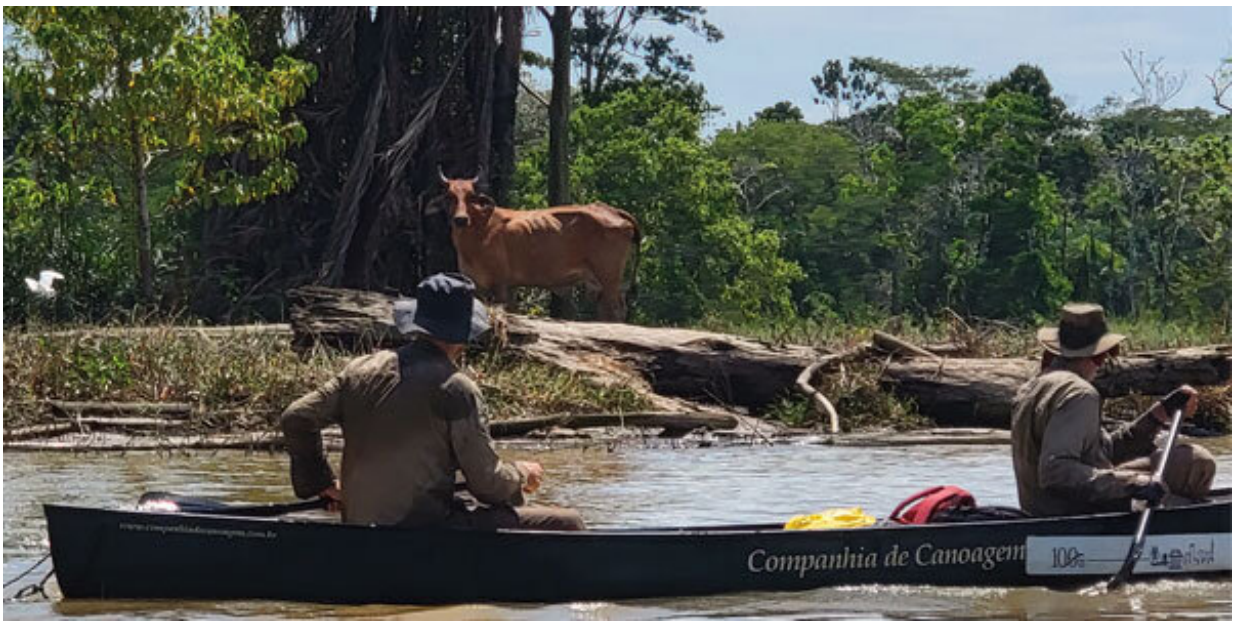
What happens when conflicting priorities collide and potentially compromise trees, woodland and forests?

May 29 2023, by Deryn Graham



Credit: Wits University

A tree is not just a tree. It is also fuel, paper, furniture, livelihood, and industry.

It is a living organism rooted in an ecosystem of fauna, flora, environment, climate, and humanity. Deryn Graham asked an environmental ecologist, an environmental lawyer, a social ecologist, and

an accountant what happens when conflicting priorities collide and potentially compromise trees, woodland, and forests.

Fuelwood subsidizes Eskom

"The use of fuelwood as a main source of energy in rural communities is relieving Eskom of an enormous additional amount of pressure on the national grid."

The is according to Wayne Twine, Associate Professor in the Wits School of Animal, Plant and Environmental Sciences and Director of the Wits Rural Knowledge Hub at Wits Rural Campus in Mpumalanga.

Fuelwood is wood that is harvested from forestlands and combusted directly for usable heat.

Even as the country endures the single longest period of consecutive days of loadshedding, and as people look for alternative power sources for their homes, many would consider the use of fuelwood as a highly undesirable practice. This is based on concerns around environmental sustainability and human health, especially that of women who bear the brunt of the cooking responsibilities.

However, using a very conservative estimate based on the use of fuelwood for the cooking of only one meal per day, and excluding boiling water, for example, for bathing, Twine contests that the use of fuelwood is sparing the national grid approximately 543 MW at peak use and 210 GWh per year. This equates to a saving of approximately R200 million per year in energy generating costs for Eskom.

Despite the successful roll out of electrification in many rural communities across the country, the cost for indigent households of switching on appliances, especially energy-intensive stoves, is

prohibitive, and so the use of fuelwood persists.

At best, the harvesting of wood from communal land is managed by local chiefs, and is restricted to dead wood [dry, brittle, dead tree branches] only, but in many areas, the deadwood is depleted, and people resort to foraging from live wood sources.

