



*Mercato volontario per la compensazione della CO2:
Opportunità per il settore agro-forestale?*

Attività territoriali e cambiamenti climatici: dal Protocollo di Kyoto al post-2012

Lorenzo Ciccarese

391.76 ppm

Atmospheric CO₂ for February 2011

Preliminary data released March 8, 2011 (Mauna Loa Observatory: NOAA-ESRL)

Atmospheric CO₂

February 1959 - February 2011

February CO₂ | Year Over Year | Mauna Loa Observatory
Data: Scripps 1958-1974 + NOAA-ESRL 1974-Present



Climate System

Climate Changes

Effects

Scientific Predictions

Climate Science

Temperature

Climate FAQs

Presentations

KNOW CO₂

The Need to Know CO₂

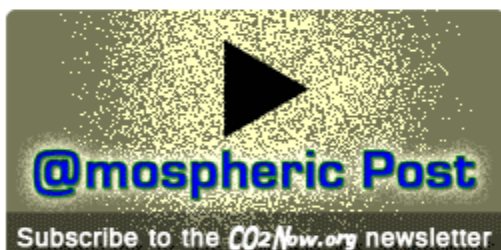
CO₂ Monitoring

KNOW GHGS

Emissions

Methane | CH₄

All Greenhouse Gases

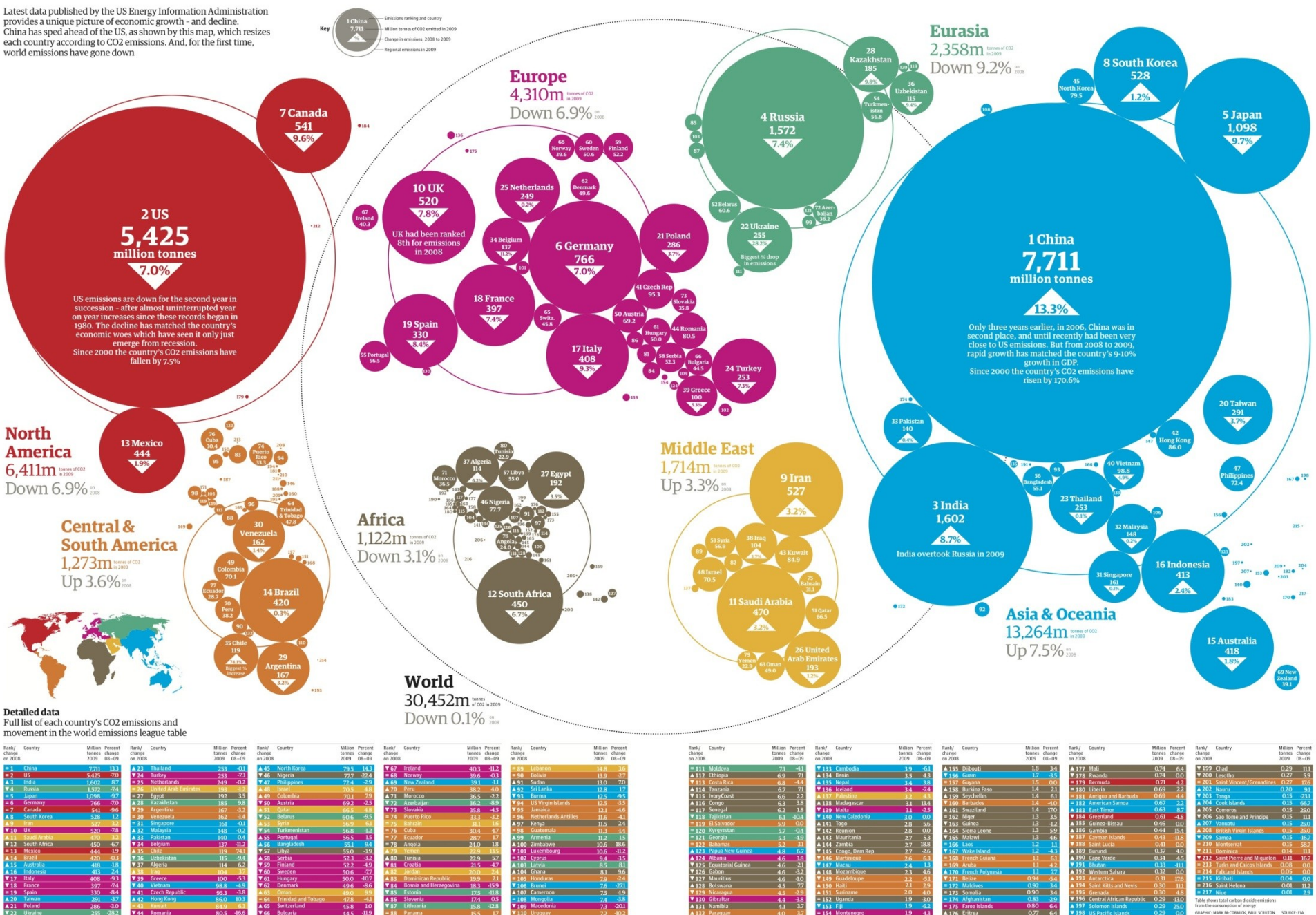


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CO₂ Goal = 350



Latest data published by the US Energy Information Administration provides a unique picture of economic growth - and decline. China has sped ahead of the US, as shown by this map, which resizes each country according to CO2 emissions. And, for the first time, world emissions have gone down



GHG trends and projections in Italy

