CFA Newsletter

No.84 March 2019 ISSN 1750-6417

Contents:

CFA Newsletter
is the newsletter of the Commonwealth Forestry Association

Editor: Alan Pottinger

Contact: The Crib, Dinchope, Craven Arms, Shropshire SY7 9JJ, UK

Tel: + 44 (0) 1588 672868

Email: cfa@cfa-international.org

Web: www.cfa-international.org

The views expressed are not necessarily those of the CFA.

Urban and peri-urban forests and resilient cities: their role in the face of new scenarios regarding risks and natural disasters

Floods in the southeast of Spain in 2018: Urban forest may help reduce flooding by improving water infiltration (Photo: Paloma Cariñanos)

In recent decades, situations relating to risk and vulnerability of cities have been greatly increased due to unplanned urbanization processes. This situation has caused many sectors of the population to be continuously exposed to environmental degradation which threatens their health and quality of life. In addition to inadequate living conditions, there is an increasing threat posed by natural disasters: floods, storms, extreme heat and cold, hurricanes, earthquakes and wildfires, exacerbated by climate change and human action. Potentially, every region of the world is exposed to a series of natural disasters, which is liable to cause significant economic losses and death. The events registered in 2017 caused at least 900 billion dollars in destruction, and is the costliest year on record for natural disasters. In terms of human lives, although there are no figures for a single event as dramatic as the 8,000 deaths caused by the earthquake in Nepal in 2015, the total number of victims due to natural disasters across the planet greatly exceeds this figure.

In an attempt to mitigate the human crises caused by these increasingly extreme catastrophic events, policies and measures have been implemented which are aimed at reducing or eliminating the

risk to people and property, and strengthening the resilience of cities. In 2002, the United Nations created the Human Settlement Program, UN-Habitat in order to establish strategies that would prepare cities for both natural and human crises. The Plan of Action on Disaster Risk Reduction for Resilience, developed by the United Nations in 2013, has identified measures that can aid in managing disaster risk, such as the Sendai Framework for Disaster Risk Reduction 2015–2030. This agreement identifies international cooperation as a priority action for the construction of an increasingly resilient urban framework and improved sustainable development. In this context, urban and peri-urban forests (UPFs) represent key elements in the urban ecosystem since they are able to boost resilience to disasters and mitigate the impact associated with these disasters. In addition to UPFs' undeniable role in reducing urban pollution and mitigating the local microclimate, they also have the capacity to adapt and respond to environmental changes. In an increased risk scenario, UPFs can reinforce their role by providing actions that contribute to a proactive resilience.

What can UPFs do to reduce risks and manage disasters?
Faced with catastrophic events caused by recent climate uncertainties, UPFs can play an important role in reducing the intensity of disasters and in implementing solutions for prevention of damage. The following is a review of some of the events that could affect urban settlements in the coming decades and how UPFs can actively participate in mitigating their impacts.

Urban Heat Island-Heat waves
One of the most tangible climate change effects in cites is heat stress. The Urban Heat Island (UHI) is a change in the local climate intensified by the city's size, density and material composition. Recently, its effects have been intensified by the successive occurrence of heat waves. The extreme heat wave that hit Europe in 2003 caused more than 50,000 deaths. One of the problems that was most evident in this period was the high presence of paved surfaces without vegetation cover, which could have provided shade and ameliorated the extreme temperatures. The increase of green surfaces in cities can be an effective measure to reduce local temperature by several degrees. This has led some of the world's major cities to reinforce their green capital. They have done so by establishing green roofs and facades and planting street trees, among other things. London's Climate Change Strategy, for example, suggests increasing tree cover by 10% and achieving a total Green cover of 50% by 2050.

Floods and Storms
Flooding in cities is a global phenomenon that causes devastation, economic damage and loss of human life. This problem has been exacerbated in cities by increased urbanization, which has reduced the infiltration capacity of soil by increasing the amount of paved surfaces, which in turn increases runoff. The challenge that this phenomenon represents will require an integrated flood risk management approach from stakeholders.

Urban forests and trees have great potential to act as a structural measure to reduce the risk of flooding by controlling the flow of water. Moreover, their capacity to intercept precipitation through the existence of tree crowns, as well as their ability to increase evapotranspiration and water infiltration into the soil is another significant contribution. The presence of urban forests in flood basins not only mitigates the impact of floods, but they also store water which controls the outflow. Vietnam, one of the countries in the Asia-Pacific region that is most exposed to flood risks, has implemented a recovery program for mangroves that had previously been cleared for fuel. Now mangroves not only protect rice crops, but act as dykes protecting populations from coastal phenomena.

Hurricanes and Earthquakes
Hurricanes and other wind storms have increased in frequency and severity in recent times due to global climate change. While trees, like all infrastructure, can also be damaged by high winds, some studies have shown that groups of trees can survive strong winds and contribute to hurricane-resistant landscapes. Some tree species have developed a series of characteristics that make them more wind-resistant and allow them to survive after the hurricane's impact. These characteristics include a well-developed root system (with a powerful main root), the ratio of height to the diameter at the base, and open, flexible and short branches. Some of the species identified as the most resistant to hurricanes by the US Forest Service are the bald cypress (*Taxodium distichum*), the black gum (*Nyssa sylvatica*), the sweet gum (*Lyquidambar styraciflua*) and the red oak (*Quercus rubra*). In regards to this last species, it should be noted that in New Orleans, only 3% of the 14,000 historic oaks existing in the city were lost after Hurricane Katrina in 2005.

Faced with catastrophes as devastating as earthquakes, urban forests can also play an active role in reducing their impacts by providing temporary shelter and other services. After the last earthquake in Mexico City, many of the city's green spaces assumed the role of a "second home", providing shelter and a place for the community to gather. The development of urban forests as a measure to mitigate the impacts of earthquakes has also been included in the Risk Mitigation and Disaster Management Plans developed by the government of Kathmandu after the earthquake of 2015.

Forest Fires
Forests fires pose an increasing threat to cities, mainly in the wildland-urban interface. In some Mediterranean climate zones, in addition to the increased risk of forest fires due to climate change, more than 90% of fires are initiated by human actions. This causes more than 1 million hectares each year to be affected resulting in significant human and economic losses. Portugal and the state of California have been two of the areas most affected by fires in recent years. In both places, it has been highlighted that the planting of the non-native species less resistant to fire, has been one of the causes of the expansion of the number of fires. This has led to the Portuguese government to implement the Portuguese Plan for Prevention and Protection against Fires, which is intended to be the main approach for addressing one of the country's chief threats. One of the main measures adopted includes the replacement of more than 900,000 hectares of eucalyptus forest, since eucalyptus is a non-native species of the territory whose leaves and bark are highly flammable.

Risks for Biodiversity
Large catastrophic events not only destroy human life and property, but also cause severe damage to biodiversity. In the event of great catastrophes, many animals and plants fail to survive. The vulnerability in which the territories remain, together with man's actions, opens the door to the species of invasive

behavior that exploits disturbance to an ecosystem to colonize an area. Another consequence of climate change is the expansion of pests and diseases that cause significant damage worldwide. As a result of the steady increase in the transportation of merchandise, rodents, pathogens and insect pests are being transported to new areas where they attack native species. An example of this was the transport, from Asia to Europe, of a fungus that caused Dutch Elm Disease, which entailed the mass death of more than 100 million elms in the period from 1970 to 1990.

Urban forests represent an opportunity to preserve, and even increase, biodiversity in urban environments. A diversity of species can limit the effects of specific pests and diseases, which can be devastating where tree monocultures are present. The carefully controlled introduction of non-native species can in some cases supplement native species which can make UPFs more stable and provide more benefits.

We can conclude that in an era of increased risk of natural disasters, urban and peri-urban forests should stand out as key features in plans for Risk Reduction and Disaster Management. The ability of UPFs to minimize the impacts and damage from natural disasters, as well as their role in the restoration, reconstruction and rehabilitation of the urban ecosystem in the aftermath of natural disasters, support the case for their inclusion in plans to improve urban resilience and the adaptive capacity of cities in order to more effectively protect people, communities and countries.

Paloma Cariñanos
Professor of Botany, University of Granada, and member of the Silva Mediterranean Working Group on Urban and Peri-Urban Forestry (WG7), Food and Agricultural Organization of the United Nations

Association news

CFA conference in Nigeria

Professor B.O. Agbeja, CFA President Nigeria Chapter presenting his speech on 5th June, 2018 at Federal University of Agriculture, Abeokuta

The 2nd Commonwealth Forestry Association (CFA) Conference 2018, Nigeria Chapter, COLLABORATION OF STAKEHOLDERS FOR DYNAMIC RESTORATION OF FOREST ESTATE IN NIGERIA, was a follow-up to the CFA Workshop held in November, 2017 at the Federal University of Agriculture Abeokuta, Ogun State Nigeria. The proceedings are available to download from the CFA website.

The following is a shortened version of the opening address given by Professor B.O. Agbeja.

The theme of our 2nd CFA Conference is **'Collaboration of Stakeholders for Dynamic Restoration of Forest Estate in Nigeria'.** Indeed, Nigeria forest estate is geometrically reducing and our concerted efforts as foresters and allied natural resource specialists are called for to address the dangerously insecure or perilous situation of forest estate in Nigeria. I would like to pass across to us that we need to protect our professional calling. If our forests (reserved and unreserved) are wittingly or unwittingly liquidated to insignificant level, then we shall all become irrelevant. Much more importantly, there may be a call for merging our collective Ministry of Environment with others. It is high time we rose to our challenges and sensitize the governments at Federal, State and Local levels on a great onslaught in our various constituted forest reserves in Nigeria. The common denominator that brings Agricultural and Forestry Sectors together is LAND. We must realize that both the land and forests we claim to be ours are fast diminishing. Who will salvage the situation? Ourselves. Nigeria has a holistic National Forest Policy enunciated in 2006. We have been waiting for the passage of National Forestry Act Bill since year 2000. I would like us to also reason together. Is it justifiable to have 'National Forestry Act when the Federal Government has no forest estate of its own? We all need as stakeholders to rise now and have a dialogue with the Federal Government to request each state of the federation to donate at least 50,000hectares of land in each state for Federal Government Forest Estate in Nigeria. Nigeria is the only federated country in the world that has no federal forest estate of its own. This is a tragedy for Forestry Development!

In our common effort, CFA Nigeria Chapter has since 2016 initiated a process under the 'The Queen's Commonwealth Canopy project (QCC)' Accreditation and Check-list under her royal majesty-Queen Elizabeth for creating an enabling environment to raise fund for two nominated Forest Reserves in Nigeria. The two Forest Reserves nominated were Omo Forest Reserve in Ogun State and Queens Forest Reserve Akure in Ondo State. The Ministry of Environment Abuja was contacted by CFA International and the CCP Processes are on-going. Having given these examples, there is a clarion call on all of us to rise and see to the survival of our FORESTRY profession in Nigeria.

