



CLIMATE CHANGE & NATIONAL PRIORITY: *Strategy to Strengthen Human Capacity & Expertise*



By:

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Environment & Climate Change
- Chairperson of Climate Change Working Group MoF

National Planning Workshop “Developing National
Strategy to Strengthen Human Resources
Capacities & Skill to Advance Green, Low Emission
& Climate Change Resilient Development” by
DNPI, Surveyor Indonesia, & UNITAR.
Jakarta, October 9, 2012



National Planning Workshop “Developing National Strategy to Strengthen Human Resources Capacities & Skill to Advance Green, Low Emission & Climate Change Resilient Development”

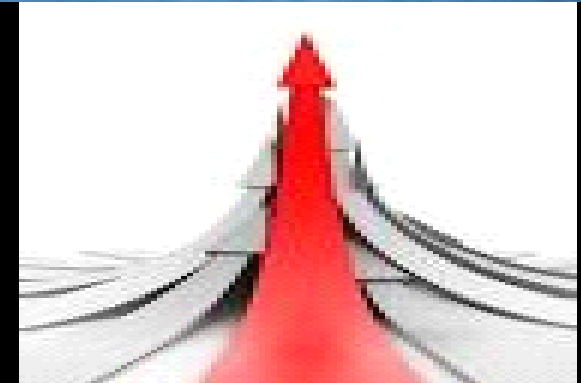
◆ SCOPING:

- National Strategy
- Human Capacities & Skill
- Climate Change
- Development

To be considered

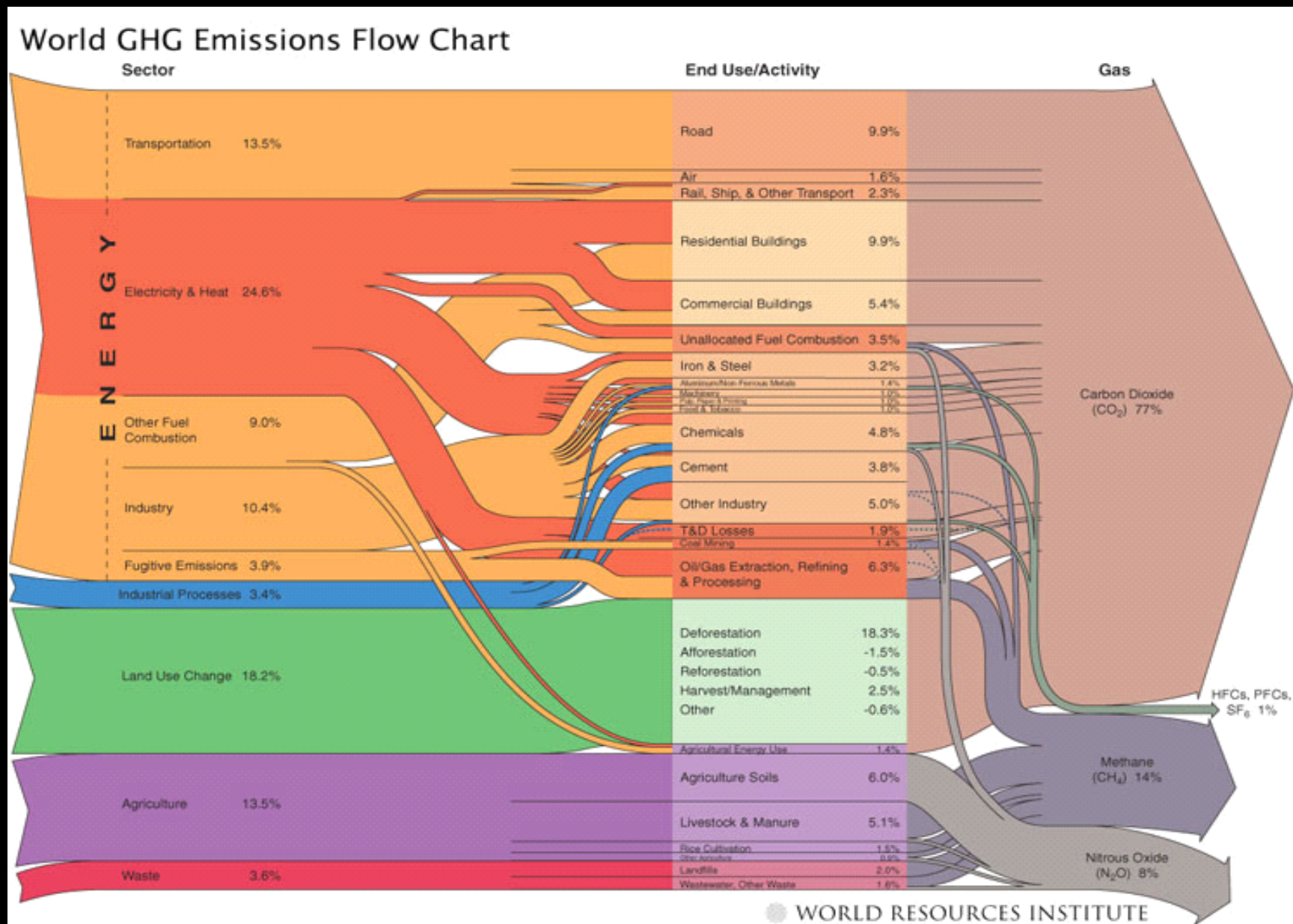
- ◆ "strategic choices"
- ◆ "leverage/lifting up" ..
capacity
- ◆ "modalities" (National/
sectoral—*facing global*)
- ◆ *Correct frame & perception*