European Environment Agency



Key GHG data ⁽¹⁾	1990	2007	2008	2009 ⁽²⁾	Unit	Rank in EU-27 ⁽³⁾	Rank in EU-15 ⁽³⁾
Total greenhouse gas emissions (GHG)	517.0	552.6	541.5	495.0	Mt CO ₂ -eq.	3	3
GHG from international bunkers ⁽⁴⁾	8.6	18.3	18.5	n.a.	Mt CO ₂ -eq.	7	7
GHG per capita	9.1	9.3	9.1	8.2	t CO ₂ -eq. / capita	17	11
GHG per GDP ⁽⁵⁾	508	429	426	410	g CO ₂ -eq. / euro		
Share of GHG in total EU-27 emissions	9.3 %	11.0 %	11.0 %	10.8 %	%		
EU ETS verified emissions ⁽⁶⁾		226.4	220.7	184.9	Mt CO ₂ -eq.	3	3
Share of EU ETS verified emissions in total GHG		41.0 %	40.8 %	37.3 %	%		
ETS verified emissions compared to annual allowances ⁽⁷⁾		11.4 %	4.2 %	- 9.4 %	%		

Share of GHG emissions (excluding international bunkers) by main source and by gas in 2008 ^{(1),(8)}

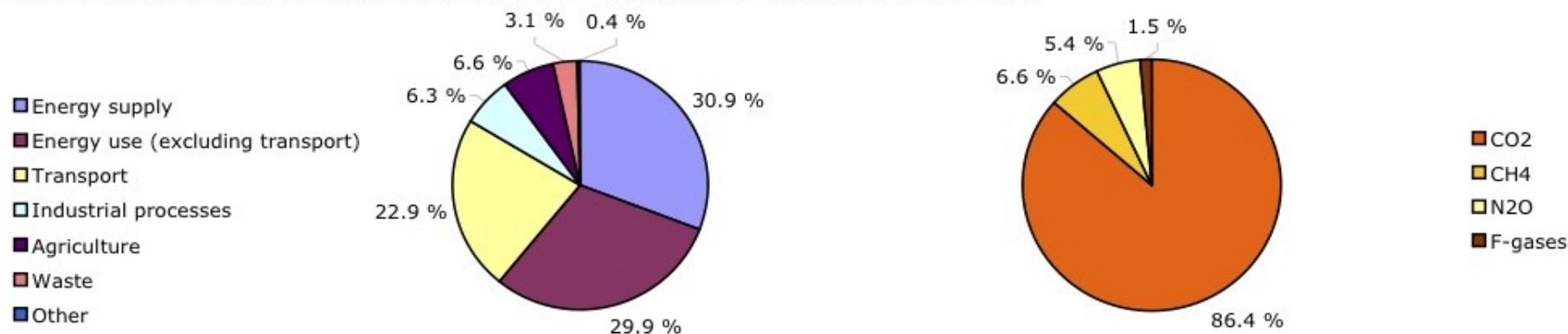




Foto di Roberto Faidutti/FAO





**Lembo di foresta pluviale
circondata da ettari di campi di soia
su terreni deforestati**

Mato Grosso, Brasile

Fonte: John Lee / Aurora

Table 3: Estimates of carbon loss from forests attributed to deforestation

(from different authors; carbon loss to the atmosphere in Gigatons of carbon per year

(GtC/yr) / Gigatons of carbon dioxide per year (GtCO₂/yr))

