saharjo)

Indonesia's commitment

Actually since the year 1995, Indonesia declare to have "zero burning policy" means that no fire used for the land preparation for agriculture and forestry activity. Unfortunately because of bad implementation of the field activities, more fire occurs during 1997/1998 fire where about 10 million ha of forest and land burnt which caused cost damaged of US$ 10 Billion and environmental impact faced to about 20 million peoples and most of the fires blow up in Sumatra and Kalimantan Island, and the biggest fire at the 20th century in Indonesia. In the year 1999, Indonesia's National Guidelines on the Protection of Forest against Fire were exist, unfortunately it was not supported well because the first era of decentralization, started in 2000 which give Bupati (head of district) more power including law enforcement at local level that finally failed to be implemented hence the fires occurs again. In the year 2010, the Indonesian President declared to reduce Greenhouse Gas Emission for 26 % in the period of 2010–2020 by they own funding and if supported by foreign countries the GHG emission reduction will be 41%. As a member of ASEAN countries, Indonesia also have commitment to work together with other countries in the region, this become in the reality as The ASEAN Agreement on Transboundary Haze Pollution, a regional legally binding agreement aimed at reducing the occurrence and impacts of fire in the ASEAN member countries, was signed in the year 2014. Finally at the end of the year 2015 and early January 2016, again Indonesian President declare to make Indonesia free from smoke all of the region and ask the Ministers, Police and Military and also other government agencies go to the field for fire prevention activities and to give punishment to the peoples and companies who make the fires and caused environmental problems. In order to reduce GHG emission significantly the President established Peatland restoration agency directly under the President authority with the main activity to rehabilitate at least 2 million ha peat burnt area In Indonesia for the next 5 year period and also to block the canal in order to give better environment for the trees to grow up and minimize the sensitivity to the fire invasion. Hopefully through this activities, GHG will reduce and less fires occurs create better environment with free smoke.

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Aiming higher with *Khaya*

INTRODUCTION

International markets are increasingly demanding environmentally sound products (ITTO 2005), and the effective use of life-cycle assessment (LCA) and environmental product declarations (EPDs) in the timber sector is likely to be a critical factor in ensuring access to environmentally aware markets and promoting the environmental benefits of tropical timber. This study assessed the environmental impacts of lumber production, comprising the harvest of logs in the forest, transportation to the sawmill, the manufacture of *Khaya* lumber, including kiln-drying, and transport to storage warehouses with the aim of determining the carbon footprint of, and generating an EPD for *Khaya* lumber.

MATERIALS AND METHODS

LCA in accordance with ISO 14044 (2006) was conducted for lumber produced from *Khaya* species (known as African mahogany) by three companies in Ghana.

The functional unit (that is, the reference unit for calculating environmental inputs and outputs of a product system) used in the study was 1 m^3 of rough-sawn *Khaya* lumber with a thickness of 25–50 mm and a moisture content of 12%; these parameters are consistent with product category rules for solid wood products. The study used primary data obtained from a survey of companies in Ghana, as well as values obtained from the literature.

Emission inventory data were unavailable for timber companies in Ghana and the study therefore used emission factors from standard references. Inputs included the use of resources, such as timber, as well energy (fuels). Outputs were emissions into air, water and land, as well as all products and byproducts.

RESULTS AND DISCUSSIONS

Table 1 presents the overall results of the study. The major contributor to GWP was electricity, comprising, on average, 42% of total value. The second-largest component was diesel use in harvesting (27%), followed by diesel use in transportation to the sawmill (21%).

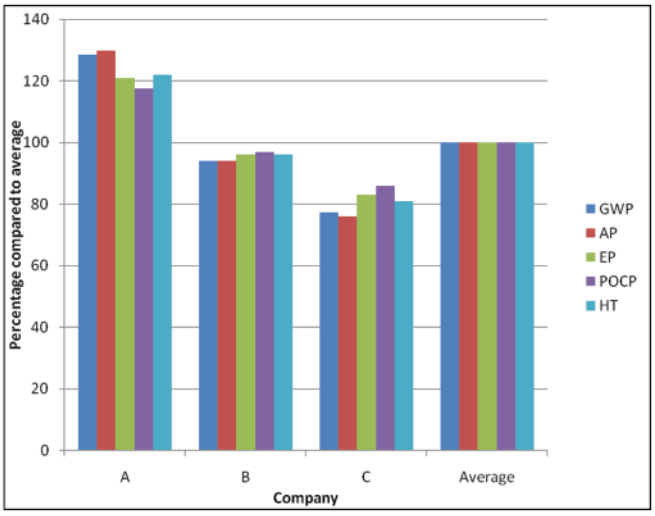

Figure 1: Relative environmental impact categories for Khaya *lumber based on average values for three companies in Ghana*
Note: GWP = global warming potential; AP = acidification potential; EP = eutrophication potential; POCP = photochemical ozone creation potentials; HT = human toxicity.

Carbon footprint

Carbon footprint is a relatively new term for Global Warming Potentials (GWP) and refers to the total greenhouse-gas emissions associated with a product or service. Emissions of individual greenhouses gases are converted to GWP and expressed as CO_2-equivalent (eq) values. Table 1 shows an average GWP of 253 kg CO_2-eq; this may be taken as the carbon footprint for 1 m^3 of *Khaya* lumber produced from Ghana.