Menembak: - peringatan,
- lumpuhkan,
- matikan



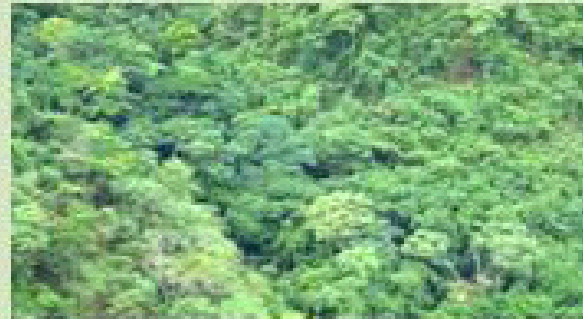
**CLIMATE CHANGE
GLOBAL & NATIONAL**

NICHOLAS STERN REVIEW, 2007 p.199:



Forests' role in global carbon

Reservoirs



1650 GtC

more than twice
the carbon as in the
atmosphere

Sinks



2.6 GtC/yr



Sources

(deforestation)



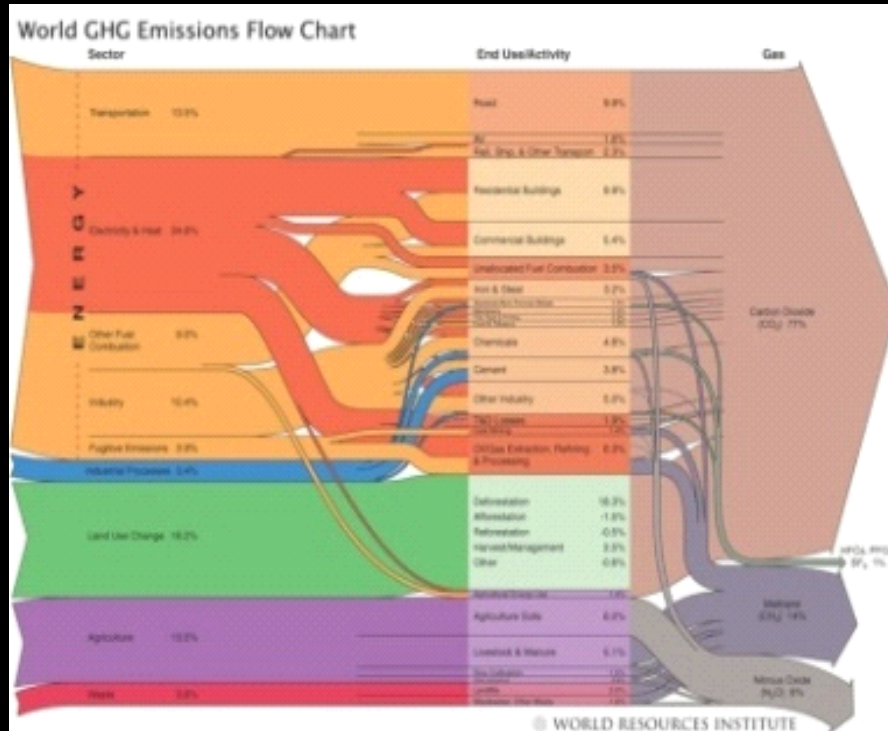
1.6 GtC/yr =



**17.4% GHG
emissions**

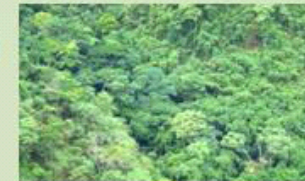


CO2 Global Emissions and Global Carbon Forests



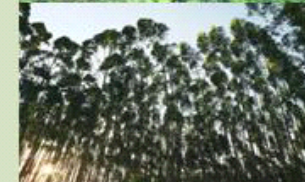
Forests' role in global carbon

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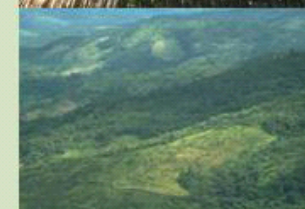


2.6 GtC/yr



Sources

(deforestation)



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INDONESIA :

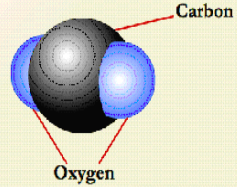
2020: 26% up to 41 %

26% : 87% forestry, peat
13% non forest

ratio Indonesia (54 : 46), world 20 : 80

notes

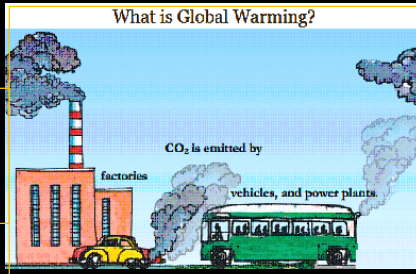
What is Global Warming?



Carbon dioxide (CO₂) is a greenhouse gas that scientists agree is one of the most prominent factors leading to global warming.

