



# A New Price on the World's Forests

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There is growing recognition that we have collectively overlooked one of the most important solutions to climate change—forest conservation and reforestation.

A recent report by the Intergovernmental Panel on Climate Change (IPCC)<sup>1</sup> and consensus from leading conservation organizations WWF and The Nature Conservancy suggest that forests and land management need to generate 30% of the near-term greenhouse gas emissions mitigation to 2030. Yet only 3% of climate change investment is currently targeted to this area.

The answer is simple: we need to re-value of the world's forests. Forests cover about 31% of the world's surface – about 4 billion hectares. Of that 4 billion hectares, around 100 million hectares is considered high-quality investible forestland, mostly timber plantations worth an estimated \$400 billion. The rest of the world's forest cover—tropical, temperate, and boreal—is economically worth very little, my estimate would be about \$100 per hectare on average. That means you could buy the world's forests for about \$800 billion.

By comparison the value of the land in Manhattan is \$1.74 trillion.<sup>2</sup>

According to the recent IPCC report, the world's forests store 1.6 trillion tonnes of carbon dioxide equivalent, which is double the quantity of carbon dioxide in the atmosphere.

That means with the estimated value of the world's forests at \$800 billion, we only value their carbon storage at about 50 cents per tonne.

Of course, that's not true; globally, the actual value of carbon storage in the world's forests is essentially zero. The value of most natural forestland is either the net present value of its timber or the option value of converting it to something else. The same is true for the value of biodiversity and the value of watershed conservation—our financial system treats nature as a free public good.

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<sup>1</sup> See [http://www.ipcc.ch/report/sr15/index\\_background.shtml](http://www.ipcc.ch/report/sr15/index_background.shtml) for more information.

<sup>2</sup> Barr, J., Smith, F., and Kulkarni, S. (May 2018). What's Manhattan worth? A land values index from 1950 to 2014. *Regional Science and Economics*. Volume 70, May 2018, Pages 1-19. Available at: <https://www.sciencedirect.com/science/article/pii/S0166046217300820>.

The problem, in economic terms, is that if we significantly undervalue nature, it will inevitably be used wastefully or even destroyed.

And even though the world is waking up to the necessity of addressing climate change through investments in renewable energy and electrification of transportation, forests and land use remain largely ignored as climate investments. This is despite the current reality that forests and land use contribute 25% of global emissions.

There are a few challenges that need to be overcome for forestry to reach its potential and make the full contribution to both climate mitigation and sustainable development.

The first is that very little money has been invested in forests to date, primarily because forests are undervalued. The reason is that we only price forests on their timber value, and so investors have only really been attracted to high-quality existing timber plantations. Newly reforested areas can take 10 to 40 years to mature, so both the time value of money and lack of cash yield have made reforestation largely unattractive to investors. Natural forest conservation has no financial return, so it is just economically unattractive to long-term investors.

In other words, the challenge is that our current financial system discounts the climate and sustainability values of nature completely.

As we often find, in challenge, there is also opportunity. Our opportunity now is to undertake a staged re-invention and substantial expansion of the forestry asset class as a central driver of climate mitigation and sustainable development.

There are five major elements required to build this new asset class.

The first is to substantially harness conservation finance and climate funds to support forest conservation and better forest management. If we could invest even half as much public funding into forest conservation and reforestation as we invest in renewable energy, we could support millions of hectares of forests. Those forests would become more valuable standing than converted to agriculture, and the carbon value of reforestation would make an attractive return to investors.

The second is a challenge and opportunity related to land. Many commentators, including the new IPCC report, call for 700 million hectares of land to be reforested for forestry or energy crops. Unfortunately, there is not 700 million hectares of idle land waiting to be reforested. Land can be heavily contested, particularly in the tropics where reforestation is most needed and most able to contribute rapidly to climate mitigation. Often land use rights are unclear and securing governmental approvals and social license for reforestation can take years. The way forward must be a different investment model that is centered on community benefits, including community agroforestry models, land leasing, or joint ventures between investors and rural landowners. This approach not only engages communities in the process but helps resolve land use and land rights and supports rural economic development.

The third challenge is sustainable intensification of production. As the human population grows from 7 billion to 10 billion, land is finite. Facing an expanding population, an aspiration to increase per capita GDP, and an imperative to shift to a bio-based economy—all while not destroying any more natural ecosystems—we need a step-change in the productive capacity of those hectares being used for wood production.

The fourth challenge is that we cannot have anyone playing outside the rules of sustainable business. Let's look at the economics. Lowland dipterocarp rainforest is worth around \$300 per

hectare. That same land once cleared of forests and with regulatory approvals to plant oil palm can sell for \$5,000 per hectare. That same area, once planted and producing crude palm oil, becomes worth \$20,000 per hectare. The odds are clearly stacked against the conservation of forests, which leads to their misuse and destruction. However, growing scrutiny by consumers has led more than 500 consumer goods companies to adopt zero-deforestation procurement policies. As major commodity traders seek to meet this new demand, there is a clear need for transparency in forests and land use. New technologies like blockchain and micro-satellites offer the potential for transparency and traceability at speed and scale. This will help both corporations and consumers to avoid buying products from deforestation, which undermines the economics of forest conversion.

And finally, the fifth and related challenge is to create positive economic incentives to perpetuate sustainable land use and promote landscapes that balance both conservation and production. This will need to come from certification systems and markets that allow products from sustainable landscapes to be rewarded by higher prices or ongoing payments for the conservation of ecosystems services.

All five of these changes are emerging, and this is what we need to support bringing investment capital to a new forestry asset class that operates like natural infrastructure, providing both bio-economy commodities and ecosystem services.

If we want to keep global temperature below a threshold of 1.5 or even 2 degrees C increase, it is imperative that forests be revalued, and that we invest in highly efficient biomass and timber plantations that can support green building materials and low-carbon consumer goods to help replace fossil fuels and plastics. If we can integrate those highly efficient plantations with conservation at a landscape scale, as well as with expanding community benefits, we may have a formula for a new forestry asset class that provides both goods and ecological services as well as excellent risk-adjusted returns. When we do this, we will find the true price and value of the world's forests.

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