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Timber harvesting, biodiversity conservation and the status quo

Bulldozer in a logging concession in Guyana (Photo: Andrew Snyder)

It is probably no great surprise that improved logging techniques reduce collateral damage from timber harvesting. Silvicultural methods and technologies have moved on from indiscriminate forest disturbance, with increasing consideration for timber sustainability. But what do we know about the effects of selective logging on biodiversity, why should forest managers care, and what can be done?

In tropical forests, more than four million square kilometres (cumulatively an area larger than India) are already set aside for logging, making it the single largest land use of tropical forests worldwide. So does this mean that these areas are trivial for the conservation of forest biodiversity? The answer is no, as demonstrated by an increasing body of evidence that show that selectively logged forests often sustain high levels of biodiversity, including birds, large mammals, bats, reptiles, amphibians, insects and fish (Bicknell *et al.* 2014). As such, conservation scientists are increasingly realistic about the need to consider forestry concessions in conservation strategies. In fact, evidence shows that selective logging is the least detrimental of large scale disturbances, demonstrating that these forests retain biodiversity more akin to that of unmodified forests when contrasted with other disturbances e.g. fire, fragmentation, plantations, agroforestry, pastures and secondary forest (Gibson *et al.* 2011). In addition, studies have shown that tropical forestry concessions store large amounts of carbon (Putz *et al.* 2012), and deliver ecosystem functions that are critical at the local, national and international scale (Edwards *et al.* 2014). This of course makes perfect sense – selectively logged forests look more like primary forests than those that are fire damaged etc. But not all logging results in the same level of disturbance, and because the resulting effects of differing logging operations vary across the numerous types of animals, the real substance is in the detail.

Small scale encroachment into a logged forest. (Photo: Andrew Snyder)

Harvest techniques vs. harvest intensities

For some time now is has been understood that the severity of logging effects are broadly governed by harvest intensities (reviewed by *Burivalova et al.* 2014). Indeed, forests subjected to high offtakes succumb to multiple species extinctions, in particular those specially adapted to life in the forest (Fimbel *et al.* 2001; Meijaard *et al.* 2005; Burivalova *et al.* 2014; Edwards *et al.* 2014). However, there is now strong evidence that logging extraction techniques are more important in determining impacts than harvest intensities (e.g. Bicknell *et al.* 2014, 2015; Clarke *et al.* 2005; Azevedo-Ramos *et al.* 2006; Wunderle *et al.* 2006). This is because logging intensity only describes the number or volume of timber trees removed, but fails to take account of the actual levels of disturbance to the forest. Regardless of the number of trees removed, some logging operations result in disproportionate levels of collateral damage caused by unplanned felling procedures (Putz *et al.* 2008a,b), and the result is deleterious impacts to tropical forest fauna (Meijaard *et al.* 2005). On the other hand, improved timber harvest techniques, such as those adopted under Reduced-Impact Logging (RIL), curtail harvest damage compared with conventional methods. Consequently, it is estimated that the adoption of RIL across production forests globally would cut carbon emissions by 160 million tonnes every year (Putz *et al.* 2008b), and as shown by a recent global study, we now know that RIL pays dividends for forest wildlife to (Bicknell *et al.* 2014).

Howler monkey – an important seed disperser in logged forests. (Photo: Graham Watkins)

But why care about biodiversity?

The argument for maintaining faunal communities in timber production forests does not only pertain to conservation, because biodiversity is fundamental to forest regeneration following logging (Wunderle 1997; Harrison *et al.* 2013). This is because the ecosystem services provided by seed dispersing and pollinating animals, in particular those that feed on fruits and seeds, means that their loss is associated with pervasive changes in tree communities, phenology and, eventually, declines in plant diversity (Harrison *et al.* 2013; Maas *et al.* 2013). Subsequently, RIL increases long-term timber yields (West *et al.* 2014) and achieves this in-part by maintaining biodiversity; a fact which deserves to be widely advocated within the industry.

Short-term leases and the status quo

Despite the advantages of RIL, the vast majority (approximately 87%) of tropical timber is harvested using conventional logging practices (ITTO 2010). This may be because timber companies lack motivation to adopt environmentally sensitive standards, or due to a lack of significant incentives to seek forest certification. In addition, few forestry authorities lease timber concessions over multiple harvesting cycles, and consequently many logging companies are not in control of the long-term fate of their concessions. Under the status quo it may therefore be deemed relatively futile to seek certification and adopt best practices, unless timber concessions are firmly secured within national land-use strategies. However, the reality is more complicated. In many cases, after one cutting cycle timber production forests become heavily degraded to the extent that they contain severely diminished timber, carbon, and biodiversity values. This is not solely the fault of timber companies, but is in fact the result of encroachment which is not stemmed by effective enforcement. Subsequently, governments reallocate these forests for conversion to other land-uses. The problem is therefore circular – logging companies struggle to maintain forest cover, and few governments provide incentives to do so; this scenario has contributed to roughly 20% of all tropical forests regarded as degraded (Asner *et al.* 2009), and over 2000 km^2 completely lost each year (Hansen *et al.* 2013).

So what can be done?

One line of attack is to increase demand for certified products, and consumers can easily engage with timber products for which there is now evidence of being wildlife friendly. However, whilst advocating the diverse benefits of RIL and certification may stimulate demand, to realistically improve

the prospects for logged tropical forests on a global scale, the forestry industry must work towards obtaining longer leases that cover multiple cutting cycles, and with them, retain responsibility for the future of their forests. But of course governments must allocate forestry concessions only for timber production, and this may require alternative, complimentary sources of income, such as in several tropical timber producing countries that receive funding in exchange for the maintenance of forest cover. Subsequently, for timber companies, obtaining certification should become more appealing, and with it, improved management and logging techniques that result in the long-term sustainably of four million km² of global tropical forests.

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Forest Scenes

Decline – the story

Decline – linocut by Ade Adesina

I am fascinated and excited by the new discoveries found throughout the universe. There are new planets found frequently in distant solar systems. So far there has been no evidence of life or plants anywhere else in our solar system or any other. Our planet is full of wonders. Trees are the backbone of life and are one of the essential components to life here on Earth.

What an irony it is that these living beings whose shade we sit in, whose fruit we eat, whose limbs we climb, whose roots we water, to whom most of us rarely give a second thought, are so poorly understood. We need to come, as soon as possible, to a profound understanding and appreciation for trees and forests and the vital role they play, for they are among our best allies in the uncertain future that is unfolding.'

Jim Robbins

I got the idea for my print, ***Decline*** (2013) after watching 'Animal Planet' narrated by David Attenborough. The documentary series focused on the landscapes and wildlife of the African island of Madagascar.

Since the arrival of humans in Madagascar over two thousand years ago, the island has lost a large percentage of its original forest. This forest loss is largely fueled by Tavy, a traditional slash and burn agricultural practice imported to Madagascar

by the earliest settlers. Malagasy farmers continue the practice not only for its practical benefits as an agricultural technique, but also for its cultural associations with prosperity, health and ancestral custom. More recent contributors to the loss of forest cover include the growth in cattle herd sizes since their introduction around a thousand years ago, a continued reliance on charcoal as a fuel for cooking and the increased prominence of coffee as a cash crop over the past century. According to a conservative estimate, about 40 percent of the island's original forest cover was lost from the 1950s to 2000, with a thinning of remaining forest areas by 80 percent. In addition to traditional agricultural practice, the illicit harvesting of protected forests, as well as the state-sanctioned harvesting of precious woods, within national parks challenge wildlife conservation. It is anticipated that all the island's rainforests, excluding those in protected areas and the steepest eastern mountain slopes, will have been deforested by 2025.

In 2003 Durban Vision was announced, an initiative to more than triple the island's protected natural areas, and to protect what was left of the "Baobab trees" mostly found on the island and some parts of Africa.

I grew up in the city of Ibadan, Nigeria. Ibadan is the largest city in West Africa and has been home to numerous Baobab trees, locally known as "Iroko trees". I remember while I was growing up there I would be told scary stories of how a beast in one of those trees would come and get me every time I was being naughty. By the time I was aged ten most of trees were gone. By the early 90s they were all gone due to the effects of the growing human population, agriculture, construction of factories and other types of modern development.

I don't understand why when we destroy something created by man we call it vandalism, but when we destroy something created by nature we call it progress.

Ed Begley, Jr.

Decline is a visual commentary around the ideas of ecology and our ever-changing world. Through my work, I try to interpret and document the many ways that the human footprint is affecting our planet. My witness to the steady development of infrastructure in Nigeria and my experiences in the last decade in Britain has provided me with a rich source of inspiration and subject matter to draw from. Trees represent life and I am sure they will always be integral to my work. It's never too late to change how we treat our trees and our precious natural environments. If not for this generation, then for generations to come.

Ade Adesina
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Bamboo and lacquer ware in Myanmar

Preparing bamboo strips base for a bangle. Nearby are bowls and pots based on bamboo strips.

A recent visit to Myanmar (Burma) reminded me of the incredible variety of products that are obtained from bamboo. It is everywhere – in scaffolding, ladders and fencing, in furniture, woven into baskets and as the basis for fine lacquer ware.

Historically, Burmese lacquer ware is thought to have been introduced to Myanmar by artisans from China via Chiang Mai in Thailand during the 16th century. The lacquer is obtained from the sap of the Burmese Lacquer Tree, *Melanorrhoea usitata,* which is an endangered species found in the natural forests of the country. The industry has been based on the city of Bagan (formerly Pagan) for nearly two centuries, but the increase in the availability of plastics, porcelain and metal have superseded lacquer ware in the domestic market, while the recent reduction in the number of tourists, as well as increases in the cost of the resin – which has risen forty times in the past 15 years because of the increasing scarcity of the trees – has led to a large reduction in the number of small workshops in Bagan in recent years. The technique is also practised in Vietnam and China, as well as in Japan, where it is known as japanning, but the lacquer ware made in Myanmar is quite distinct from that made elsewhere.

The role of bamboo in the process is to act as the base; in the case of bangles, thin strips are coiled while boxes or trays may be based on woven strips. Lacquer vessels, boxes and trays have a coiled or woven bamboo-strip base often mixed with horsehair, which may be mixed with ashes or sawdust to form a putty-like substance which can be sculpted.

The raw resin is prepared by heating, during which its colour changes from straw colour to black, and it is brushed on to the base to form a hard, glossy, smooth surface, resistant to moisture or heat. The object is coated layer upon layer to make a smooth surface, polished and engraved with intricate designs, commonly using red, green and yellow colours on a red or black background. Sometime semi-precious stones or glass mosaic are encrusted, occasionally into gold leaf. The end-result may not be obtained for some months, and all are the result of a team of specialist painters, engravers, and polishers rather than an individual.