Today, I am very proud of research outputs in Nigeria from Forestry scientists in the University of Ibadan (UI), Federal University of Agriculture, Abeokuta (FUNAAB), Federal University of Technology, Akure (FUTA), University of Agriculture, Makurdi (UAM), Forestry Research Institute of Nigeria (FRIN) to mention but a few. All these are in line to wake us from slumber. In this 2nd CFA Conference, I am optimistic that a lot will be learnt and networked. I would like to remind you that another set of forestry scientists in Nigeria joined CFA two years ago and they have been receiving the newsletters and other publications of CFA. I would also like to reiterate my plea as I did last year. It is beneficial to join CFA and pay your membership fee to CFA International for various opportunities in the forestry profession.

In conclusion, we must cherish our yesterdays, we must dream our tomorrows and we must live our today. Everybody is a carpenter of his or her own life. Please, build wisely!

I wish all of us productive Conference! Thank you and God Bless.

Professor B. O. Agbeja
President CFA, Nigeria Chapter

Training

Prestigious scholarships awarded for MSc Tropical Forestry at Bangor University. Apply now!

Following an extremely competitive bidding process against other top UK universities, Bangor University's School of Natural Sciences (SNS) has been awarded 10 scholarships for its MSc Tropical Forestry (distance-learning). These scholarships are for exceptional scholars wishing to begin their studies in September 2019.

Awarded by the Commonwealth Scholarship Commission (CSC), these scholarships are exclusively for scholars from developing Commonwealth countries: Ghana, Guyana, Kenya, Lesotho, Malawi, Papua New Guinea, Tanzania, Uganda and Zambia. The scholarship includes international tuition fees, a study grant to help scholars with the costs of distance-learning study (such as internet data) plus a travel scholarship for a Tropical Forestry Study Tour in July 2021.

"It's an honour for our MSc to once again be awarded these prestigious CSC Scholarships", commented Course Director for MSc Tropical Forestry, Dr James Walmsley. "These distance-learning scholarships enable outstanding scholars to study for their MSc, whilst living and working in their own countries. Through their studies with us, students gain new knowledge, skills and ideas which can help to facilitate and improve sustainable forest management in many developing commonwealth countries".

"This is an outstanding distance-learning programme. A dedicated team of academic staff with a diverse range of expertise work closely to develop new and exciting teaching materials, with ever-greater use being made of e-learning technologies to enhance student learning, collegiality and academic rigour. One of our distance-learning students wrote to us recently and commented:

> "*The special thing about Bangor distance learning is that it goes together with real-world university lectures. One has the feeling to take part in something that happens physically and not just virtually.*"

We currently have a diverse body of students from research institutes, public and private forest management bodies, environmental NGOs and other related organisations from over 20 different countries. As part of the MSc we run a Tropical Forestry Study Tour, ensuring all scholars and the teaching team meet in person, get to know each other and get to discover and

learn together in a tropical forestry environment. For many, this is the highlight of the programmeas it gives students the chance to work closely together to devise and conduct their own research project.

The School of Natural Sciences has been running part-time forestry-related distance-learning courses since 2002 and the first intake of CSC scholars was in 2011. Since then, many scholars and graduates have become tremendous ambassadors for Bangor University and for the CSC. This is unusual because the vast majority of distance-learning students are people who would otherwise never have had the opportunity to study for a postgraduate degree.

Further information about how to apply can be found at https://www.bangor.ac.uk/natural-sciences/postgraduate-courses/tropical-forestry-msc-international-commonwealth-scholarship-distance-learning#apply

Forest Scenes

Forest-water nexus and the urban context

Shenzhen, an emerging urban center in Guangdong province. (Photo: Nidhi Nagabhatla)

Background and Context

Water security clearly impacts socio-economic stability as it relates to health and sustainability of vegetation cover and forests with more than three-quarters of water accessibility for agriculture, urban, industrial and environmental uses being derived from forests and vegetated landscapes. Water supply to production systems, communities and ecosystems, along with sustenance of atmospheric flows, aquifer recharge to maintenance of local climate and balancing the urban heat phenomenon are additional attributes to basin water providing for the needs of people. Recent reports state that water insecurity is among the top risks faced by humanity (Global Risk Report, 2017) – calling

The city of Bonn in Germany recognises "blue-green" corridors in its planning measures (Photo: Nidhi Nagabhatla)

for better acknowledgment of the group of interconnected environment-related risks – including extreme weather events, climate change and water crises. Therein, integrated thinking and policy mechanisms to jointly manage natural resources (forests, land, wetlands, water etc.) can be enhanced through innovative solutions and better scientific understanding of shared ecological service and benefits. The above argument is explained taking note of three recent documents

1. FAO's publication (Unasylva 250 Forests and Sustainable Cities) wherein the segment by Nagabhatla et al (2018) – '***Forests as nature-based solutions for ensuring Urban Water Security'*** highlight that increasing international attention is an opportunity to deploy smart, green, cost-effective water management policies in towns and cities, reiterating that water is at the core of urban planning and is critical for socio-economic development, marinating healthy ecosystems and overall, welfare and productivity of populations. While motivation of this synthesis derives from *Forests and Water – a Five Year Action Plan* outlined by FAO that calls for increasing international action to address forest-water interactions in science, policy, economics and forest practices and encourages greater engagement of stakeholders from around the world in the topic of forests and water, it further illustrates how learning from current development reports viz., UN-Water (2013- http://www.unwater.org/publications/water-security-global-water-agenda/-) that weaves the water security context into a conceptual framework is gaining global attention, while meeting with the vision of sustainable urban management.

Ensuring water security in urban, peri-urban and rural contexts necessitates a common framework and understanding and a coherent policy approach among the development priorities in the water, forest, land, urbanization, climate adaptation, energy and other sectors. It may be a long-term and progressive agenda needing modifications to existing normative governance mechanisms. Better understanding of diverse and complex ecological, climatic, social, cultural, economic and political settings can help endorse envisioned outcomes of urban water security. Observing that water demand in most urban centers worldwide is escalating – this synthesis promulgates investment in green zones and forests, alongside conventional water infrastructure – to outline a winning strategy for effective and assured water provisioning for populations. Take for example how restoration of 'Natural Infrastructure' [4,000 hectares of adjacent forest] in the vicinity of São Paulo's Water System could reduce sediment pollution by 36%, turbidity reduced by half, and return of investment for operators of the water system rising nearly 30 percent.

2. The **UN World Water Development Report 2018** *Nature-based Solutions for Water* – [available from http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/wwdr/2018-nature-based-solutions/] calls for acknowledgment and investment in Nature-Based Solutions (NBS) and mainstreaming of natural infrastructure into developing planning. NBS uses or mimics natural processes, in the context of ecosystems level projects and programmes that are aimed to enhance water availability (soil moisture maintenance, groundwater recharge), for enhancing water quality (natural and constructed wetland.) and for reduction of risks associated with water-related disasters and climate change (storm water management, flood protection). The concept builds on leveraging and maintaining ecosystem services of our natural capital – for instance, maintaining a green zone (forest line) around watershed or water sources in urban centers as the forest can filter water and also help buffer against the impacts of extreme climate events.

Currently, water management remains profoundly overshadowed by conventional or 'grey' infrastructure and the potential of NBS remains underused. NBS offers a vital means of moving beyond business-as-usual to address many of the world's water challenges while delivering additional ecosystem benefits in tandem. Natural infrastructure solutions can substitute, or compliment conventional solution as they are cost-effective, as also offer flexibility to outline a blend of hybrid plans to maximize ecological benefits and efficiency of water ecosystems. With that

inference this global synthesis seeks to inform researchers, policy and decision-makers and the larger community of water users and managers, to tackle current water challenges using innovative thinking advertised in the NBS concept.

3. The recent monograph '**Multi-functional Wetlands; Pollution Abatement and Other Ecological Services from Natural and Constructed Wetlands**' (https://www.springer.com/gp/book/9783319674155) – Springer's Environmental Contamination Remediation and Management Series (https://www.springer.com/series/15836). This resource contributes to the unpacking of the land-water resource use nexus while presenting a collection of views and opportunities for realizing sustainable solutions that natural and constructed aquatic ecosystems and wetlands present. Solutions that ensure delivery of ecosystem services for various socio-economic communities, rural and urban landscapes are emphasised employing a set of case studies that spread in a diverse geographical context. They cover wide-spread aquatic ecosystems from the global north and south, while offering a thematic diversity of narratives, ranging from tropical mangroves, to water sensitive planning in urbanised centers (e.g. Sydney, Australia). The evidence offered in the book accentuates the requirement for a targeted focus on defending wetlands ecosystem services by employing the NBS understanding. For instance, the coverage on the role of constructed wetlands in creating water sensitive cities (Ch 6) outlines how the clever use of wetlands can lead to a future (green, smart, resilient) cities agenda. Overall, the suite of case studies echoes that cost-effective, practical solutions can offer a good reference base for resource users, managers and planners.

Concluding notes

The set of documents described above offers knowledge that contributes to an emerging body of 'innovative solutions' which can influence policy discussions in the urban context. The information furnishes comprehensive explanations to help practitioners, researchers and water and forest managers to relook into ongoing projects, programs and investments in urban management to benefit from the aggregated technical information and knowledge, especially in the context of embedding the NBS approach. The synthesis provides cases that spotlight the gaps and needs for planning water security in the urban context while leveraging from healthy vegetative cover, in addition to highlighting the efforts of science, technology and the role of communities.

The rich and diverse narratives and evidence (derived from a range of experiments, observation and stakeholder's consultations) aggregated in these recent syntheses is deeply rooted in smart solutions for land and water resources management that can help generate social, economic and environmental co-benefits. They may not be 'perfect solutions', however, working with nature can surely help sustainable progress of management of water resources, and help to outline a 'shared approach' and 'set of criteria' embedding the value and knowledge systems, technical, infrastructure, social and political dimension supported by the Transforming our world: the 2030 Agenda for Sustainable Development (https://sustainabledevelopment.un.org/post2015/transformingourworld) /Sustainable Development Goals (SDG), more specifically SDG Goal 11 for sustainable urban management to make cities and human settlements inclusive, safe, resilient and sustainable.

Finally, March also hosts UN Days on Forest (21) and Water (22), with more details at www.un.org.

Nidhi Nagabhatla
[1]*United Nations University – Institute for Water, Health and Environment, Hamilton, ON, Canada*
[2]*School of Geography and Earth Science, McMaster University, Hamilton, ON, Canada*

Web Resources

http://www.fao.org/documents/card/en/c/I8707EN
http://reports.weforum.org/global-risks-2017/part-1-global-risks-2017/
http://www.fao.org/forestry/43810-05bc28890480b481d4310a3c5fe8a1003.pdf
http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/wwdr/2018-nature-based-solutions/

Global green supply chains will help ensure forest sustainability

Consumer demand for legal and sustainable timber and timber products can be a driver of sustainable forest management in the tropics

In recent years, major markets for tropical timber and timber products have sent strong signals to importers on the need to demonstrate that forest products are not sourced at the expense of tropical forests. For example, the Lacey Act in the United States of America, the European Union Timber Regulation (EUTR), Australia's Illegal Logging Prohibition Act and the Japan Clean Wood Act all require evidence of the legality of imported timber. Such initiatives, however, can be confusing for importers, who may be unclear on the documentation they need and the standards to which they must comply; this confusion can diminish market opportunities for tropical timber producers.

