

Agroforestry and the Transition to the Future

Achim Steiner

Achim Steiner is the executive director of UNEP and under-secretary-general of the United Nations since 2006. Before joining UNEP, Mr Steiner served as director general of the International Union for Conservation of Nature (IUCN) from 2001 to 2006, and prior to that as secretary general of the World Commission on Dams.

Abstract Humanity all too often thinks in boxes, but all too often this can lead to simplistic, short-term solutions.. Complexity needs to be embraced in which the best of indigenous, traditional, and farmers' knowledge is aligned and woven with empirical scientific evaluation. Agroforestry is a shining example of this approach, merging centuries-old knowledge with modern science. The future of global land use is no longer just about land – it is about the future of the atmosphere, of biodiversity, and of water, fuel, and food.

Keywords Ecosystem services • Systems approach • Sustainability • Greenhouse gas emissions • Organic agriculture

Welcome to the 2nd World Agroforestry Congress being held here at the UN Office at Nairobi and jointly hosted by the World Agroforestry Centre and UNEP. The theme “Agroforestry – The Future of Global Land Use” echoes to the challenges but also opportunities of our time.

A. Steiner (✉)

United Nations Environment Programme, Nairobi, Kenya

e-mail: Achim.Steiner@unep.org

How do we, in a world of nearly seven billion people rising to perhaps over nine billion, feed everyone while simultaneously securing the ecosystem services such as forests and wetlands that underpin agriculture, and indeed life itself in the first place? And how do we achieve all this while also overcoming poverty, generating decent jobs for the 1.3 billion underemployed or unemployed, and combating the greatest challenge of this generation – climate change?

Sometimes you have to think small to think big. Humanity all too often thinks in boxes rather than in complexity – thinks keeping it simple rather than using a systems approach is the best way forward. There are those who look for silver bullets – nuclear power and genetically modified organisms might be two examples. Others might wish to consign modern scientific and technological knowledge to the dustbin and seek to turn back the clock to some kind of ideological or mythical rural idyll. The sustainability challenges we are confronted with today will not be amenable to such polarized approaches.

- We must take the best of the indigenous, traditional, and farmers' knowledge, forged over centuries of trial and error, and submit it to empirical, scientific, and rigorous evaluation.
- We must also put our modern, technological prowess under a fresh lens and more wide-ranging scrutiny. It must be subject to broader cost benefit analysis alongside delivering a wider suite of societal and environmental goals.
- Above all, we must bring the best of these worlds together and deploy them in both an integrated and flexible way that recognizes the different circumstances and conditions of the communities they serve.

Agroforestry is in many ways a shining example of this approach, merging centuries-old knowledge with modern science in a systems-led approach – and the concept of thinking small-scale to achieve potentially big and transformative outcomes. Indeed agroforestry's relevance to sustainable development in the twenty-first century has in many ways come of age in part through the lens of climate change.

Forestry needs to be an important element. The proposal for financing Reducing Emissions from Deforestation and Forest Degradation (REDD) must be a key plank of a new emissions reductions agreement. Up to 20 % of greenhouse gas emissions are from deforestation and forest degradation. Without economic incentives to reverse the trend, the emission levels will continue to rise. This will challenge all our efforts in terms of cleaner, renewable energy, including more energy efficient buildings and transportation networks.

However, simply locking away forests to secure their carbon as if they are the Queen's jewels, or putting up the modern equivalent of a Berlin Wall between forests and people, is almost certainly folly and almost certainly a recipe for disaster. REDD should and must reflect the genuine needs of the surrounding communities, including indigenous peoples. UNEP, in collaboration with the Food and Agricultural Organization of the UN and the UN Development Programme, and with funding from Norway, is spearheading the UN REDD Programme with nine pilot countries.

There are several issues that need to be resolved, from verification and monitoring of forests to how to manage payment systems, but also the role and rights of

communities and their share in the financial flows. If REDD can be up and running, it may not only be good for combating climate change but also for generating new revenue flows from North to South, and also good for accelerating adaptation in terms of improving the health of water supplies, nutrient flows, soil stabilization, and job creation in areas such as natural resource management. The returns are potentially enormous and wide-ranging. The Economics of Ecosystems and Biodiversity (TEEB), an initiative of the G8+5 of which UNEP is the secretariat, says an investment of just \$45 billion in protected areas alone – many of which are forested areas – could secure nature-based services worth trillions of dollars a year.