The most distinctive vessel is probably the rice bowl on a stem with a spiral lid, used by monks. Stackable *tiffin* (lunch) carriers fastened with a single handle are popular, while low tables may be simple or have three curved feet in animal or

floral designs. Water carafes with a cup doubling as a lid, and vases are also among lacquer ware still in use in many monasteries. Various round boxes with lids, small and large, are often used as betel boxes. Theatrical troupes and musicians have lacquer ware in costumes, masks, head-dresses, and musical instruments, some of them stored and carried in lacquer trunks.

Jim Ball
CFA President

Canada and Chile join forces to manage forest fires

Canadian wildfire

Chile, like Canada, has a vibrant forest sector which strives to balance both economic and environmental benefits derived from the forest. With approximately 14.5 million hectares of protected area encompassing 19.2% of its land base, Chile has one the world's highest percentages of protected forests in the world. In addition, the forest sector is Chile's second largest exporting industry. Year after year, thousands of hectares of forest are burned in Chile, mainly caused by the actions of people, damaging the economy, ecosystem and natural legacy for future generations. As such, fire is an extremely important factor to consider when managing forests and has an elevated profile after the recent tragedy in Valparaiso.

Wildfires have an obvious effect on forests. They can threaten communities and destroy significant timber resources resulting in costly losses. On the other hand, fire is a natural part of the forest ecosystem and important for maintaining the health and diversity of the forest. The International Model Forest Network represents a broad range of global forest regions and fire regimes. Enhanced knowledge management through the International Model Forest Network allows for the sharing of research and best practices among partner Model Forests around the world. To this end, several Chilean organizations (The National Forest Corporation in Chile – CONAF, the Ministry of Environment, the National Meteorological Service and the country's three Model Forests are partnering with the Canadian Forest Service (CFS) , the International Model Forest Network and Environment Canada to increase the knowledge base about wildland fires, and to improve the ability of authorities to predict and manage risks and benefits. The Canadian Forest Service has been involved in fire research for decades and has extensive and highly regarded expertise in Wildland Fire Management. Wildland fire is a landscape process and can be managed to meet specific organizational objectives within a landscape such as Model Forest and more broadly, at a national scale.

Collaboration amongst Canada and Chile will see a capacity building component in the development and application of the Canadian Forest Fire Weather Index (FWI) System as the foundation for a fire early warning system in Chile to mitigate or prevent wildfire disaster.

Chile's three Model Forests – Panguipulli, Araucarias del Alto Malleco and Cachapoal are representative of three unique forest types and will be used as landscape level demonstration sites to build capacity, calibrate models and pilot landscape fire management plans for eventual use at a national scale. Data sharing is already underway amongst NRCan-CFS and CONAFOR which includes key information concerning weather and vegetation from both Panguipulli and Araucarias del Alto Malleco Model Forests.

Another component of this collaboration will be to explore the linkages between climate change and fire management by estimating future expected fire regimes as influenced by climate change.

By engaging the Canadian Forest Services expertise in this capacity building initiative, the International Model Forest Network is delivering greater value to its members in support of international priorities.

Over the long term, this work can possibly lead to developing a range of potential fire management scenarios specific to landscape level as well as national level natural resource management objectives. Through the use of scenarios and fire management information systems, natural resource managers and policy makers will be able to review a range of fire management scenarios and make fire management decisions based on preferred outcomes that meet landscape level sustainability criteria.

For more information visit http://imfn.net/ and http://cwfis.cfs.nrcan.gc.ca/home

International Model Forest Network

Forests and forestry education

Introduction

Education is necessary both to address human resource limitations in forestry and to increase awareness among the general public of forests and forestry. The long time scales over which national-level changes in forests and forestry occur strongly suggest that education in relation to values of forests and the opportunities and challenges faced should be a key focus in the world. The current scarcity of skilled human resources in many countries points to a clear need to improve tertiary education in forestry, while there is also evident need to strengthen education in a general sense and to increase awareness in relation to forests and natural resources.

Forests are a conspicuous and crucial component in the livelihoods of all societies – rich or poor, developed or developing, endowed with forests or not. The growing prominence of conserving biodiversity, arresting desertification, conserving soils, sequestering carbon, improving water quality and quantity and providing bio-energy raises the premium on forest resources. The balance between wise use and conservation is often argued from very different perspectives. The number of stakeholders in forestry has been increasing rapidly, crossing territorial as well as social, economic and political boundaries. The forester's job has drifted from managing trees and forests for timber, to managing trees and forests to achieve multifarious stakeholders' interests and biological systems that are threatened and/or influenced by among others:

- Local communities who derive livelihoods directly from them;
- Industrialists who make profits from them;
- Governments who want to utilize them to leverage development;
- Farmers who view them as agricultural land reserves and sources of new germplasm;
- Die-hard conservationists who believe forests should never be cut for whatever purposes; and
- Climate change mitigation and adaptation groups that want more carbon sequestered.

Constrains in forestry education

Today, forestry education is in a crisis. Over the last ten years, graduates from forestry education and training programmes have declined by over 30% worldwide (Temu *et al.* 2008) and many forestry technician schools either have closed down or have vastly reduced enrolment. Enrolments in forestry technician training in Europe and Africa have declined substantially. This is happening despite the trend of rapid expansion in university level education, where enrolments in universities have tripled over the last twenty years. At the undergraduate level, graduations from forestry institutions in Africa and Europe have been declining slightly since 1993, while that in Southeast Asia has roughly doubled. There was a drastic drop in graduating technicians in both Africa and Asia after 1995, while that in the UK and Germany was stable, (Temu *et al.* 2008). The declines were attributed to scaling down of these programmes due to reduced funding and structural adjustment programmes. The sharp rise in graduates in Asia after 1999 was due to a significant increase in the number of graduates from Indonesia and Vietnam, while those in other countries were stable or increased more modestly (Temu *et al.* 2008). These increases were driven by traditional job opportunities in government forest services, industry, and the NGO sector. Non-traditional jobs, while low, were also noted to be increasing in importance (Miller 2004, Rudebjer and Siregar 2004). The decline in graduation in Africa has been attributed to dwindling employment opportunities for graduates despite the increased role of foresters in environmental management, devolution of forest management to communities, and privatization of forest resources. It is also a result of students opting for training leading to better paying job opportunities in information and communication technology, manufacturing in fast growing economies, and increased productivity of forest industries (Nair, 2004).

An increasing number of forestry-related courses such as natural resources management and environment planning and management attract a considerable number of students who find employment in NGO sectors related to forestry. This indicates a switch from governments being the main employer of university forestry graduates to the NGO world, the private forestry sector and the informal forestry sub-sector. Emphasis in forestry training should therefore increasingly target these new markets for forestry graduates by strategically harmonizing training programmes among related institutions, and relevant departments and faculties within institutions. The decline in Europe is mainly a result of reduced funding opportunities for forestry education and the emergence of alternative programmes in environment and biodiversity (Temu *et al.* 2008). A lower proportion of students are opting to enter the forestry profession. Further, applicants to forestry programmes, especially in Europe, are increasingly those with lower passes at school level (Miller 2004). Whatever the cause, forestry education programmes in Africa and Europe, and less so in Asia, are facing the challenge of attracting a higher number and higher caliber of students and resources. Reduced government funding

for forestry education in many countries has led to universities and colleges reducing the scope of their training (usually cutting down on field exercises) to cut costs, while sacrificing quality and relevance (Temu *et al.* 2008).

Conclusion and recommendations

Society will continue to depend on forests for a variety of important goods and services including soil and water conservation, carbon sequestration, climate amelioration, recreation and tourism, wood and non-wood products. Forest management objectives are set by society, and these change as societies themselves change. Therefore, the forestry profession will continue to be required to shift paradigms from time to time. We know now that forestry education has not been able to transform at pace with global changes, resulting in failures and triggering perceptions that foresters are not what society needs. Flexible curricula with a diversity of specializations are urgently needed to address this issue. There is still a need to develop databases and strengthen regional and national institutions through the worldwide and regional networks to inform and guide forestry training. There are now international forestry and forestry related research organizations such the World Agroforestry Centre (ICRAF) and the International Center for Forestry Research (CIFOR), which are active globally in forestry research and education activities. The International Union of Forestry Research Organization (IUFRO) and regional education networks such as ANAFE, AFORNET, CATIE, COMIFAC, ETFN, RIFFEAC and SEANAFE are other important players in forestry education matters. A global mechanism to guide the process, mentor institutions and facilitate peer reviews to achieve common standards is urgently needed. The above institutions have organizational structures and contacts and are very well placed to house global, regional and sub-regional mandates to promote and support a global advisory body. The critical issue is whether such a global advisory mechanism is necessary in today's world to provide a new global vision on forestry education.

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Timber that lasts

An ITTO project in Guyana helped increase the marketability of poorly known but highly durable timber species

Many tropical timber-producing countries have recognized the need to change the way in which their forest resources are used. Harvesting is too often restricted to a few species and the resulting "creaming off" can have negative environmental consequences. Producers target species that are highly valued by markets, and, inevitably, unknown or "lesser-used" species (LUS) are sidelined. Guyana's forests have high species' diversity, and some areas allocated to forest concession holders—especially smaller concessions—lack significant quantities of prime species.

In 2006, the Commission received approval and financing from ITTO to implement a project focused on expanding the use of lesser-used timber species.

There is strong demand worldwide for durable, cost-effective and environmentally acceptable construction materials. In its favour, Guyana has a track record in environmentally sound forest management at the national and concession levels. The use of LUS in structural applications (especially in the marine and freshwater engineering subsectors) faces a number of challenges, however: the poor past performance of some timber species in structural applications; a perceived increase in the prevalence of the marine borer *Limnoria quadripunctata*; and the requirement to meet stringent procurement rules.

Approach and results

Under the project, TRADA Technology, a United Kingdom (UK)-based consultancy firm, conducted detailed tests on 15 LUS from Guyana's forests to determine their resistance to abrasion and attack by marine borer. Marine borer and abrasion tests were benchmarked against two species commonly used in marine construction in the UK: greenheart (*Chlorocardium rodiei*) and ekki (*Lophira alata*). Scots pine (*Pinus sylvestris*) was used as a control to validate the vigour of the test organisms in the marine borer tests. The species were targeted for promotion in applications such as marine construction, heavy structural applications, and decking/cladding. Table 1 shows that ten LUS performed the same as, or better than, the two benchmarked species.

The project also tested the natural resistance to fungal decay of ten LUS: dalli (*Virola surinamiensis*), wadara, kurokai, futui (*Jacaranda copaia*), muneridan, iteballi, burada, morabukea, black kakaralli and tonka bean, with beech (*Fagus sylvatica*) used as a control.