Environmental product declaration

EPDs are standardized documents used to communicate the environmental performance of products based on LCA. Table 1 shows the average environmental impact for *Khaya* lumber produced in Ghana for various parameters. The results compare

Table 1: Summary of potential environmental impacts of the production of 1 m^3 of kiln-dried khaya lumber in three companies in Ghana

Company	GWP (kg CO_2-eq)	AP (kg SO_2-eq)	EP (kg PO_4-eq)	POCP (kg ethylene-eq)	HTP (kg $C_6H_4Cl_2$-eq)
A	325.60	5.10	3.16	0.67	3.24
B	238.80	3.70	2.51	0.55	2.54
C	195.44	2.99	2.17	0.49	2.17
Average	253.11	3.93	2.61	0.57	2.65

Note: GWP = global warming potential; AP = acidification potential; EP = eutrophication potential; POCP = photochemical ozone creation potentials; HT = human toxicity; CO_2 = carbon dioxide; SO_2 = sulphur dioxide; PO_4 = phosphate; $C_6H_4Cl_2$ = dichlorobenzene.

favourably with those for 1 m^3 rough-sawn, kiln-dried US lumber (cradle to gate) for 19 species (AHEC 2009) as well as those for tropical plywood production in Malaysia and Indonesia (Gan and Massijaya 2014).

CONCLUSION

The results of this study indicate that the environmental impact associated with *Khaya* lumber production in Ghana is mainly caused by the use of fossil fuels. A change from the use of fossil fuels in electricity generation, forest operations and timber transport towards renewable energy sources could therefore help reduce these impacts. Companies could reduce diesel use by trucks, for example, increasing the use of rail and the efficiency of material flows in the manufacturing process. Wood-drying using solar energy (with high-frequency inverters) in kiln-drying might also help improve environmental performance. The fate of wood waste is a critical issue in environmental performance and requires urgent attention. Nevertheless, taking all the environmental indicators outlined in this LCA study into account, we conclude that *Khaya* lumber produced in Ghana, if obtained from sustainably managed natural tropical forest, is a good environmental performer.

This study has yielded unique, good-quality primary data that can enhance LCA approaches in Ghana and help in identifying areas where environmental performance can be improved in the timber industry.

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The value of London's trees is proven in ground breaking report

The benefits that all of London's trees provide have been given a monetary value in the London i-Tree Eco Project report published yesterday. The quantity of these benefits – such as air quality improvement and carbon storage – is the result of the world's largest survey of a city region involving hundreds of trained volunteers.

Most people appreciate the beauty of London's trees but may not know, or tend to take for granted, the benefits that London's urban forest provides for both people and nature. The i-Tree report, sponsored by Unilever, gives us a much better understanding of the structure and value of London's urban forest. It is a method that is recognised worldwide and enables

comparison with other cities. The information produced enables us to make better plans to manage London's trees and highlights the need for continued tree planting to increase tree canopy cover over London.

The survey found that:

- Each year London's trees remove 2241 tonnes of pollution worth £126m per year. Air pollution is a major issue for London and the contribution made by trees to its reduction has a direct positive impact on public health and is – literally – life saving.
- Each year London's trees intercept rainfall and prevent nearly 3½ million cubic metres of water from entering the drainage system and so, reducing the risk of flooding and water pollution events. This is the equivalent of 1365 Olympic swimming pools with a monetary value of £2.8m per year.
- London's trees store 2.4 million tonnes of carbon and they sequester carbon dioxide from the atmosphere to reduce the impact of climate change. This is equivalent to the carbon produced from 26 billion vehicle miles.

The report highlights that there are a wide range of tree species – not just native trees but trees from around the world – that are suited to London conditions. However, at a more local level there are vulnerable landscapes that are currently reliant on one or two tree species, such as some parts of central London dominated by the iconic London plane. In order to reduce the risk of large numbers of trees being lost within a short time, planting of a wider species range is needed.

The report calls for everyone to recognise and support the multiple benefits that trees provide for London and to make their own contribution to protecting and enhancing London's tree cover. This will help ensure that London continues to be a green city for future generations by planting trees in gardens, supporting tree planting by others, supporting organisations that promote and protect London's trees.

Environment Minister, Rory Stewart, said: "Our trees and forests have long been central to British identity. But we are beginning to understand with even more precision, just how important they are to our air quality, our health and our happiness. This is a fantastic initiative. And it sits very well alongside our drive to plant an additional 11 million trees in this parliament, and to support green spaces across the country."

Charlotte Carroll, Unilever UK Sustainability and Communications Director, commented: "The findings of this report provide clear evidence of the importance of trees in the fight against climate change and of their value to our society in helping to deliver a more sustainable future. At Unilever we're working on this important issue through our brightFuture movement and with the UN Climate Conference, COP21 in progress, now is the time to engage in the importance of trees in our everyday lives."

The Mayor of London, Boris Johnson said: "London is one of the greenest, leafiest cities on the planet and as this survey proves, our canopy does a 'tree mendous' job of lowering pollution, alleviating flood water and boosting our environment."

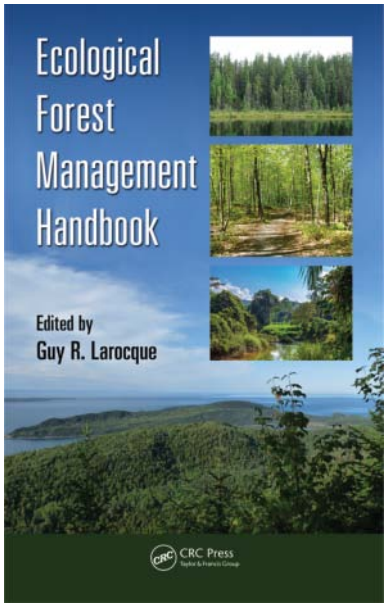
Craig Harrison, Forestry Commission London Manager said: "The i-Tree report shows some of the ways in which London's trees enhance our daily lives, and many of the trees we enjoy today are the legacy of past tree planting. But London's trees face challenges such as development pressures, climate change and disease. With the expected increase in London's population the need for more trees will increase – so we need to protect existing trees and plant new trees – to ensure London remains an enjoyable place to live, work and visit"

forestry.gsi.gov.uk

Publications

Ecological Forest Management Handbook

Guy R. Larocque (Editor), CRC Press



Forests are valued not only for their economic potential, but also for the biodiversity they contain, the ecological services they provide, and the recreational, cultural, and spiritual opportunities they provide. The **Ecological Forest Management Handbook** provides a comprehensive summary of interrelated topics in the field, including management concepts, forest models, and ecological indicators.

