

Educational reading list on climate change and the role of forests

Produced by Permian Global

The purpose of this reading list is to provide an introduction and overview to some of the key topics around climate change, in particular, forest protection and recovery. The readings have been divided into the following sections:

- 1) Climate change and forest recovery
- 2) REDD+ and the carbon markets
- 3) Managing carbon intensity of portfolios
- 4) Deforestation and corporate engagement

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Climate change and forest recovery

Why forests? Why now?

A paper series written by Frances Seymour and Jonah Busch, Center for Global Development.

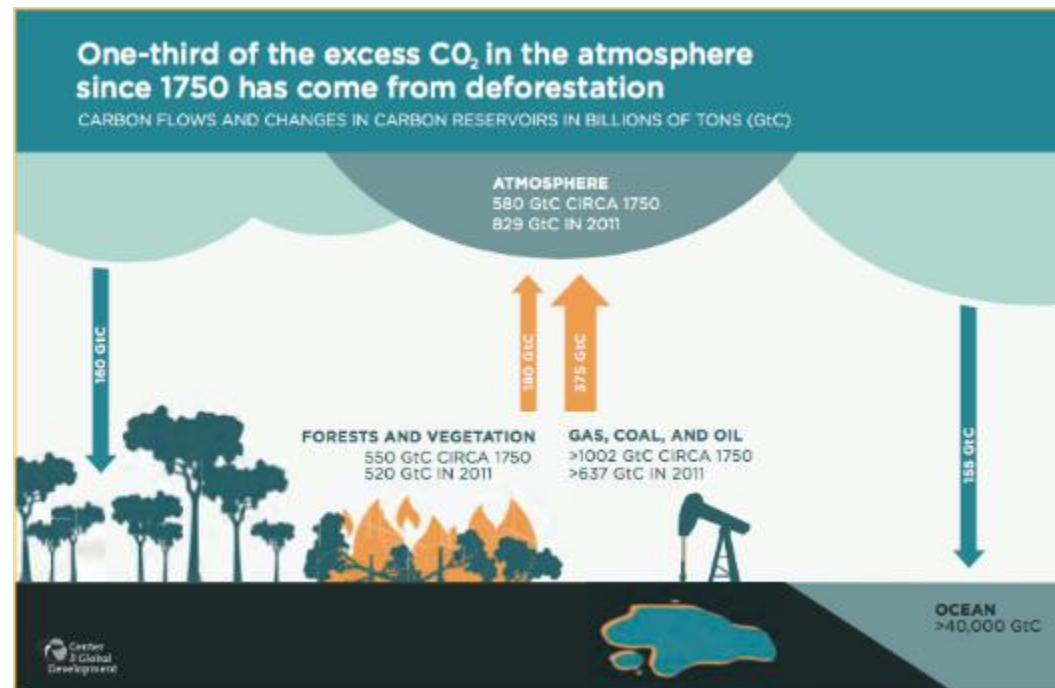
This paper series is developing into a book, which is expected to be published in the summer of this year.

“Why forests? Why now? A preview of the science, economics and politics of tropical forests and climate change”

Key topics:

- Tropical deforestation is a major source of emissions
- Halting deforestation is essential for climate stability
- The window for action is closing

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“In meeting the greatest global challenges of our time – averting catastrophic climate change and achieving development goals – tropical forests are an undervalued asset”

Global Action Plan: Ten action areas for growth

The New Climate Economy report - a global partnership of research institutes and business leaders

The Commission recommends:

- Integration of climate action and risk into strategic economic decision-making
- Introduction of strong, predictable carbon prices as part of fiscal reform
- **Halting deforestation of natural forests by 2030 by scaling up REDD+ and collaborative initiatives such as the Consumer Goods Forum and TFA2020**
- Restoration of at least 500 million hectares of lost or degraded forests and agricultural land by 2030



“By implementing the recommendations in this Global Action Plan, the world’s economic decision-makers have a remarkable opportunity to set the world on the path to better growth and a better climate”

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Global Landscape Forum

Stephen Rumsey, Chairman Permian Global speaking at the COP Lima, Peru

Stephen Rumsey discusses the challenges and opportunities to financing a sustainable landscape, as closing keynote speaker during the COP20 in Lima, Peru.