The natural-durability tests which assessed the results using European laboratory standards EN 113:1996: *Wood preservatives—test methods for determining the protective effectiveness against wood destroying basidiomycetes—determination of the toxic values*, and EN 350 Part 1:1994: *Durability of wood and wood-based products—natural durability of solid wood—guide to the principles of testing and classification of the natural*

Table 1 Summary of results of laboratory testing of ten lesser-used species for resistance to marine borer and abrasion, relative to Ekki and Greenheart

		LIMNORIA TESTING (MARINE BORER)				ABRASION TESTING			
		EKKI		GREENHEART		EKKI		GREENHEART	
LUS		BETTER	SAME	BETTER	SAME	BETTER	SAME	BETTER	SAME
COMMON NAME	INTERNATIONAL TRADE NAME								
Burada	Parinari		√	√			√		√
Black Kakaralli	Mata Mata		√	√			√		√
Tonka Bean	Cumaru		√		√		√		√
Kurokai	Beru		√		√				√
Morabukea	Morabukea		√		√		√		√
Wadara	Wadara		√		√				√
Muneridan	Muneridan				√				
Itikiboroballi	Itikiboroballi						√		√
Darina	Angelim								√
Iteballi	Quaruba								√

Table 2 Durability of ten Guyanese lesser-used species

SPECIES	DURABILITY CLASSIFICATION	DURABILITY CLASS
Tonka Bean	Very Durable	1
Black Kakaralli	Very Durable	1
Morabukea	Very Durable	1
Burada	Durable	2
Iteballi	Durable	2
Muneridan	Moderately Durable	3
Futui	Moderately Durable	3
Kurokai	Moderately Durable	3
Wadara	Moderately Durable	3
Dalli	Not Durable	5

durability of wood. The results show that, of the ten species tested, three were very durable, two were durable and four were moderately durable; only one, dalli, was not durable (Table 2).

Follow-up work

In the six years since the completion of ITTO Project PD 344/05, the Guyanese forest sector has opened up the export market for LUS, and there has been an overall increase in the acceptance of LUS in both domestic and export markets. The results of the project continue to support a sustainable timber trade in Guyana today.

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Recent wildfires in South Australia – their significance for plantation forestry and local communities

Sampson Flat fire – Mt Crawford Forest – Haasmas – fire killed 29 year old P. radiata plantation – Jan 2015

Sampson Flat fire – Mt Crawford Forest – Kersbrook – fire killed 54 year old P. radiata plantation – Jan 2015

Wildfire is an ever present threat during the summer months in southern Australia and several recent fires have had an impact on the future of Plantation Forestry, particularly for the Mid North Region in the State of South Australia.

The most recent severe fire occurred in early January 2015 known as the "Sampson Flat" fire in the Mt Lofty Ranges. It was reported widely in the global press and was a large fire that threatened a relatively densely populated rural area close to Adelaide, the State Capital.

This bushfire burnt through 12,500 hectares over six days, killed more than 900 animals and destroyed sheds, farms and 27 homes. The Country Fire Service (CFS) said the fire behaviour equalled the conditions which resulted in the deadly Ash Wednesday bushfires in 1983.

The "Sampson Flat" fire burnt over 4000 ha of forest land managed by the State Government owned 'ForestrySA', including areas of Native Forest Reserve and *Pinus radiata* softwood plantation. Apart from the loss of commercial growing stock, the need for log salvage, rehabilitation and replanting plans, the impact on the recreational use of the forest was significant. The fire resulted in an extended closure of the affected parts of the forest to visitors due to safety concerns. The Mt Crawford Forest District is a popular place for bushwalking, camping, horse riding, and mountain biking. Also affected was the popular long distance Heysen Trail which extends 1200 km from Cape Jervis on the Fleurieu Peninsular to the Flinders Ranges, as it passes through the Mt Crawford Forest. The affected areas will certainly be re-established and the log supply to industry from the M Lofty Ranges forests will continue.

The situation in the Mid North of the State is quite different. Earlier fires at Bundaleer Forest (February 2013) and Wirrabara Forest (mid-January till mid-February 2014) have will have lasting effects on the small and relatively isolated commercial Forestry business in this Region.

Together, the 2013 Bundaleer fire and the 2014 "Bangor" fire which burnt 90 percent of the Wirrabara Forest have had a devastating effect on the 3,000 ha of commercial plantation.

The annual production of 24,000 cubic metres of sawlog and other products from these forests is limited by the small plantation area and low productivity which is less than half the growth rate considered acceptable for most commercial softwood plantations elsewhere in Australia (20m3/ha MAI).

From an economic perspective the re-establishment of plantations in this Mid North Region following such widespread damage is very questionable. ForestrySA is faced with the dilemma of maintaining supply to the local sawmill along with consideration of the significant historical and community interest in these forests.

South Australia has been in the business of plantation forestry for more than 140 years. Just 34 years after the founding of the colony, attention was drawn in the Parliament, to the lack of natural forest resources and the alarming rate it was diminishing. After all, SA is the driest of all the Australian States. It was as early as 1875 when the State Government set up a Forest Board to investigate timber producing trees which would grow under local conditions. Species from Europe, North America and Australia were tested in trial plantings, the first of which took place at Bundaleer in 1876. This was the beginning of applied forestry in South Australia and indeed in the whole of Australia. All other Australian States were endowed with significant areas of productive native forest.

Other plantings were carried out at Wirrabara, and also in the South East of the State near Mount Gambier. It was soon apparent that *Pinus radiata* from California was one of the fastest growing trees in locations with more than 600 millimetres of annual rainfall. The trial plantings and the establishment of forests that followed was carried out by the Woods and Forests Department of South Australia which was set up in 1882 and believed to be the first forestry service in the British Commonwealth.

The success of Radiata pine led to regular plantings at Bundaleer and Wirrabara forests and further plantings near Mount Gambier, and in the Mount Lofty Ranges at Mount Crawford, Kuitpo and Second Valley. The South East of the State with its higher and more reliable rainfall became the principal area for plantation forestry which successfully continues to this day.

The historical significance of the Mid North forests however, their community use and public interest, need to be weighed up in determining their future. Both Bundaleer, where the first plantings were established and Wirrabara, where there are important remnants of the trial plantings at the Old Nursery site, need special consideration – even if commercial imperatives rule out their continuation as a viable timber resource into the future.

Michael Bleby
CFA Regional Coordinator, SE Asia & Pacific

Marcus Wallenberg Prize: energy-efficient method for producing nanocellulose

The 2015 Marcus Wallenberg Prize is being awarded to a group of researchers from Japan and France for their development of an energy-efficient method to produce nanofibrillated cellulose. Stabilizers in chemicals, food and cosmetics, raw materials for new types of textile fibres or composites or materials for wound dressing are just a few examples of the wide field of possible applications.

Nanofibrillated cellulose has great potentials. This nanoscale material has a surface area and shape that enables the formation of strong networks. The manufacturing process where the wood pulp is mechanically broken down to its nanoscale building blocks is however very energy-intensive, which has hampered industrial interest so far.

Groundbreaking discovery

Professor Akira Isogai and Associate Professor Tsuguyuki Saito from the University of Tokyo and Dr Yoshiharu Nishiyama from the Centre de recherches sur les macromolécules végétales, Cermav in Grenoble, France, have found and developed an energy-efficient way to produce nanofibrillated cellulose. Their discovery on using a specific oxidation reaction as a tool to open up the wood material prior to mechanical disintegration has reduced the energy demand dramatically. The three scientists are awarded the 2015 Marcus Wallenberg Prize of SEK 2 million for this groundbreaking discovery.

- The work of the prize-winners has stimulated more intensive research on nanofibrillated cellulose and its applications around the world, says Professor Johanna Buchert from VTT Technical Research Centre of Finland. She is also a member of the Prize Selection Committee of the Marcus Wallenberg Foundation.

Similar but different qualities

The generalized term nanocellulose refers to both nanofibrillated celluloses and cellulose nanocrystals. They have similar chemical compositions but different properties such as size and crystallinity. Nanofibrillated cellulose consists of longer fibrils and it is more flexible than nanocrystalline cellulose.

Nanocrystalline cellulose is obtained by chemical removal of the amorphous parts of the fibre. The 2013 Marcus Wallenberg Prize was awarded Professor Derek Gray, McGill University, Canada, for his research within this field.

Nanofibrillated cellulose on the other hand is produced from wood pulp by mechanical treatment. In addition to the crystalline regions it also contains parts of the amorphous regions. Depending on the process the fibres can either become organized in bundles of fibrils or isolated in long and spaghetti-like fibrils.

Interest from the industry

Nanofibrillated cellulose has become more interesting for various applications since the Marcus Wallenberg Prize-winners Akira Isogai, Tsuguyuki Saito and Yoshiharu Nishiyama were able to exploit the specific oxidation reaction as a tool to facilitate the mechanical disintegration of the wood pulp. By their method the energy need can be reduced from 30 000 kWh/ton to 100-500 kWh/ton. The cellulose produced this way is even more homogeneous.

- It is a significant discovery that paves the way for nanocellulose being one key product of the future forest industry. The energy consumption is a very important parameter, and the traditional production of nanofibrillated cellulose has been too energy-intensive to attract industrial interest, says Johanna Buchert.

Numerous applications

Crystal segments in combination with the flexibility of the fibrillar structure gives nanofibrillated cellulose the potential to form thin film barriers, retain large amounts of water, be able to modify rheological properties of liquids or in dry form create highly porous and light structures.

Its strength and lightness is valuable for making reinforced composites, improved paper grades and textile fibres, while the water retention ability and viscosity is useful for producing stabilizers in food, cosmetics, paints and adhesives or even in pharmaceutical products.

- We must develop new products from our forest raw material to renew the forest industry. This year's prize has opened up a new pathway and created a new route of opportunities.

The laureates

Akira Isogai
Professor Akira Isogai graduated from The University of Tokyo in 1980, worked as a postdoctoral fellow at the Institute of Paper Chemistry in Appleton, WI, USA, and as a research associate and visiting scientist at the US Forest Products Laboratory, Madison, USA. In 1994 he was appointed as an Associate Professor at The University of Tokyo and in 2003 he was promoted to full Professor.

Yoshiharu Nishiyama
Dr Yoshiharu Nishiyama graduated in Agriculture from the University of Tokyo in 1995, and got his master's degree in 1997 from the same university. He obtained his PhD in 2000 and started working as an Assistant Professor. Since 2004 he has been a 1st class CNRS researcher at the Centre de recherches sur les macromolécules végétales, Cermav, Grenoble, France.

Tsuguyuki Saito
Dr Tsuguyuki Saito graduated in 2003 from the University of Tokyo, got his master's degree from the same university in 2005 and obtained his PhD three years later, in 2008. During his PhD studies he was awarded a Marie-Curie Fellowship, which supported his work with Dr Yoshiharu Nishiyama at Cermav, France. During 2012 and 2013 he worked as visiting scientist with Professor Lars A Berglund at the Royal Institute of Technology, Sweden. He is now an Associate Professor at the University of Tokyo.