"If the alternative is drawing more energy from Eskom's coal powered units, we are in any case using up valuable natural resources. Damned if we use fuelwood and damned if we revert to mains electricity, which similarly depends on the burning of fossil fuels," says Twine.

While burning fuelwood is not desirable, Twine believes that it will remain an important part of the energy mix in South Africa for probably the next 20 years.

"The challenges and solutions are complex," he says. "In acknowledging the reality of the costs and availability of electricity for poor rural communities, we must work towards ensuring that programs aimed at empowering communities to use the resources which natural ecosystems provide to these households more sustainably, are supported and expanded."

Not seeing the wood(land) for the trees

In 2019, a German/Dutch-funded study led by Jean-Francois Bastin and Thomas Crowther of the Swiss Federal Institute of Technology in Zürich, claimed that there were huge benefits in tree planting projects across the globe, including on large tracts of land in Africa.

However, many large tracts of land in Africa are not historically woodland in the first place. A woodland is an area covered in trees. Woodland is distinct from a forest, which has a largely closed canopy

forged from the branches and foliage of trees interlocking overhead.

Tree planting programs were recommended following the Bastin/Crowther study and several African countries, desperate for funding, listened—even going as far as to introduce alien species. For example, in Madagascar, restoration often involves planting eucalyptus trees, which are non-indigenous. In 2019, Ethiopia embarked on a project to plant 20 billion trees by the end of 2022, with potentially disastrous effects on water supplies and land availability for agriculture.

While erroneous on many levels, this study at least served to mobilize African scientists into very vocal opposition, and to work together to formulate a regional plan for Africa's own response to climate change. This response included a Wits University-led Future Ecosystems for Africa study, launched in 2022, which seeks regional solutions for regional challenges.

"The methods and results of the [Bastin/Crowther] study were both incorrect and misleading and therefore potentially dangerous for the continent. Africa has many different ecosystems and to suggest that tree planting is the panacea for global warming is irresponsible. The science is wrong and even if we covered the entire continent in trees, the amount of carbon cited in the Bastin study will never be captured," says Professor Sally Archibald, an ecologist in the Wits School of Animal, Plant and Environmental Sciences (APES). "As African scientists, we must mobilize to make our voices heard in situations where global policies/science undermine what our own research is showing us."

Such mobilization and rebutting scientific inaccuracy is already evident from Nicola Stevens, a Wits alumna and affiliate based at the University of Oxford's Environmental Change Institute, who is part of a team working on novel, constructive ideas to manage African ecosystems, in particular the African savanna. Together with Ghanaian Mohammed

Armani, Stevens mobilized a community of African ecologists to provide an evidence base for identifying climate mitigation actions that are appropriate for African ecosystems.

This is the first time that such an evidence base has been produced, and it has already provided inputs to the African Group of Negotiators at the climate COP27 meeting held in November 2022. Suggestions include recognizing that not disturbing Africa's carbon rich soil is an imperative.

"It is important to plow and cultivate in areas that can support agricultural activity and to preserve grasslands whose soil carbon has a vital role to play in the fight against global warming," says Archibald.

Women carrying firewood. Credit: Wits University

The need to manage grazing systems and balance stock levels as part of

soil management measures was part of the findings. Included in the recommendations were ensuring that mangroves and tropical forests —which capture significant levels of carbon—are not destroyed, as well as ensuring proper fire management programs in forested areas.

The REDD+ Program benefits landowners in Africa when they do not cut down trees. REDD+ stands for Reducing Emissions from Deforestation and forest Degradation, while the plus signifies the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks.

However, there is no REDD+ program equivalent to compensate for preserving grassland, which traps carbon in its soil. Biodiversity offset legislation needs to be drafted to protect all our important ecosystems.

Properly managed, our African forests, savanna and other environments can greatly assist in mitigating the problem of carbon emissions—to which Africa, as a continent, has contributed the least. Most importantly, this can be achieved without disrupting the natural balance of our rich biodiversity systems.

Save the trees, harness hydro, and feed the nation

In 2010, the World Economic Forum defined energy poverty as the lack of access to sustainable modern energy services and products. Energy poverty results from a lack of adequate, affordable, reliable, quality, safe and environmentally sound energy services to support development. There are various solutions aimed at addressing energy poverty in Africa, but not all solutions are sustainable for individual countries, the continent, or the planet.

Tracy-Lynn Field, Professor of Law at Wits, holds the Claude Leon Foundation Chair in Earth Justice and Stewardship. She says, "Solving

the energy needs of a country and ensuring environmental protection should not be a mutually exclusive exercise. It requires critical thinking to find answers to both issues." Clearly, it's a delicate calibration to combat energy poverty while preserving natural resources.