Region	Fearnside (2000) 1981-1990	Malhi and Grace (2000) 1980-1995	Houghton (2003) 1990s	DeFries et al. (2002) 1990s	Achard et al. (2004) 1990s
America	0.94 (3.45)	0.94 (3.45)	0.75 (2.75)	0.43 (1.58)	0.44 (1.61)
Africa	0.42 (1.54)	0.36 (1.32)	0.35 (1.28)	0.12 (0.44)	0.16 (0.59)
Asia	0.66 (2.42)	1.08 (3.96)	1.09 (4.00)	0.35 (1.28)	0.39 (1.43)
Total	2 (7.33)	2.4 (8.8)	2.2 (8.06)	0.91 (3.33)	0.99 (3.63)

Source: Adapted from UNFCCC, 2007b

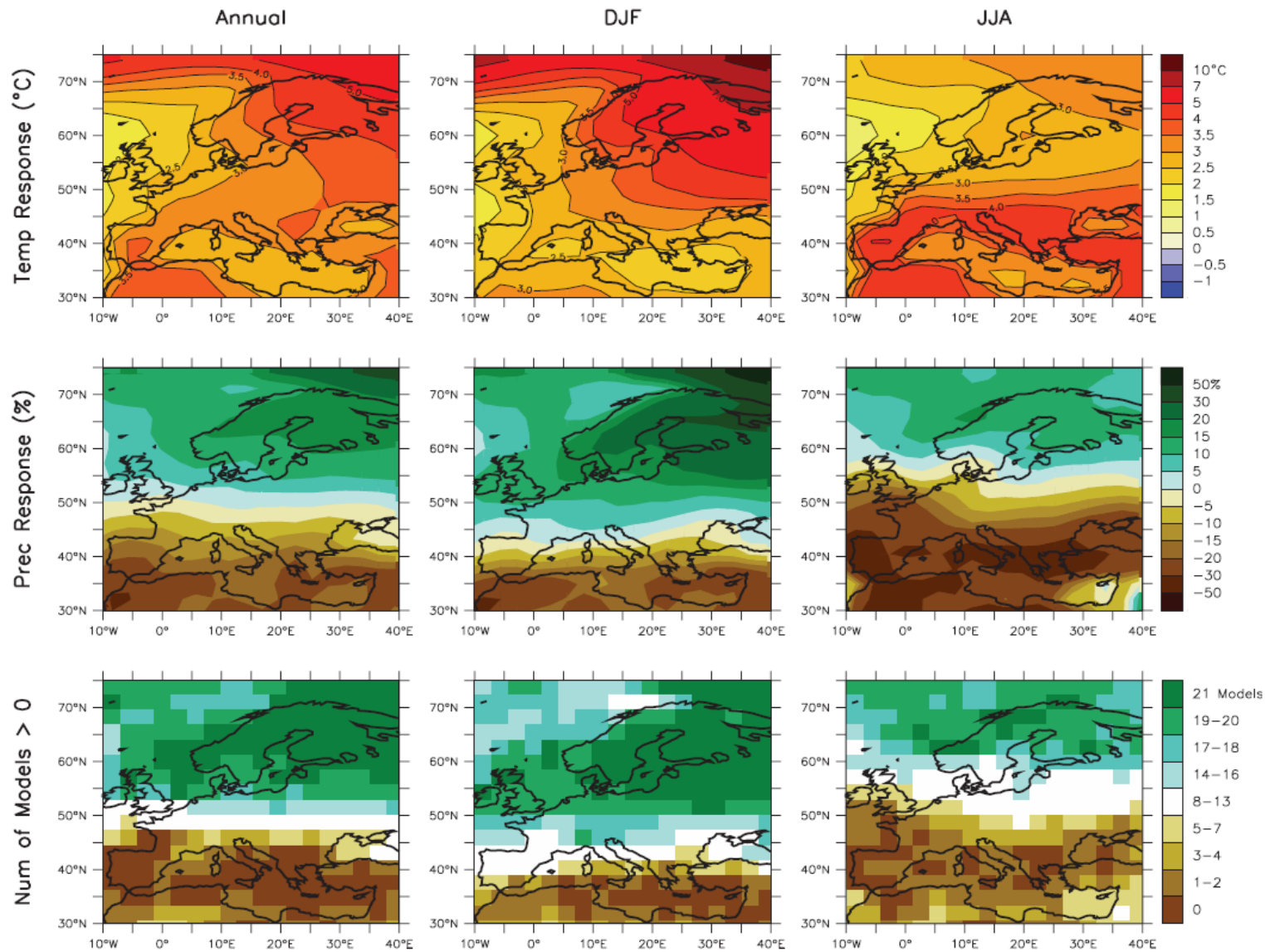
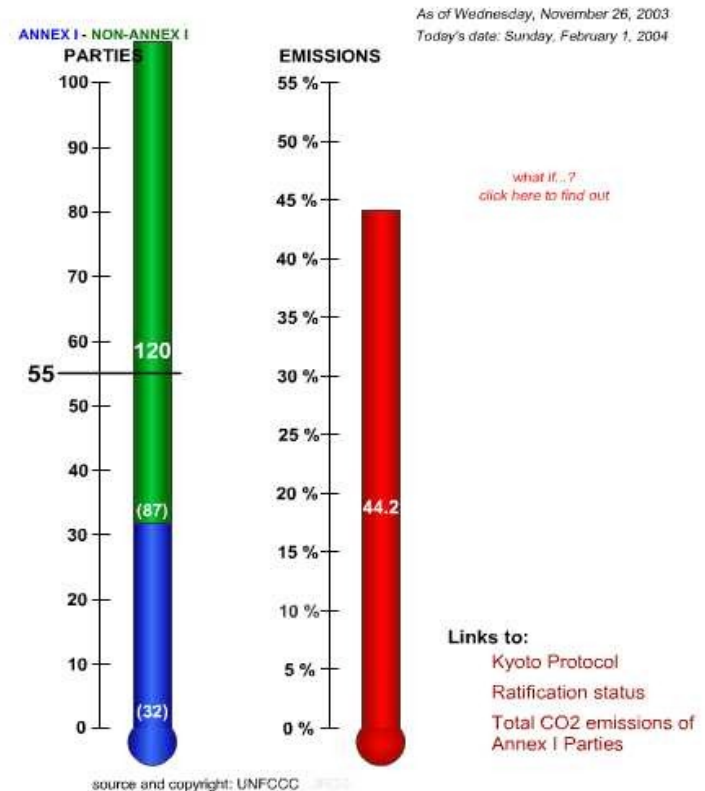