GLOBAL WARMING

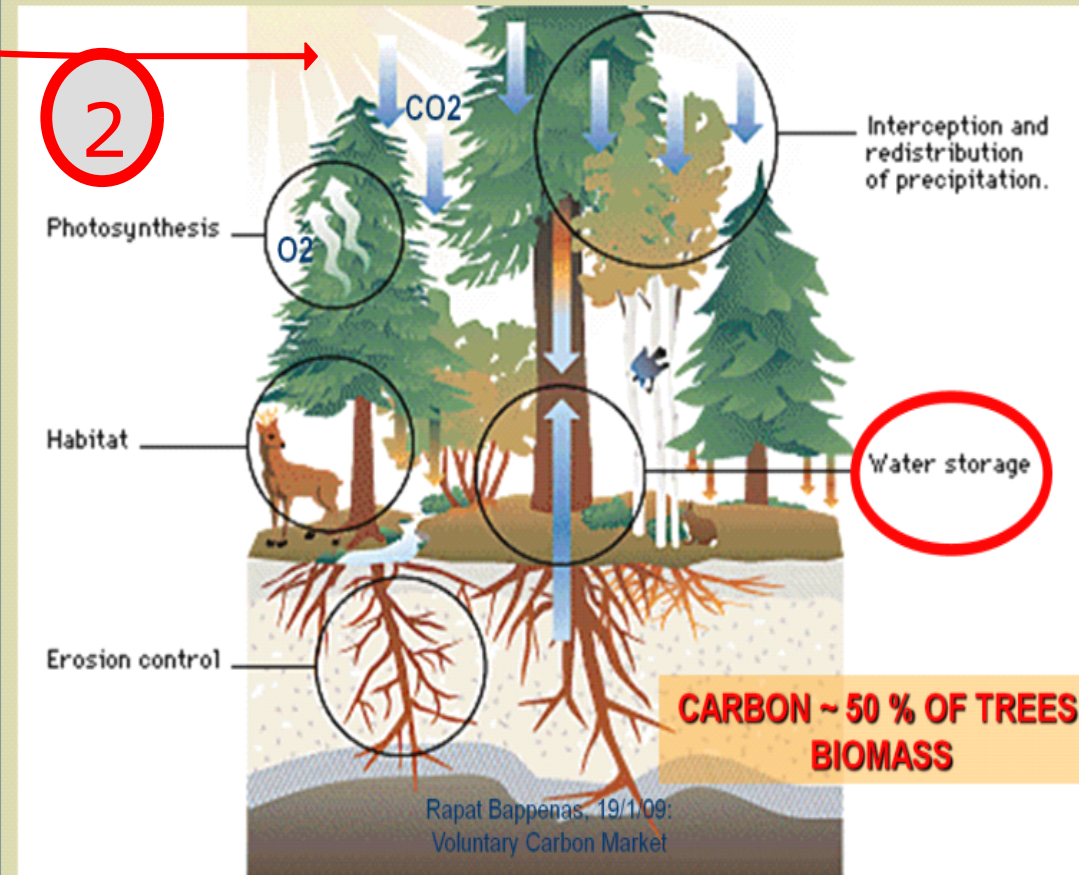
What is Global Warming?



80 %
CO₂

2

TREES, FORESTS AND LIFE ON EARTH



20 %
CO₂

2

1

TREES ARE THE SOLUTIONS:

- ABSORBING CO₂
- ~ 50% trees' biomass is a solid C/green products

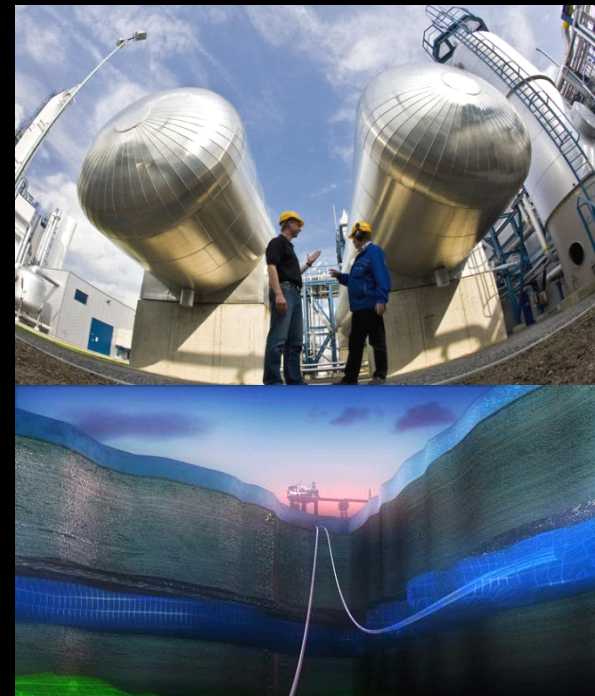
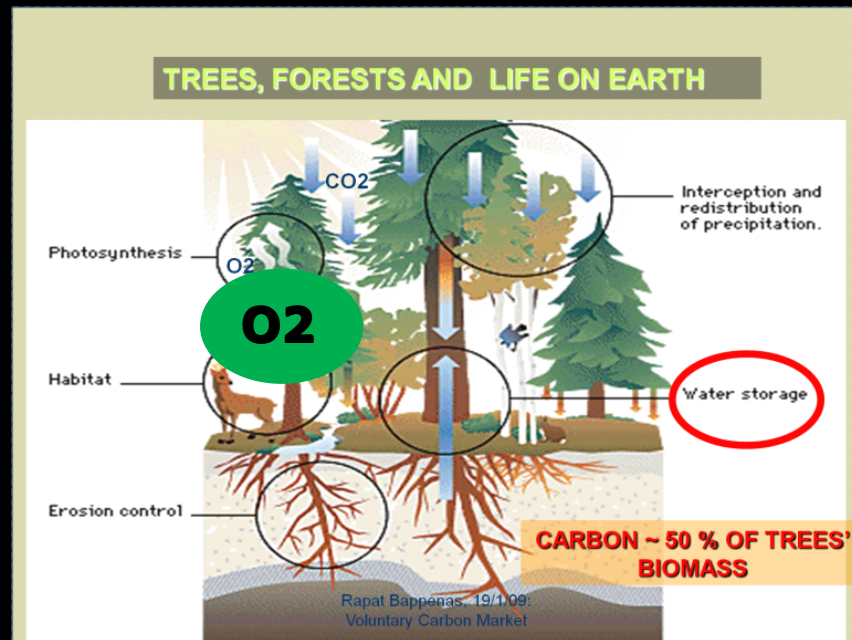
Challenge:

MITIGATION ACTIONS

JOINTLY SOLVE CO₂ emission (Capture CO₂)

“CCS” INDONESIA
“VIOCE of FORESTS”

Carbon capture and
storage (CCS)



Conversion vector of Tree's biomass - CO₂eq:
Tree's biomass to carbon ~ 0.5
Carbon to CO₂ ~ 3.7
Biomass to CO₂ ~ 1.83

GLOBAL &
USEFUL INDICATORS FOR NATIONAL
(point of leverage)

Green Economy

(UNEP 2011, Towards a Green Economy)

- ◆ “Results in improved human well-being and social equity, while significantly reducing environmental risk and ecological scarcities”
- ◆ “REDD+ regime may be the best current opportunity to facilitate the transition to a green economy **for (from) forestry**”

Continue..

UNEP 2011, Towards a Green Economy

- ◆ investing 0.03% of GDP b/w 2011-2050 to conserve forests & private investment for reforestation → >20% increase value added in forest industry compare to BAU

SCALING UP ACTIVITIES

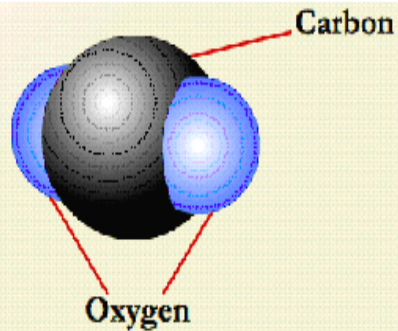
- ◆ Carbon cycle intervention: more solid C/less CO₂, and more green products
- ◆ Introducing new commodity (CO₂eq, carbon forest) green products, supply / demand, investment, financial institution

STRATEGY TO SCALE UP

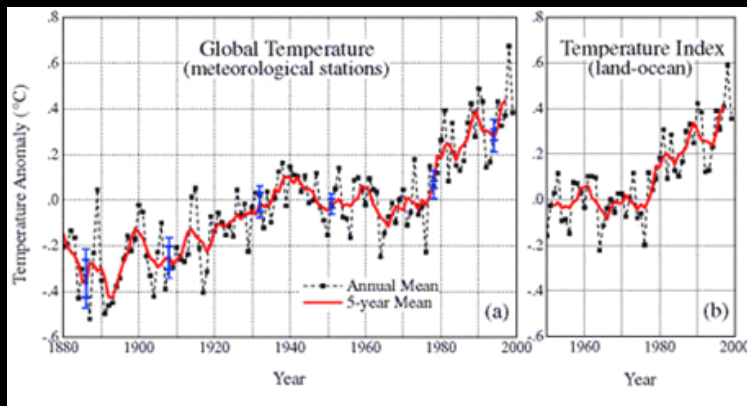
- work together (companionship)
- keep it simple & workable
- understand by global (carbon market, green energy, green investment for commodity and services)