Featuring contributions from experts on the three main forest types—boreal, temperate, and tropical—this book presents in-depth coverage of important issues in ecological forest management and includes case studies addressing ecological and socioeconomic issues. It illustrates how ecological forest management is a complex process that requires broad ecological knowledge while giving readers a deeper understanding of basic principles and applications.

Features

- Links basic concepts in ecological forest management to practical applications on national and global scales
- Provides a comprehensive summary of interrelated topics in the field, including management concepts, forest models, and ecological indicators
- Details perspectives on the application of basic principles in ecological forest management
- Illustrates ecological forest management as a complex process that requires broad ecological knowledge

Community Forest Enterprise Development: Case Studies from Latin America

Rainforest Alliance

Over the last two decades, countries across the tropics have devolved increasing authority over natural forests to local actors. While decentralizing control over natural forests is a step in the right direction, it is also clear that community forests can actually face increased pressure for conversion once they're handed over. In this context, the capacity of communities to manage forests sustainably and make forestry a competitive land-use choice has taken on greater importance.

The Rainforest Alliance supports community forest enterprises (CFEs) around the globe to improve forestry operations, organize socially-equitable enterprises, and achieve greater competitiveness. With support from the Multilateral Investment Fund (MIF) of the Inter-American Development Bank (IDB), we have produced a series of ten case studies profiling the results of our work with CFEs in the Latin America region. Case studies were carefully selected to cover all five countries where the MIF project operated (Guatemala, Honduras, Mexico, Nicaragua, and Peru), and to reflect the full range of participants—from highly incipient community operations to second-tier business alliances among multiple well-developed, certified enterprises. Special attention was also paid to ensuring representation among forest ecosystems (temperate and tropical), tenure arrangement (permanent and concession) and production focus (timber and non-timber).

Taken together, the ten studies support the growing body of evidence demonstrating that community-based production forestry can be an effective approach to conserving forest resources while also generating significant social and economic benefits for marginalized communities.

No.	Case Study	Location
1	Awas Tingni indigenous Mayangna community	North Atlantic Autonomous Region, Nicaragua
2	Moskibatana non-timber forest product enterprise	Muskitia, Honduras
3	Ejido El Largo	Chihuahua, Mexico
4	CAIFUL agroforestry cooperative	Río Plátano Biosphere Reserve, Honduras
5	Forest management in community concessions	Maya Biosphere Reserve, Guatemala
6	Brazil nut production and enterprise	Madre de Dios, Peru
7	TIP Muebles	Oaxaca, Mexico
8	Tres Islas native community	Madre de Dios, Peru
9	Building markets for lesser-known species	Maya Biosphere Reserve, Guatemala
10	Financial mechanisms for community forests	Maya Biosphere Reserve, Guatemala

Download at http://www.rainforest-alliance.org/sites/default/files/publication/pdf/community-forestry-case-studies-fact-sheet_0.pdf

Around the World

Africa: WWF and Rougier take stock on the progress made after one year of partnership for sustainable forest management in Africa

In January 2015, WWF France and the Rougier Group initiated a three-year collaboration to promote sustainable forestry in Africa and to stimulate responsible practices throughout European supply chains. In this regard, WWF carried out a field mission in September 2015, providing a view on the extent of actions implemented at local level. Observations from this mission are detailed below.

Partnership goals As a key player on the international timber market, Rougier has production forests and facilities in Cameroon, Gabon and in the Republic of Congo, as well as an import, trade and marketing branch in France. The company holds FSC® Forest Management Certificates for several concessions in Gabon and Cameroon, and its subsidiary Rougier Sylvaco-Panneaux holds FSC® and PEFC™ chain of custody certificates.

For the past year, WWF has through one of its leading initiatives to promote responsible forestry and trade, the Global Forest & Trade Network (GFTN), supported Rougier to maintain and strengthen its objectives to increase volumes of certified products. WWF also makes sure that the company is successful in implementing responsible due diligence measures required by the EU Timber Regulation.

Rougier and WWF's collaboration has so far focused on 4 key areas:

- ***development and implementation of relevant indicators*** *for wildlife management and monitoring in Rougier's concessions in Gabon,*
- ***establishment of effective mechanisms for local development*** *in Cameroon,*
- ***supporting the well-functioning of the anti-poaching unit (USLAB)*** *in Northern Congo*
- ***optimizing the local development fund*** *financed by Rougier and through which the company may contribute directly to local development in Congo.*

Monitoring and controlling step one year after the partnership launch During their visits, WWF teams were able to closely monitor the company's and its workers' commitment, the ambition of its strategy as well as concrete social, economic and environmental achievements. Even though most of the actions carried out are probably FSC certification-driven, the company's commitment sometimes goes beyond compulsory certification requirements.

"The company's social activities and overall investments clearly show its sustainable implantation. The company is an excellent local employer and stands out by its logging practices and forest preservation through monitoring procedures and the social organisation around its facilities" says Marie-Christine Korniloff, WWF Frances's Head of Corporate Engagement.