Figure 11.5. Temperature and precipitation changes over Europe from the MMD-A1B simulations. Top row: Annual mean, DJF and JJA temperature change between 1980 to 1999 and 2080 to 2099, averaged over 21 models. Middle row: same as top, but for fractional change in precipitation. Bottom row: number of models out of 21 that project increases in precipitation.

Il Protocollo di Kyoto e quello post

- Il PK è entrato in vigore nel 2005, quando è stato raggiunto il quorum di 55 nazioni, responsabili del 55% delle emissioni di gas-serra dei paesi industrializzati
- Primo periodo d'impegno (2008-2012): tagliare del 5,2% il livello dei gas-serra del 1990
- In Sud-Africa, COP-17 il post-2012 (---)

KYOTO PROTOCOL THERMOMETER



Dati sulle attività di A/R, D e FM riportati dai Paesi Annex B Parties del Protocollo di Kyoto per il 2008 (in Gt CO₂ eq)

	A/R	D	FM	CO ₂ balance
Australia	-16 948	49 651		32 703
Austria	-2 531	1 224		-1 307
Belgium	-399	468		69
Bulgaria	1 353	275		1 628
Canada	-738	14 643	-11 503	2 403
Czech Republic	-272	160	-6 145	-6 257
Denmark	-70	35	281	247
Estonia	-534	6 600		6 066
Finland	-1 077	2 886	-39 935	-38 126
France	-13 591	11 926	-84 620	-86 285
Germany	-2 615	16 393	-20 441	-6 663
Greece	-351	4	-2 052	-2 399
Hungary	-1 183	44	-3 885	-5 025
Iceland	-102			-102
Ireland	2 763	11		2 774
Italy	-1 736	386	-50 773	-52 122

	A/R	D	FM	CO ₂ balance
Japan	-391	2 431	-46 105	-44 065
Latvia	-440	1 674	-23 595	-22 361
Liechtenstein	-11	4		-8
Netherlands	-547	780		233
New Zealand	-17 396	2 910		-14 486
Norway	-104	-93	-30 827	-31 023
Poland	-3 916	263	-46 865	-50 519
Portugal	-4 134	6 877	2 563	-180
Russia	-4 093	26 607	-462 469	-439 455
Slovakia		2 426	-10 324	-7 897
Slovenia	-2 456	2 385	-10 307	-7 851
Spain	-10 276	188	-39 120	-52 279
Sweden	-1 576	2 385	-18 606	-17 797
Switzerland	-35	82	-855	-808
UK	-2 696	452	-10 873	-13 116
Ukraine	-1 759	150	-47 718	-49 327