Moreover, research is showing that tropical forest degradation is advancing much faster than previously thought and might now be a bigger concern than deforestation because it reduces the capacity of tropical forests to produce timber, non-timber forest products and environmental services.

An approach that can both reduce market confusion and encourage sustainable forest management (SFM) is the development of global green supply chains. Such supply chains would ensure efficiency, best practices and transparency at every "link" in the chain – in the forest, on the log truck, in the mill, on the ship and in the showroom. Global green timber supply chains

Representatives of some of China's leading timber enterprises pose for a photograph with ITTO Executive Director Dr Gerhard Dieterle (second from left) and Chinese government officials after pledging their commitment to the establishment of global green timber-supply chains. Photo: R. Carrillo/ITTO

would enable major purchasing powers in domestic and international markets to become drivers of SFM and legal compliance in tropical timber-producing countries by increasing demand for legal and sustainable forest products among end-consumers, thereby creating a virtuous cycle.

Global green supply chains can ensure the production, processing, storage, distribution and consumption of legal and sustainable timber and forest products, including tropical timber. This would bring benefits to all stakeholders, from forest owners in the tropics to consumers of the final products – as well as to the global environment.

China's push for green supply chains

In late June this year, ITTO co-convened the International Workshop on Global Green Supply Chain of Forest Products and Dialogue with Chinese Leading Forest Products Enterprises. This event, which involved stakeholders in the Chinese public and private sectors,[1] concluded with a call by twelve leading Chinese forest products enterprises[2] with a combined annual turnover of RMB 80 billion (about USD 12 billion) for a global green supply-chain initiative, with ITTO as a key partner and facilitator.

Participants at the workshop and dialogue believe that the development of green supply chains would help create a level playing field for good businesses and close emerging supply gaps for tropical forest products while conserving biodiversity, mitigating climate change and ensuring environmental health. Improved legality and traceability would contribute to the transparency of the entire value chain, from forest production to the processing, distribution and consumption of timber and other forest products.

ITTO's mandate to promote the expansion of international tropical timber trade from legal and sustainable sources fits perfectly with the development of global green supply chains. The Organization could play a key role by:

- building capacities among operators and stakeholders across supply chains through knowledge-sharing, technical expertise, the transfer of technology, and access to information and networking;
- facilitating public–private partnerships and designing incentives to establish the needed infrastructure and investment; and
- raising consumer awareness of the benefits of using sustainably produced wood because it is more environmentally friendly and renewable than other materials.

[1] 'For more information see www.itto.int/news_releases/id=5622

[2] 'China Forest Products Co, Ltd; Power Dekor Group Co, Ltd; Dare Wood-Based Panels Group Co, Ltd; Zhejiang Shiyou Timber Co, Ltd; Treesun Flooring Co; Guangxi Fenglin Wood Industry Group Co, Ltd; Shenzhen Sampo Furniture Co, Ltd; Guangxi Sunway Forest Products Industry Co, Ltd; Shanghai Anxin Floors Co, Ltd; China Jilin Forest Industry Group Co, Ltd; Shanghai Lingge Wood Co, Ltd; and Starforest Art Flooring (Zhejiang) Co, Ltd.

The aim of the global green supply-chain initiative, which is to be implemented in phases, is to bridge the upstream, mid-stream and downstream sectors to ensure forest sustainability and the supply of more and better forest products to consumers, thus contributing to sustainable development and the well-being of humankind.

Box 1 presents some of the key messages arising from the workshop and dialogue. ITTO will continue working with the Chinese public and private sectors, and with all ITTO members and partners, to support and facilitate the implementation of global green timber-supply chains through SFM.

Box 1: Key messages from China workshop

The workshop and dialogue on global green supply chains in China produced a number of key messages, including the following:

- Ensuring a stable and reliable supply of wood raw materials from legal and sustainable sources is essential for the development of a thriving forest products industry.
- There are several interpretations of green supply chains but, from the standpoint of the private sector, the aim is to reduce costs and increase efficiency.
- Building green supply chains involves various levels of actions and commitments across a wide spectrum of stakeholders, who need to interact in a coordinated manner to ensure the sustainable and legal production of timber and forest products.
- Green supply chains need to be practical. They need to define a common concept of legality, an accepted set of documentation, and clear and common rules of the game, and they must be mutually recognized by tropical timber producers and consumers to promote win–win approaches.

Other international developments relevant to green supply chains

Meanwhile, other international initiatives involving ITTO are also addressing aspects of green supply chains, including the following:

- The "Sustainable Wood for a Sustainable World" initiative[3] is a joint program of the Collaborative Partnership on Forests, of which ITTO is an active member. Held in late 2017, this conference explored the interlinkages between forest management, landscapes, value chains, livelihoods, markets, investments and financing mechanisms. Based on the outcome of the conference the program will be further developed in support of the role of productive forests, legal and sustainable supply chains for climate and development as well as an important element in a circular economy.
- The international conference "Working Across Sectors to Halt Deforestation and Increase Forest Area – From Aspiration To Action", which took place in February 2018, provided inputs to the United Nations Strategic Plan on Forests 2017–2030. Among other things, the UN Strategic Plan calls for the reversal of forest loss and a 3% increase in forest area worldwide by 2030. This topic was debated at the 13th session of the United Nations Forum on Forests in May 2018 and ultimately fed into discussions at the 2018 High-Level Political Forum on Sustainable Development, in particular its review of progress in achieving Sustainable Development Goal (SDG) 15, "Life on Land", particularly target 15.2, which is to halt deforestation by 2020.
- The Chinese green supply-chain initiative received strong interest at the 2018 World Forestry Week, held in July in conjunction with FAO's 24th session of the Committee on Forestry, including in sessions exploring the contributions of forests to the achievement of the SDGs, especially SDG 15.
- ITTO recently strengthened its cooperation with the International Network for Bamboo and Rattan (INBAR) in a memorandum of understanding (MOU) signed at the Global Bamboo Congress 2018 (BARC2018) in June 2018. The MOU provides a framework for joint activities and projects aimed at the conservation, sustainable management, use and trade of tropical bamboo and rattan in countries that are members of both ITTO and INBAR. The work will promote green supply chains and markets for tropical forest products, including bamboo and rattan. AT BARC2018, ITTO participated in a high-level dialogue on bamboo and rattan for climate change and green growth and co-organized sessions on sustainable tropical forest management and policy facilitation for bamboo and rattan commodities. In these roles, ITTO stressed the message that tropical timber, bamboo and rattan complement each other as commodities, and the ecosystems of which they are part play important roles in climate-change mitigation and adaptation. Moreover, the tropical timber and bamboo and rattan sectors need to work together to meet increasing demand for forest products due to population growth, close the supply gap for sustainable building materials, and conserve tropical forests.

Participants at the Asia regional meeting on the CITES Tree Species Programme in June 2018 inspect a processing facility for plantation-grown Dalbergia *timber near Yogyakarta, Indonesia. Photo: CITES Managing Authority of Indonesia*

[3] 'For more information see www.fao.org/forestry/sustainable-wood

- The importance of building sustainable supply chains is also of central relevance to ITTO with regard to its support to the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Tree Species Programme (CTSP). In a regional meeting of the CTSP for Asia,[4] held in Indonesia last June, participants recognized the need to increase national capacities for making non-detriment findings in line with CITES requirements to ensure the legal trade of CITES-listed species. Earlier, in Madagascar,[5] ITTO provided technical assistance for the preparation of a business plan for securing and disposing of stockpiles of rosewoods and other precious woods, including ebony (Madagascar's populations of rosewood and ebony were listed in CITES Appendix II in 2013). An export ban is in place for these species due to the country's difficulties in implementing the provisions of the CITES listings, including dealing with significant stockpiles that have accumulated mostly outside government control.

[4] 'For more information see www.itto.int/news_releases/id=5619
[5] 'For more information see www.itto.int/news_releases/id=5615

Gerhard Dieterle
Executive Director, International Tropical Timber Organization, Yokohama, Japan
oed@itto.int

Under threat: Europe's old-growth forests

Old growth forests in Europe are facing a crisis

We often forget that virgin forests are still present in Europe. These are untouched, centuries-old ecosystems unaffected by human developments. WWF has been campaigning to save two of these last pristine places, which are now under threat: Białowieza Forest in Poland and Pirin National Park in Bulgaria. These irreplaceable sites are part of our natural heritage and they are under increasing pressure from logging and development. Several of Europe's ancient forests are UNESCO World Heritage Sites but their main legal protection comes from EU nature laws, such as the EU Birds and Habitats Directives. Unfortunately, some governments feel that they can ignore these binding laws, undermining their objective to protect threatened species and habitats. WWF has therefore been calling on the European Commission to enforce these laws and protect Europe's old-growth forests.

Białowieza Forest is a European forest located in the Podlaskie Voivodeship area in the East of Poland and in the Grodno/Brest regions in western Belarus, covering an area of 141,885 hectares. This virgin forest is Europe's last major primeval forest – a forest type which used to cover vast tracts of Europe. Białowieza is home to the largest European bison population as well as to lynx, wolves and ancient trees. The forest is protected by EU nature laws and has been classified both as UNESCO World Heritage and EU Natura 2000 site because of its ongoing natural processes, richness of dead wood and astonishing biodiversity. It is the best-preserved forest ecosystem of the European Plain – Europe's last low-land deciduous and mixed old-growth forest.

Despite its outstanding natural beauty, the Polish government decided to allow industrial-scale logging, which is a very controversial decision. Alarmingly, the government tripled the amount of permitted logging in Białowieza Forest district in 2016. Scientists and NGOs oppose the large-scale logging of this old-growth forest. Seven NGOs (including WWF) filed a complaint which compelled the European Commission to start a formal infringement procedure. Intensive logging in Białowieza Forest came to a halt in November 2017 after the European Court of Justice (ECJ) – the EU's highest court – threatened with a penalty of 100,000 euros per day if logging continued, which highlights the importance of European law in the protection of ancient forests.

More recently, in February 2018, the ECJ Advocate General issued an opinion in which he stated that it was unlawful to increase logging in the forest. Conservationists anxiously await formal confirmation of this in the final judgment of the Court, expected in March or April 2018. Currently, logging is only allowed at limited scales and for safety reasons, but conservationists are keeping a close eye on the situation to ensure there is no further abuse. The situation on the ground clearly shows that Poland was not taking the concerns of the European Commission to heart.