IN GABON In order to optimize monitoring and anti-poaching activities in Rougier's concessions in Gabon, and to show the benefits from measures of responsible management for more than ten years ago, it seemed vital to ensure regular monitoring of wildlife value and therefore to start by inventorying large mammals on the Haut-Abanga FCSM. A one-month preliminary inventory with an already existing methodology has been scheduled for the first quarter of 2016. Data from this inventory will contribute to the development of a methodology for the comprehensive inventory of the FCSM (Forest Concession under Sustainable Management). The next works aim to plan and organise the inventory, which will serve as comparative base for the monitoring of trends in wildlife density.

IN CONGO In view of improving the functioning of the local development fund financed by Rougier, a financial and functional assessment of this fund will be carried out shortly by a structure which is currently being selected.

Two training courses on the use of the SMART database were held on the Mokabi site during the 4th quarter. Thanks to these, the teams have acquired knowledge to handle the first level of this software designed to assist workers in monitoring and ensuring that the law is properly implemented. On this occasion, the data collection system used by WWF and models for monitoring were presented, and the SMART database designed for Rougier Mokabi-Dzanga was installed on the site. Feedback from its users will be regularly recorded over the following months.

IN CAMEROON After two field missions in Mbang, it became clear that the marketing framework for the sale of NTFP (Non Timber Forest Products) in the Mbang zone needs structuring. This will be carried out by supporting an already existing network of women (RAFAMBA). This support, of which the details remain to be determined, shall allow local communities to gradually increase marketed NTFP quantities, thus generating an increase in income and subsequently improved living conditions for local communities. There are two target products at this stage: wild mango and Djansang.

calyptus.net

Canada: Landmark deal to protect Great Bear Rainforest

Indigenous tribes, timber firms and environmental groups in western Canada have welcomed a deal to protect one of the world's largest remaining tracts of temperate rainforest. The Great Bear Rainforest on the Pacific coast of British Columbia is home to many animals and ancient trees.

Logging will be banned across a huge area of the forest. Environmental campaigners say the deal is a model for resolving similar land-use disputes around the world.

The forest is inhabited by the spirit bear, a rare sub-species of the black bear with white fur, and is also home to 26 aboriginal groups, known as First Nations.

"The Great Bear Rainforest, there's no question, it's a jewel in the crown of magnificent landscapes in British Columbia," Premier Christy Clark said. She said the "landmark agreement" would protect old and second-growth forest, while simultaneously providing economic opportunities for aboriginal people and local communities.

The province is expected to sign the new measures – which have been drafted after 10 years of often tense negotiations between the various concerned parties – into law in the spring. The agreement bans logging in 85% of the rainforest and brings an end to hunting of the grizzly bear within First Nations territories. It also abolishes hunting in the region for the spirit bear, also known as the kermode bear.

The remaining 15% of the ancient forest will be subject to stringent standards applied elsewhere in North America for commercial logging.

The deal has been ratified by 26 aboriginal tribes that live alongside British Columbia's coast, several environmental groups and five forestry companies.

The Great Bear Rainforest

Its enormous habitat covers 32,000 sq km (12,000 sq miles) on the Pacific coast of Canada, helping purify both air and water, and is an unspoiled home to grizzly bears, wolves and cougars

- It is the scene of one of nature's most impressive migrations – the perilous journey of the Pacific salmon from the sea through the forest rivers to spawn in its creek
- The salmon run draws carnivores such as bears and wolves to the river bank, where they gorge on the migrating fish
- The bears who feast on the spawning salmon do not eat on the river – they drag the carcasses far into the forest. The remains of the salmon contain vast quantities of nitrogen that plants need to grow
- Eighty percent of the nitrogen in the forest's trees comes from the salmon. In other words, these ocean dwellers are crucial for the forest's long-term survival

bbc.co.uk

Europe's trees have been warming the planet

Trees do wonders when it comes to cooling Earth. They suck planet-warming carbon dioxide from the atmosphere, locking it into their trunks, leaves, and roots to the tune of about 2.4 billion metric tons of carbon each year. But a new study has found, somewhat counterintuitively, that more trees might not always mean a cooler planet. In fact, researchers examining 260 years of changes in European forest management found that—despite a 10% increase in wooded land—the continent's forests have actually caused a slight increase in regional temperatures since 1750.

The new findings show that simply planting trees—at least in temperate areas—isn't enough to stave off global warming, says Vivek Arora, a research scientist at the Canadian Centre for Climate Modelling and analysis in Victoria, who was not involved in the research. "[This] is not the silver bullet that will save us from climate change."

But how did more forest coverage lead to warming? Researchers from the Laboratory of Climate Science and Environment in Gif-sur-Yvette, France, came to this conclusion by building a model that uses 260 years of forestry data in Europe, from the distribution of tree species to the methods people have used to harvest wood. From 1750 to 2010, the continent added almost 200,000 square kilometers of forest, and created a 0.12°C rise in temperature.

The researchers pin most of the temperature increase on a shift from broad-leaved tree species like oak to more economically valuable conifer species like spruce and pine, they write this week in *Science*. "By changing the forest, we also make changes to the amount of radiation, water, and energy that the forest releases," says lead author and environmental scientist Kim Naudts. The conifers are worse for the climate because they absorb more light with their dark color, trapping heat that would otherwise be reflected back into space. They also release less cooling water into the atmosphere through evaporation. Together, these two factors were to blame for 0.08°C of the region's warming. Foresters removing trees for wood products contributed another 0.02°C by releasing carbon that would otherwise be stored in forest debris and soil.