Global forest industry in the fourth quarter of 2014

I am grateful to the journal *International Forest Industries* for drawing my attention to the global forest industry figures compiled by Wood Resources International (WRI) in their journal *Wood Resource Quarterly* (www.woodprices.com), which publishes data on the state of the global forest industry much sooner than FAO's *Yearbook of Forest Products*, the latest of which has just been produced for 2012 (www.fao.org/forestry/statistics/80570/en/). Timeliness evidently all depends on the depth of your pockets: *Wood Resource Quarterly* costs $2,500 per issue, *International Forest Industries* costs $270 for a year's subscription, while FAO publications are free!

I am fortunate in having access to *International Forest Industries* so will summarise from time to time their own summary of the global forest markets. The latest issue available to me is that of April/May 2015, which contains the summary for the fourth quarter of 2014 (pp. 26). It is as follows:

Global Timber Markets – sawlog prices generally have recently been above hardwood prices, but are lower compared to earlier in the year, although WRI estimates that in 2014 global softwood log trade reached an 8-year high of 85 mn m^3. But softwood prices have not always been higher than hardwood. The peak of softwood fibre prices was reached in the first quarter of 2008, at around $US111 per oven dry metric tonne, whereas hardwoods peaked at around $US118 per oven dry metric tonne in the first quarter of 2012. China now accounts for 40% of global world timber imports.

Global pulpwood prices. There was a lower WRI price index in the fourth quarter due to the strengthening US dollar and small pulplog and wood chip price adjustments. Both the softwood and the hardwood fibre price indexes fell by about 3% between the third and fourth quarters of 2014.

Global pulp markets. The price premium for northern bleached softwood kraft (NBSK) over bleached hardwood kraft pulp (BHKP) reached more than $200/tonne in the autumn of 2014, the largest price difference in 15 years.

Global lumber markets.

- Global trade in softwood lumber has continued its upward trend since the financial crash of 2008 Most lumber-exporting countries (Canada, Finland, Germany, Russia, Sweden) increased export volumes by 5–8%
- Lumber consumption increased in the USA by 6.1% in the first 11 months of 2014, compared to the same period in 2013, but prices for USA southern pine have fluctuated between $198/$m^3$ and $284/$m^3$ with an average of about $250/$m^3$
- Swedish and Finnish lumber prices declined in the second half of 2014 due to weak export markets, and there has not yet been a surge in export volumes from Russia to China or Europe, despite the potential for good profits in both markets. Japanese lumber production was down 4%, along with wood products imports, due to lower demand. Japanese softwood lumber imports were down 17% year on year, to their lowest level since 2009.
- Similarly, Chinese demand for lumber weakened in the second half of 2014; import volumes fell 9% on the third quarter of 2014.

Global Biomass Markets. Pellet exports from North America rose in the third quarter of 2014, with marginal increases to Europe but more significant rises to Asia. Prices for pellets in the three main European markets (Austria, Germany and Sweden) converged to a fairly narrow price range by early 2015, with falls in Sweden over more than three years, but rises elsewhere.

Lessons learned

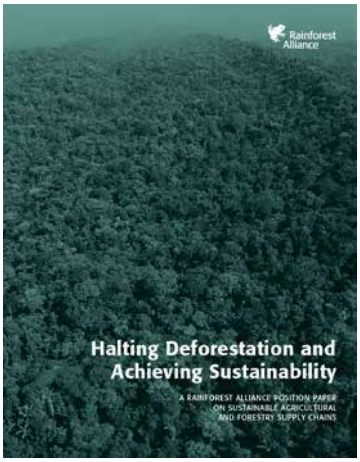
For me, the summary in International Forest Industries was less new information, more confirmation of what I knew already. The global forest industry is still suffering from weak demand in the major industrialized countries after the financial crash of 2008 – although wood pellets are a possible exception. The importance of China as a destination for fibre exports was confirmed – but even if China bucks the trend from time to time, in the long run it also obeys the laws of the free market. For the forest manager, softwood demand and prices are stronger at present than for hardwood, in both sawlogs and pulpwood – but this is not always so.

Jim Ball
CFA President

Publications

Halting Deforestation and Achieving Sustainability

Rainforest Alliance



In its new position paper, "Halting Deforestation and Achieving Sustainability," the Rainforest Alliance addresses the recent surge in deforestation-free pledges. The paper argues the deforestation-free trend is an exciting development, but needs definition, focus, and accountability to deliver lasting benefits for forests, people and the planet.

A growing number of companies that source wood and agricultural products are announcing they will eliminate deforestation from their supply chains, through individual statements, and/or by joining collective pledges such as the New York Declaration on Forests or the Consumer Goods Forum.

While such announcements are welcome, the Rainforest Alliance position paper points out that tackling deforestation is a complex problem that requires long-term solutions and entails many interlinked sustainability issues, including non-forest ecosystems, water resources, and community and worker rights. Many deforestation-free pledges currently lack the public accountability that independent standards and third-party verification offer, for example through certification programs such as the Forest Stewardship Council.

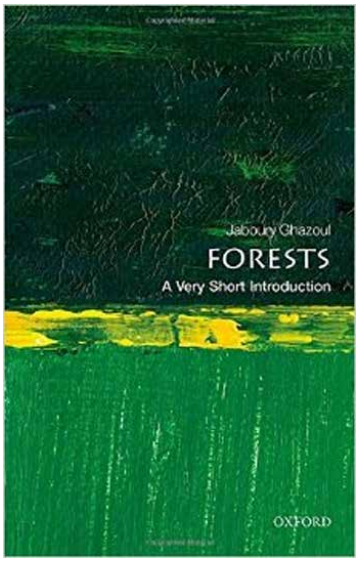
"The deforestation-free trend is valuable and exciting," said Rainforest Alliance president Tensie Whelan. "But we don't yet have an agreed framework for turning this important objective into reality. Deforestation-free is not the same as no trees being cut, though consumers might interpret it that way. A great tagline doesn't equal a great strategy for change. Defining, implementing and evaluating deforestation-free pledges is essential so that society can judge whether companies and governments are actually slowing deforestation."

The Rainforest Alliance position paper identifies five pillars of success to build the bridge from deforestation-free declarations to long-term gains for forests, people, and sustainability. These include clarifying definitions of deforestation-free that are rigorous yet realistic; addressing other critical risks and impacts of commodity production; increasing the productivity and efficiency of existing croplands; effectively governing forests and other natural resources; and restoring degraded lands to productivity and health.

The Rainforest Alliance's paper is available for download at http://www.rainforest-alliance.org/publications/halting-deforestation-achieving-sustainability

Forests: A Very Short Introduction

Jaboury Ghazoul/Oxford University Press



Since the dawn of human civilization, forests have provided us with food, resources, and energy. The history of human development is also one of forest loss and transformation, and yet even in our increasingly urbanized societies we remain surprisingly dependent on forests for a wide range of goods and services. Moreover, forests still retain a remarkable hold on our environmental values. In an era of continuing tropical deforestation and temperate forest resurgence, and in the midst of uncertainties of climate and land use changes, it is more important than ever to understand what forests are, how they contribute to our livelihoods, and how they underpin our cultural histories and futures.

In this *Very Short Introduction* Jaboury Ghazoul explores our contrasting interactions with forests, as well as their origins, dynamics, and the range of goods and services they provide to human society. Ghazoul concludes with an examination of the recent history of deforestation, transitions to reforestation, and the future outlook for forests particularly in the context of expected climate change.

How Many More?

Global Witness

Killings of land and environmental activists in 2014 reached an average of more than two a week, a new Global Witness report reveals – an increase of 20% from 2013. *How Many More?* documents 116 known deaths worldwide last year – almost double the number of journalists killed in the same period. Severe limits on information means the actual figures are undoubtedly higher.

Nearly three-quarters of killings occurred in Central and South America, with South East Asia second worst-hit. Honduras was the most dangerous country per capita to be an environmental and land activist. Worldwide, a shocking 40 % of victims were indigenous, with hydropower, mining and agri-business the key drivers of deaths.

How Many More? analyses trends in violence and intimidation in countries where the systematic targeting of land and environmental defenders is being accompanied by moves to criminalize protest, restrict freedoms, and dilute laws on environmental protection. In a disturbing trend, some governments have used counter-terrorism legislation to target activists, portraying them as enemies of the state.

The report also shines a light on Honduras, the most dangerous country per capita to be an environmental activist for the last five years, with 101 deaths between 2010 and 2014.

Download at https://www.globalwitness.org/campaigns/environmental-activists/how-many-more/

Implementing Deforestation-Free Supply Chains – Certification and Beyond

Hans Smit, Richard McNally and Arianne Gijsenbergh/SNV

Deforestation and forest degradation result in biodiversity losses and are major sources of greenhouse gas emissions. In an effort to delink agricultural production from deforestation, a growing number of companies and national governments are making public commitments to purchasing products which do not cause deforestation.

SNV's REDD+ Energy and Agriculture Programme (REAP) published a report examining the role of agricultural certification standards in effectively halting forest conversion and explores some of the key

ingredients which need to be in place in order to establish deforestation-free supply chains. Based on the findings, a toolkit is provided which can help to address identified challenges. The package consists of three components: a traceability and monitoring system, our Inclusive Business approach and the SNV Siting Tool. The toolkit is designed to assist companies and governments in going beyond certification standards in order to bring about the systemic changes needed to delink agricultural production from deforestation and forest degradation at a landscape level.

Download at http://us6.campaign-archive2.com/?u=e5895bcd12e23439a6c00ef95&id=5792091027&e=

Living Forests Report: Saving Forests at Risk

WWF

WWF's Living Forests Report is part of an ongoing conversation with partners, policymakers, and business about how to protect, conserve, sustainably use, and govern the world's forests in the 21st century.

The series explains the reasons for, and implications of an ambitious forest conservation target: **Zero Net Deforestation and Forest Degradation** (**ZNDD**) by 2020.

The latest chapter in the series, *Saving Forests at Risk*, identifies where most deforestation is likely between 2010 and 2030: these are the **deforestation fronts** where efforts to halt deforestation must be concentrated. The chapter also provides compelling examples of solutions for reversing the projected trends in these deforestation fronts.

Living Forests Report: Saving Forests at Risk shows that if current trends continue, up to 170 million hectares of forest could be lost between 2010 and 2030 in these 11 deforestation fronts, 10 of which are in the tropics. The fronts are located in the Amazon, the Atlantic Forest and Gran Chaco, Borneo, the Cerrado, Choco-Darien, the Congo Basin, East Africa, Eastern Australia, Greater Mekong, New Guinea and Sumatra.