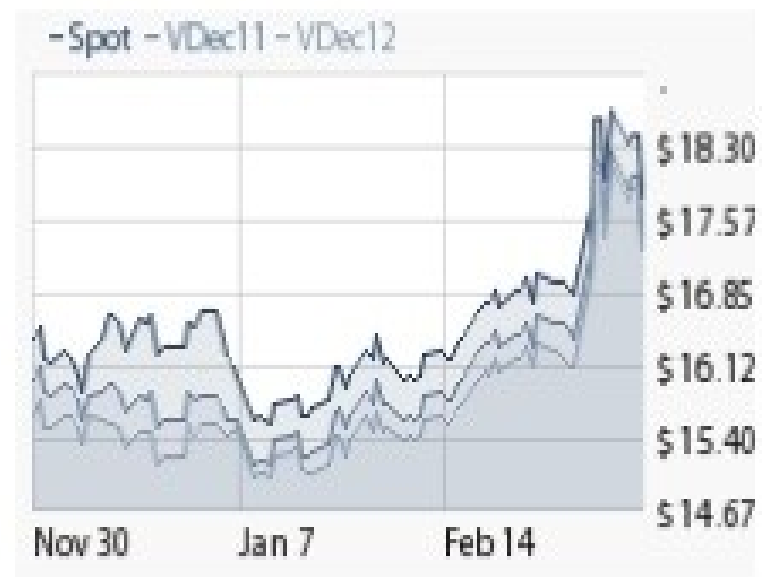
Source: http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/5270.php

Note: Belarus, Croatia, Lithuania, Luxemburg, Romania and Turkey did not report on the LULUCF sector.

EU ETS Settlement Price



CER Settlement Price



Dati sulle attività di A/R, D e FM riportati dai Paesi Annex B Parties del Protocollo di Kyoto per il 2008 (in Gt CO₂ eq)

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A un prezzo di 20 Euro per tonnellata di CO₂ eq > valore 1.040 milioni di Euro l'anno, cioè 5200 milioni di Euro sui cinque anni del primo periodo di impegno.



What is Additionality?

Part 1: A long standing problem

Michael Gillenwater

Discussion Paper No. 001
February 2011 | Version 02



Giovedì 31 Marzo, Roma

Temi LULUCF in agenda

Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG -KP)

- ♦ *Activity-based approach*, basata sugli articoli 3.3 e 3.4 del Protocollo di Kyoto;
- ♦ *Land-based approach*, basato sulle modalità di reporting dell'UNFCCC (AFOLU);
- ♦ CDM
- ♦ *Adaptation*
- ♦ *Harvested wood products* (HWP).

Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG -LCA)

Quali attività includere nei PVS: REDD, progetti di protezione delle foreste, sustainable forest management, afforestazione e riforestazione, ...

miglioramento dei metodi di misurazione, reporting e verifica del *carbon stock* e del *carbon budget*,