Previously, most models focused on big changes between different land types, like farmland and forests. The model created by Naudts and her colleagues drills deeper, and examines how the forests were actually used. For example, the new model includes a historic 3D representation of the forest canopy, allowing researchers to see differences in how various tree species interact with the atmosphere. Naudts' team also included the removal of trees for wood products or fuel. "The model tries to look at how management, which would thin the forest but not change it entirely, would affect the climate," Arora says. "That's new."

But there is already an understanding among researchers that carbon sinks—areas that sequester carbon—interact with the atmosphere in complex ways, not all of them positive for climate change. "The fact that not all land-use and land-cover change policies may contribute to climate change mitigation is not something new," says Giorgio Matteucci, a forest ecologist at the Institute of Agriculture and Forestry Systems in the Mediterranean in Ercolano, Italy, who was not involved with the study. For instance, a study published in *Nature* more than 20 years ago showed that expanding forests in colder areas could actually increase the temperature of snow-covered regions, because snow reflects much more light than dark trees.

Other researchers caution that we shouldn't read too much into the 0.12°C measurement. "The paper makes sense and these results are consistent with what I would expect," Arora says. But he adds that this is only one of many possible models. "If a different model were to use the same [parameters], it might find different results".

It's also tempting to extend these results to other regions. But Europe's temperature increase was in large part due to the continent's specific history of forestry, its location, and the kind of tree species that are present there. The tropics, especially, play by different rules—there, slowing deforestation is almost certain to contribute to cooling, because trees in the tropics release comparatively more water into the atmosphere, seeding clouds that reflect light. The European model does indicate, however, that we should be cautious about the promise of forests to solve our climate woes.

sciencemag.org

Global: Mapping of forests in 7 countries including Malaysia shows extent of tree loss

New advanced satellite maps of tropical countries reveal that more than 90% of recent tree cover loss took place in natural forests rather than plantations, threatening ecosystems and biodiversity, research shows. The maps mark a breakthrough in forest monitoring that allows researchers to distinguish between natural growth and oil palm, rubber, timber and other plantations, according to Transparent World, a Russian non-profit, and the US-based World Resources Institute (WRI).

The data found that in Brazil, Colombia, Liberia and Peru, more than 90% of tree cover lost in 2013 and 2014 was natural forest, they said. "It's surprising and a little bit disturbing and shows us how much is at stake in those four countries, where most of the forest being lost is natural," said Rachael Petersen, WRI analyst. "It should make us a little bit concerned about how plantations expand onto natural forest in those countries in the future," she said.

A measure of tree cover loss includes human-driven deforestation, the harvest of trees on plantations, forest fires and tree mortality due to disease and other natural causes. Natural forests provide climate, water and biodiversity benefits that oil palm, rubber, timber and other man-made plantations, especially in the tropics, do not, Petersen said.

A natural forest is a complex, self-regenerating system with a microclimate and wide variety of plants and animals, while plantations tend to grow a single species and require ongoing intervention such as fertilisation and pesticides, experts say. Tree plantations comprise 7% of the world's forest cover, researchers said.

The maps covered 45.8 million hectares of plantations in Brazil, Cambodia, Colombia, Indonesia, Liberia, Malaysia and Peru. Plantations cover almost a third of the land area in Malaysia and 13% of the land in Indonesia. Most are oil palm plantations, followed by rubber. Malaysia and Indonesia are the world's top palm oil producers.

In Peru, where plantations cover just 0.1%of the land, more than 5,000 hectares of natural forest was lost to make way for plantations in the last 15 years, the researchers said.

themalaysianinsider.com

Global: Rainforest regrowth boosts carbon capture, study shows

Newly grown rainforests can absorb 11 times as much carbon from the atmosphere as old-growth forests, a study has shown. The researchers have produced a map showing regions in Latin America where regrowing rainforests would deliver the greatest benefits. However, they added that old-growth forests still needed to be protected as they locked away vast amount of carbon. Details of the study have been published in the journal Nature.

The international team of scientists compiled data from almost 1,500 plots at 45 sites across the Neotropics, which covers southern and central America, allowing them to produce map highlighting the carbon sequestration potential of areas across the Neotropics.

New-growth, or secondary, forests grow as a result of a major clearing of old-growth vegetation. The clearing could be the result of a natural event, such as a fire, or as a result of human activity, such as logging or farming. In order to maximise access to sunlight, nutrients and water, new trees grow quickly. This means the plants sequester a much greater amount of carbon from the atmosphere, which it uses as part of the photosynthesis process that uses sunlight to produce the sugars the plant needs to grow.

The team found that in optimum conditions, new-growth vegetation could sequester up to 11 times as much carbon as old-growth forests. However, the long established old-growth rainforests have locked away a vast quantity of carbon over the decades and centuries. Rainforests are the largest terrestrial carbon sinks on the planet. Deforestation is seen as one of the major drivers of emissions from human activities and is estimated to account for 20% of all emissions.

The ability of forests across the globe, particularly rainforests, to absorb and lock away carbon plays a key role in efforts to mitigate and curb the impacts of climate change resulting from human activity. The 2014 UN climate summit saw the establishment of the New York Declaration on Forests, a non-binding agreement that set the goal of halving the rate of global deforestation by 2020, and halting it by 2030. The declaration also called for the restoration of 150 million hectares of degraded forests by the end of this decade.

Co-author Lourens Poorter from Wageningen University, The Netherlands, told the Nature podcast that while it was important to halt deforestation, it was also important to recognise the role of secondary forests in a climate mitigation context.

"There is a potential for forests to regrow," he said. "You can either do that actively by planting but it can also be done passively (via natural regrowth). "What we have tried to do in this study is to get a comprehensive picture of how fast this recovery is in terms of biomass. If you have abandoned areas that have been used for agriculture, how fast do the forests regrow naturally and how much biomass has been taken up – we call that the recovery or resilience of biomass."