GHG and Climate Change

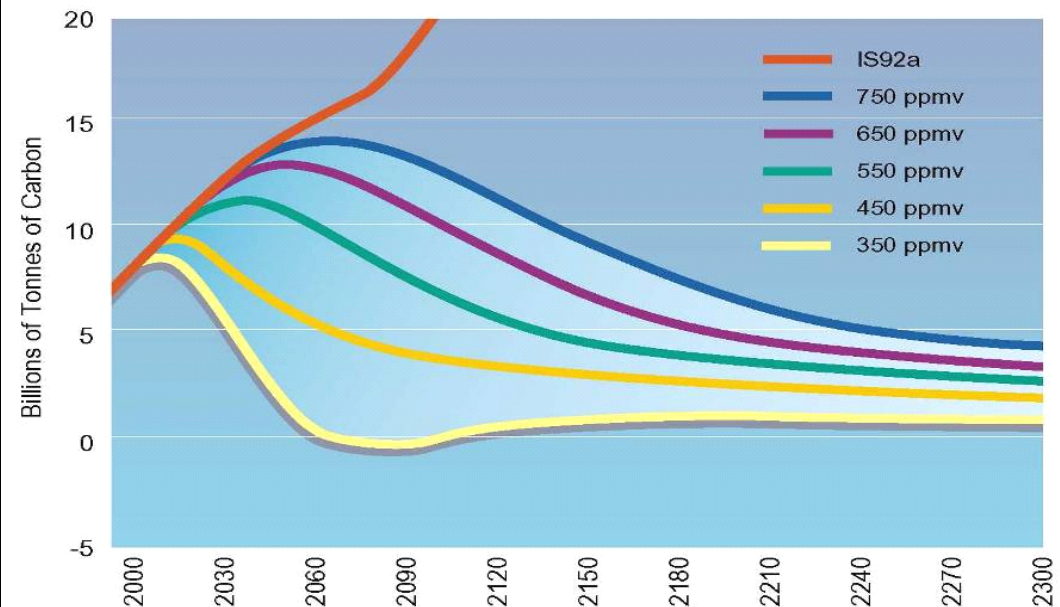
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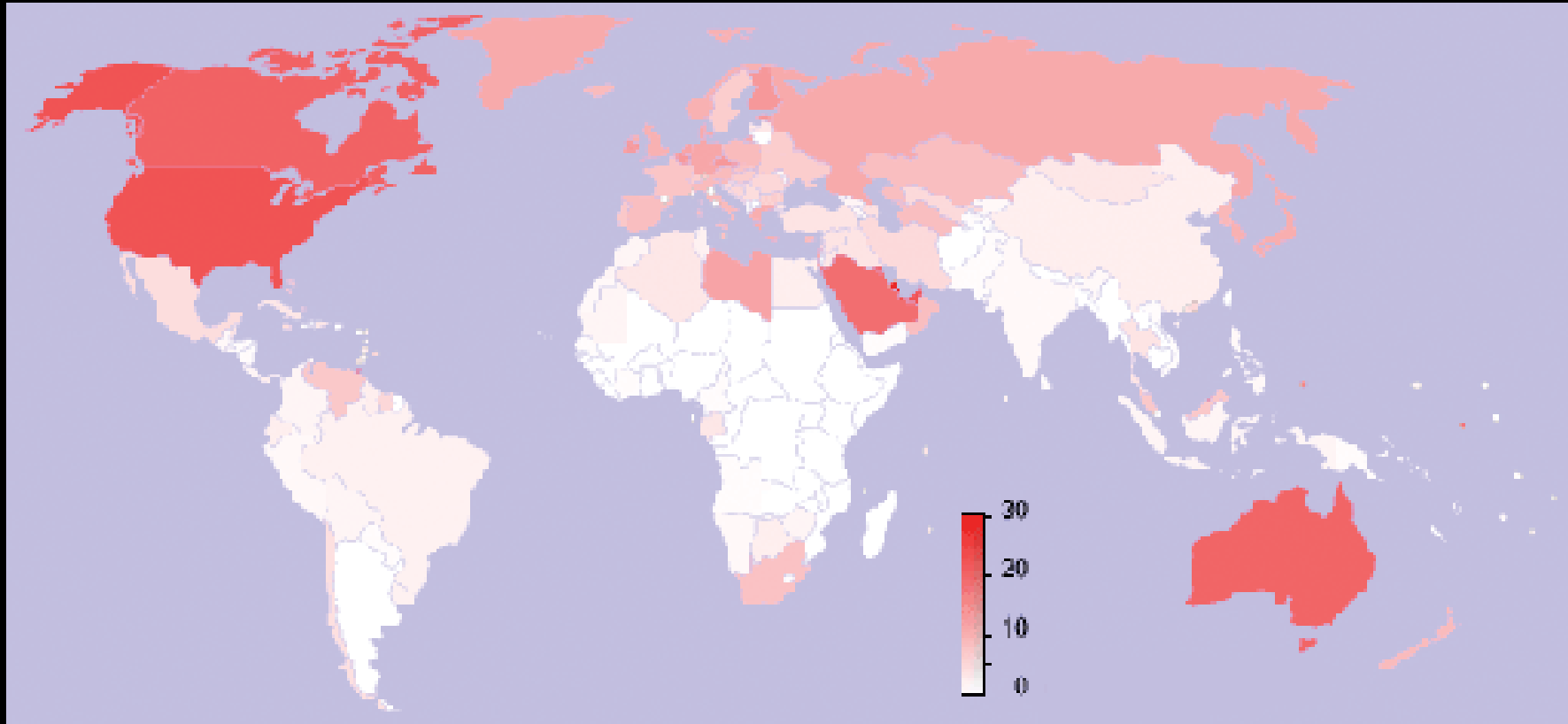
Emissions Trajectories Consistent With Various Atmospheric CO₂ Concentration Ceilings



The path to avoid $\Delta T_{avg} > 2^{\circ}\text{C}$ (gold)