The situation in Białowieza is not an isolated case in Poland. There are similar intensive logging plans for the "Relict Carpathian Forest", located in the Polish Eastern Carpathians. The biodiversity there is on a similar level as Białowieza and while it may be less well-known it is home to brown bears, wolves, lynxes and wild cats.

Quick profit over long-term gains

Environmental and economic interests also clash in Bulgaria, notably in Pirin National Park in the Blagoevgrad Province, a wonderful natural area in which the Bulgarian government wants to expand the current Bansko ski resort. Pirin National Park covers a mountainous area of 40,000 hectares with waterfalls, glacial lakes and a unique old-growth forest that boasts a diverse ecosystem containing more than 1,300 plant species, 45 mammal species and more than 150 birds. Pirin is a hotspot for biodiversity and home to iconic and rare wild animals such as brown bears, wolves, chamois and capercaillie. The national park is known for being one of the few places in the world where endemic forests of Macedonian Pine and Bosnian Pine have survived the last ice age. Like Białowieza Forest, Pirin National Park is protected by EU nature legislation and has been designated as a World Heritage site by UNESCO. Despite this high level of protection, the Bulgarian government has proposed a new management plan, which would open 60% of Pirin National Park for commercial scale logging, which will cause grave damage to its remarkable natural biodiversity. This is clearly in breach of nature protection laws, destroying over-100-year-old pine trees and endangering wildlife in the most pristine and valuable areas of the park. The new management plan is not yet implemented as it awaits a court ruling, as the draft failed to undergo an environmental assessment – a requirement by national law and both for UNESCO and EU Natura 2000 sites. The lawsuit is being led by a coalition of NGOs, including WWF.

Still, the Bulgarian government wants to allow commercial logging to enable a 12.5-fold expansion of the current Bansko ski resort. Earlier construction works for the ski resort started in 2003 and already caused severe damage to the park: more than 160 hectares of forests were destroyed, including old-growth trees of up to 300-years-old. This has even led to a UNESCO decision to exclude these two areas from the World Heritage site in 2010 and categorize them as 'buffer zones'.

While a court decision on the new management plans was pending, the Bansko district demanded amendments to the current management plan to increase the ski area into the national park's delicate conservation areas and to open 48% of the national park to construction. The Bulgarian government decided to push through the changes to the management plan days before the New Year. WWF appealed these amendments in court as well.

The government's covert action back-fired and instigated weekly street protests since December 2017. Tens of thousands of people have been protesting in Sofia and in more than 20 other cities in Bulgaria to save Pirin. Protestors also took to the streets in London, Vienna, Brussels and Paris. Environmental actions have been common for over a decade in Bulgaria, but this has been the biggest wave yet. The demonstrations have drawn the attention of large international media channels, especially after Valeri Simeonov, Deputy Prime-Minister of Bulgaria, threatened to expel Ska Keller (President of the Greens / EFA Group in the European Parliament) from the country after participating in the protests, calling her a "green jihadist".

Protection on paper is meaningless

Both Pirin and Białowieza are symptoms of a systematic failure to implement European nature laws, proving that protection on paper is meaningless if it is not backed by effective management on the ground. Both areas are protected by European law and yet the governments of Bulgaria and Poland are determined to bow to economic interests and proceed with their plans. This

violation of European law needs to be addressed and the protection mechanisms need to be enforced. It is disheartening to see that Europe's few remaining ancient forests are on the brink of collapse because European law is poorly implemented. WWF has been championing these causes and has repeatedly asked the European Commission to uphold and enforce EU legislation and the Białowieża example shows that decisive EU enforcement can have a positive effect. Now is the time to step up, before Europe's remarkable virgin forests – and the animals and plants that inhabit them – are lost forever.

Liesbeth Van den Bossche & Sabien Leemans
WWF
This article featured in REVOLVE magazine (Issue 27, Spring 2018)

Reforestation of Kenya's drylands with seedballs

A seedball? It's simply that: a seed inside of a ball of charcoal dust mixed with some nutritious binders designed to increase efficiency and reduce the costs of planting various useful indigenous trees and grasses. Chardust Ltd., in partnership with Cookswell Energy Saving Jikos, developed and introduced this simple and effective biochar seedball to Kenya early in 2016. As of May 2018, over 2.2 million seedballs have been cast far and wide throughout Kenya.

The history of charcoal use in Nairobi goes back over 100 years and since the founding of the "Green City in the Sun", charcoal and firewood have been the main energy source used to power its growth. No one knows exactly when charcoal became a popular household fuel in Kenya. But it seems to have become a common fuel with the advent of urbanization and the arrival of the traditional metal charcoal stove introduced to the Kenyan interior about 90 years ago from India. According to information from charcoal-makers, charcoaling, especially in the coastal and central regions of Kenya, became an income-generating activity as far back as 1915 and was highly commercialized in the 1950s.

In subsequent decades, charcoal-making grew in magnitude and geographical spread, as urbanization accelerated and country roads improved. The trade spread to the Rift Valley, Western Kenya and finally to remote arid and semi-arid zones of the northern region. Until the late 1970s, the raw materials for charcoal seemed inexhaustible, being ubiquitous and available at virtually no cost. Government forest reserves, open rangelands, upland watershed zones, and lowland semi-arid areas became the main sources of the fuel.

Over the years, the key dynamic factors behind the expansion of the industry have been an accelerating urban growth, agricultural land clearing, and sector profitability, especially for dealers.

At least 750,000 kg of rough unprocessed lump wood charcoal is consumed within Nairobi daily, and of that amount about 15% is dust, fines and chips – charcoal vendor's waste. This salvaged charcoal waste is the dust we use to make the seedballs.

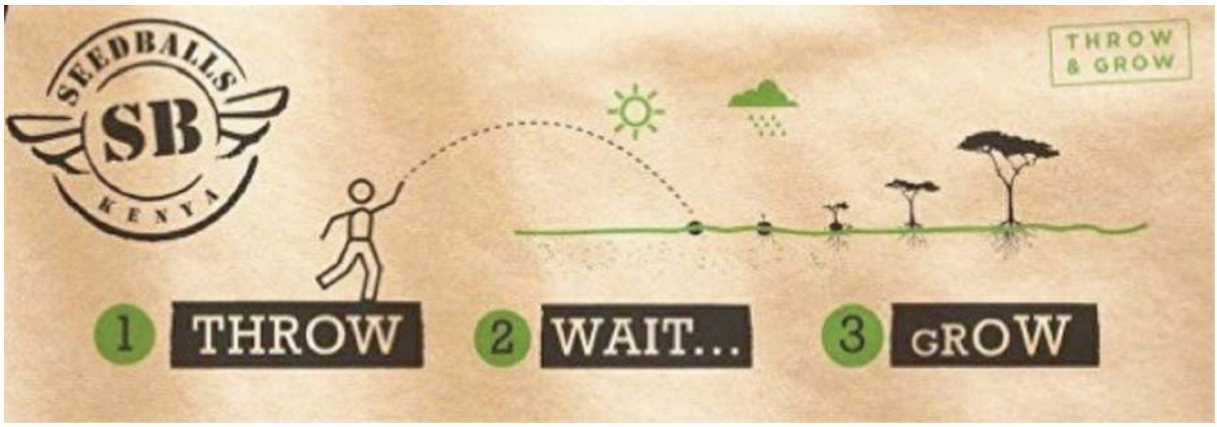
Biochar has some unique soil improvement properties due, like activated charcoal, to its immense surface area and absorptive properties. It's about the best thing that can be wrapped around a seed to give it a boost during germination.

The biochar coating of the ball helps protect the seed within from predators such as birds, rodents and insects and extremes of temperature until the rains arrive. Once soaked, the seedball with it's now gelatinous binder will help retain and prolong a moist environment around the seed to encourage germination.

By distributing adequate quantities of biochar seedballs back into the wild, reforestation is encouraged in both time and space, and allows (for example), the Acacia tree seed's built-in sensors to determine when is the best time to start growing. This is the *natural* approach to reforestation and is particularly appropriate for harsh environments. Grass seedballs generally

Biochar is charcoal dust that is collected as part of a clean up program of roadside urban charcoal vendors waste from within the city of Nairobi. In fact, they have 'carbon dated' some of these sites at over 80 years old as is evidenced by the 1930's East African coins sieved out of the compacted biochar heaps. 80 year old charcoal dust is as good as dust discarded last week – charcoal does not decompose.

Biochar seedballs contain indigenous tree seeds that have not been pre-treated in any way. The seeds undergo grading and germination tests conducted by KEFRI and each batch can be traced back to its original seed orchard in Kenya. The seeds nestled within the marble-sized two gram balls are still in their natural state.



germinate with the first seasonal rains and waste little time developing strong roots aided by the seedball's moist micro-environment.

In the long term, aside from simply expanding forest cover, this initiative will be investing much needed stimulus revenue into the Kenya national tree seed growing and collecting industry through the development of new tree seed orchards – encouraging Kenyans to grow seed collection trees on small scale farms.

Teddy Kinyanjui
seedballskenya@gmail.com, *www.seedballskenya.com*

Urban forestry

The Sustainable Development agenda stresses the need to achieve a better and sustainable future for all. Urban forestry can potentially contribute to the reduction of hunger, good health and well-being, clean water and reduced inequalities and sustainable cities and communities aiding in addressing a global issue. Urban forests can improve the livability in cities by providing several ecosystem services. Ecosystem services are defined here as the benefits derived from nature that are consumed or enjoyed by humans, increasing their well-being and exerting a positive influence on human health (Coutts and Hahn, 2015). Urban forests consist of all trees, associated vegetation, and permeable soils that can be found in and around cities. They can be represented in different types of land uses such managed parks, natural areas (e.g. protected areas), along streets, residential areas, informal green spaces, around wetlands and along water bodies. And because urban forests perform a variety of ecological processes, they provide multiple ecosystem services.

Urban forests can provide regulating, cultural and provisioning services, which range from local to global importance. Regulating services include climate regulation (e.g. cooling), carbon storage, air pollution removal, flood regulation, among others (Dobbs et al., 2011). Cultural services include natural heritage, recreation, aesthetics, knowledge transfer, sense of place (Dobbs et al., 2011). Provisioning services include products such as food, firewood, clean water, medicinal resources, which are especially relevant for city dwellers in developing countries (Shackleton et al., 2015). Additionally, urban forests contribute greatly to the biodiversity in urban areas (Alvey, 2006) and help build cultural diversity, therefore increasing urban resilience to environmental shocks and stresses (Colding and Barthel, 2013).

Urban forests can provide shade and can reduce temperature through evapotranspiration helping in mitigating the effects of climate change. Trees in cities can reduce summer daytime temperatures by up to 6°C (Figure 1), depending on the latitude of the city (Skoulika et al., 2014), which can reduce the negative health effects of extreme heat on vulnerable groups, such as children and the elderly (Petralli et al., 2012). Trees can also contribute to mitigating the effects of extreme storm events, a large tree can intercept up to 190 liters of rainwater, can reduce runoff, and decrease flooding and landslides. Urban forests can clean the air by depositing and absorbing air pollutants, acting as a filter for particulate matter (Nowak, 1994). Accumulation rates of particulate matter can vary from 10–70µg/cm^2 of leaf area (Sæbø et al., 2017).