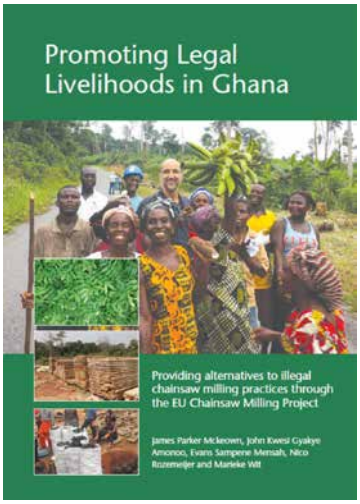
The report builds on earlier analysis by WWF showing that more than 230 million hectares of forest will disappear by 2050 if no action is taken, and that forest loss must be reduced to near zero by 2020 to avoid dangerous climate change and economic losses.

The report takes a look at the main drivers of deforestation and solutions to halt runaway deforestation. It stresses the need for solutions that look at the whole landscape, and collaborative land-use decision-making that accounts for the needs of businesses, communities and nature.

The full report, executive summary and previous chapters from the *Living Forests Report* series are available here: http://wwf.panda.org/about_our_earth/deforestation/forest_publications_news_and_reports/living_forests_report/index.cfm

Promoting Legal Livelihoods in Ghana

James Parker Mckeown, John Kwesi Gyakye Amonoo, Evans Sampene Mensah, Nico Rozemeijer and Marieke Wit/ Tropenbos International.



Illegal logging in Ghana is partly a problem of poverty. Changing the policy environment — especially enforcement to combat illegal logging — has proved to be important over the years, but needs to be complemented by offering alternative income opportunities to illegal activities to the rural poor in forest communities. The Chainsaw Milling Project, initiated by the Ghana Forestry Commission, the Forest Research Institute of Ghana and Tropenbos International, with funding from the European Commission, involves stakeholders in dialogue, information gathering and the development of alternatives to illegal and unsustainable chainsaw milling practices.

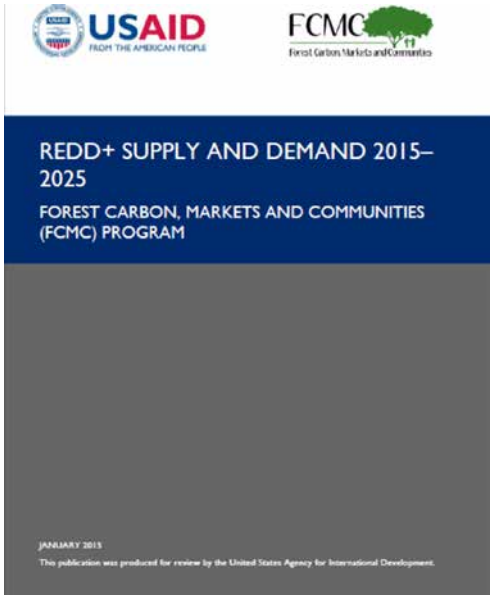
The project has piloted three alternative forest-related income opportunities: artisanal milling, plantation development and charcoal production. This publication describes, discusses and assesses these economic activities using four case studies. Following the Sustainable Livelihood Framework, the study shows that these economic activities can be viable alternatives to chainsaw milling and can contribute to the sustainable livelihoods of communities living in and around forests in Ghana. However, a number of conditions for success needs to be in place, such as: the presence of an adequate regulatory framework for artisanal milling; secure access to legal logs, land and other resources; adequate skills and capacity of community members; and effective law enforcement.

These conditions for success require urgent attention on three aspects of forest governance in Ghana: land and tree tenure and the inequitable sharing of benefits; access to forest land that favours big companies; and the persistent corruption that jeopardizes any attempt towards sustainable forestry. The existing forest governance regime negatively affects the potential for small-and medium-scale processing of timber and related industries that could offer economically viable alternatives to illegal chainsaw milling.

Download at http://www.tropenbos.org/publications/promoting+legal+livelihoods+in+ghana

REDD+ Supply and Demand 2015–2025

Leif Kindberg/Forest Carbon, Markets and Communities



Forest loss in developing countries represents a significant contribution to global emissions along with significant climate change mitigation potential. How Reducing Emissions from Deforestation and Forest Degradation in Developing Countries; and the Role of Conservation, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks (REDD+) will be incentivized in a future climate agreement is still being negotiated under the United Nations Framework Convention on Climate Change (UNFCCC). One option to incentivize REDD+ is the use of carbon markets that provide economic benefits to those who reduce emissions. A voluntary market for forest credits started in the 1990s and has grown during the last decade. Bilateral and multilateral initiatives also are piloting market mechanisms and non-market results-based payments for emission reductions. This report develops a bottom-up analysis of supply using existing REDD+ projects and jurisdictional programs. It compares this supply to three scenarios of demand for REDD+ credits based on existing and emerging voluntary, regulatory and results-based payment programs. All of the results in this report can be found in an interactive graphic available online at the REDD Desk – http://theredddesk.org/markets-standards/analysis. The platform aims to give a clear picture of historic/current and projected supply and demand for REDD+ credits until 2025, from donor engagements, to the voluntary and compliance markets. The platform presents the user with a series of interactive graphs, each built with data from separate analyses carried out by USAID FCMC, GCP and Forest Trends. Each analysis focuses on a different aspect of the market for REDD+ and uses a different methodology to compile its data. Download at http://rmportal.net/library/content/fcmc/task-areas/fcm/redd-supply-and-demand-2015-2025/view

Stories from the Ground

FERN

A new film *Stories from the ground* shows that the EU's Forest Law Enforcement Governance and Trade (FLEGT) process is having a real tangible effect in forested countries, with governments listening, often for the first time, to those who live in and depend on the forests.

Lindsay Duffield of Fern says: "The root causes of deforestation are complex, but this film explains in a simple way that unless those who rely on forests for their survival are heard and have their rights met, forests will disappear."

Stories from the ground is introduced by Sorious Samura, the Emmy and Bafta winning journalist, best-known for his film 'Cry Freetown'. He explains that forest destruction is "a disaster for the fight against climate change and the millions of people who rely on forests for their survival." Other interviewees include Goldman Prize winner Silas Siakor and Fern founder Saskia Ozinga, who states: "These stories show that the FLEGT programme is working to strengthen the rights of communities over forest resources. This is the only way to keep forests standing."

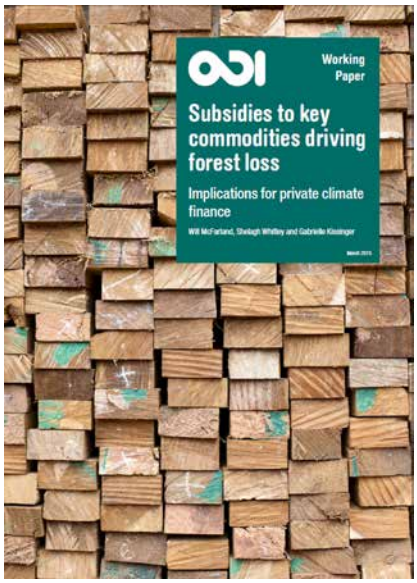
The video is available at: www.fern.org/storiesfromtheground

Subsidies to key commodities driving forest loss: implications for private climate finance

Will McFarland, Shelagh Whitley and Gabrielle Kissinger

A new working paper from ODI, authored by, identifies that domestic subsidies to the key commodities driving forest loss – beef and soy in Brazil, and timber and palm oil in Indonesia – massively outnumber available REDD+ finance.

The working paper *Subsidies to key commodities driving forest loss: implications for private climate finance* identifies 48 different domestic subsidies to support the leading causes of deforestation – palm oil and timber industries in Indonesia and beef and soy industries in Brazil. Although these subsidies may come with good intentions, such as supporting smallholder farmers and encouraging rural development, such subsidies also influence private investment decisions, leading to additional deforestation.



As you will know, there is an increasing focus on the role that public and private resources can play in supporting activities that reduce deforestation, mirroring that of similar efforts to address climate change, and to deliver sustainable development. From our initial review of subsidies to beef and soy in Brazil, and timber and palm oil in Indonesia we find that there are significant opportunities for REDD+ finance to support identification, estimation and designing the reform of these subsidies – as part of a wider transition to economic development which increases agricultural productivity while avoiding forest loss.

Download the report at http://bit.ly/1OPUN7l

The Knowledge and Skills Needed to Engage in REDD+: A Competencies Framework

AGRC

The Alliance for Global REDD+ Capacity (AGRC) announces an app-based version of its publication THE KNOWLEDGE AND SKILLS NEEDED TO ENGAGE IN REDD+: A COMPETENCIES FRAMEWORK, called the "Cliff Notes for REDD+" by *Ecosystem Marketplace*. The app format allows for frequent updates, enabling the content to keep pace with evolving REDD+ policy and financing. It also makes navigation simple, permitting users to interact with each topic.

The app features a multi-language setting in English and Spanish and provides comprehensive information for designing and implementing REDD+ activities, helping users to understand key concepts, policy benchmarks, skills, tools and resources for ten specific REDD+ themes. In addition to covering these themes, the app provides guidance on designing REDD+ capacity building programs for a variety of stakeholders, with case studies on existing REDD+ capacity building programs and links to web-based resources.

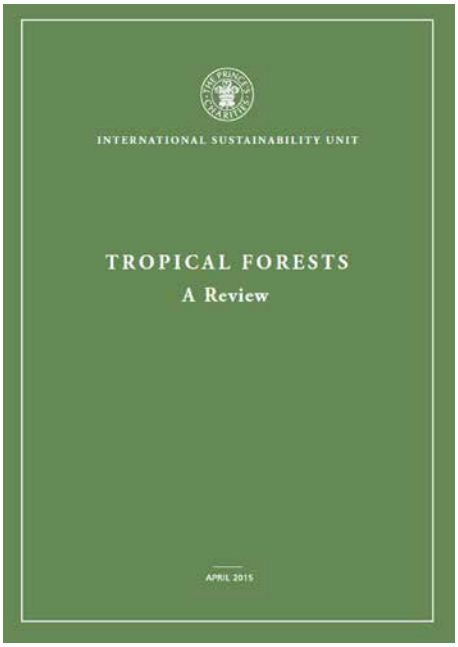
The original publication was created with support from the Forest Carbon Markets and Communities (FCMC) Program of the United States Agency for International Development (USAID). The materials were developed by technical experts from Conservation International (CI), Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), International Union for the Conservation of Nature (IUCN), RECOFTC – The Center for People and Forests, and reviewed by a multidisciplinary group of subject matter experts from governments, USAID, FCMC, NGOs and AGRC members. The app was funded by Conservation International through the support of an anonymous private donor.

A PDF of the Framework is available for download at www.conservation.org/publications/Documents/CI_REDD-Competencies-Framework.pdf

The app is available from the App Store.

Tropical Forests: A Review

The Prince's Charities



Prince Charles has called for urgent action on tropical deforestation, arguing that the forests are essential for life on Earth, in a report published by his International Sustainability unit.