Field, whose research areas include environmental law, human rights, mining law, climate change law and water law, recently collaborated with Dr. Jonathan Muledi, Associate Professor at the University of Lubumbashi in the Democratic Republic of the Congo (DRC), to study public and private liability for deforestation, forest degradation, and biodiversity loss in the DRC.

The DRC hosts Africa's largest expanse of tropical rainforest (and the world's second largest after Brazil), making it a critical part of the climate change equation. Although the rate of deforestation in the DRC has not been as rapid as in Brazil, the United Nations Food and Agriculture Organization (FAO) has reported that the pace of deforestation has increased significantly, largely due to extensive land clearance for agricultural development to meet the food demands of an ever-growing population.

Understanding the economic value of the forest resource and its ecosystem and the amount of carbon storage it represents, as well as the drivers of deforestation, are important considerations in a liability discussion. Direct drivers include unregulated artisanal logging for wood fuel, charcoal production, building and construction; forest clearing for subsistence and commercial agriculture; commercial logging for export; and artisanal and commercial mining.

The DRC has also recently opened bids for oil and gas concessions in forested areas. Indirectly, poor governance and corruption also play a significant role in abetting the unsustainable use of the DRC's forest resources.

"There are a number of international and national laws that could be used to protect the forests of the DRC in a manner that allows for the DRC populace and future generations to continue to benefit from the country's forest resources. But these laws are likely to have little effect unless the elephant in the room—the DRC's low rate of access to modern energy services—is addressed," says Field.

The most obvious alternatives to wood fuel and charcoal production would be to harness the DRC's massive hydropower potential, which would allow the country to meet domestic energy demand and have additional capacity to export to other African countries, including South Africa. But the Grand Inga scheme, which would potentially see the generation of 40,000 megawatts of power, has been beset by funding and contractual issues for many years.

"Wood fuel from the DRC's primary forests is not a renewable resource. Water is. Addressing energy poverty in the DRC by developing sustainable hydropower and non-hydropower renewable energy is imperative if the global community is serious about protecting the forests of the DRC," says Field.

Counting on climate change reporting protocols

When two professors of Accountancy in the University's Faculty of Commerce, Law and Management embarked on a 1,100km paddle down one of the Amazon River's largest tributaries, at least one of them knew what he was in for.

Fifty years ago, as a 22-year-old, Professor Kurt Sartorius undertook the same trip to Brazil, which left him almost broken. So why again now, and why did Professor Wayne Van Zijl think it might be a good idea to join Sartorius and his son, Benn?

"We wanted to raise awareness of the impact on climate change of the extensive deforestation of the Amazon rainforest," says Sartorius. "But our objective was a little more focused than simply the message around the damage that is being done by both commercial enterprises and local subsistence farmers. Most of us with any level of awareness already know what is happening to vast tracts of immensely ecologically sensitive areas of our planet."

The destruction of the Brazilian rainforest is two-fold: Firstly, from commercial enterprises, and secondly from the slash-and-burn land clearance by locals to make room for subsistence cultivation. As the large multinationals clear more and more land, so the subsistence activities move further inland and the two leapfrog each other, encroaching ever further into the deep forest. The Amazon rainforest ecosystem is critical for the entire planet's weather patterns and so its preservation and better management is vital.

In the context of their work as accountants, Sartorius and Van Zijl are trying to bring about change in the business and investment world, by introducing reporting protocols and standards that take into consideration climate change mitigation and off-set measures that large corporations are beginning to integrate into their business practices. Are extractors of Brazilian wood and minerals re-investing in community development? Are they assisting with the transition to smarter farming methods and education that improves local knowledge and farming practices?

The bottom line is that for Sartorius and Van Zijl, the corporate reports of companies cannot be about the financial bottom line only and must take into consideration companies' social and environmental assets, liabilities, generation, and consumption. Companies that are looking at more environmentally friendly ways of mining, and which are spending money on remediating and repairing damage caused by their extraction

methods, will show less profit, but ultimately should be more attractive to investors.

"We cannot reward companies based solely on enormous profits," says Van Zijl. "Sustainability reporting must be accelerated, and this is what we were trying to bring to the sector's attention. As accountants, we also have a role to play in mitigating the impact of climate change by providing environmental information for investors and society to hold companies accountable for their commercial activities."

Responsible investing requires setting reporting standards that can be used to assess the overall "value" of a company, not just value to its shareholders, but its value to society and to the planet.

Provided by Wits University

Citation: What happens when conflicting priorities collide and potentially compromise trees, woodland and forests? (2023, May 29) retrieved 10 April 2024 from https://phys.org/news/2023-05-conflicting-priorities-collide-potentially-compromise.html