Urban forests can be a source of construction and firewood, especially for people in developing countries that still rely heavily on energy from wood. Fruit trees and medicinal plants found in private or community gardens, residential areas or streets can also provide goods to urban dwellers (Fuwape and Onyekwelu, 2011). For example, Jamun trees (*Syzygium cumini*) in public areas of Delhi, produce fruits that are sold to pedestrians and motorists (Singh et al., 2010). The urban forest then can contribute to the multifunctionality of urban agriculture (de Bon et al., 2013), providing not only a source of income but also of employment. Local scale food production shortens logistics chains for some products (e.g., leafy vegetables), and diminishes the ecological footprint of cities. This shorter marketing chains result in fairer product values and lower costs to the consumers, therefore improving food security at many levels (de Bon et al., 2010) and contributing to community resilience (Salbitano et al., 2015). Therefore, urban forests can aid in reducing poverty, hunger and inequities.

Figure 1. Tree shade in sidewalk during summer reduces temperature up to 6 Celsius. Location Santiago, Chile

People nowadays spend less time playing in natural areas, parks and forests than in the past (Maller et al., 2006). This can lead to adults and children adopting more sedentary and individualistic behaviors over group activities that use open public spaces (Taylor and Kuo, 2006). Urban forests can nurture cultural services such as social cohesion and sense of place given that they provide a space where people come together, and social interactions occur (de Vries et al., 2013). People who become attached to places feel relaxed, and comfortable, incorporating those places into self-identity (Stonner and Rapp, 2008). People spending more time outside tend to engage more in physical activities boosting their physical health as well as their well-being (Dinnie et al., 2013; Giles-Corti et al., 2013; Figure 2). Urban forests also have restorative effects, as such it is becoming increasingly part of public health prevention programs. Attention fatigue can be ameliorated by spending time walking in a green area (Taylor and Kuo, 2006). Exposure to nature can reduce depression symptoms and the risk of developing mental disorders (Annerstedt et al., 2015). In Japan and Scotland for example a walk in the woods is encouraged for improving your mental health by reducing stress and anxiety (Forest bathing, forest therapy).

Figure 2. People biking by a sidewalk planted with trees in Santiago, Chile

Urban forests can also be beneficial financially, a mature tree can increase property values by 2–15%, while tree cover in residential areas can increase real estate sale prices up to 9% (Wolf, 2017). Trees in commercial areas can boost shopping by providing a welcoming environment and shaping consumer expectations when visiting a retail store (Wolf, 2017).

Having a healthy and well distributed urban forest can locally improve our well-being as urban inhabitants, by contributing to mitigating several pressures occurring in urban areas. Urban forests can be competitive solutions because instead of solving one issue, trees can give us a multidimensional contribution toward mitigating several urban environmental issues.

Cynnamon Dobbs, Magdalena Olave, Maria del Pilar Olave, Carolina Cordova, Christian Salas
Center for Modeling and Monitoring Ecosystems, Universidad Mayor, Jose Toribio Medina 29, Santiago, Chile
cdobbsbr@gmail.com

REFERENCES

ALVEY, A. 2006. Promoting and preserving biodiversity in the urban forest. *Urban Forestry and Urban Greening*, 5: 195–201.

ANNERSTEDT, M., OSTERGREN, P-O., GRAHN, P., SKARBACK, E. and WAHRBORG, P. 2015. Moving to serene nature may prevent poor mental health: results from a Swedish longitudinal cohort study. *International Journal of Environmental Research and Public Health*, 12: 7974–7989.

COLDING, J. and BARTHEL, S. 2013. The potential of 'urban green commons' in the resilience building of cities. *Ecological Economics*, 86: 156–166.

COUTTS, C. and HAHN, M. 2015. Green infrastructure, ecosystem services, and human health. *International Journal of Environmental Research and Public Health* 12: 9768–9798.

DE BON, H., PARROT, L. and MOUSTIER, P. 2010. Sustainable urban agriculture in developing countries: a review. *Agronomy for Sustainable Development*, 30: 21–32.

DE VRIES, S., VAN DILLEN, S.M., GROENEWEGEN, P.P. and SPREEUWENBERG, P. 2013. Streetscape greenery and health:stress, social cohesion and physical activity as mediators. *Social Science and Medicine*, 94: 26–33.

DINNIE, E., BROWN, K.M. and MORRIS, S. 2013. Community, cooperation and conflict negotiating the social well-being benefits of urban greenspace experiences. *Landscape and Urban Planning*, 112: 1–9.

DOBBS, C., ESCOBEDO, F. and ZIPPERER, W. 2011. A framework for developing urban forest ecosystem services and goods indicators. *Landscape and Urban Planning*, 99: 196–206.

FUWAPE, J.A. and ONYEKWELU, J.C. 2011. Urban forest development in West Africa: benefits and challenges. *Journal of Biodiversity and Ecological Sciences*, 1: 77–94.

GILES-CORTI, B., BULL, F., KNUIMAN, M., MCCORMACK, G., VAN NIEL, K., TIMPERIO, A., CHRISTIAN, H., FOSTER, S., DIVITINI, M., MIDDLETON, N. and BORUFF, B. 2013. The influence of urban design on neighborhood walking following residential relocation: longitudinal results from the RESIDE study. Social Science and Medicine, 77: 20–30.

MALLER, C., TOWNSEND, M., PRYOR, A., BROWN, P. and ST LEGER, L. 2006. Health nature health people: 'contact with nature' as an upstream health promotion intervention for populations. *Health Promotion International*, 21: 45–54.

NOWAK, D.J. 1994. Air pollution removal by Chicago's urban forest. In: G.E. McPherson, D.J. Nowak and R. Rowntree, eds. *Chicago's urban forest ecosystem: results of Chicago urban forest climate project*, pp. 63–81. General Technical Report NE-186.

PETRALLI, M., MORABITO, M., CECCHI, L., CRISCI, A. and ORLANDINI, S. 2012. Urban morbidity in summer: ambulance dispatch data, periodicity and weather. *Central European Journal of Medicine*, 76: 775–782.

SÆBØ, A., JANHALL, S., GAWRONSKI, S.W. and HANSLIN, H.M. 2017. Urban forestry and pollution mitigation. In: F. Ferrini, C. Konijnendijk van den Bosch and A. Fini, eds. *Routledge handbook of urban forestry*. Routledge.

SALBITANO, F., BORELLI, S. and SANESI, G. 2015. Urban forestry and agroforestry. In: H. De Zeeuw, ed. *Cities, food and agriculture: towards resilient urban food systems*. Abingdon, UK, Routledge.

SHACKLETON, S., CHINYIMBA, A., HEBINCK, P., SHACKLETON, C. and KAOMA, H. 2015. Multiple benefits and values of trees in urban landscapes in two towns in northern South Africa. *Landscape and Urban Planning*, 136: 76–86.

SINGH, V.S., PANDEY, D.N. and CHAUDRY, P. 2010. Urban forest and open green space: lessons from Jaipur. Occasional Paper. Rajasthan, India, Rajasthan State Pollution Control Board.

SKOULIKA, F., SANTAMOURIS, M., KOLOKOTSA, D. and BOEMI, N. 2014. On the thermal characteristics and the mitigation potential of a medium size urban park in Athens, Greece. *Landscape and Urban Planning*, 123: 73–86.

STONER, T. and RAPP, C. 2008. *Open spaces, sacred places*. Annapolis, USA, The KTF Foundation.

TAYLOR, A.F. and KUO, F.E. 2006. Is contact with nature important for healthy child development? State of the evidence. In: C. Spencer and M. Blades, eds. *Children and their environments: learning, using and designing spaces*. Cambridge, UK, Cambridge University Press.

WOLF, K.L. 2017. Social aspects of urban forestry and metro nature. In: F. Ferrini, C. Konijnendijk van den Bosch C. and A. Fini, eds. *Routledge handbook of urban forestry*. Routledge.

Plant a Million: Zambia

Stop Talking. Start Acting!

The Plant-A-Million (PAM) Initiative is a tree planting movement with the expense and ambition to become Africa's premier example of a 'Tree-based economy'. The vision of the initiative is to create a 'Tree-based economy' which will enable to mitigate climate change with economic benefits for Zambia.

Zambia has 44M ha of forests covering 58.7% of the total land surface area. The forestry sector contributes significantly to household incomes for forest dependent communities, particularly in rural areas. Nationally, according to the 2016 data by the Integrated Land Use Assessment (ILUA-II) final report, the forestry sector contributes 5.5% to the country's GDP.

Sadly, it is estimated that Zambia loses 276,000 ha of trees per annum. This alarming deforestation rate is due to the change of land use – mainly for agricultural purposes, wood fuel (firewood and charcoal) for brick burning and domestic cooking, serving at least 70% of the population without electricity. As a result, felling trees is a lucrative source of cash income especially for the rural poor communities and other low-income populations in peri-urban settlements. Hence, Zambia is one of the most deforested countries in Africa, standing at 67%. At a global level, Zambia has been identified as one of the top 10 greenhouse gas emitting countries as a result of deforestation and degradation.

But thanks to the realisation of this disturbing state of affairs and the heightened climate change awareness, Zambia counts itself amongst the global leaders on climate action through this ambitious tree planting initiative targeting to plant at least 2 billion trees by 2021.

Emanuel Chibesakunda (PAM C.E.O.)

According to Emmanuel Chibesakunda, PAM initiator, sponsor and project Manager, the vision is to accelerate and scale up a tree-based economy for socio-economic change in Zambia and mitigate climate change impacts.

"Plant A Million Zambia takes a holistic approach to tackle this challenge by interlinking the 3Es; Education, Economy and Ecology," explains Chibesakunda.

Education: Using the system of learning by doing, PAM is championing the planting of indigenous trees with children and youth to sustain the Zambian culture and reap economic benefits for generations to come. The target is to reach 4.5 million school children and educate them on the importance of trees.

"This initiative focuses on developing the future of Zambia with the full set of skills and know how, through promoting thought leadership and innovation, social responsibility, leadership skills and helping children to connect to the world. We want to shift away from the focus on number of trees planted as the wrong success factors. Key is how many trees survive the critical first two years, and the value they add to the community. Our focus is attitude change, and it has to start with the future leaders – children," says Chibesakunda.

Economy: According to available statistics, over 6 million tons of exotic and indigenous fruit crops go to waste in Zambia, instead of collection and value-addition. This is the challenge

that PAM is working towards to address, under its economic pillar through facilitation of investments in fruit tree businesses (e.g. indigenous fruit juices). Considering the huge economic value of timber, PAM is also promoting the establishment of community forests for timber, also aimed at supporting the rural economy.