“Most people who have looked seriously at climate change believe that the prognosis for our planet is rather bad but we believe there is a solution which has been overlooked that is both achievable and easily affordable”



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Rainforest regrowth boosts carbon capture, study shows

By Mark Kinver, Environment reporter, BBC News, 4 February 2016

*“...The long established old-growth rainforests have locked away a vast quantity of carbon over the decades and centuries. **Rainforests are the largest terrestrial carbon sinks on the planet.** Deforestation is seen as one of the major drivers of emissions from human activities and is estimated to account for 20% of all emissions.”*

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The Great Land Rush - Indonesia: Saving the earth

FT Investigations, 1 March 2016

- In 2008, amid mounting calls for action the Norwegian government declared it would give Brazil \$1bn if it could stop deforestation and in 2010, offered \$1bn to Indonesia.
- Much of Indonesia's soil is carbon-rich peatland, a fuel that is quick to burn and hard to put out.
- Burning peat produces GHGs, a fact that took on urgency as fires burned through 2.6m hectares of Indonesia in 2015, blanketing parts of Southeast Asia in a noxious haze that closed schools and disrupted flights.
- The World Bank estimated the fires cost Indonesia at least \$16.1bn.
- Following the disaster, President Widodo appointed a former WWF director to head the new Peatland Restoration Agency.

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Meeting between the Norwegians and the forestry ministry officials, including Joko Widodo's new minister, Siti Nurbaya Bakar (centre-right)

The Cost of Fire Economic Analysis Indonesia's 2015 Fire Crisis

A special report by The World Bank, February 2016

2015 fire and haze crisis **cost Indonesia an estimated USD \$16.1bn**, equivalent to 1.9% of GDP and burnt >2.6m ha of land

Peatlands accounted for one-third of area burned but responsible for vast majority of haze and CO₂ emissions

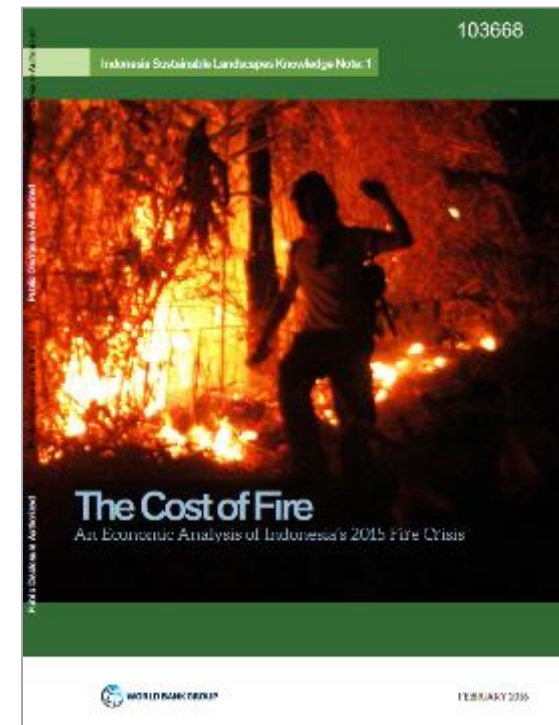
Draining and conversion of peatland driven by palm oil production contributes to the intensity of haze

Peat burns carbon deposited over thousands of years and cannot be replaced

Single foregone service – carbon storage – represents the biggest cost of fires underscoring their global impact

Unknown long term effects on ecosystems, reduced capacity of land to act as a carbon sink, deleterious effect on plant physiology and photosynthesis, negative impact on pollinators, sustained environmental stress and in extreme cases species ability to survive could lead to a tipping point after which ecosystems are altered irreversibly