Agroforestry may have many roles to play in this new landscape of rewarding countries for their natural or nature-based services. First, it offers the potential for maximizing sustainable food production in the zones surrounding natural forests, while also boosting biodiversity and other “natural infrastructure.” Second, it offers an opportunity for timber production and thus alternative livelihoods to meet a supply gap that may emerge under a fully fledged REDD regime. Third, these agroforestry areas can also potentially secure flows from carbon finance in their own right, for example, under the existing agreements of the Kyoto Protocol as afforestation or reforestation projects, or under what one might call carbon farming.

REDD can open the door to even more creative carbon payments for improved land management elsewhere, including on farms, in peatland areas, and in coastal zones such as mangrove forests and perhaps one day even in the oceans themselves. I am delighted that the World Agroforestry Centre and UNEP, with funding from the Global Environment Facility and in collaboration with a broad alliance of academic institutions, are pressing ahead here. The Carbon Benefits Project is underway with an initial focus on communities in the catchments of Lake Victoria, Niger-Nigeria, and China. The missing link is a standardized way of assessing how much carbon is actually locked away in vegetation and in soils under different land management regimes. This is the goal of the project, and we anticipate preliminary findings soon.

In terms of afforestation and reforestation under the existing Kyoto Protocol, UNEP would be keen to learn why less than 1% of existing Clean Development Mechanism projects involve such initiatives. One area that needs to be explored is insurance: The insurance industry manages risk reasonably well for timber plantations, but seems less well geared to natural forests or farmland forests. The role of organic agriculture within farming, but also within agroforestry systems, has also emerged as an area of genuine debate in recent months. It follows a survey by UNEP and the UN Conference on Trade and Development. This survey of 114 agricultural projects in 24 countries shows that yields are often more than double where organic (or near organic) small-scale farming methods are used. The increase in yields in East Africa was well over 120 %.

A University of Michigan study revealed that there was up to three times greater productivity from organic methods, in comparison to other practices, in developing countries. The point here is that even if one is not ideologically in favor of organic food production, we are often force-fed points of view from one set of powerful vested interests. The reality on the ground for the less politically and financially powerful can be quite different.

And there are other possibilities that are in need of increased research and development, such as perennial crops. Experts suggest that “moving back to the future” to these kinds of multiyear crops with deep roots can also boost soil fertility and stability 50-fold while assisting in adapting to climate change. Perennial crops are also 50 % better at carbon capture and storage than their annual cousins, according to some estimates. Because they do not need to be planted every year, they use less farm machinery and require fewer inputs – reducing greenhouse gas emissions further.

In response to the food, fuel, financial, and economic crises, UNEP launched its Global Green New Deal-Green Economy Initiative. The basic concept is that in order to meet current and future challenges, every dollar, Euro, shilling, Yuan, and Rupee needs to work on multiple fronts in order to deliver sustainability. The Green Economy in the context of sustainable development and poverty eradication is now one of the two central themes of Rio+20 taking place in June 2012, two decades after the 1992 Earth Summit.

Agroforestry, with its multiple benefits, is very much a part of this transition to a low-carbon resource-efficient economic future – one able to meet the needs but also the aspirations of communities and countries across the globe. That is why UNEP has been delighted to cohost the 2nd World Agroforestry Congress and why we are equally delighted that all of you are here to make that transition a reality – a transition that merges centuries of knowledge with modern scientific methods – that can turn the challenges facing millions of small-scale farmers into one big opportunity for humankind.

The future of global land use is no longer just about land – it is about the future of the atmosphere and of biodiversity and of water, fuel, and food. Overall, it is about choosing a future of accelerating poverty or one that puts poverty on the run and prosperity into the cockpit and driver’s seat. In short, it is part of the complexity rather than reductionist simplicity that humanity urgently needs to embrace and to more intelligently manage if it is to survive and to thrive in the twenty-first century.