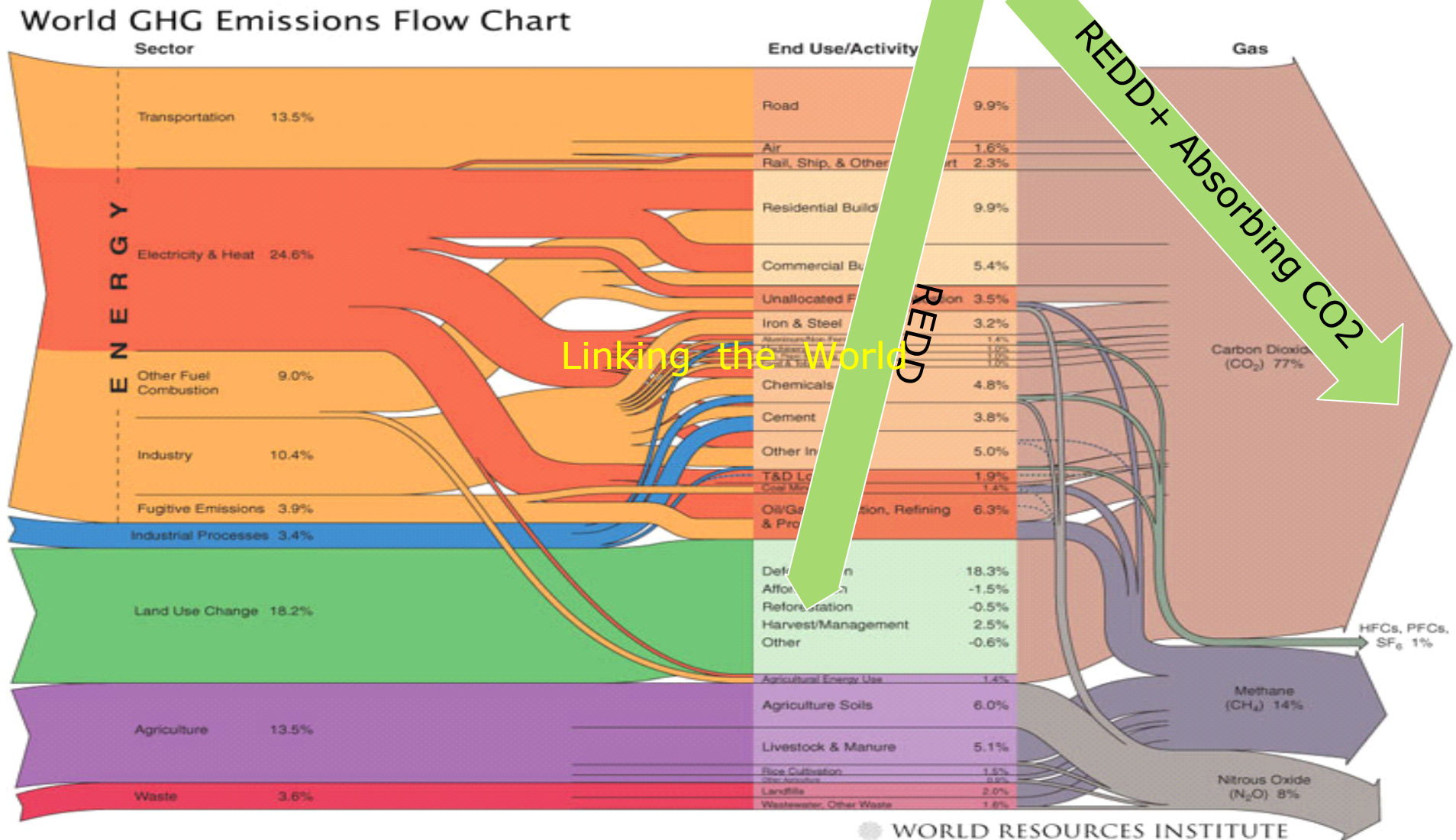
Linking the World

GHG concentration: CO_2 , CH_4 , N_2O ,



Tons Carbon Dioxide Emmited per capita per annum

Basic data/idea: Linking the World



NICHOLAS STERN REVIEW, 2007 p.199:

FOREST SECTOR INDONESIA

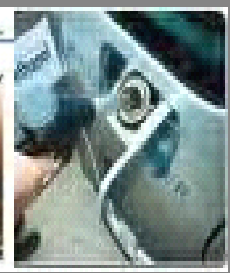
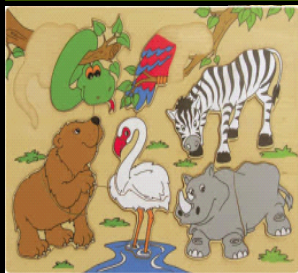
Indonesia's Forests for Today and Tomorrow: Future Possible Value

Conservation Protected Forests
25.3 m ha.

30,9 m ha

Production Forests
80.4 m ha

Community Forests



Ecosystem/
Environment

Services/
Commodity

Renewable Energy
(Wood pellet, Methanol)

VALUE RELATED TO CLIMATE CHANGE ???



Ministry of Forestry
Republic of Indonesia

Indonesia voluntary commitment of 26-41%
(Presiden Yudhoyono, G20 Summit, Pitchbur

President Decree (61/2011) on National Action Plan for GHG Emission Reduction

Sectors	Emission Reduction Plan (Giga ton CO ₂ e)				Total	Percentage
	26%	Percentage	+15%	Percentage		
			(Total 41%)			
Forestry and Peatland	0,672	87,6%	0,367	87,0%	1,039	87,4%
Waste	0,048	6,3%	0,030	7,1%	0,078	6,6%
Agriculture	0,008	1,0%	0,003	0,7%	0,011	0,9%
Industry	0,001	0,1%	0,004	0,9%	0,005	0,4%
Energy and Transportation	0,038	5,0%	0,018	4,3%	0,056	4,7%
Total	0,767	100,0%	0,422	100,0%	1,189	100,0%

