

CARBON MARKET OPPORTUNITIES

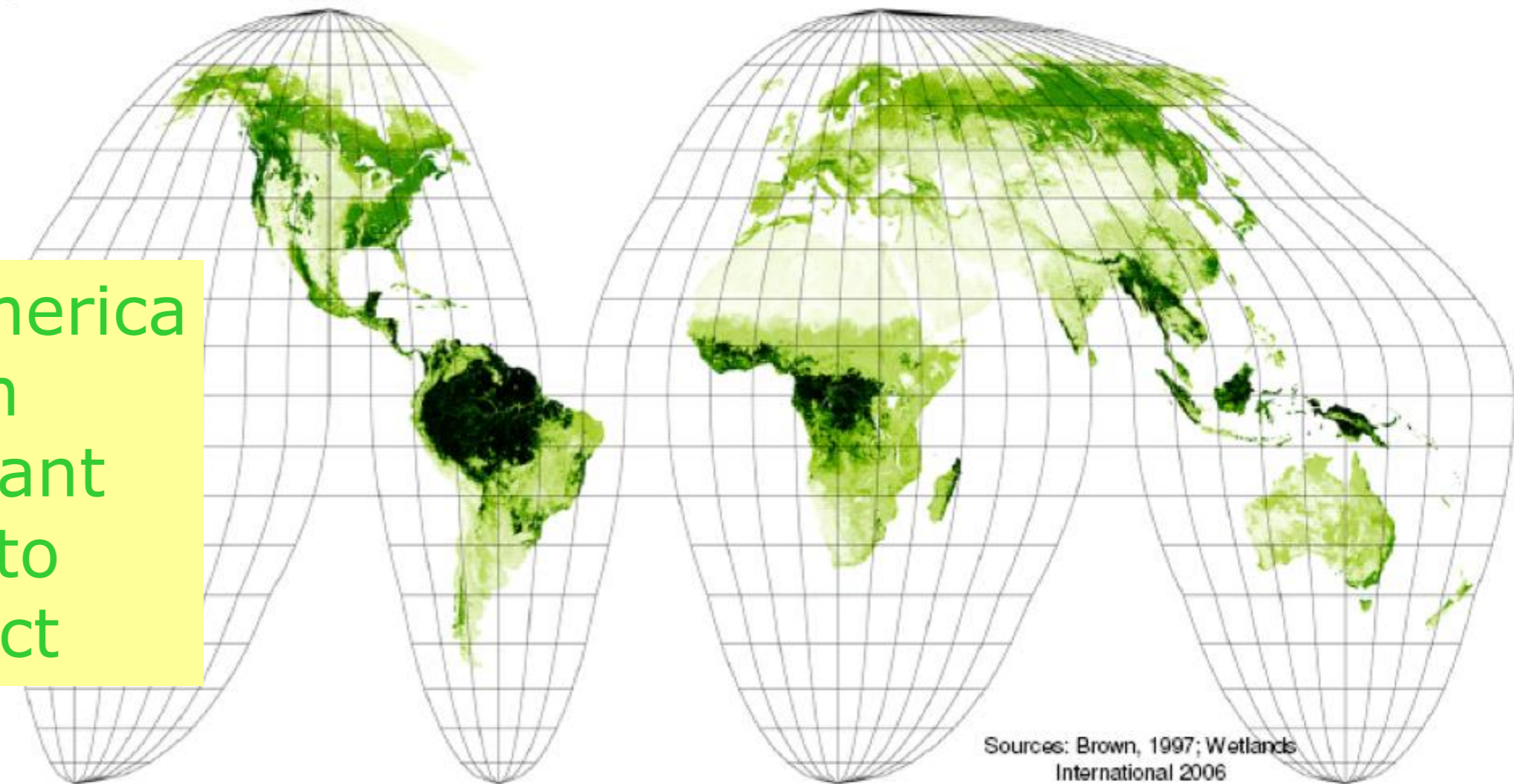
- 🌍 Reducing Emissions from Deforestation and Forest Degradation (REDD+)
 - 🌍 Japanese Bilateral Opportunities
 - 🌍 US carbon markets: California, Western Climate Initiative, RGGI
 - 🌍 CDM, linked to EU ETS, post 2012
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REDUCING EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION (REDD)

- ⑩ Deforestation and Forest Degradation: nearly 20% of global GHG emissions
- ⑩ Emissions depend on forest carbon stocks

Carbon in Above- and Belowground Vegetation
(data USGS, U.S. Dept. Energy; analysis WRI)

0 250 t ha⁻¹



Tropical forest: > 250 ton C/ha → 920 ton CO₂/ha

South America
is an
important
area to
protect

REDUCING EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION (REDD)

- ⑩ REDD not included in Kyoto Protocol: not in CDM
- ⑩ Key decisions made at COP in Bali (2007)
- ⑩ REDD+ includes conservation, sustainable management of forests and enhancement of forest carbon stocks
- ⑩ Credits generated through REDD are now traded in voluntary markets
- ⑩ Projects are certified through a VER market (e.g. VCS) and through CCBS (of Climate, Community and Biodiversity Alliance)

More 



JAPAN: BILATERAL OPPORTUNITIES

Japanese Govt. Exploring Potential for Bilateral Offset Projects

- 🌐 Currently conducting feasibility studies to determine potential emission reduction projects in developing countries
- 🌐 Projects monitored and verified by Japan govt.
- 🌐 Due to failure to reach intl. consensus on climate, may represent future outlook for carbon markets

Additional Considerations

- 🌐 Geographical focus on SE Asia, some projects in Latin America
 - 🌐 An avenue to bring new project types to compliance markets such as forestry, nuclear, efficient coal
 - 🌐 Emphasis on creating opportunities for export of Japanese technology
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US CARBON MARKETS