The report, notes that despite some success in reducing deforestation in some countries there are no signs yet that overall rates of deforestation or degradation are decreasing. The paper points to a previous study that suggested a year on year increase in the area deforested in the tropics of 200,000 hectares, overall the level of forest lost remains "*significant*" at around 8.5 million hectares annually.

The paper sets out a way forward for tackling the issue of deforestation, including creating deforestation-free supply chains for palm oil, soy and beef and integrating a method of valuing tropical forests into operations.

In the report, Prince Charles states, *"For many decades, I have been profoundly concerned about the state and future of the world's tropical forests. It remains my absolute conviction that all humanity and all creation would be deeply diminished if we were to lose these astonishing ecosystems. Indeed, I believe we simply cannot survive without them."*

He continued, *"[Tropical forests] are the vital organs, in this case the 'lungs', of an essentially living, organic and integrated whole – our planet. There are no opportunities for transplants if they go wrong or we cause them irreparable damage by not caring for them. Our responsibilities as custodians or Earth, and to current and future generations for its wise stewardship, compel us to act."*

The International Sustainability unit notes that deforestation has implications for tackling climate change, as the capacity for forests to absorb and store carbon is being reduced. However, it also points out that deforestation can have an impact on a wide variety of areas, from food security to biodiversity.

The Prince of Wales concluded, "*Given that the forests are in effect the planet's lungs, destroying them can surely only be an act of insane irresponsibility. It is not, after all, that we lack the technology, the money or the ability to safeguard their survival and, therefore, our own."*

Review from http://blueandgreentomorrow.com/2015/04/07/prince-charles-calls-for-action-on-deforestation/

Around the World

Aussies have the Ashes, but they're stumped by English willow

There have been more downs than ups for supporters of the England cricket team over 133 years of Ashes battles with Australia, but at least we have always been able to boast that whenever some larrikin from the outback has bludgeoned a century before lunch off our bowlers, he has done so with a bat made of solid English willow.

Now the Aussies want to take even that accolade away from the motherland, along with the Ashes and the World Cup. Scientists from the Australian National University in Canberra are studying what makes English willow the best bat-making material in the hope of developing a cheaper alternative.

Mohammad Saadatfar, from the university's research school of physics and engineering, said that the best bats were made from the female of only one particular species of English willow.

"It's too expensive and it's just one small part of the world that is producing it," he said. "You want to diversify, the price is going up every year because it's just so limited, and there's no reason why every kid in the world should not play with a top-quality cricket bat."

The Australian physicists have joined forces with wood scientists from the University of British Columbia in Canada for the project. They will scan the bat samples before, during and after stress tests to find out why cricket balls rebound so well from English willow.

"It's immensely complex," Dr Saadatfar said. "Willow is porous, with criss-crossing fibres that give it the mechanical strength required for withstanding its own weight as well as the wind. Willow has pockets of air trapped inside the cells, which deform elastically when the cricket ball hits it, giving it unique resilient properties. It's an amazingly beautiful system."

He said that the scientific team hope to work out if other types of wood might, one day, rival the legendary performance of English willow.

Last week Brad Haddin, Australia's wicketkeeper, tested a bat made from English willow and ones made from Kashmir willow. He gave his preference to the Pommie blade, which vibrates less and offers a broader "sweet spot" for hitting the ball cleanly.

thetimes.co.uk

How the EU can stop the illegal destruction of tropical forests

Research released by Brussels-based NGO Fern revealed that during 2000-12, an average of one football pitch of forest was illegally cleared every two minutes to supply the EU with agricultural commodities such as beef, leather, palm oil and soy. The report, *Stolen Goods: the EU's complicity in illegal tropical deforestation*, also revealed that Europeans consumed EUR 6 billion of goods linked to illegally deforested land in a single year (2012).

With the scale of the problem now clear, Fern has released a series of reports proposing the comprehensive steps the EU can take to tackle it. These reports coincide with a conference in the European Parliament aimed at developing an EU Action Plan on Deforestation and Rights. Fern campaign coordinator Saskia Ozinga said: *"Tropical deforestation threatens the global climate and the livelihoods of many of the world's poorest. So when people sit down to eat meals or buy everyday goods from the shops, they have a right to know whether what they're consuming is tainted by environmental destruction and human rights abuses."*

Ensuring that European consumption does not drive deforestation and destroy communities' rights is a complex task. In its reports, Fern proposes the following changes to EU policy:

Starve damaging projects of funds. According to Fern's analysis, 20 EU-based institutions have currently underwritten some EUR 16 billion of investment in agricultural companies, including to the deforestation hotspots of Indonesia, Brazil and Malaysia. To stop EU-based financial institutions funding and facilitating agricultural projects that destroy forests and violate peoples' rights, existing EU financial rules need to be strengthened with new regulations specifically targeting investment in destructive commercial agriculture.

Open supply chains to scrutiny. In the past two years, major companies such as Nestlé, Cargill and Unilever have made public pledges that their products will not contain ingredients resulting from agricultural deforestation. This is good news. But we cannot leave these companies to get on with the job alone. EU regulations should require such audits, and make it a criminal offence to facilitate or invest in projects that lead to illegal forest loss or land and human rights violations.

Make policy coherent. Arguably the most extreme example of EU policy incoherence is bioenergy. The EU's consumption of biomass, often as wood for electricity generation, and biofuels for transport has risen as a result of renewable energy laws designed to tackle designed to tackle climate chaneg. These same policies are however driving deforestation, and having a dire impact on the climate, biodiversity and food security. The EU should revise its misplaced presumption that biomass is climate-neutral, and consider the implications of its support of biomass burning.

Give consumers information. European consumers are among the top consumers of fair trade and organic produce in the world, but their integrity is being undermined by a lack of information. To take two examples, most processed products do not have to show the origin of their ingredients; and meat does not have to indicate where the feed given to the animal came from. Consumers need more detailed information about the environmental impact of the food they buy. Delivering it requires the development of easy-to-understand food labelling. One model would be the 'traffic lights' system used to alert consumers to products high in sugar, fat or salt.

This should come together in an EU Action Plan to Protect Forests and Respect Rights, starting with ensuring only legally produced commodities enter the EU market. Yannick Jadot, one of the hosts of the conference and Member of the European Parliament, believes action to tackle deforestation is needed at the EU level: "The stark fact is that we are importing 6 billion euros of products grown or reared on illegally deforested land. Fern's report shows that we need to only import sustainable and legal products. Since trade is an EU mandate, these actions can only be taken at the EU level. The European Commission needs to make a proposal for an Action plan as a matter of priority."

fern.org

Global: FSC® launches new global brand: *Forests For All Forever*

The Forest Stewardship Council® (FSC) has launched its new global brand: *Forests For All Forever*. In the past 20 years, FSC has become a well-trusted and established brand in sectors and markets around the world. With its new branding FSC plans to extend its reach by targeting consumers directly.

"The success of FSC has always depended on consumer awareness and demand for FSC-certified products, and we have relied on our partners and certificate holders to spread the message of FSC on our behalf. However, it became clear that we needed to provide our partners with tools that could inspire their customers to choose FSC – an identity that would connect

with consumers and be memorable in the retail space," said Kim Carstensen, Director General of FSC.

The new strapline – *Forests For All Forever* – reaffirms the FSC vision of saving the world's forests for future generations, while the visual identity, which includes the animals and people who live and interact in forests, reinforces the all-encompassing approach FSC takes to sustainable forest management.

"Forests are so much more than trees and timber – they are reservoirs for clean drinking water, protection for animals and endangered wildlife, and home to indigenous peoples and communities. Our Principles and Criteria have always reflected our determination to protect forests and their inhabitants. Now, our commitment will also be expressed in our visual identity, and provide a clearer message to consumers of what it means when they buy an FSC-certified product," stated Mr. Carstensen.

"In addition, with markets opening up in Asia, Latin America and Africa, it was time go beyond outreach to producers and retailers," continued Mr. Carstensen. "Supply grows in response to demand, and those at the end of the supply chain – consumers – are vital to ensuring companies seek out sustainable solutions and engage in responsible businesses practices."

Forest Stewardship Council

Global: Remote rainforest communities can report illegal logging on their lands in 'real-time' thanks to ground-breaking technology

A technologically innovative system, unveiled by the Rainforest Foundation UK, gives forest peoples the opportunity to send near-instantaneous, highly geographically accurate reports of illegal felling of trees, such as by timber or palm oil companies, from anywhere in the world, even where there is no mobile, phone or internet connectivity.

Information on illegal activity in the forest can now be collected using a tablet computer or smartphone and then transmitted to an online map via a satellite modem transmitter in as little as 20 seconds – costing around the same as a standard text message. The live incident reports show where urgent action is required to prevent deforestation.

In collaboration with RFUK's local partner, Forêts et Développement Rural (FODER), RFUK's system has been tested in the rainforests of Cameroon, revealing 20 potential incidences of illegal logging.

'Pascal' (full name withheld for safety reasons), from one of the communities in Cameroon involved in the recent tests, said: *"Illegal logging is a huge threat to our community. RFUK's real-time monitoring system will allow us to report infractions and to get them to the all stakeholders at the same time so that the perpetrators can be identified and punished".*

Using an easily modified icon-based 'incident reporting' system, the technology can potentially be adapted to different kinds of forest monitoring, including wildlife populations, poaching, human rights abuses, or the implementation of carbon payment mechanisms such as REDD.

Simon Counsell, Executive Director of the Rainforest Foundation UK said: "*Our 'real time' technology is potentially a game-changer, as it helps empower forest people even in the remotest areas, and could transform the way that forests are monitored and governed. It can be an important and cost-effective complement to satellite-based monitoring, providing 'crowd-sourced' qualitative data. We are inviting governments of rainforest countries to work with us on a full-scale test of how community-based monitoring can be linked to formal enforcement mechanisms".*

rainforestuk.org

Global: How much of the Amazon rainforest would it take to print the Internet?

Students from the University of Leicester have calculated how much paper would be required to physically print the Internet as we know it – and have found that, despite the Internet's enormous size, less than 1 per cent of the Amazon rainforest's trees would be required to accomplish it.

In order to work out how much paper would be required to print the Internet, students Evangeline Walker and George Harwood from the University of Leicester's Centre for Interdisciplinary Science investigated how many trees would be needed, using the Amazon rainforest as an example given its unprecedented scale on Earth.

The Amazon rainforest, situated in South America, is the largest rainforest on Earth, spanning 5.5 million square kilometres and housing approximately 400 billion trees.

The students used the English version of the popular website Wikipedia as an example of a website containing a large amount of data. They took ten random articles from Wikipedia, which provided an average of 15 pages required to print each article. They then multiplied this by the number of pages on Wikipedia alone – estimated to be roughly 4,723,991 at the time of writing – which resulted in 70,859,865 paper pages.