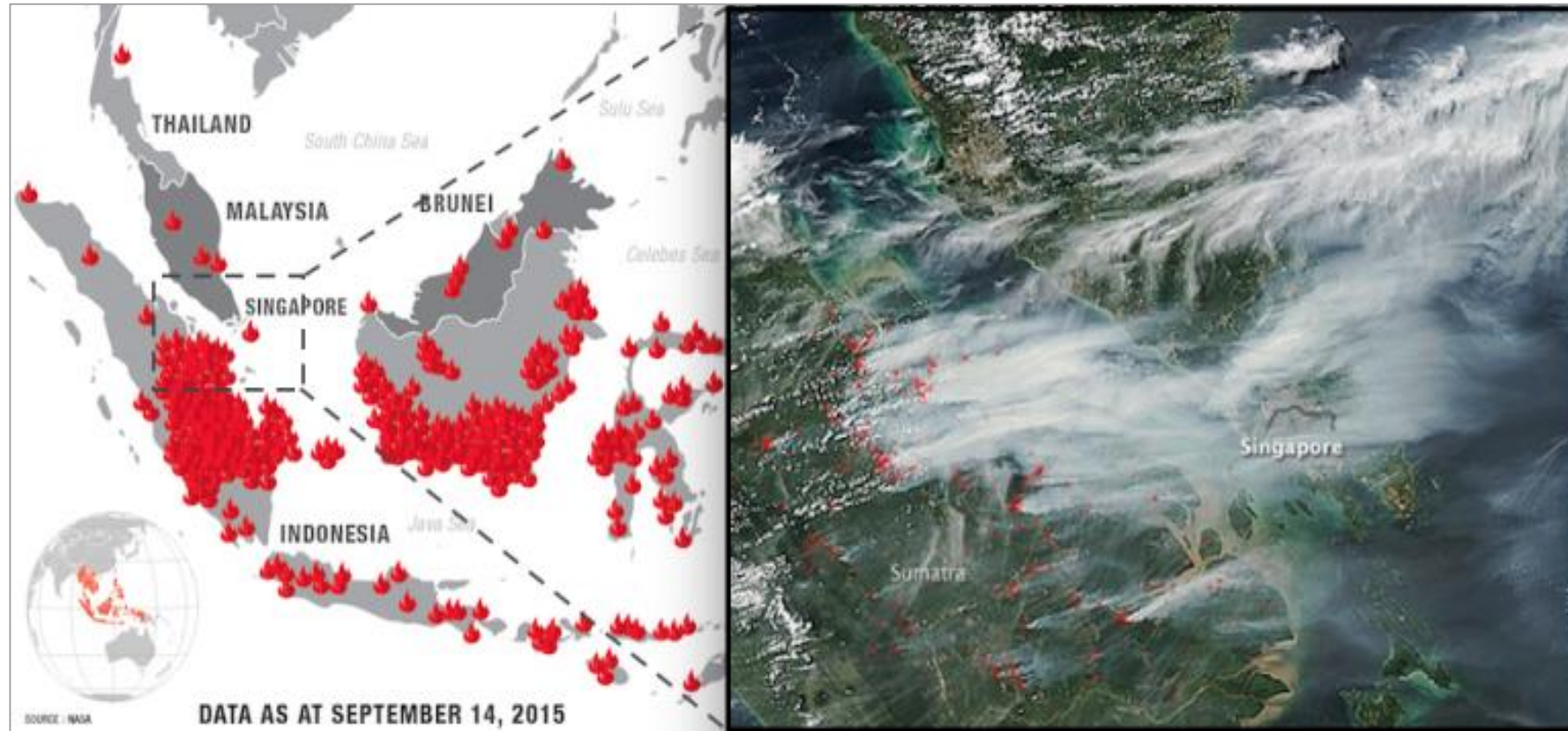
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Hectares burned by province, June – October 2015

Province	Thousand hectares	Percent
S. Sumatra	608	23
C. Kalimantan	429	16
E. Kalimantan	388	15
S. Kalimantan	292	11
Papua	268	10
W. Kalimantan	178	7
Riau	139	5
Jambi	123	5
Other	186	7
Total	2,611	100

NASA satellite image of SE Asia Haze, September 2016



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How business can tackle deforestation: Beyond COP21

Holt Thrasher, CEO Permian Global delivers keynote speech

Innovation Forum Washington DC, April 2016



Tobias Webb @webb_tobias · Apr 6

@HoltThrasher from @PermianGlobal closes day one of #deforestation DC event @InnovaForum on an optimistic note



“It may be argued that the carbon sequestration potential of tropical forests has been under emphasized. However, a 1.5 degree climate target may mean we cannot defer practical solutions while waiting for scalable technologies to arrive.