California

- 🌐 Program initiates in 2011, first year of commitment is 2012
- 🌐 8% of compliance can come from offsets (232 million offset demand from 2012 - 2020)
- 🌐 May see limited cap-and-trade scheme within 5 years
- 🌐 Initial compliance offsets include U.S. domestic forestry, ODS, ag. Methane

Western Climate Initiative

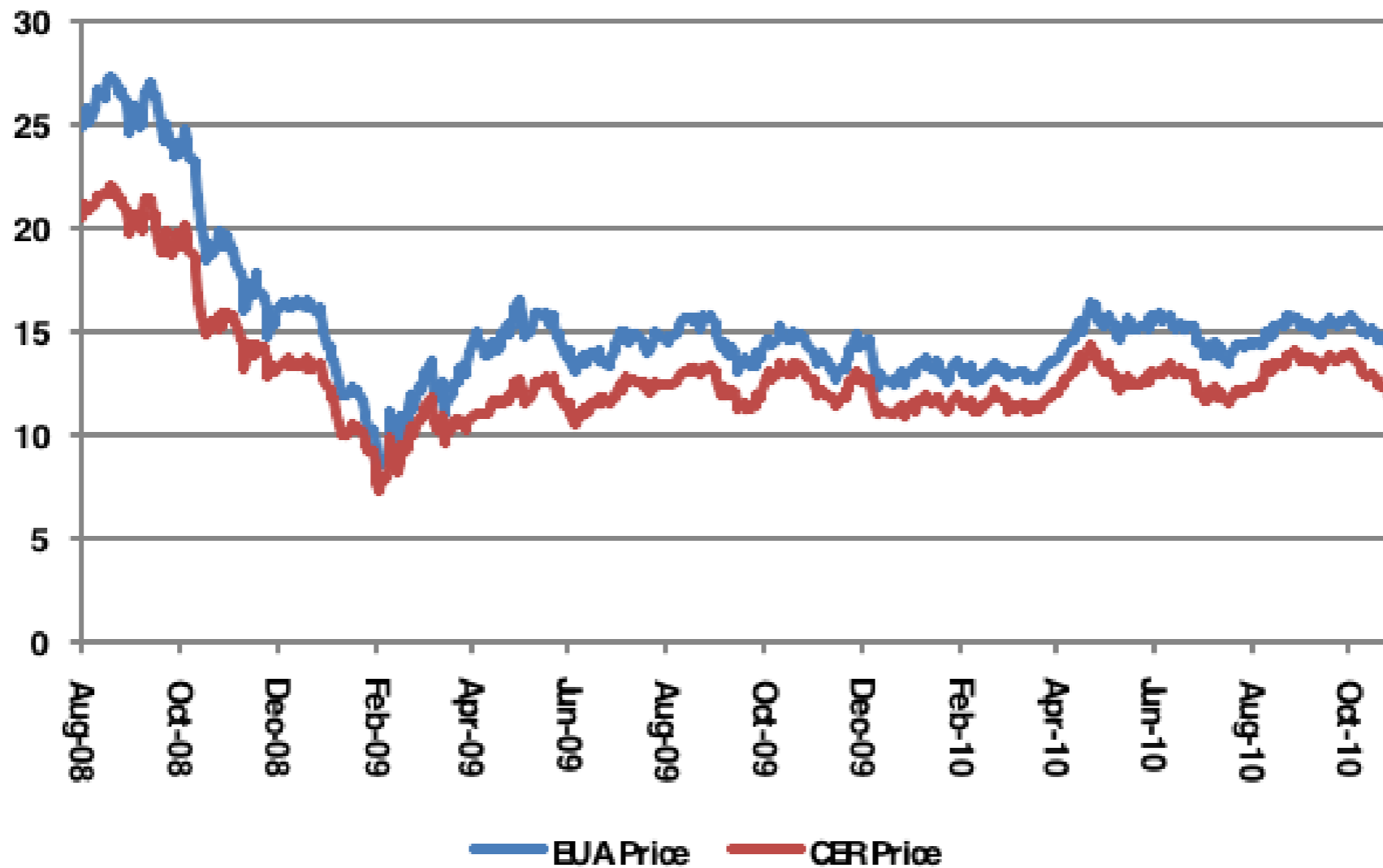
Includes 19% of US population

Includes 79% of Canadian population

Regional Greenhouse Gas Initiative

EU ETS IS PRIMARY DRIVER OF CARBON MARKET

December 2010 EUA and CER Pricing (€/ton)



2008-2012 Offset Supply estimated at 1 billion CERs

CARBON MARKET IN THE FUTURE

There will be a market.

Fragmented market:

- 🌐 **CDM/JI**
- 🌐 **REDD**
- 🌐 **Interconnected ETS**

More towards programmatic/sectoral approaches.

The key will be a successful Public Private Partnership (PPP) and an active financial sector.

Transport emissions reduction

- ⑩ Transport often large source of emissions, e.g. 54% of total energy sector emissions in Costa Rica (only 4% from power generation)
- ⑩ Efficient public transport design, e.g. Transmilenio (Bogotá, Colombia)



CDM

Transport emissions reduction

- ⑩ **Electrification of transport can provide large emissions reduction opportunity**
 - ⑩ **Latin America and Caribbean:**
 - ⑩ Population is mostly urban
 - ⑩ **Mountainous regions:**
 - ⑩ Cable cars provide large emissions reduction opportunity
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Urban electric mass transport

Medellín, Colombia

Emissions factor for electricity generation (tCO₂/MWh)

EPM: 0.034

Colombia: 0.11

Coal: ~ 1.0

(Emissions factor for diesel is same worldwide)



Private electric transport



4 CDM (India)



Nissan LEAF



TESLA S (Toyota major investor)

