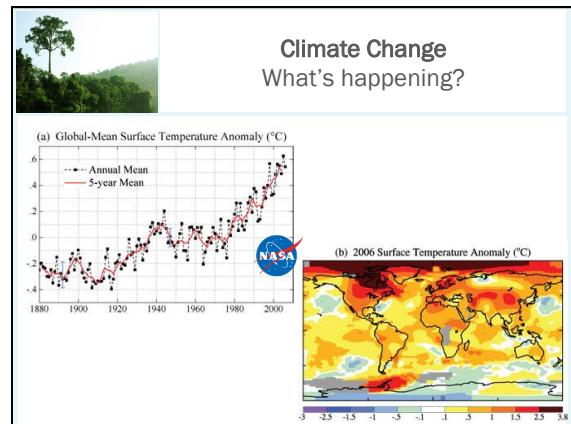


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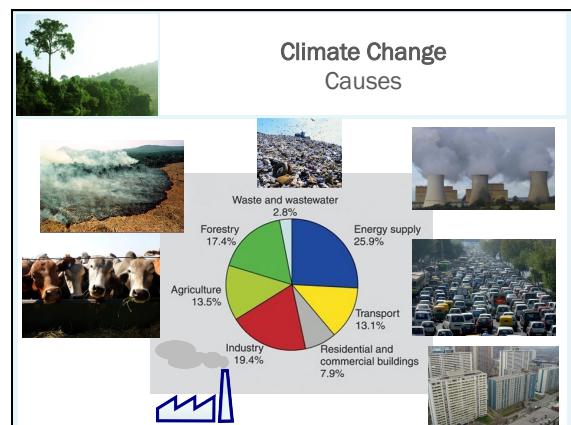
## REDD+: International Context

UN-REDD Programme



**Climate Change  
Impacts**

**UNCERTAIN!**



**Addressing Climate Change**

<b>Climate Change Mitigation</b>	<b>Climate Change Adaptation</b>
<ul style="list-style-type: none"> <li>Lowering emissions from human activities</li> </ul>	<ul style="list-style-type: none"> <li>Creating new infrastructure and systems (technological, social, etc.) to cope with the predicted changes</li> </ul>

**Climate Change Mitigation  
Reducing Emissions**

<b>Countries/Governments</b>	<b>Businesses/Individuals</b>
<ul style="list-style-type: none"> <li>Developed countries are under pressure to reduce their emissions</li> <li>The Kyoto Protocol of the UNFCCC set emissions limits for developed countries</li> <li>Countries who exceed their limit have to buy emissions (<b>carbon credits</b>)</li> <li>The United Nations determines the methods for measuring and accounting for carbon credits</li> <li>These carbon credits are traded within the <b>COMPLIANCE or REGULATED CARBON MARKET</b></li> </ul>	<ul style="list-style-type: none"> <li>Non-government organizations or individuals may also want to reduce their emissions</li> <li>NGOs and companies establish <b>emissions-reducing projects</b> and sell the carbon credits they generate</li> <li>These are called <b>carbon offset projects</b></li> <li>There are <b>no generic methodologies</b>; many have emerged</li> <li>These carbon credits are traded within the <b>VOLUNTARY CARBON MARKET</b></li> </ul>

### Voluntary Carbon Market Take-Home Points

- Buyers of the carbon credits do so on a voluntary basis (e.g. a business might do it for marketing reasons)
- Project-based (not country-based as with the UNFCCC), mostly in developing countries
- Lots of standards – no overarching framework
- Many forestry voluntary carbon projects (e.g. reforestation, conservation)
- Basic concept:

The Gold Standard  
Premium quality carbon credits

American Carbon Registry

VCS VERIFIED CARBON STANDARD

CLIMATE ACTION RESERVE

CarbonFix Standard Geographically divided, Climate-smart

socialcarbon

CCB Standards The Climate, Community & Biodiversity Alliance

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### Climate Change & the United Nations Compliance Carbon Market

### United Nations Environmental Conventions

- Growing concern about environmental issues during 1980s
- 1992: Rio Earth Summit in Brazil: International United Nations conference
- Three conventions** emerged to address environmental issues:
  - United Nations Convention on Biological Diversity (UNCBD)
  - United Nations Convention on Combating Desertification (UNCCD)
  - United Nations Framework Convention on Climate Change (UNFCCC)
- UNFCCC:** aimed to bring countries together to limit the impacts of climate change (by lowering human emissions) and adapt to the projected impacts (climate change adaptation, e.g. sea level rises)

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### The UNFCCC

### The UNFCCC

- Created by the **United Nations** as part of global efforts to reduce human GHG emissions
- Main tool = **Kyoto Protocol**: created legally-binding emissions reduction targets for **developed countries** (e.g. the UK has to reduce emissions by 7% compared to its 1990 emissions level)
- Developed countries are firstly obliged to reduce their national emissions
- If they cannot reduce their emissions enough to meet their target, they can:
  - Trade emissions with other countries
  - Pay to establish emissions-reducing projects in other countries (this is called the **Clean Development Mechanism (CDM)**)
- This trading (buying and selling of carbon credits) created the compliance carbon market