Ecology

With regards to Ecology, PAM is promoting a new sustainable land use system called the "African Forest Garden". According to Chibesakunda, this concept enables low-income rural communities to earn money through intercropping cash and ecological tree species. PAM's partnerships with global entities and local experts envisages to yield a better ecosystem for Zambia and the world at large.

High profile support

And speaking during the launch of the project, Zambia's President, Edgar Lungu said the initiative, whose entry point are young people through schools, colleges and universities, would be used as a vehicle for mind-set change among Zambians to begin to value the importance of planting trees as a tool for economic diversification.

Zambian President, Edgar Chagwa Lungu-Spearheading tree planting during the launching of PAM in Chinsali. April 2018

"This initiative marks the beginning of growing money through trees and government stands ready to support it and ensure that it succeeds," he said during the launch in April last year.

In line with the country's commitments to international treaties, especially the landmark Paris Agreement on Climate Change, President Lungu said government envisages not only creating a tree-based economy, but also mitigating climate change through the initiative.

"The Plant A Million initiative will significantly contribute to reducing deforestation which has earned Zambia a bad name of being one of the most deforested countries in Africa as a result of uncontrolled harvesting of trees," he said.

And for Higher Education Minister Nkandu Luo, the initiative is a timely intervention to redefine the education system from exam-based to real-world practices.

"Over the years, the thinking in our school system has been that education is passing exams, but we are redefining this thinking, so that people know that education is total transformation of a human being, and this programme is one of the ways to do it," Luo said.

As one of the brains behind the initiative, Professor Luo disclosed that Zambia was aiming to break the world record of planting the most trees, which is currently held by India. In 2017, Volunteers in India planted more than 66 million trees in just 12 hours in a record-breaking environmental drive.

"We are aiming to beat the world record, to go above 66 million trees done by India. We aim to plant at least a billion trees by 2019, and another billion plus by 2021; and I am positive that with universities' involvement, it is doable," she said.

Meanwhile, Minister of Lands and Natural Resources Jean Kapata is optimistic that the initiative will not only add value to people's livelihoods through income from the sale of fruit and other forest products, but also contribute to the country's ambitious mitigation targets as set in the Nationally Determined Contributions (NDC).

"I am not afraid to mention here, and let me put it on record that, for as long as we do not provide alternative energy solutions for our people, they will continue cutting trees," laments Kapata. "But I am happy to report that we have started looking at several alternative options one of which is the bamboo for charcoal which we believe will be a game changer if well implemented."

Aside the goodwill endorsement of the project by Dr. Kenneth Kaunda (Zambia's first Republican President and founding father), PAM has also received the support of Kalusha Bwalya the African soccer icon.

The journey so far

So far, the project has already reached out to 20 schools with 20,000 learners in Lusaka and Chipata district growing 500,000 tree seedlings, most of which, are going to replanting stage.

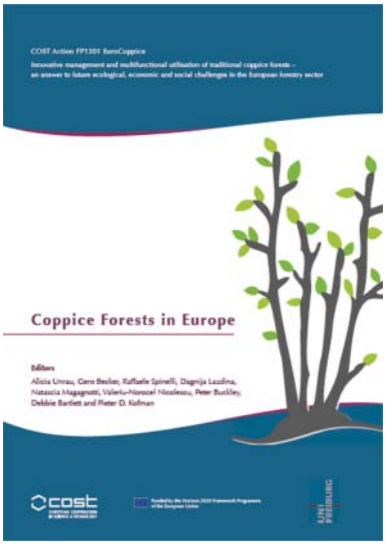
720 schools are expected to be part of the project in the next two years in all the ten provinces of the country with an estimated reach of one million children.

Emanuel Chibesakunda
Co-Founder & CEO: Plant A Million (Zambia) Ltd
e.chibesakunda@plantamillion.com

Publications

Coppice Forests in Europe

Edited by Alicia Unrau, Gero Becker, Raffaele Spinelli, Dagnija Lazdina, Natascia Magagnotti, Valeriu-Norocel Nicolescu, Peter Buckley, Debbie Bartlett and Pieter D. Kofman



Download free at www.eurocoppice.uni-freiburg.de/coppice-forests-in-europe

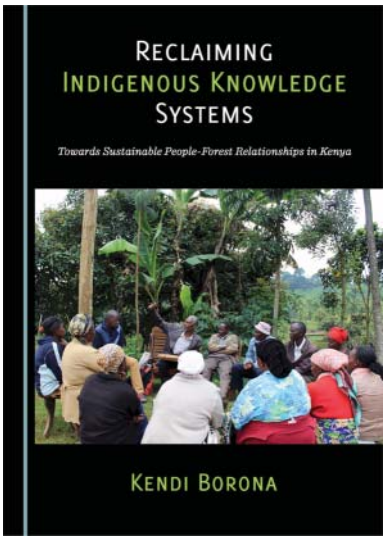
Authored by 115 experts, researchers and practitioners from 35 countries across Europe and beyond, this volume primarily focusses on traditional types of coppice, but also addresses more recent forms such as short rotation coppice. Besides extensive coverage of the themes silviculture, utilisation, conservation and governance, the volume provides information on each of the 35 countries and discusses management and policy options for the different situations in which coppice is currently found.

This publication is based upon work from COST Action FP1301 EuroCoppice, supported by COST (European Cooperation in Science and Technology). It is the last of a variety of activities carried out by EuroCoppice (2013–2017), from awareness raising for coppice issues, to supporting the careers of young researchers.

Reclaiming indigenous knowledge systems: towards sustainable people-forest relationships in Kenya

By Kendi Borona

Cambridge Scholars Publishing (Newcastle upon Tyne, UK)

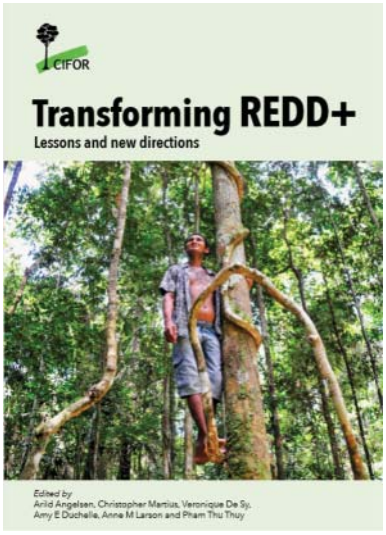


Conservation has, over the last couple of decades, coalesced around the language of 'community-engagement'. Models that seemed to prop up conservation areas as those emptied of human presence are cracking under their own weight. This book grounds our understanding of people-forest relationships through a study of the Nyandarwa (Aberdare) forest reserve in Kenya, home to the Agĩkũyũ people. It confronts the history of land dispossession in Kenya and demonstrates that land continues to be a central pillar of Agĩkũyũ indigenous environmental thought. The book concludes by showing how IKS can contribute to forging sustainable people-forest relationships.

Transforming REDD+: Lessons and new directions

Edited by Arild Angelsen, Christopher Martius, Veronique De Sy, Amy E Duchelle, Anne M Larson and Pham Thu Thuy

CIFOR



This book provides a critical, evidence-based analysis of REDD+ implementation so far, without losing sight of the urgent need to reduce forest-based emissions to prevent catastrophic climate change.

REDD+ as envisioned has not been tested at scale. Results-based payment, the novel feature of REDD+, has gone untested. International funding (both public and private) remains scarce, and demand through carbon markets is lacking.

Better national enabling conditions. Over 50 countries have included REDD+ in their NDCs and developed national REDD+ strategies. REDD+ has improved countries' monitoring capacities and understanding of drivers, increased stakeholder involvement, and provided a platform to secure indigenous and community land rights – all key conditions for addressing deforestation and forest degradation.

Modest forest and social impacts. Local REDD+ initiatives have achieved limited but positive outcomes for forests. Well-being impacts have been modest and mixed, but have proved more likely to be positive when incentives are included.

National coordination, with a positive narrative. Forest-based mitigation strategies must now be mainstreamed across sectors and levels of government. A strong positive narrative on how forests contribute to economic development and climate goals could boost forest-based mitigation, in spite of the current political uncertainties in key emitting countries.

Evolving REDD+ and new initiatives. REDD+ has evolved, and new initiatives have emerged to support its broader objective: private sector sustainability commitments, climate-smart agriculture, forest and landscape restoration, and more holistic jurisdictional approaches working across legally defined territories.

Around the World

Malaysia: Chinese hunger for world's 'smelliest fruit' threatens M'sian forests

Soaring demand for durians in China is being blamed for a new wave of deforestation in Malaysia with environmentalists warning that vast amounts of jungle are being cleared to make way for massive plantations of the spiky, pungent fruit.

Grown across tropical South-East Asia, the durian is hailed as the "king of fruits" by fans, who liken its creamy texture and intense aroma to blue cheese. But detractors say durians stink of sewage and stale vomit. The strong smell means many hotels across the region have banned guests from bringing them to rooms, while Singapore does not allow the fruit on its subway system.

Nevertheless, they are a hit in China, and the increase in demand has prompted exporters to vie for a bigger share of the burgeoning market. Growers in Malaysia are increasingly shifting from small orchards to industrial-scale operations – a trend that environmentalists warn presents a new threat to rainforests already challenged by loggers and palm oil plantations.

"Right now durians are gaining a lot of attention from the Chinese market," says Sophine Tann, from environmental protection group Peka, which has studied land clearances to make way for the fruit. "This deforestation for planting of durians is in preparation to meet that demand."

In the jungle-clad district of Raub, Pahang, swathes of rainforest have recently been chopped down to make way for a new plantation, with durian seedlings protected by netting planted across bare hillsides.

The plantation is next to an area of protected forest, which is home to a kaleidoscope of animals from monkeys to exotic birds. A river, now murky and filled with trunks and branches from logging, runs close by. A sign outside the plantation said it was run by Ample Harvest Produce but company staff refused to comment when contacted about the loss of trees in the area. Peka says the land's status was changed by the local government to allow logging, but local authorities did not respond to requests for comment.

In a Beijing mall some 4,000km away, a stall named "Little Fruit Captain" is doing a brisk trade selling Malaysian durians. Shop manager Wang Tao says his customers "fall in love" with durians from Malaysia due to their particularly sweet taste, often preferring them to those from rival exporters, such as Thailand. He imports frozen durians from a facility in Malaysia and sells them in plastic containers or in other forms – a kind of baked dessert, in ice cream or fried up as crisps. Customers are kept up to date about the shop's stock via the WeChat messaging app.

"I first tried durian as a child and acquired a taste for it," says university student Liu Zelun, who visits the shop once a week for her durian fix. "Thai durians have a stronger flavour and you tend to get sick of it after a while, but not the ones that I buy from here."

The most popular variety – and one of the most expensive – is Musang King, known for its thick, golden flesh. A single Musang King was on sale at the Beijing stall for 800 yuan (RM489), several times more expensive than in Malaysia. "Our customers aren't concerned about the prices, they just want the best," says Wang.