The restoration and conservation of tropical forests must become more embedded in efforts to solve the climate’s carbon imbalance.”

REDD+ and the carbon markets

COP 21, Paris 2015 UNFCCC: The Paris Agreement

195 countries adopt first-ever universal, legally binding global climate deal.

- Article 5 of The Paris Agreement was dedicated to forests with main objective to anchor existing forest-related provisions, frameworks and decisions in the new Agreement
- Para1 of the Article refers to the UNFCCC mandate to sustainably manage, conserve and enhance biological carbon reservoirs that refers to forests and other ecosystems in developed and developing countries
- Para2 supports further by referring to REDD+ framework
- The Agreement also acknowledges policy approaches such as joint mitigation and the role of non-carbon benefits are also acknowledged
 - Mitigation – reducing emissions fast enough to achieve the temperature goal
 - A transparency system and global stock-take – accounting for climate action
 - Adaptation – strengthening ability of countries to deal with climate impacts
 - Loss and damage – strengthening ability to recover from climate impacts
 - Support – including finance, for nations to build clean, resilient futures

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Joint Statement from the US and Norway on Deeper Collaboration on Forests and Climate Change

Announced June 15, 2016

- Recognises critical importance of forests and land use in mitigating impacts of climate change
- Kingdom of Norway and USA resolve to deepen collaboration on global issues related to forests and climate change
- Acknowledge goals agreed at COP21 Paris cannot be achieved without forests
- Conserving and restoring tropical forests will be important to achieve climate neutrality
- Committed to achieving robust and lasting results in conserving and restoring forests
- Resolve to continue and enhance existing cooperation on REDD+
- Support states at the ICAO 2016 Assembly to adopt a Global Market Based Measure to help to enable carbon neutral growth in international aviation from 2020
- Hold a bilateral expert-level meeting on forests once per year

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Ahead of the curve: State of the Voluntary Carbon Markets

Ecosystem Marketplace, a Forest Trends Initiative June 2015

Key topics

- Fighting climate change is about conserving and enhancing the world's remaining carbon sinks, including biodiverse forest and grasslands
- Through the creation and trade of carbon offsets, carbon markets offer a way to “internalize” the value of reducing, avoiding, or sequestering one tonne of carbon dioxide equivalent (tCO₂e)
- This report emphasises the link between voluntary and regulation-driven market dynamics

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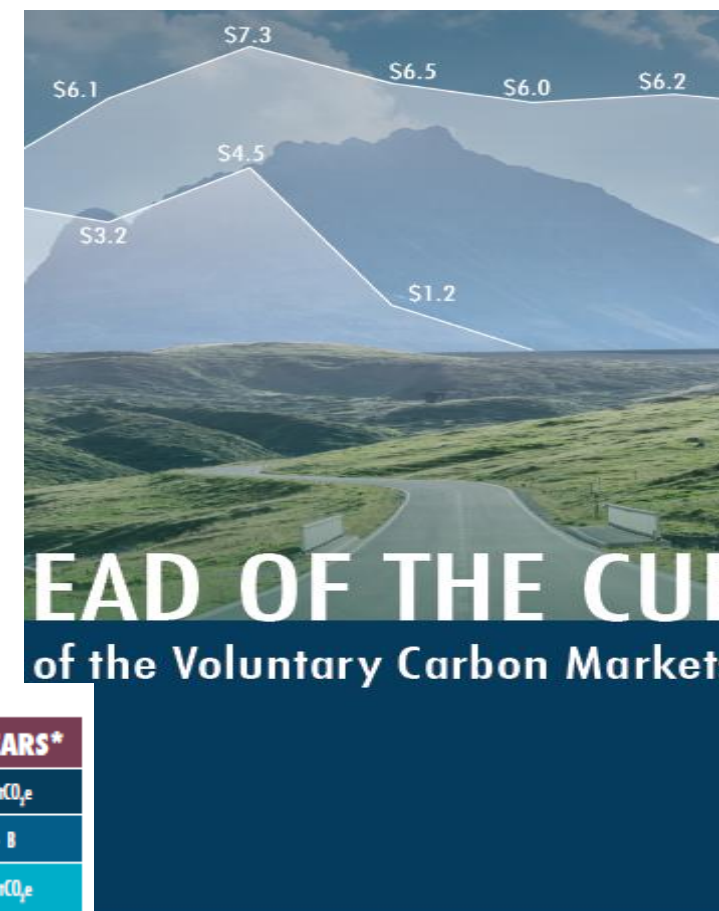