In their paper, Prof Poorter and the team added: "We present a biomass recovery map of Latin America, which illustrates geographical and climatic variation in carbon sequestration potential during forest regrowth. The map will support policies to minimise forest loss in areas where biomass resilience is

naturally low (such as seasonally dry forest regions) and promote forest regeneration and restoration in humid tropical lowland areas with high biomass resilience."

In an article for The Conservation website, fellow co-author Prof Susan Letcher from Purchase College, State University of New York, US, explained: "Active forest restoration can be an expensive process, and it may not be cost-effective or even necessary in every case. In landscapes with low levels of degradation, simply protecting young forests and allowing them to develop may be the best strategy."

Prof Poorter observed that secondary forests offered a "tremendous potential" for carbon sequestration. In one year, it can take up three tonnes of carbon per hectare per year. That is 11 times the amount of what a normal old-growth forest is doing."

However, he added: "Forests fulfil different functions and services. Old-growth forests are wonderful because they store large amounts of carbon but where young forests are good is that they can capture a lot of new carbon and fixing it within the system."

bbc.co.uk

New Zealand: Global forest certification scheme comes to NZ

The Programme for Endorsement of Forest Certification (PEFC), one of the world's leading forest certification schemes has endorsed the New Zealand Forest Certification Scheme. "*We are delighted to be the 37th national scheme endorsed by PEFC and to be able to offer this scheme to New Zealand forest owners and managers, processors and others in the value chain*", says Dr Andrew McEwen, chair of the NZ Forest Certification Association (NZFCA).

With more than 268 million hectares of certified forests, PEFC is the world's biggest forest certification system, promoting sustainable forest management through independent, third-party certification. PEFC works throughout the entire supply chain to promote good practice in the forest and to ensure that wood products are produced to the highest ecological, social and ethical standards. Thanks to its eco-label, customers worldwide are able to clearly identify products from sustainably managed forests.

"New Zealand has a long standing reputation for the quality of its forest management and wood manufacturing. The availability of PEFC certification will enhance that reputation in its extensive overseas markets", said Ben Gunneberg, CEO of PEFC International.

"The New Zealand forest and wood products sector relies heavily on exports with around 70% of production being exported. Increasingly their main markets, particularly Australia, North America and Asia are demanding third party certification as proof of legality of harvest and quality of forest management. Most of the countries New Zealand exports to are now PEFC members and recognise PEFC certification as meeting their import requirements."

"With the endorsement of the New Zealand system, the country's forest owners can now obtain PEFC certification for their responsible forest management practices, enabling processors and others along the forest products supply chain to procure PEFC certified material from local, sustainably managed sources as well as access to new markets", added Mr Gunneberg.

Dr McEwen notifies the New Zealand industry that forest managers, wood processors and others in the value chain interested in having their operations certified to the New Zealand PEFC Standard should now contact their certification bodies.

"We acknowledge the assistance we have had from Australian Forestry Standard Ltd., financial assistance from the Wood Council of NZ who initiated the project, support from Standards NZ, financial assistance from the Ministry of Foreign Affairs and Trade, AGMARDT and the support of PEFC", said Dr McEwen. "Without their support we could not have so much progress in such a short time."

wpma.org.nz

Thailand's forest rangers step up training in violent 'blood wood' war

It's dawn in Thailand's Eastern forest, and the sound of combat boots echoes through the jungle mist at Ta Phraya national park's headquarters. The stomping boots belong to forest rangers on a counter-poaching tactics course. They are training with Hasadin, a team of elite rangers formed in June 2015, whose mission is to stop the Siamese rosewood tree from being driven to extinction by poachers. "The poachers don't care if we're rangers ... if they meet us and they have weapons in their hands, they shoot immediately without warning," says Piroon Pilaphop, leader of Hasadin's Dong Yai wildlife sanctuary team.

Siamese rosewood is a hardwood species confined to the remaining forested areas of just four countries in the Mekong region – Thailand, Laos, Vietnam and Cambodia. Renowned for its blood-red colour, the highly coveted endangered species is illegally logged in Thailand and smuggled through mainland south-east Asia to luxury "hongmu" furniture markets in China. Conservationists have warned that with rates of illegal logging

increasing by 850% in recent years, Thailand's Siamese rosewood trees could be extinct within a decade. Large trees in protected forests have become so scarce that their plunder is more akin to wildlife poaching. Increasingly large groups of illegal loggers cross the Thai-Cambodian border with weapons and are willing to engage in firefights in order to get the highly valuable "blood wood".

"Rosewood is becoming harder and harder to find. The last big rosewood trees are in the deep forest, so the smugglers are moving deeper and deeper into Thailand," says Khajornsak Anantuk, a sergeant major with the Ta Phraya border police, who is helping to train the rangers.

In the war against rosewood poaching, rangers train in self defence, patrol, conducting raids, making arrests, weapons and explosives identification. In the classroom they study poachers' rights, GPS mapping, forest law and species identification. The poachers have increasing safety in numbers – vastly outnumbering the rangers – and in the deep forests the rosewood has to be carried out on foot. "If they want 60 pieces of wood, they have to bring more than 60 people because it's one piece for one person. They also bring guards and front scouts," says Booncherd Jaroensuk, head of Ta Phraya national park.

Seven forest rangers died in 2015 in relation to violent Siamese rosewood crime, according to the Freeland Foundation, an organisation based in Bangkok working to improve ranger training in Thailand. Most loggers previously came from the border region with Cambodia, but some are now allegedly brought in from as far as the Cambodian-Vietnam border by traffickers.