With the price of key Malaysian export palm oil, used in everyday goods around the world from soap to margarine, in a seemingly inexorable decline, farmers are increasingly turning to durians. The government has backed the expansion of the industry, hoping to cash in on growing demand from the world's second-biggest economy.

The value of durian shipments from Malaysia to China in the first eight months of 2018 hit RM7.4mil, more than double the value in the same period of 2017, according to the agriculture ministry in Kuala Lumpur. Malaysia hopes a deal struck in August to pave the way for the export of whole, frozen durians to China will boost shipments, and are aiming to more than double production to 443,000 tonnes by 2030. Previously, Malaysian durians could only be shipped to China in pulp and paste form.

Despite the looming production boom, the agriculture ministry insisted plantations will expand slowly and said it was encouraging growers to use existing orchards and revive unproductive trees. "Deforestation for new areas is not encouraged," Agriculture Minister Salahuddin Ayub said, adding that if trees are logged for plantations, strict environmental rules must be followed.

In Kelantan, tribespeople last year set up blockades to stop a company from logging their ancestral lands to set up a Musang King plantation. The central government has taken up their cause, suing the state government for failing to uphold their land rights.

But environmentalists warn the overall picture is bleak. Durian cultivation is "driving yet more deforestation and biodiversity loss in Malaysia", says environmental group Rimba, warning it was leading to "destruction of critical habitat for wide-ranging animals such as tigers, elephants, primates, and hornbills".

thestar.com.my

Borneo: Is deforestation slowing down?

When people talk about deforestation in Indonesia and Malaysia, palm oil often gets the blame. Demand for the versatile vegetable oil is high worldwide, and the two Asian countries together produce 87% of global supply.

Industrial-scale oil palm plantations have been expanding in the two countries in recent decades, as have plantations of pulpwood, mainly fast-growing acacia species. But are old-growth forests actually razed to make way for oil palm and pulpwood plantations, or are the plantations installed on land that was cleared in the past for other purposes?

To answer that question, scientists at the Center for International Forestry Research (CIFOR) used a series of satellite images to map the expansion of large industrial oil palm and pulpwood plantations. A collection that spanned two decades, the imagery exposed the loss of old-growth forest in Indonesian and Malaysian Borneo, where nearly half of the world's industrial-scale oil palm plantations are found.

"Every year from 2000 through 2017, we measured total forest loss, how much plantation area was added, and how much forest was cleared and converted to plantations in the same year," says David Gaveau, the study's lead author. "This allowed us to determine the amount of forest being cleared by plantation companies."

The result is a detailed picture of the expansion of plantations and the relationship between plantation expansion and forest loss.

Between 2000 and 2017, 6.04 million hectares of old-growth forest were lost in Borneo, a decline of 14%. About half of that area was ultimately converted to industrial plantations, and 92% of the forest that was converted was replaced with plantations within one year of being cleared, the study found.

In that same time period, industrial plantations increased overall by 170%, or 6.20 million hectares, of which 88% were for oil palm and 12% for pulpwood.

Indonesian Borneo, which accounts for 73% of the island's territory, lost the most forest at 3.74 million hectares. It also gained the most plantations, a total of 4.35 million hectares. Smaller Malaysian Borneo lost 2.29 million hectares of forest and gained 1.85 million hectares of plantations.

Not all of the plantation development resulted in deforestation, however. "Much plantation development, especially in Indonesia, has occurred in areas that were cleared before 2000, long before the plantations were installed," says Douglas Sheil of the Norwegian University of Life Sciences, one of the study's authors. "So clearly, not all plantation developments caused conversion of forests to plantations."

Both Indonesia and Malaysia have set sustainability standards in recent years – the Indonesian Standard for Sustainable Palm Oil (ISPO) and Malaysian Sustainable Palm Oil (MSPO) Standard – and have taken other regulatory steps to curb the conversion of forests into plantations.

2011 saw Indonesia launch a nationwide moratorium on new oil palm and pulpwood plantations in primary forests, which has been extended several times since. And in 2016 the country implemented a moratorium on the conversion of its major carbon sink, peatlands.

The strengthening of legal support for community land claims in Indonesia may also make it harder for companies to acquire land for plantations, the study's authors suggest.

The spread of plantations showed two peaks, one in 2009 and another in 2012. The researchers found that since 2012, there has been a steady decline in the expansion of plantations into old-growth forest. The study revealed some details that could explain the dynamics behind the rise and fall of expansion rates.

Each of the peaks in expansion followed a year in which there was a peak in the price of crude palm oil. That price has been dropping since 2011, coinciding with the decrease in plantation expansion. "The decrease in plantation expansion might be partly due to government efforts to regulate the expansion of plantations into forested areas," Gaveau says. "But the very strong correlation between prices and expansion indicates that market forces are the main driving force affecting expansion."

Forest loss also reflects factors other than plantation expansion, such as forest fires and the expansion of smallholder agriculture. By 2017, the downward trend in plantation expansion, as well as the clearing of forests for plantations, reached a level that was the lowest since 2003. Low palm oil prices, improved fire prevention in Indonesia and wetter conditions all probably contributed to the low deforestation rates in 2017.

"Land and labor are also becoming harder to source and sustain in Borneo," Gaveau says. "Furthermore, attention from non-governmental organizations and journalists, pressure from consumers and consumer nations, and shifting expansion into other regions of the world, such as Papua, Africa and South America, may all have constrained the expansion of plantations."

The study shows that it is possible to use satellite imagery to determine how forest cover changes and plantations expand annually in specific concessions, Sheil says. Those data are being included in an interactive on-line atlas, due to be published soon, that will show the relationship between forest cover and concession expansion almost as it happens.

"These data can be used to hold companies accountable for their practices," he says. "The challenge is that for a small fraction of the concessions, ownership is unclear." Ensuring accurate data about ownership and concession boundaries would make monitoring easier, he adds. "Good companies," Sheil says, "have nothing to lose and much to gain by ensuring transparency."

Overall, the authors say, the study shows grounds for "cautious optimism" about progress in slowing deforestation in Borneo, but "much work remains to be done to ensure a future for Borneo's forests."

The interactive Borneo maps are live on Forests News and @cifor on Twitter.

forestsnews.cifor.org

Australia: Urban forests – how trees can fight heatwaves and poor health

Climate change and urban development are heating up Australia's cities. Planting trees is one solution being tried by Melbourne's local councils.

Over the past century, heatwaves have killed more Australians than all other natural disasters combined. And the problem is only going to get worse. This past January was Australia's hottest on record; all five of the country's hottest years have occurred since 2005. Just a few weeks ago Melbourne's northern suburbs hit 46°C.

Urban life can exacerbate the effects of hot weather, as roads and concrete act as giant heat sinks and turn whole suburbs into massive ovens. But tree cover can be a highly effective weapon against excess heat, reducing immediate surface temperatures by up to 20°C. A 10% increase in canopy cover across an area can drop ambient temperatures by 1°C.

Trees offer a surprisingly large number of other benefits, such as reducing flood risk, capturing carbon and other air pollution, providing habitat for fauna, improving mental health and encouraging people to do more exercise. Having a green vista appears to help patients who've just had surgery heal faster, while people who live in areas heavily affected by tree-killing diseases are more likely to die of heart or respiratory disease themselves.

Greenery may encourage people to linger on shopping strips and spend more money. And as fewer Australians have their own backyard, green public spaces will become more important. The combination of all these factors means planting trees can potentially have a high return on investment for government.

Recognising this, several Melbourne councils have created urban greening targets. The City of Melbourne, which holds many of the city's great parks as well as its highly urban core, is aiming to increase canopy cover from 22% to 40% by 2040. Melbourne has some great interactive maps and biodiversity resources available online – you can even send emails to individual trees.

The City of Moreland, home to the hipster haven of Brunswick, may be green in politics but has few big trees. But things are changing: it has committed to planting 5000 new street trees per year, and won a 2017 Premier's Sustainability Award for its interesting work on urban heat islands.

Situated in the inner north-west, Moonee Valley is the latest council to be recognised for its efforts. It was recently listed alongside Lisbon as a sustainable environment finalist at the international Wellbeing City Awards, and is the only Australian city shortlisted in any category this year.

Unfortunately, many parts of Melbourne's inner northern and western suburbs don't have many big shade trees. Some areas are devoid of much shade at all during the hot summer months. And while councils have been thinking about this problem for a few years now, the situation has deteriorated as backyard trees are cut down to make way for townhouses and apartments.

So Moonee Valley wants to reverse the trend. The council is planning to increase canopy cover from a baseline of 11% up to 30% in 2040. "As our population grows and the urban environment becomes hotter and drier, the need for a green city that is ecologically healthy and environmentally responsible is pressing," says Mayor Narelle Sharpe.

"The *Enhancing our Urban Forest* initiative will provide much-needed shade and cooling and better air quality which will encourage people to walk, cycle and visit their local parks, shops and surrounds."

The council aims to increase the number of trees not just on its own land, but on areas owned by other levels of government and private property through a mix of protection, collaboration and community programs and education. "We will see a diversity of vegetation in streetscapes, parks and reserves, greater protection for vegetation on private land and additional plantings where required. A diversity of trees also helps to ensure climate, pest and disease resilience," Sharpe explains.

In 2018, the first year of the initiative, Moonee Valley put in around 2700 advanced street trees. It's supporting the 30% target through some innovative uses of technology. Remote sensing and spatial analysis will be used to track tree canopy targets and quantify and monitor changes. Tree canopy mapping is currently underway.

An ecological connectivity study has also recently been completed to establish a biodiversity baseline, identify monitoring indicators and prioritise land corridors. There is also interest from other councils who would like to work together to establish a unified process to measure collective impact, Sharpe says.

Moonee Valley's five-year planting program, currently being drafted, will "prioritise planting to areas of greatest need, based on absence of canopy cover, urban heat, social vulnerability, key active transport routes, biodiversity corridors, increased overall diversity of the tree population and other operational parameters," the mayor explains.

Moonee Valley is also collaborating with other Western Melbourne councils, water corporations and the state government on Greening the West, a regional initiative that aims to deliver positive health and social outcomes in Melbourne's western suburbs through urban greening.

themandarin.com.au

Brazil: Environment Minister suspends partnerships with NGOs

On Monday, 14 January, the Ministry of the Environment (MMA) sent a circular to the nation's environmental agencies and institutes. The letter, Nº 5-MMA, announced "the lifting and suspension for 90 days of all agreements and partnerships with non-governmental bodies (NGOs) which are recipients of funds managed by the MMA, Ibama (the nation's environmental agency), ICMBio (its national park management agency), and JBRJ (the Rio de Janeiro Botanical Garden Research Institute).

The measure suspends any transfer of funding resources to civil society organizations, including environmental NGOs, cooperatives and rural unions. According to the MMA, the goal is to evaluate NGO contracts and disbursements.