Table 1: Market Size and Average Price Comparison, 2013 and 2014

	2014	2013	% CHANGE	ALL YEARS*
VOLUME:	87 M tCO ₂ e	76 M tCO ₂ e	+14%	0.93 B tCO ₂ e
VALUE:	\$395 M	\$379 M	+4%	\$4.4 B
AVERAGE PRICE**:	\$3.8 / tCO ₂ e	\$4.9 / tCO ₂ e	-22%	\$5.8 / tCO ₂ e

What does it mean to place a price on carbon?

Featured story on the World Bank News

Key topics

- How carbon pricing works
- How countries are getting involved, specifically China, South Africa, Mexico and Norway
- Private sector involvement

“Carbon pricing is gaining attention as a way to address climate change. About 40 countries and more than 20 cities, states and provinces use carbon pricing mechanisms such as emissions trading systems and carbon taxes or are preparing to implement them”

Click [here](#) to view online and watch [video](#) “Think Forests: Why Investing in Forests is the Next Big Thing”



Putting a price on risk: Carbon pricing in the corporate world

CDP (Formerly known as the Carbon Disclosure Project)

Key topics

- Companies placing an internal price on carbon as a strategic tool in business planning
- Carbon pricing can spur innovation, curtail risk and provide investors with an economic valuation of climate related risks and opportunities
- Thought pieces from sustainability directors at Microsoft, Disney, TD Bank explain, in their own words, why and how companies price carbon risk

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The image shows the cover of the CDP Report 2015 v1.3, dated September 2015. The cover features a photograph of the Eiffel Tower and the Paris skyline at sunset. The title 'Putting a price on risk: Carbon pricing in the corporate world' is prominently displayed. A large red curved arrow points from the cover to a purple box containing the following text:

1000+ companies
are now disclosing to their key stakeholders that they currently price their carbon emissions – or intend to in the next two years – to try to meet their climate change risks, a number that was unthinkable just a few years ago.

Managing carbon intensity of portfolios

UNEP FI Investor Briefing

Global partnership between UNEP and the financial sector. Over 200 institutions, including banks, insurers and fund managers, work with UNEP to understand the impacts of environmental and social considerations on financial performance.



PORTFOLIO CARBON

Measuring, disclosing and managing the carbon intensity of investments and investment portfolios

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CARBON ASSET RISK: WRI AND UNEP-FI PORTFOLIO CARBON INITIATIVE

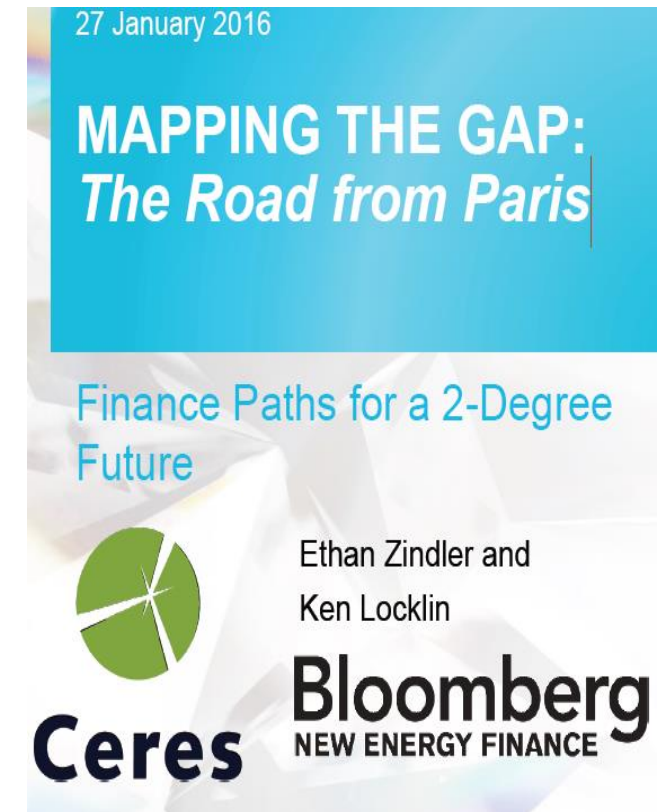
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Mapping The Gap: *The Road from Paris*