"The people along the border have got wise to how dangerous it is, so the middlemen are bringing people from over on the Vietnam border who don't know anything … sometimes they don't even know it's a protected forest," says Tim Redford, training coordinator at Freeland.

In September last year, 23 Cambodian would-be loggers fled their traffickers upon discovery that Siamese rosewood was their target, and handed themselves over to the Thai police, according to the Cambodia Daily. "It's a form of human trafficking … they are being tricked into it … there have been two cases recently where Cambodians have been taken into the forest and told that they were going to be working on legal timber projects or on construction work," says Redford.

"I wish they would just arrest the big guys so the problem will finally stop," says Hasadin ranger Piroon, referring to the catalogue of corrupt officials, businessmen, and brokers involved in the clandestine transnational trade that carves its murky way throughout south-east Asia.

The lucrative trade saw $1.2bn worth of Siamese rosewood imported to China between 2000 and 2014, according to the Environmental Investigation Agency (EIA). Sold for 200 baht (£3.60) a kilo on the forest floor, it currently fetches more than £30,000 per tonne (£30/kilo) in China's wholesale markets. EIA reported a bed made from Siamese rosewood being sold for US$1m in Shanghai in 2011.

Siamese rosewood was listed under the Convention on International Trade in Endangered Species (Cites) in 2013 in an attempt to curb the decimation of south-east Asia's remaining stocks. The listing should have prohibited the international trade in logs, sawn timber and veneers, but an annotation allowing for the legal trade in "semi-finished" products of Siamese rosewood has provided a catastrophic loophole.

"The biggest problem is the demand … without that, there wouldn't be the tsunami of cash entering these badly governed countries which then exacerbates corruption, undermines the rule of law, and provides incentives for loggers to risk their lives," says Jago Wadley, senior forest campaigner at EIA.

theguardian.com

UK: MP calls for 200 million new trees by 2020 to stop floods

A call by a Conservative MP to plant 200 million trees in England by 2020 to help prevent future floods has been welcomed by the forestry sector. Anne-Marie Trevelyan, Conservative MP for Berwick-upon-Tweed, suggested the existing 11 million target by 2020 should be increased almost 20-fold to 200 million trees.

The vice-chair of the All Party Parliamentary Group on Forestry made her call against the backdrop of the devastating floods in North-west England and said hugely increased planting could help reduce flood risk in the long term.

Stuart Goodall, Chief Executive of Confor: forestry and wood – the sector's trade body – , said: "The terrible floods, especially in Cumbria, demonstrate that Government has to look at more than just flood defences. We need to hold rainwater in the hills so that the peak flow of water is reduced, helping flood defences to do their job. "Planting productive forests manages water flow, while also helping wildlife, providing alternative income for farmers and locking up carbon – another very relevant current issue given the climate talks in Paris".

In March Confor and Forest Research published *The Role of Productive Woodlands in Water Management*, a detailed report which demonstrates how productive woodlands can reduce flood risk and protect British waterways.

Mr Goodall added: "Anne-Marie Trevelyan MP has made a sensible suggestion which is backed up by scientific evidence produced by the government's Forest Research agency. I will be writing to Secretary of State for Environment, Food and Rural Affairs Liz Truss MP asking her to give careful consideration to this proposal and offering our help to look again at how planting more trees can help reduce flood risk in the light of the weekend's devastating floods".

During the House of Commons debate on flooding, Anne Marie Trevelyan MP said: "In the light of the floods in Cumbria and elsewhere, I am pleased to say that flood defences provided security and protection, as they were supposed to, in north Northumberland. Will the Secretary of State consider, as a matter of urgency, increasing the number of trees we plan to plant during this Parliament from 11 million, which equates to only

one tree for every five people, to some 200 million, which equates to five trees for every person? They would cover some 50,000 hectares, much of which could be in the upland areas of river basins, to help nature to hold water and to reduce the risk of flooding in the long term."

In her response, Secretary of State Liz Truss MP said: "I completely agree with her about looking at the environment on a catchment level and making sure that we put in place tree-planting programmes that can both reduce flood risk and improve the environment at the same time."

Confor has already highlighted the need for the UK Government to be far more ambitious in its tree planting targets. In November it joined forces with leading woodland conservation charity The Woodland Trust to call on the government to commit to planting planting 7000 hectares (ha) of woodland every year until 2020 (around 15 million trees per year) and then to increase that to 10,000 ha per year when the next Government is elected in 2020.

precise.uk

UK: Breakthrough discovery reveals how thirsty trees pull water to their canopies

A scientific mystery about how trees pull water from the ground to their top branches has been solved by an international team of researchers from the University of Leicester and the Queensland University of Technology, Australia.

The team, led by Dr Adrian Boatwright, who conducted the research while at the University of Leicester's Department of Chemistry, has examined the phenomenon of water being pulled to the top of tree branches, when scientific theory says that the maximum height water can be pulled up is 33 feet due to gravity – known as the barometric limit.

The researchers have discovered that water can in fact be held in a vacuum for almost indefinite periods of time and even under significant tension without forming bubbles or breaking apart, which helps to explain how trees siphon water to their highest points.

The team also found that water can be pulled up to as much as 45 feet – well above the barometric limit, overturning the theory proposed by seventeenth century Italian physicist and mathematician Evangelista Torricelli which has stood for the last 400 years.

Dr Boatwright said: "How is it that trees can pull water up to the top most branches? This question has troubled both botanists and physicists for many years with various mechanisms used to describe this process – ranging from capillary action to osmotic pressure.

"By siphoning water up to as much as 45 feet we have managed to 'break' the barometric limit and show that the maximum height is limited only by the strength of bonds in the water."