Indonesia Forest Carbon Remote Sensing Data

STOCKS

STOK KARBON HUTAN (ABOVE GROUND BIOMASS) DI LUAR LAHAN GAMBUT		
TAHUN 2000 s/d 2011		
Fungsi	2000	2003
Kawasan Hutan		
HL	5.901.396.956	5.876.441.117
KSA/KPA	3.845.247.552	3.828.041.752
HP	5.333.445.665	5.247.671.666
HPT	4.409.919.281	4.358.887.394
HPK	3.017.327.836	2.980.624.545
APL	4.107.787.475	4.034.635.660
C (ton)	26.615.124.764	26.326.302.134
CO2e total	97.677.507.886	96.617.528.831

Catatan :

- Perhitungan Stok Karbon didasarkan pada perkalian data aktivitas dan emission factor.
- Data aktivitas diperoleh dari perubahan penutupan lahan pada kelas penutupan lahan (23 kelas)

Sequestration

SERAPAN KARBON HUTAN (ABOVE GROUND BIOMASS) DI LUAR LAHAN GAMBUT				
TAHUN 2000 s/d 2011				
Fungsi	TAHUN			
Kawasan Hutan	2000	2003	2006	2009
HL	72.729.114	75.205.190	84.694.423	53.421.397
KSA/KPA	39.834.289	48.147.9		
HP	183.943.309	203.716.7		
HPT	88.524.763	90.456.4		
HPK	77.591.514	82.594.2		
APL	216.071.804	233.871.2		
C (ton)	678.694.793	733.991.7		
CO2e total	2.490.809.892	2.693.749.7		
CO2e/Tahun	830.269.964	897.916.5		

Catatan :

- Perhitungan serapan karbon diperoleh dari penutupan lahan tahun sebelumnya terhadap tahun saat ini (Contoh: serapan karbon juga dihitung dari kondisi hutan s

Emission

EMISI KARBON HUTAN (ABOVE GROUND BIOMASS) DI LUAR LAHAN GAMBUT				
TAHUN 2000 s/d 2011				
Fungsi	TAHUN			
Kawasan Hutan	2000	2003	2006	2009
HL	25.737.034	75.321.518	46.062.111	17.425.319
KSA/KPA	17.818.552	48.445.535	29.088.806	5.936.892
HP	94.307.926	164.327.234	159.713.528	96.463.239
HPT	55.807.574	100.659.669	58.011.588	17.423.963
HPK	38.969.239	67.624.690	70.646.981	21.060.157
APL	79.619.708	146.580.550	169.109.558	197.362.000
C (ton)	312.260.033	602.959.195	532.632.571	355.671.570
CO2e total	1.145.994.321	2.212.860.246	1.954.761.536	1.305.314.661
CO2e/Tahun	381.998.107	737.620.082	651.587.179	652.657.331

Catatan :

- Perhitungan emisi karbon diperoleh dari pengurangan stok karbon tahun sebelumnya terhadap tahun saat ini (Contoh: Emisi 2000-2003 diperoleh dari Stok Karbon tahun 2000 dikurangi tahun 2003)

	2000	2003	2006	2009	2011 *
Stock CO2e total	97.677.507.886	96.617.528.831	94.780.197.499	93.355.121.182	92.216.984.119
Emisi CO2e/Tahun		381.998.107	737.620.082	651.587.179	652.657.331
Serapan CO2e/Tahun		830.269.964	897.916.597	991.182.316	934.059.928

Source: DG PLANOLOGI MoF, 2012

* Not been published yet

DEFORESTATION RATE

TRUE FACTS

Rate of Deforestation	1990-1996	1996-2000	2000-2003	2003-2006	2006-2009	2009-2011*
Indonesia	1,87	3,51	1,08	1,17	0,83	0,45
Forest Area	1,37	2,83	0,78	0,76	0,61	0,32
Non Forest Area	0,5	0,68	0,3	0,41	0,22	0,13

* Not been published yet

Do You Believe:
FORESTS/TREES BEING A
REMEDY for CLIMATE CHANGE

???,

or is it (Forests/Trees) only a
problems ???

Be a hero for yourself
your regions and the world
(mother earth)

TREES / FOREST AND GHG CO2 CYCLE by doing

- Planting trees: **absorbing CO2**
- Managing Forest: **Holding solid C in term of standing biomass**
- Producing Sustainable Renewable Biomass: **absorbing CO2 continuously; Providing renewable green products—holding solid C and replace/substitute high CO2 products (coal, oil, cement, steel, etc)**
- Reducing Emission From Forest: **Self remedy**

GLOBAL & NATIONAL CHALLENGES

CLIMATE CHANGE: FRAME of Approach

GLOBAL COMMITMENT

HOW TO MOVE THE WHEELS: (Main Factors)

Technical
Economic,
Global Politics

CURRENT Base position --- Change of
Scale (Innovation, participations, exp.
Economic of Scale)

FUTURE Development ... Green Development
(low emission....)