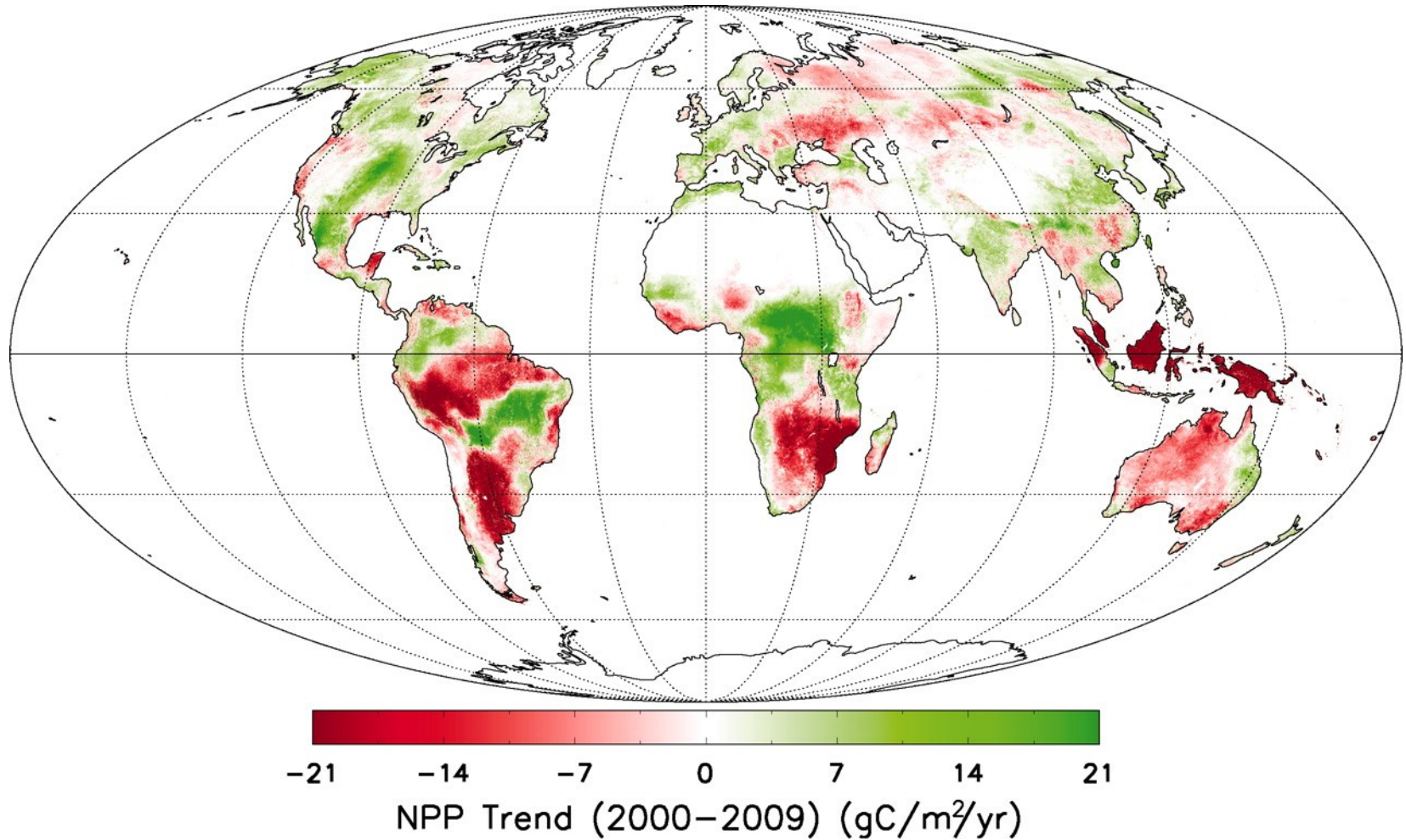
coerenza con gli esiti dell'AWG-KP.

IPCC Good Practice Guidance for Land use, Land-Use Change and Forestry



- **Complements the Revised 1996 IPCC Guidelines for LULUCF sector.**
- ***GPG-LULUCF* provides supplementary methods and good practice guidance for estimating, measuring, monitoring and reporting on carbon stock changes and greenhouse gas emissions from LULUCF activities under Article 3, paragraphs 3 and 4, and Articles 6 and 12 of the Kyoto Protocol.**

Fig. 2 Spatial pattern of terrestrial NPP linear trends from 2000 through 2009 (SOM text S1) (8, 10).