Presentation given by Bloomberg New Energy Finance and Ceres, January 2016

In "Mapping the Gap: The Road From Paris", Bloomberg New Energy Finance, Ceres and Ken Locklin have collaborated to more closely examine total volumes of capital that are required to fund clean energy power project development in the electric sector. Clean energy is poised for rapid growth. Under a business-as-usual scenario, investment in new renewable electric power generation is projected to reach \$6.9 trillion over 25 years — and it is telling that this level of investment is expected to increase an additional 75% to create a **\$12.1 trillion investment opportunity** as the world works to achieve the 2°C goals of the Paris Climate Agreement.

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Cambridge University

Cambridge Institute for Sustainability Leadership (CISL)

Banking Environment Initiative (BEI)

CISL Publication

Business Compendium

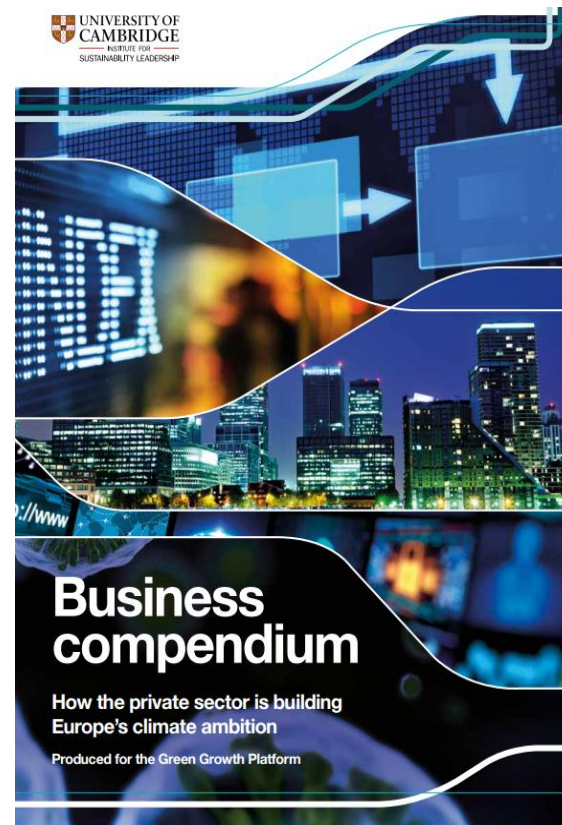
How the private sector is building Europe's climate ambition

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BEI

The Chief Executives of some of the world's largest banks created the Banking Environment Initiative (BEI) in 2010. Its mission is to lead the banking industry in collectively directing capital towards environmentally and socially sustainable economic development.

Click [here](#) to read more



"CISL is sustained by the continuing and indeed increasing relevance of the work it does. In a field which grows thicker every day with science and policy, and where the body of stakeholders grows continually, CISL has proved itself to be a trusted expert voice – a voice which interprets NGOs to big business, and business to academia, when they seem to speak different languages."
Professor Sir Leszek Borysiewicz, Vice-Chancellor

UN Sustainable Development Summit 2015

Sustainable Development Goals (SDG's) 2030

- The SDGs build on the Millennium Development Goals (MDGs), eight anti-poverty targets that the world committed to.
- The SDGs have a more ambitious agenda, seeking to eliminate rather than reduce poverty, and include more demanding targets on health, education and gender equality. They are universal, applying to all countries and all people.
- The agenda also includes issues that were not in the MDGs such as climate change, sustainable consumption, innovation and the importance of peace and justice for all.

Ban Ki-moon, has described the new goals as “a universal, transformative and integrated agenda that heralds an historic turning point for our world”. The summit, he added, is intended to “chart a new era of sustainable development in which poverty will be eradicated, prosperity shared and the core drivers of climate change tackled”.