Applying this to the Internet at large, the students suggest that approximately 4.54 billion pages of paper would be required to print the Internet as we know it.

To establish how many trees would be needed to print the required number of paper pages, the students worked on the assumption that all trees within the rainforest can be used to make paper, given the large amount of trees that can be used for this purpose.

Assuming that the trees of the Amazon are equally distributed across its entire area of 5.5 million square kilometres, there would be 70,909 trees per km^2.

It is possible to obtain approximately 17 reams of paper per usable tree, with 500 individual paper sheets in each ream. This results in a total of 8,500 sheets of paper obtainable per tree.

By dividing the number of paper pages required to print Wikipedia (70,859,865) by the amount of sheets of paper in each ream (500) the students suggest that 141,720 reams of paper would be required to print Wikipedia alone. With each tree yielding 17 reams of paper, printing Wikipedia would require 8,337 trees.

In terms of the Amazon rainforest, with 70,909 trees per km^2, English Wikipedia would only consume 12 per cent of a single km2 if every type of tree could be used to make paper.

For the entire visible, non-explicit Internet, the students estimate that approximately 8,011,765 trees would be required – representing 113km2 of the Amazon rainforest.

By making rough calculations about the size of the Internet, how much paper can be gained per tree, and assuming that all trees within the Amazon can be utilised for the production of paper, printing the non-explicit Internet would therefore require only around 0.002% of the Amazon rainforest.

Despite the small percentage of the rainforest required to print the visible Internet, it is believed that the non-explicit web is only a mere 0.2% of the total Internet, with the rest encompassing the Dark Web, which exists outside of regular search engines.

Therefore, to print the other 99.8% of the Internet would require many more trees – but still only equating to around 2 per cent of the entire Amazon rainforest.

The students presented their findings in a paper for the Journal of Interdisciplinary Science Topics, a peer-reviewed student journal run by the University's Centre for Interdisciplinary Science. Students from the University of Leicester (UK) and McMaster University (Canada) have contributed to this year's journal. The student-run journal is designed to give students practical experience of writing, editing, publishing and reviewing scientific papers.

Dr Cheryl Hurkett from the University of Leicester's Centre for Interdisciplinary Science said: "An important part of being a professional scientist (as well as many other professions) is the ability to make connections between the vast quantity of information students have at their command, and being able to utilise the knowledge and techniques they have previously mastered in a new or novel context. The Interdisciplinary Research Journal module models this process, and gives students an opportunity to practise this way of thinking. The intention of this module is to allow students to experience what it's like to be at the cutting edge of scientific research.

"The course is engaging to students and the publishing process provides them with an invaluable insight into academic publishing. It also helps students feel more confident when submitting future papers. I find it a very rewarding module to teach and I am always pleased to see my students engaging so enthusiastically with the subject. I encourage them to be as creative as possible with their subject choices as long as they can back it up with hard scientific facts, theories and calculations!"

The full paper 'How Much of the Amazon Would it Take to Print the Internet?' is available at: http://www.physics.le.ac.uk/jist/index.php/JIST/article/view/100/57

University of Leicester (UK)

Global: WWF France and Rougier to jointly advance responsible forest management and trade

WWF France and Rougier Group will work together in a three-year strategic collaboration that focuses on advancing sustainable forestry in Africa and responsible supply chains in Europe. The collaboration between WWF, a leading environmental NGO, and Rougier, an integrated forest & trade company, sends a strong signal that addressing environmental sustainability makes good business sense.

wwf.panda.org

WRI Global Country Ranking for Tree Cover

The world lost more than 18 million hectares of tree cover in 2013, according to new 2013 data from **Global Forest Watch**, a partnership led by the World Resources Institute.

See a complete ranking of countries by tree cover loss at: http://www.globalforestwatch.org/countries/overview

Key findings from the new data:

- Global tree cover loss in 2013 **increased 5.2 percent** over the 2000-2012 average
- **Russia** and **Canada** accounted for 34 percent of global tree cover loss from 2011-2013, losing a combined average of nearly 6.8 million hectares (26,000 square miles) each year, an area equivalent to the size of Ireland
- **Indonesia's** annual tree cover loss declined in 2013 to the lowest point in almost a decade, pulling the three-year average down to 1.6 million hectares (6,200 square miles) of annual tree cover loss

In a blog post, experts from **WRI**, **University of Maryland** and **Google** dig into the data and pull out the most important trends. Read the blog here (and below): http://www.wri.org/blog/2015/04/tree-cover-loss-spikes-russia-and-canada-remains-high-globally

And see the press release here: http://www.wri.org/news/2015/04/release-new-satellite-data-reveal-massive-tree-cover-loss-russia-and-canada

wri.org

Global: New satellite data reveal massive tree cover loss in Russia and Canada

Northern boreal forests, primarily in Russia and Canada, suffered significant tree cover loss in 2013, largely driven by large forest fires, according to new data and high-resolution satellite-based maps released by Global Forest Watch, a partnership led by the World Resources Institute. New data show Russia and Canada (two of the biggest forest countries in the world) accounted for 34 percent of global tree cover loss from 2011-2013, losing a combined average of nearly 6.8 million hectares (26,000 square miles) each year, an area equivalent to the size of Ireland. Some of the tree cover loss is only temporary, as forests can regenerate after disturbances such as fire though in the boreal region this is a very slow process. Russia (4.3 million hectares) had nearly double the tree cover loss of Canada (2.5 million hectares).

Globally, the world lost more than 18 million hectares (69,500 square miles) of tree cover in 2013 including both permanent deforestation and temporary losses due to harvesting, fires and other disturbances. The data find that Russia, Canada, Brazil (2.2 million hectares), the United States (1.7 million hectares) and Indonesia (1.6 million hectares) make up the top five countries for average annual tree cover loss, which measures removal or death of trees within a given area, from 2011-2013. In 2013 alone, Indonesia experienced the lowest tree cover loss in a decade.

"This new data shows in detail how Russia and Canada have faced a massive spike in tree cover loss," said Dr. Nigel Sizer, Global Director, Forests Program, WRI. "These forests and soils contain vast carbon stocks so losses represent a significant contribution to the greenhouse gas emissions that are driving climate change. As we head toward the pivotal 2015 climate summit in Paris, more attention is needed to the management and monitoring of boreal forests."

Studies estimate that fires accounted for around 70 percent of total tree cover loss in Canada and Russia in recent years. In some regions, boreal forests are burning more now than at any time in the last 10,000 years. Researchers anticipate that climate change will increase the frequency and intensity of boreal forest fires, producing more late-season fires that kill trees, and releasing emissions from burning trees and peat soils.

"This should be a clear call to action to look closely at forest management in Russia and Canada in the face of climate change" said Olga Gershenzon, Board Chair of Transparent World, a Russian NGO, and founder of ScanEx, a Russian commercial satellite imagery company and GFW partner. "The massive tree cover loss shows there is much to be improved in terms of monitoring and understanding the causes and types of forest fires, as well as making information about fires available to the public in real time along with maps of land allocation and responsibility."

Although tree cover loss remains alarmingly high globally, there are encouraging indications that some countries, including Indonesia, are having success in slowing the rates of permanent tree cover loss, or deforestation, in important forest areas.

Indonesia's annual tree cover loss declined in 2013 to the lowest point in almost a decade. Possible reasons for the change include a moratorium on new concessions for forest conversion, a significant decline in agricultural commodity prices (especially palm oil), corporate zero-deforestation commitments, and the fact that much of the most accessible forests have been already cleared. But, more research needs to be done to confirm the trend and underlying drivers of this shift.

"This new information tells a very positive story about Indonesia's forests," said Siti Nurbaya, Minister of Environment and Forests for Indonesia. "It is too early to say this is a definitive trend, and the ministry is now examining how our numbers compare with this finding. If it holds true, this could be a powerful indicator that Indonesia's significant investments in forest protection are paying off. We intend to take additional steps to ensure these positive trends continue."

"Halting the loss of the world's carbon-rich forests and peatlands is necessary if we are going to keep climate change at bay," said Tine Sundtoft, Minister of Climate and Environment, Norway. "The new figures give reason to hope that measures to reduce deforestation in Indonesia are having a positive effect. I hope to see further measures and reduction under the new administration."

The new data come from the University of Maryland and Google, and represent the largest and most up-to-date global data set for tree cover loss. With the addition of these data, Global Forest Watch now features tree cover loss data spanning 2000-2013 at a 30-meter resolution. Tree cover loss is a measure of the total loss of all trees within a specific area regardless of the cause. It includes both permanent human-driven deforestation due to expanding agriculture and infrastucture, as well as temporary tree cover loss from forest fires (both natural and man-caused), logging, plantation harvesting, and tree mortality due to disease and other natural causes.

"Our new maps of global tree cover change, generated from over 400,000 satellite images, give us good news and bad news," said Dr. Matt Hansen, Professor of Geography, University of Maryland, who oversaw the analysis. "Landsat satellite imagery, made freely available by NASA and USGS, will enable researchers to track forest cover change over time and determine if these new findings are a function of underlying drivers, whether policies related to forest governance or more distal factors such as changes in climate."

The new data was made possible through free public access to satellite imagery provided by the U.S. Geological Survey Landsat program, in partnership with NASA. The new 2013 data is publicly available through maps, data visualizations, and downloads at globalforestwatch.org. Tree cover loss can also be monitored through near real-time alerts such asFORMA, Imazon SAD alerts, and Terra-i alerts. For more information visit www.globalforestwatch.org.

wri.org

Global: International aid earmarked for saving forests in Brazil and Indonesia dwarfed by billions spent on subsidies for palm oil, soy and beef industries that cause deforestation – new report

In Brazil and Indonesia domestic agriculture and biofuel subsidies dwarf international aid for forest protection by over 60 times says new research launched today by the UK's leading think thank the Overseas Development Institute (ODI).

On average, $41bn of domestic public finance is spent each year subsidising some of the leading causes of deforestation in these two countries where over half of the world's deforestation occurs. This is compared with just over $1bn received from the international community to protect forests.

The report *Subsidies to key commodities driving forest loss* identifies 48 different domestic subsidies to support the leading causes of deforestation – palm oil and timber industries in Indonesia and beef and soy industries in Brazil.

Although these subsidies may come with good intentions, such as supporting smallholder farmers and encouraging rural development, such subsidies also influence private investment decisions, leading to additional deforestation by suppressing commodity prices, which can lead to over-consumption and inefficient production, says the report.

The report's authors recommend that international forestry aid be used to reform subsidies in manner that safeguards forests, as well as livelihoods and food security. This could include shifting incentives towards agricultural productivity and making subsidies conditional on compliance with environmental regulations, as successfully implemented in Brazil through conditional loans to cattle farmers.