Contacted by Mongabay, the Environment Ministry communications office explained: "At the end [of the 90 days], the partnerships that were correct will be maintained; the ones that would need adjustments will be rectified; and those who do not meet the requirements will be suspended. New partnerships will be evaluated after this 90-day period."

NGOs perceived the measure as a means by which the administration was threatening their operations and funding.

A later MMA press release appeared to step back the scope of the original policy announcement, noting that "the ministry will not suspend agreements or partnerships that have been already in execution." It continues: "There will be no unilateral suspension of what is already in progress so that there is no harm to the environment."

The ministry's perceived retreat occurred after strong, quick criticism from NGOs and analysts, who pointed to the illegality and risk posed by the sudden discontinuity in federal environmental management programs that are conducted in cooperation with NGOs. The Climate Observatory (OC), a network of 37 civil society organizations, published a response saying that the MMA's measure "violates the principle of legality."

The OC explained further: "The [Brazilian] Law 13.019/2014, which regulates relations between governments and civil society organizations, provides suspension as a sanction, a measure that should only be adopted after the opening of an administrative process in which the interested party [an NGO] has the right to… ample defense. The act of the Minister of the Environment Ricardo Salles does not present any justification [for the policy], which violates the constitutional principle of the motivation of administrative acts."

The executive director of the Brazilian Association of Non-Governmental Organizations (Abong), Eleutéria Amora, told Mongabay that Minister Salles revealed in his statement a lack of understanding as to the NGO / government relationship. "Not all organizations have contracts with the government, and for many of them, resources come [not from Brazil's federal budget, but] from foreign donors and private companies."

Regarding the minister's assertion that he will make "surprise visits" to some of the 40 NGOs that receive money from a federally-managed fund, Amora said: "The statement sounds like an [authoritarian] police act. I think the ministry should be taking care of more important and urgent issues such as climate and deforestation."

Contacted by Mongabay, environmental NGO Greenpeace responded with this statement: "Greenpeace is an independent civil organization that does not receive financial resources from governments, companies or political parties. However, the measure adopted by minister Salles could be detrimental to technical cooperation agreements between organizations and the public power. The announced measure affects the public power itself, [because the government] often cannot carry out actions of inspection and of defense of natural heritage alone," but requires technical assistance from qualified NGOs.

For instance, a 2018 investigation by Greenpeace, conducted in cooperation with Ibama, revealed widespread fraud involving forest management plans in Pará state; it was found that 77 percent of rare Ipê wood inventories issued by the Environment State Secretary contained irregularities. This inquiry, which benefited the environment and the Brazilian public, could not have been conducted without a government / NGO partnership.

news.mongabay.com

Kenya: Book challenge that transformed bare school lands into forests

What started out as a book club in a remote part of Langa Langa in Gilgil is morphing into an enviable scenery as schools transform their compounds into mini-forests. More than 15 schools are glistening in green as trees, planted and adopted by the pupils, take over idle parts of their compounds and form canopies from where the students can read their books.

It started out in Langa Langa primary school on a closing day when a scramble for story books attracted the interest of some generous visitors, Moses Kirui and his friends. They started a book club to supplement reading materials in the school, an initiative that has since birthed Pata Kitabu Foundation and a thriving conservation venture.

"It was a normal dusty closing day in 2009 when my three friends and I visited a school and saw the long queues at the library where students were borrowing books. Upon inquiry, we realised the children were only allowed to use the books for one week before returning them to school," Mr Kirui, the programmes administrator of the foundation says.

Government distributed books in schools do not meet the demands, a fact that Kirui and his friends witnessed first hand. "We started from mobilising friends to buy a book and approached organisations, including publishers, to join us. We had to select a criteria for awarding the books to pupils in schools," he said.

The award, Kirui said, acts as an incentive for values and offers opportunity for the child to own a book envisaged to inculcate reading culture. "This approach demystifies the phrase that goes if you want to hide something, place it in a book. Students, who have been awarded automatically become members of a book club of 16 schools," Kirui says.

In the club, the pupils exchange books and learn from different moral values highlighted in these reading materials. The club also exposes pupils to a variety of books through a rotation system where they borrow from their peers, read for a week and return for another.

The foundation, he says, compliments government efforts by identifying, recognising and rewarding students with well researched and government approved high moral value books to reinforce positive behaviour change.

Since most schools were bare and dusty, Kirui and his friends decided to also do something about the environment by planting trees and grass. Planting trees in schools and creating shades for resting and even reading during leisure, Kirui says, has also seen schools mushrooming into plantations.

"We have enough seed bank and will soon be supplying seeds and tree seedlings to other schools and communities in the region," Amos Kamotho, the Langa Langa primary school head teacher said.

The school has sections of exotic plantation as well as indigenous trees sourced by pupils.

"We never run out of seeds as the school has its own seed bank with both exotic and indigenous trees. The pupils have known how to make their own seed banks and are rewarded with book. We also reward those who come up with great ideas of conserving and improving the environment," he says.

From the initiative, nearly every pupil has adopted a tree. The foundation has distributed more than 56,000 books in 16 schools. "We have also partnered with several organisations, international schools and publishers including Longhorn and Moran. Teachers are the technical facilitators of the project as they help in educating the children even in nurturing the trees," Mr Kirui said.

The main challenge in maintaining the trees project is the acute water shortage. "We have water supply but do not have storage tanks. Sometimes, when taps ran dry for weeks, the trees wither, especially those in the nursery beds. But the school has maneuvered through the challenges and created its own forest in the midst of a bare dusty land," Mr Kamotho adds.

standardmedia.co.ke

Global: World's leading forestry and agroforestry organizations merge for accelerated impact against climate change

Innovation and investments worth trillions of dollars in landscape restoration, climate adaptation and science-based policy advice will be needed if the global community is to meet the escalating threats posed by climate change.

To meet these demands, the Center for International Forestry Research (CIFOR) and International Centre for Research in Agroforestry (ICRAF), also known as World Agroforestry, the two leading organizations focused on forestry and agroforestry research, policy and development have agreed to merge to strengthen capacity, provide the evidence needed to scale up investment in sustainable development, and accelerate impact.

The merger becomes effective on 1 January 2019 through a common Board with subsequent implementation of a single leadership team and unified policies, processes and systems.

"This progressive decision to merge will allow us to respond more effectively to the increasing demands to integrate landscapes and land management for a more equitable, climate resilient and productive world," said Claire O'Connor, Chair of the ICRAF Board of Trustees.

In agreeing to the merger, ICRAF and CIFOR confirmed that all existing commitments and contracts will continue to be honoured to ensure delivery of the public goods the organizations' donors and stakeholders, including host countries, expect.

Combined, the two organizations employ over 700 staff in more than 20 countries throughout the global south, with an annual budget of over $100 million.

"Working as one will allow us to leverage our combined $1.8 billion legacy investment in research, policy and development to seize emerging opportunities with greater agility and further our contributions to the realization of ecosystem services needed to create the jobs and resilient green economy of the future," said Jose Campos, Chair of the CIFOR Board of Trustees.

CIFOR and ICRAF are guided by the broad development challenges pursued by CGIAR, a global research partnership for a food-secure future, which include poverty reduction, increasing food and nutritional security, and improved natural resource systems and environmental services. Each organization's work also addresses many of the issues being tackled by the Sustainable Development Goals (SDGs) and Paris Climate Agreement, specifically those that aim to eradicate hunger, reduce poverty, provide affordable and clean energy, protect life on land, and to address climate change. Combined, the two organizations will be well-positioned to develop key innovations in finance and blended development, thereby accelerating the impact of their extensive science and development initiatives.

www.cifor.org

Scotland's debt to forgotten Belize lumberjacks

The story of how forestry workers from Central America travelled 5,000 miles to Scotland to help the war effort has been largely forgotten. But the British Honduran Forestry Unit played a vital role in maintaining timber supplies during World War Two.

Almost 900 forestry workers arrived in Scotland at the end of 1941 and were billeted across the country. They left behind a tropical climate and had to cope with the kind of wintry conditions they had never encountered before. Among them was Sam Martinez, a 32-year-old woodcutter from the forests of British Honduras – now known as Belize. He was used to hard manual labour, felling mahogany trees with broad trunks.

On the other side of the Atlantic, Britain's resources were being drained by the war and there was a lack of available labour to log and cut the wood in the forests. The timber was much needed for a range of uses including pit props in the coal mining industry, which in turn produced the fuel for large scale manufacturing in the war.

The then forestry ministry launched a Commonwealth-wide recruitment drive, with workers from Canada and British Honduras embarking on the precarious trip across an Atlantic haunted by German U-boats.

Before his death in August 2016, at the age of 106, Sam Martinez talked about his memories of that time. "The war started and we, being Britishers, were asked to come to do forestry work," he said. "We were divided all over Scotland. Some in different camps to do forestry work for the war effort. And that's what brought us here."

Sam's stories were filmed and recorded over a number of years by his grandson, Yutsil Hoyo Diaz Martinez. He said of his grandfather's journey: "They travelled from Belize to New Orleans by boat. From New Orleans they moved to New York and then from New York they travelled across to the UK. They had to zigzag across the Atlantic because there were U-boats and Nazi submarines. They had to be wary because they thought they could get bombed at any time."

The journey from New York took 14 days and their cabins were in the bottom of the boat. His grandson said: "They had three sets of uniforms and they were wearing all three at the same time because it was so cold."

Sam arrived in Port Glasgow at the end of November. He was sent to a freezing Ullapool to work with a forestry unit cutting mahogany trees. Others went to places like Golspie, Kinlochewe, Duns and Tranent.

Sam's grandson says when he arrived in Ullapool, the locals were not welcoming. He described them as being nervous and confused because they had never seen people of colour before. "A lot of people ran away from them and closed their shops," he says. "They were screaming 'the coalmen are here'. They had to interact with this society that was not welcoming."

In 1943, before the war was over, the forestry unit was disbanded and the loggers were given the choice between repatriation or taking their chances in Britain.

Yutsil says one of the main reasons his grandfather stayed in Scotland was "because he wanted to fit in among white people". Yutsil came back to Scotland from Mexico in 2011 to record his 101-year-old grandfather's story. He says the contribution of the British Hondurans is largely forgotten. "They played an important role, maybe not as war heroes, but for the war effort," he says. "You see a lot of the other stories mentioned, but because they were people of colour this is not mentioned."

His grandson is now planning a documentary to ensure his story is told. "Their story is missing," he said. "I would like to see something more physical in Scotland in some form of museums or history books so that schools can teach it and everybody knows it."

The Scottish government's Rural Economy Secretary, Fergus Ewing, wants to ensure their wartime work is formally recognised. He has written to the High Commissioner of Belize, Perla Perdomo, to officially thank her on behalf of the Scottish government. Mr Ewing said: "It's a secret part of wartime history in the Second World War. "We do really recognise the huge contribution they made and it's fitting and right that you should be recording it now."

Forestry Commission Scotland is also looking at ways of celebrating their work during the war.

bbc.co.uk