Click [here](#) to view all 17 SDGs



Deforestation and corporate engagement

How business can tackle deforestation

Report commissioned by Innovation Forum on business and deforestation, April 2015.

Key topics

- A management briefing report that highlights the issues around sustainability and deforestation facing companies today
- Experts from global companies discuss the challenges in eliminating deforestation from their supply chains
- The report also looks at how governments and NGOs, in partnership with private sector organisations, deal with the risks, solutions and opportunities
- The report includes a thought leadership piece by Stephen Rumsey, chairman and founder of Permian Global



“Permian Global argues for a forest model that increases agricultural productivity while preserving essential ecosystems”

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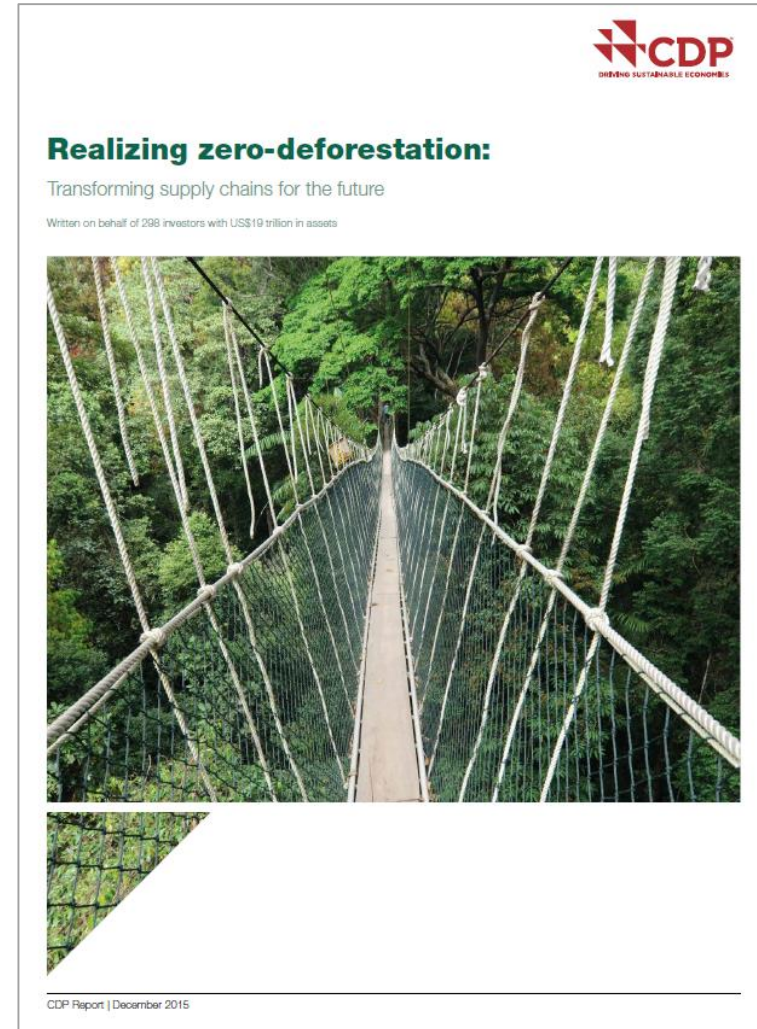
Realizing zero-deforestation

Transforming supply chains for the future

Key topics

- Conserving and restoring forests feature prominently in the SDGs and in order to succeed we need to transform commodity supply chains
- Agriculture is direct driver of up to 80% of deforestation
- Key forest commodities: cattle products, palm oil, timber products and soy
- Up to 33% of the carbon mitigation needed annually to keep temperature rises in check could be achieved by addressing deforestation and forest degradation

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Testing Commitments to Cut Conflict Palm Oil

2105: The year to drive change



TESTING COMMITMENTS TO

**CUT CONFLICT
PALM OIL**

2015: THE YEAR TO DRIVE CHANGE - PROGRESS REPORT



Key topics

- Conflict palm oil is a leading driver of tropical deforestation
- Rainforest Action Network exposes the supply chains that link conflict palm oil to fast foods focusing on a group of large corporates called the Snack Food 20
- Adopting clear commitments is a crucial first step but need to lead to action
- This progress report looks at the laggards and outlines action these companies can take