The report's co-author, Will McFarland, says "While international forest aid seeks to promote private investment in forest protection, governments around the globe are incentivising commodities that drive deforestation. Through subsidy reform, modest sums of forest finance can be used to ensure any subsidies are provided in a manner that both protects forests and the poor".

odi.org.uk

Indian police kill 20 suspected red sandalwood smugglers Members of the media were taken to the scene

Police in India's Andhra Pradesh state say they have killed at least 20 suspected red sandalwood smugglers. The shooting came when loggers attacked police and forestry officials near the holy town of Tirupati, police said. Police are accused of excessive force. Most of the suspected smugglers were from neighbouring Tamil Nadu state.

Sandalwood smuggling is rampant in southern India, with a tonne selling for tens of thousands of dollars on the international black market.

Red sandalwood or red sanders is a species of tree endemic to the Western Ghats of India. The tree is prized for its rich red wood, mainly for making furniture, and is not to be confused with the highly aromatic sandalwood trees that are native to southern India.

Senior police official M Kantha Rao told the AFP news agency that policemen challenged a group of more than 100 smugglers who were cutting down trees in the remote forests near Tirupati early on Tuesday., was killed in 2004.

"Our police party warned them to hand over the logs. They were accompanied by forest officials as well. But the smugglers refused to hand over the logs," he said. A forestry official said the woodcutters attacked the police with axes, sticks and stones in two separate areas of the state.

Police said 20 bodies had been recovered in the Seshachalam forest. Eight suspected smugglers were injured. Most of those killed are believed to be Tamils and there was an angry reaction in Tamil Nadu to the killing.

Chief Minister O Pannerselvam demanded an investigation and the National Human Rights Commission said there had been a "serious violation" of human rights. "Firing cannot be justified on the ground of self-defence since it resulted in the loss of lives of 20 persons," it said in a statement.

VS Krishna, general secretary of the Andhra Pradesh Human Rights Forum, said an earlier "gun battle" with loggers had turned out to be "one-sided firing" by police. "They surrounded the workers deep in the forest, having every opportunity to take them into custody, but instead fired straight away, killing several of these workers," he told AFP news agency.

Correspondents say the loggers are often tribespeople or other poor migrant workers from Tamil Nadu. India banned the sale of red sandalwood in 2000. In 2004, police in Tamil Nadu shot dead one of India's most notorious sandalwood smugglers, known as Veerappan.

bbc.co.uk

Peru: Indigenous protesters occupy Peru's biggest Amazon oil field

Around 500 Achuar indigenous protesters have occupied Peru's biggest oil field in the Amazon rainforest near Ecuador to demand the clean-up of decades of contamination from spilled crude oil. The oilfield operator, Argentine Pluspetrol, said output had fallen by 70% since the protesters occupied its facilities on Monday – a production drop of around 11,000 barrels per day.

Native communities have taken control of a thermoelectric plant, oil tanks and key roads in the Amazonian region of Loreto, where Pluspetrol operates block 1-AB, the company said.

Protest leader, Carlos Sandi, told the Guardian that Achuar communities were being "silently poisoned" because the company Pluspetrol has not complied with a 2006 agreement to clean up pollution dating back four decades in oil block 1-AB. "Almost 80% of our population are sick due to the presence of lead and cadmium in our food and water form the oil contamination," said Sandi, president of FECONACO, the federation of native communities in the Corrientes River.

Pluspetrol, the biggest oil and natural gas producer in Peru, has operated the oil fields since 2001. It took over from Occidental Petroleum, which began drilling in 1971, and, according to the government, had not cleaned up contamination either.

Last year, Peru declared an environmental state of emergency in the oil field. But Sandi said the state had failed to take "concrete measures or compensate the native people" for the environmental damage caused.

He claimed Achuar communities were not receiving their share of oil royalties and the state had failed to invest in development programmes in the Tigre, Corrientes and Pastaza river basins that had been most impacted by oil exploitation.

He said the Achuar were demanding to meet with the central government to talk about public health, the environment and the distribution of oil royalties. "We aren't against oil exploitation or development we are calling for our rights to be respected in accordance with international laws," he said.

"Conversations are under way to bring a solution to the impasse," Pluspetrol told Reuters. "A government commission is there and we hope this is resolved soon." Over the past year, the Peruvian government has declared three environmental emergencies in large areas of rainforest near the oil field after finding dangerous levels of pollution on indigenous territories.

Peru's Environment Ministry said in a statement last week that a commission formed by government and company representatives has been assigned to work with communities to tackle pollution problems and other concerns.

theguardian.com

Sri Lanka first nation to protect all mangrove forests

S Lanka has lost an estimated 76% of its mangrove forests over the past 100 years

A scheme backed by the government will include alternative job training, replanting projects and micro-loans. Mangroves are considered to be one of the world's most at-risk habitats, with more than half being lost or destroyed in the past century. Conservationists hope other mangrove-rich nations will follow suit and adopt a similar protection model.

Commenting on the agreement, Sri Lanka President Maithreepala Sirisena said: "It is the responsibility and the necessity of all government institutions, private institutions, non-government organisations, researchers, intelligentsia and civil community to be united to protect the mangrove ecosystem."

The Sri Lankan government is a joint partner overseeing the measures, alongside global NGO Seacology, and Sri Lanka-based Sudeesa, which was formerly known as the Small Fishers Federation of Lanka.

'Extreme importance'

Seacology executive director Duane Silverstein said the pioneering framework had "extreme importance as a model" that could be used throughout the world. "No nation in history has ever protected all of its mangrove forests and Sri Lanka is going to be the first one to do so," he told BBC News. "This is through a combination of laws, sustainable alternative incomes and mangrove nurseries. It is also very significant considering the importance of mangroves as a means of sequestering carbon."

"It is not only that mangroves sequester an order of magnitude more carbon than other types of forest, but it is sequestered for so much longer. In the case of mangroves, it is forecast that this lasts millennia," he observed.

Mangroves are evergreen trees that are found in more than 120 tropical and sub-tropical nations. They are able to grow in seawater, and their strong, stilt-like root systems allow them to thrive in swamps, deltas or coastal areas. The trees sequester the carbon in the top few metres of soil, which is primarily an anaerobic environment – without oxygen. As a result, the organisms that usually lead to the decomposition of organic material are not present, meaning the carbon remains locked in the environment for longer.

Because of their surrounding habitat and the lack of readily available fuel, mangrove forests are also not susceptible to forest fires. But mangroves also offer coastal communities a more direct and immediate form of protection, explained Mr Silverstein. "After the 2004 (Indian Ocean) tsunami, it became evident – particularly in Sri Lanka which was severely impacted – that those villages that had intact mangroves suffered significantly less damage than those that did not.

A report by the International Union for Conservation of Nature (IUCN) published 12 months after the devastating

tsunami compared two coastal villages in Sri Lanka that were hit by the wall of water. It showed that two people died in the settlement with dense mangrove and scrub forest, while up to 6,000 people died in the village without similar vegetation.

"Another advantage of a healthy mangrove ecosystem is that the stilted root systems serve as nurseries for many of the fish species that go on to populate coral reefs.

Healthy fish populations, sustained by healthy mangrove forests, have also provided livelihoods and nutrition for millions of small-scale fishermen and their families for generations, allowing coastal communities to sustain themselves.

Costing livelihoods

Anuradha Wickramasinghe, chairman of Sudeesa, said: "People live in these areas because they depend on the mangroves because a lot of the fish they catch come from mangroves. But he added: "Shrimp farmers have been either legally or illegally cutting down mangroves. Farmed shrimps, or prawns, account for more than half of the global demand for the crustaceans.

A UN report published in November 2012 warned that the growing demand for prawns meant that valuable mangrove forests were still being felled or were under threat of being felled.

Mr Wickramasinghe told BBC News: "Shrimp farming results in a significant fall in fish catch yields, so fishermen are losing income so it costs them their livelihoods. So they know about the importance of mangroves and they are keen to protect them".

Mr Silverstein hoped the Sri Lanka protection model would be adopted by other nations. "We absolutely believe that Sri Lanka's mangrove model will serve as a model for other nations to follow."

The scheme, which will cost US $3.4m over five years, aims to protect all 8,800 hectares (21,800 acres) of existing mangrove forests by providing alternative job training, funding microloans to people in exchange for protecting local mangroves forests. It also involves a replanting project, which aims to replace 3,900 hectares of mangroves that had been felled.

BBC.co.uk

Nigeria: groups raise alarm over deforestation in Cross River

With Nigeria losing over 500,000 hectares of forest yearly to deforestation, experts have called for the repeal of the Land Use Act in the country. Executive Director, Environmental Rights Action/Friends of the Earth Nigeria, (ERA/FoEN) Dr.Godwin Uyi Ojo, in an inception workshop on "Community Mobilization and Resistance Against Land Grabbing and Transnational Oil Palm Plantations in Cross River State" in Akamkpa on last week by ERA/FoEN-RainForest Resources Development Centre (IDRC), said this massive loss of land is against the recent globally approved land guidelines of 2012, which is intended to protect communities' right to land and forests.

He said, "On a global scale there is a growing effort to decentralised natural resource management in ways that local communities can share in the roles, responsibilities and benefits from conservation and forest management". This sort of initiative is gradually gaining roots in Ghana, Liberia, Uganda, Cameroun, where Community-Based Forest Management Systems (CBFMS) have been elaborated and functional. In Nigeria the reverse is the case as "the forests and natural resources face severe degradation and acute problems of land tenure system, thereby depriving settlers as well as small scale farmers to marginal lands which in turn result in reduced farm yields and a cycle of poverty." He continued, "this has led to loss of deforestation amounting to 500,000 hectares of forests per annum in Nigeria, which is one of the highest in the world."

The Executive Director, pointed out that "From the foregoing, two major problems arise from the current situation of forest management in Nigeria. First, the rate of deforestation, which is about 4.2 per cent in Nigeria is one of the highest in the world. Although the rate may seem small, however, this translates to about 400,000–500,000 hectares of forest loss per annum. The second threat facing forest management is how external development decisions taken in Europe and elsewhere shape the kind of development being witnessed in Nigeria. For example, the EU directive to increase energy mix from biofuels to 20 per cent by 2020 is the result of the massive land grabbing in Africa and in Nigeria. This simply means making fuel sources for cars and machines to compete with food sources such as maize, sorghum, soya, sugarcane, and palm oil. Furthermore, transnational corporation land grabbing is of huge consequence to the local economies. While it displaces local farmers and leads to land scarcity, often, the produce from large scale plantations is mainly for export and to the detriment of local consumption".

This inception workshop aims to him is to "Build on past initiatives to securing communal land rights in Cross Rivers state, explore the new Tenure Guidelines as a basis for renewed fight for communal land rights, provide capacity building and support to local groups to lead in the advocacy process and articulate clear advocacy demand towards the restoration of communal land rights or compensation for losses".

allafrica.com