While the widespread view has been that siphons work because of atmospheric pressure, recent research has shown that cohesion and gravity, and not atmospheric pressure is the driving principle.

Dr Stephen Hughes, Senior Lecturer in the Science and Engineering Faculty at Queensland University of Technology added: "The first recorded use of siphons was in ancient Egypt circa 1430 BC. Our experiment, conducted over 3,400 years later, is the first report published in the scientific literature of a siphon operating over the barometric limit. How siphons work has been quite controversial. This experiment is a clear demonstration that siphons work through gravity and not atmospheric pressure as is commonly supposed."

The study 'The height limit of a siphon' has been published in the academic journal *Scientific Reports* and is available at the following link: www.nature.com/articles/srep16790

le.ac.uk

UK: Campaigners call for new British charter for trees

A coalition of UK conservation groups is calling for a new national charter for trees, woods and people. Led by the Woodland Trust, 48 conservation and cultural groups have launched a campaign for a new charter in 2017, the 800-year anniversary of the signing of the original Charter of the Forest by Henry III. This protected and restored the right of people to access and use the royal forests – crucial at the time for grazing livestock, collecting firewood and foraging for food.

The coalition says it is time for a new charter, as woods come under "unprecedented threat" from development, pests and disease and climate change and trees risk being "neglected, undervalued and forgotten". Community groups, clubs, councils and committees are being encouraged to feed into the building of the charter. To kickstart the campaign, people across the UK are being urged to share their "tree stories" of treasured or significant moments that would not have been possible without trees.

A new, broader charter would recognise the importance of trees in 21st-century British society, celebrate their enormous contribution to public life, and ensure future generations could benefit from them by ensuring access to nature and protection of ancient woodland and other habitats, its backers argue. It would also cover forestry, the value of trees and woods in terms of finance and other benefits to people, the importance of new planting and making sure landscapes are resilient to the threats they face, they say.

Beccy Speight, chief executive of the Woodland Trust, said: "Our collective ambition is for a charter that puts trees back at the heart of our lives, communities and decision-making – where they belong. The charter will provide guidance and inspiration to allow us all to appreciate, preserve and celebrate our trees and woods for what they do for us in so many different ways. "Inspired by something that happened 800 years ago, there is no better time than now to shine the spotlight again on the benefits that trees and woods bring to us all today and to future generations."

Research for the Woodland Trust by Europe Economics in March last year found the total value of woodland to the UK's economy is around £270bn. Living near of having access to trees also provides invaluable health and wellbeing benefits, research shows.

But the trust warns that valuable habitats are under threat, the area of new woodland created each year continues to fall and far too few trees are being planted to connect up the landscape. The impact of tree disease such as ash dieback and oak processionary moth will impact this further.

Reductions in the number of people enrolling in forestry, land management and environmental courses compounds the problem as it means there are not enough skilled and informed people in the sector, the trust warns.

theguardian.com

Argentina: Seven million hectares of forests have been lost over the past 20 years

Agriculture in Argentina has expanded at an accelerated rate in the past twenty years due to technological advances, the use of genetically modified crops, and, in particular, to the cultivation of soybean.

The South American country is the first global exporter of soy, and the biggest provider of flour and biodiesel made from its derivates; the crop is an important source of income. However, according to the coordinator of Greenpeace's forest campaign in Argentina, Hernán Giardini, "the advance of genetically-modified soy production since the mid-nineties until now, and the intensive cattle raising in the north" are the main causes for forest loss in the country.

According to a rating created by the Food and Agriculture Organization of the United Nations (FAO), Argentina is among the top ten countries that destroy their forests the most, and the FAO calculates the loss has amounted to more than 7.5 million hectares since 1990.

Satellite data from 2004 analyzed by Argentina's Secretary of Agriculture, Cattle, Fishing and Food confirm this: they have found a clear link between areas planted with soybean and the deforestation of native Argentinean forests. Between 1998 and 2006, the deforested surface of Argentina was of almost 3,000 hectares – the equivalent of 250,000 hectares a year or one hectare every two minutes. Almost 80% of forest loss has taken place in the northeastern part of the country, in Salta, Santiago Del Estero, Chaco and Formosa provinces.

Given this extremely high rate of deforestation, congressman Miguel Bonasso presented in June 2006 a proposal for a proposal for the Environmental Protection of Native Forests Law. Organizations such as Greenpeace, Fundación Ambiente y Recursos Naturales, and Fundación Vida Silvestre Argentina supported the initiative that ended up being approved in March of 2007, despite opposition by some lawmakers in the north, where most of the deforestation takes place.

But despite the forest law, Giardini mourns the fact that destruction is still ongoing.

"The corporate sector destroys forests illegally because if they get punished for it, it's a small fine that is really minimal compared to the profits of growing soybeans," said Giardini in an interview with Radio Zonica in Buenos Aires. "And there are local governments that have allowed deforestation where the law clearly doesn't allow it, through decrees that are much more flexible than the federal law."

This is why Greenpeace Argentina is currently hopeful that a new law focusing on forest-related crimes will pass; it would treat deforestation as a penal, instead of civil, violation.

Argentina is going through an important moment when it comes to forests: there is greater debate in civil society over conservation, and some NGOs are exploring the possibility of more sustainable soy production in the country.

However, a series of forest firest that started last year have threatened the conservation of the few native forests still left standing. In only four months in 2015, around 60,000 hectares of forests were destroyed due to wildfires, and there are not enough state funds to fight the problem effectively.

The funds assigned by the Argentinian Congress for forest protection in 2016 are the equivalent of $16 million –23 times less than what is established by the national forestry norm.

"We are facing a serious forest emergency," Giardini said recently. "This has to end. To destroy forests is a crime, and it should be punished as such."

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