M Zhao, S W Running Science 2010;329:940-943

Figure 16: Total sales volume by region

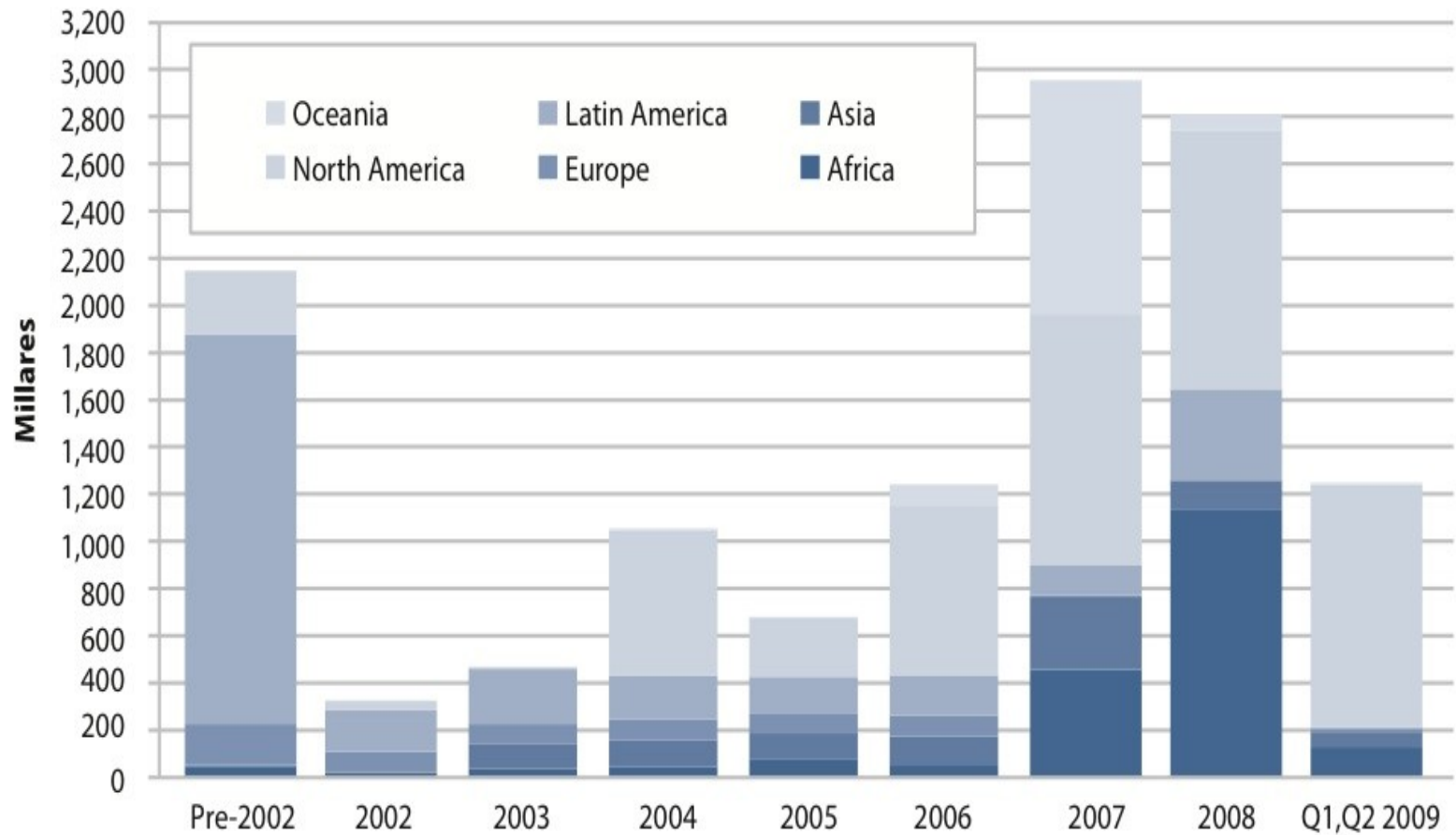
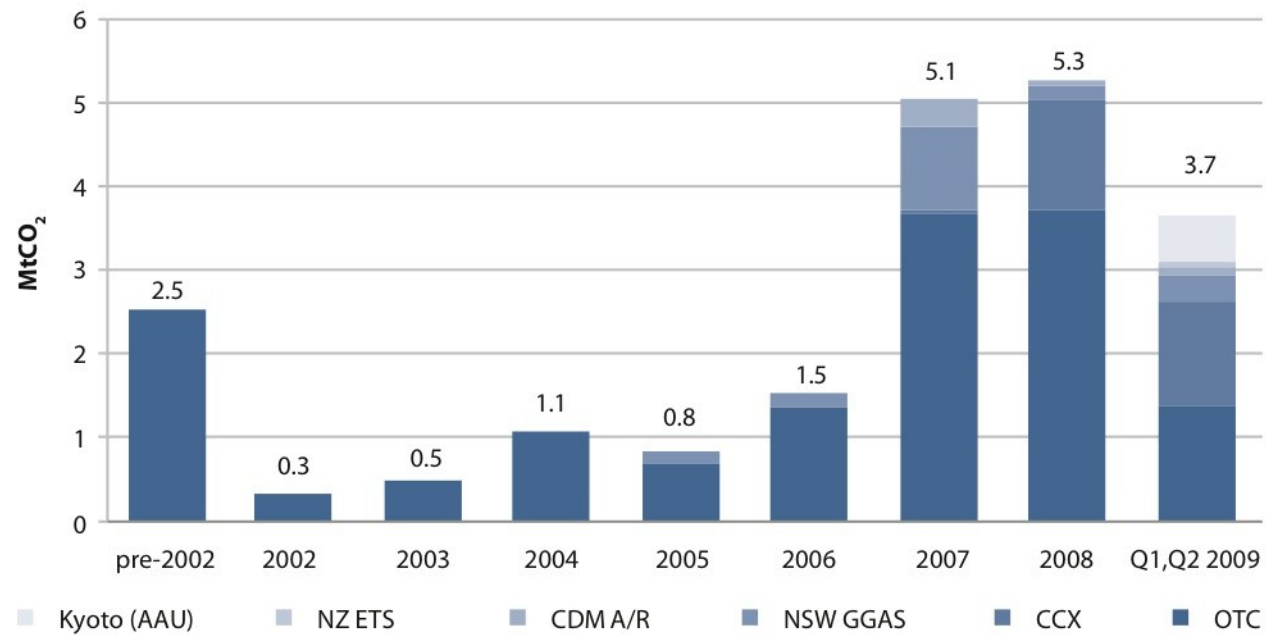