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Firm Commitments

Tracking Company Endorsers of the New York Declaration on Forests (NYDF)



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Restore 150 million ha degraded forests by 2020; another 200 million ha by 2030



59.2 million ha
of forests so far slated for restorationⁱⁱⁱ

Halve natural forest loss by 2020; end by 2030



13 million
forested hectares (ha) lost annuallyⁱ

Support private sector to eliminate deforestation from agricultural commodities and other economic sectors by no later than 2020



Commercial agriculture drives at least **70% of tropical deforestationⁱⁱ**

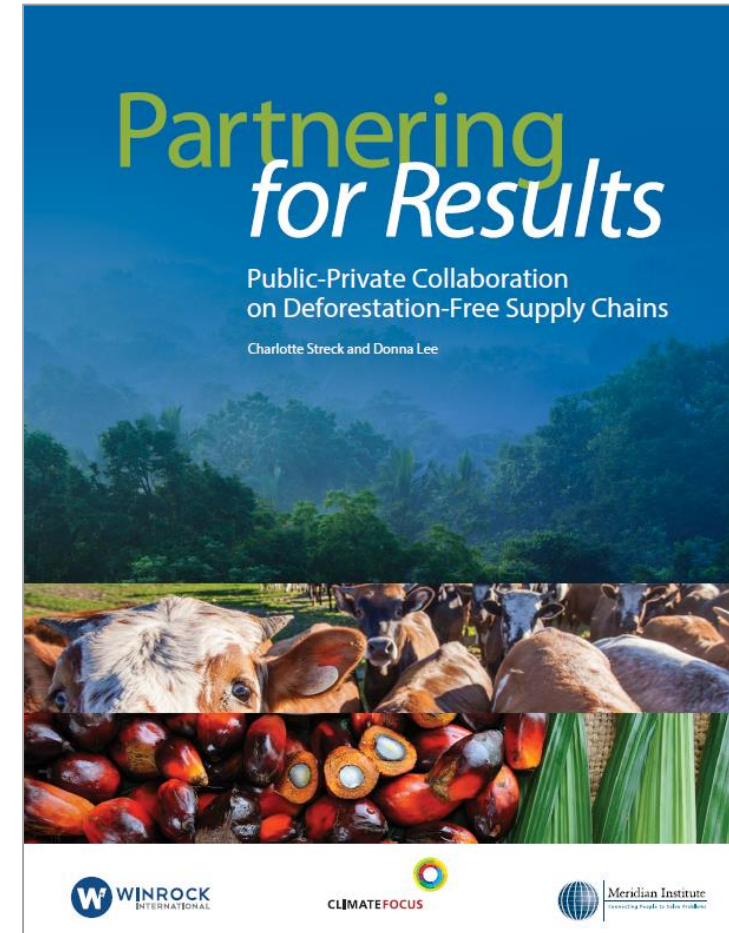
Partnering for Results

Public-Private Collaboration on Deforestation-Free Supply Chains

Key topics

- The last five years have seen a surge in corporate commitments to deforestation-free supply chains but adopting commitments is a lot easier than achieving them
- Since 2009, the number of company pledges to reduce deforestation risks in the production, supply and procurement of commodities has risen from single digits to 307 in September 2015

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Linking Flight and Forests: the essential role of forests in supporting global aviation's response to climate change

Overview for ICAO Policy Makers

- In October 2016, the International Civil Aviation Organization (ICAO) will finalize global market-based measures to assist the international aviation industry with agreed climate change targets—capping aviation GHG emissions at 2020 levels and delivering carbon neutral growth from 2020
- REDD+ is considered an important framework for reducing emissions whilst managing forests and enhancing forest carbon stocks delivering both carbon and non-carbon benefits
- Benefits of REDD+ provide additional environmental and social benefits not found in the mitigation activities of other sectors



Harnessing the aviation sector's commitment to curb its emissions to help reduce global deforestation is one of the most compelling ways to slow climate change, maintain ecosystems upon which the whole world depends and improve the livelihoods of 1.6 billion people. ICAO and the world should seize this opportunity to meet its climate objectives and the Sustainable Development Goals.

Click [here](#) to read full report



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