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### Regulated Carbon Market Take-home points

- Under the UNFCCC:
  - Countries are given a quota of emissions
  - Countries that do not fill their quota can sell their excess to other countries that exceed their quota

Kyoto Target

Developing Country

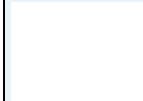
CDM Project

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 The UNFCCC

- Until now, the focus of the UNFCCC for reducing emissions has been on developed countries, which have been historically responsible for most emissions
  - Concept of “**common but differentiated responsibilities**”
- This is now changing for two reasons
  - Increasing contribution** of emissions from developing countries (e.g. China)
  - Urgency** of climate change challenge and need to make deeper GHG cuts
- There is now therefore more focus on **reducing emissions from developing countries**, but:
  - The UNFCCC states that **development/poverty reduction comes first**
  - This **could provide an opportunity** for these countries to benefit financially from the compliance carbon market

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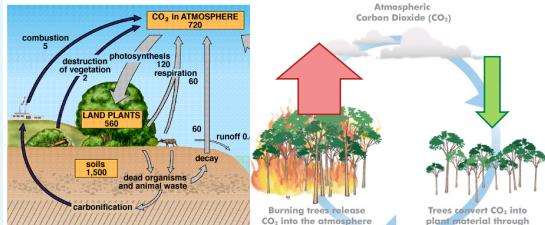
 Climate Change & Forestry

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 Forest Carbon

Sylvia S Mader, Biology, 6th edition. © 1998 The McGraw-Hill Companies, Inc. All rights reserved.

**The Carbon Cycle**

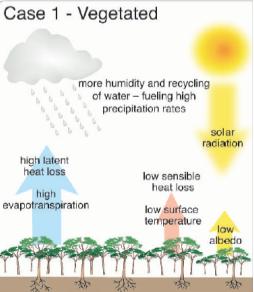


Flux Type	Value (GtC yr⁻¹)
Atmospheric Carbon Dioxide (CO₂)	729
Burning trees release CO₂ into the atmosphere	120
Trees convert CO₂ into plant material through photosynthesis	60
Atmospheric CO₂ uptake by land plants	560
Atmospheric CO₂ uptake by soils	1,500
Atmospheric CO₂ uptake by dead organisms and animal waste	60
Atmospheric CO₂ uptake by carbonification	0
Atmospheric CO₂ release by decay	60
Atmospheric CO₂ release by runoff	0
Atmospheric CO₂ release by combustion and destruction of vegetation	5

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 Forests, Deforestation and Water

Case 1 - Vegetated



- more humidity and recycling of water – fueling high precipitation rates
- solar radiation
- high latent heat loss
- high evapotranspiration
- low sensible heat loss
- low surface temperature
- low albedo

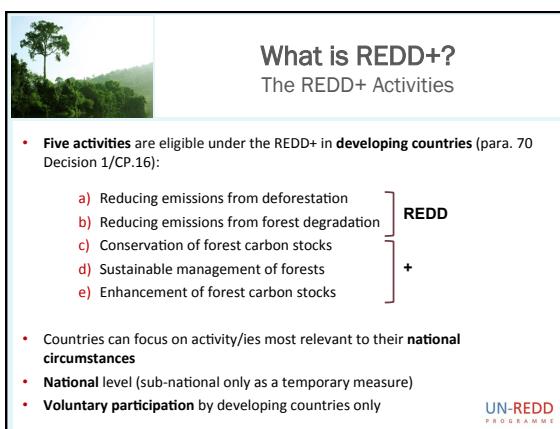
(Foley et al 2003)

 Emissions from Forestry

- The **IPCC** recognised the contribution of **emissions from the forestry sector** in developing countries to climate change
- Research showed that reducing emissions from the forest sector was an opportunity to reduce emissions and increase removals **cost-effectively** (IPCC, 4AR)
- This lead to address the forest sector in developing countries as a means to mitigate climate change, informally known as **REDD+**

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ACTIVITY	EXPLANATION	USEFUL INDICATORS
Reducing emissions from deforestation	Deforestation is the conversion from forest land use to another land use (e.g. forest land to crop land)	- Reduced rate of forest loss
Reducing emission from forest degradation	Degradation is the human-induced loss of carbon stocks within forest land that remain forest land	- Reduced rate & volume of timber extraction
Conservation of forest carbon stocks	Is an effort to decrease the threat that forests and to ensure permanence by establishing long-term commitments to preserve forest	- Strengthening & expansion of protected area network
Sustainable management of forests	Generally refers to bringing the rate of extraction in line with the rate of natural growth or increment	- Increased land under sustainable management (e.g. CFM)
Enhancement of forest carbon stocks	Refers to 1) non-forest land becoming forest land, & 2) the enhancement of carbon stocks in forest land remaining forest land	- Increase in reforestation & afforestation - Degraded forests allowed to regenerate