Figure 1: Historical transaction volume in the forest carbon markets



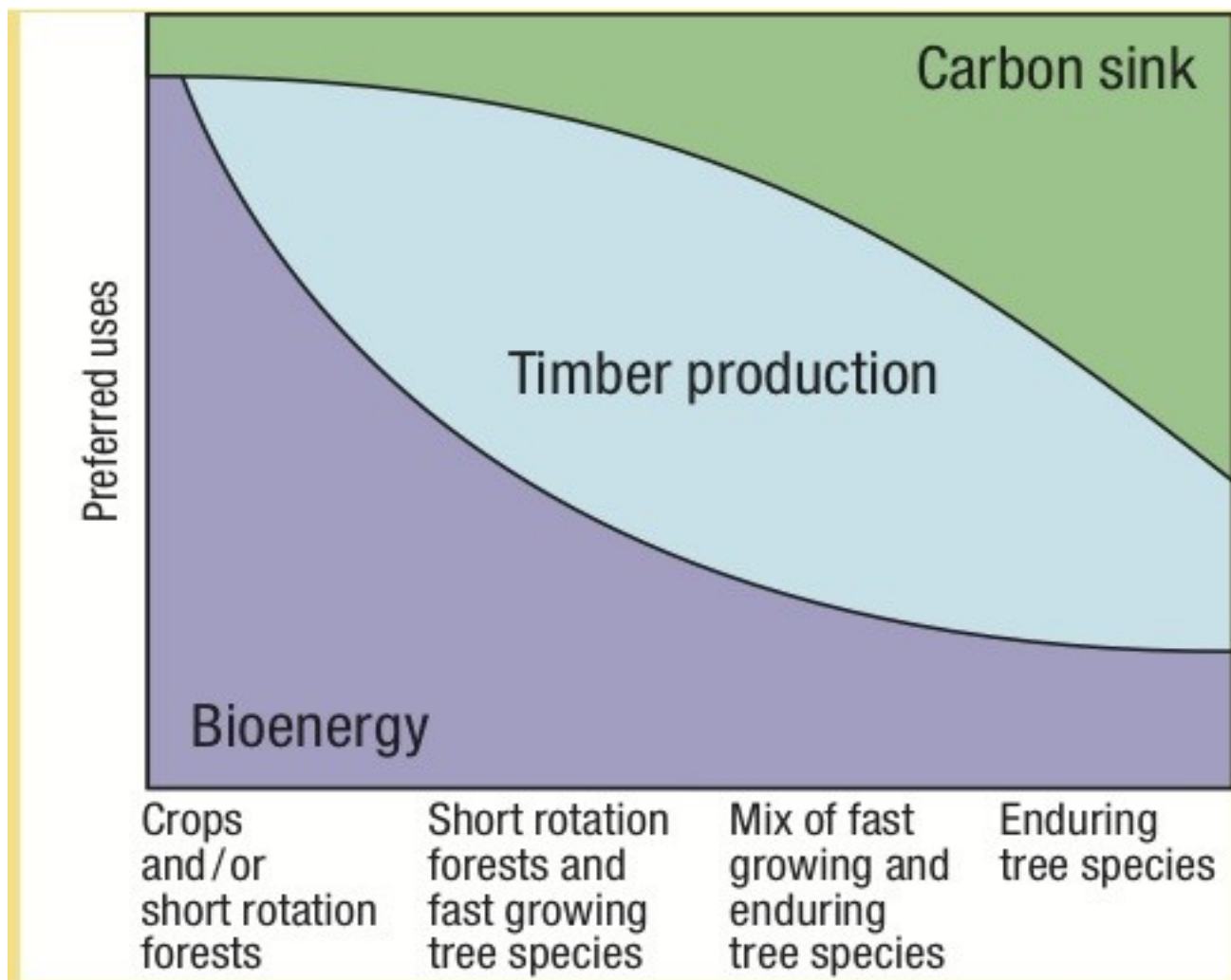


Figure 5. How choice of crops, types of tree species and management regime can be selected to achieve a mix of bioenergy production, timber production and carbon sink.