Challenge:

FINANCING MECHANISM should be for ALL TYPE OF FORESTS
(an OPTION)

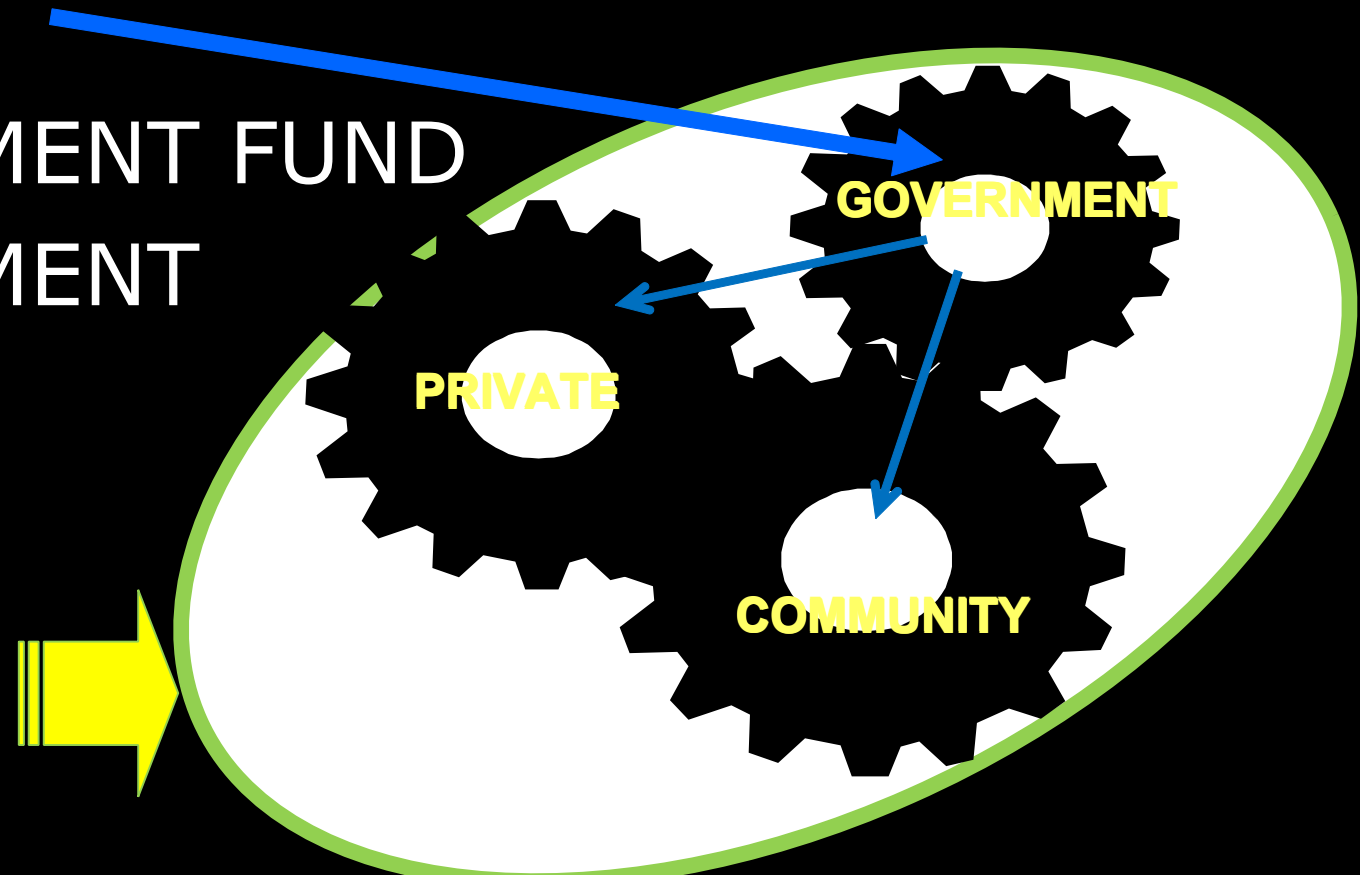
1. Funding !!

PROJECT

2. INVESTMENT FUND

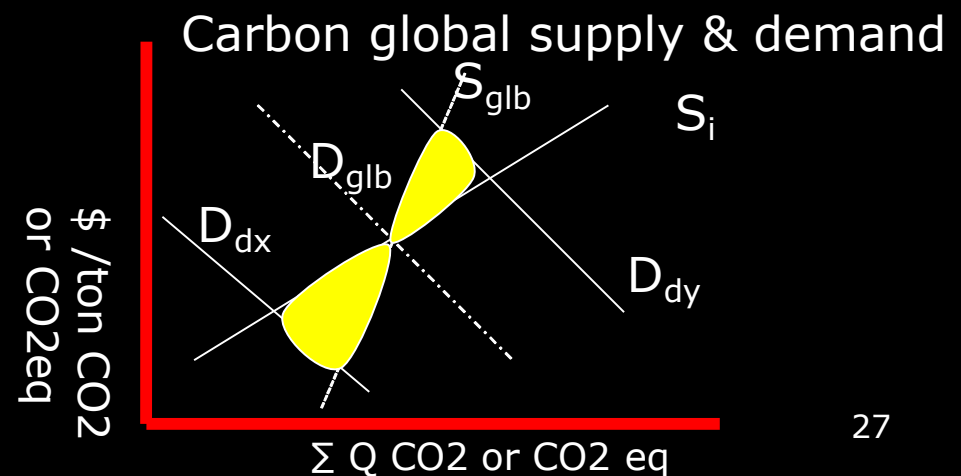
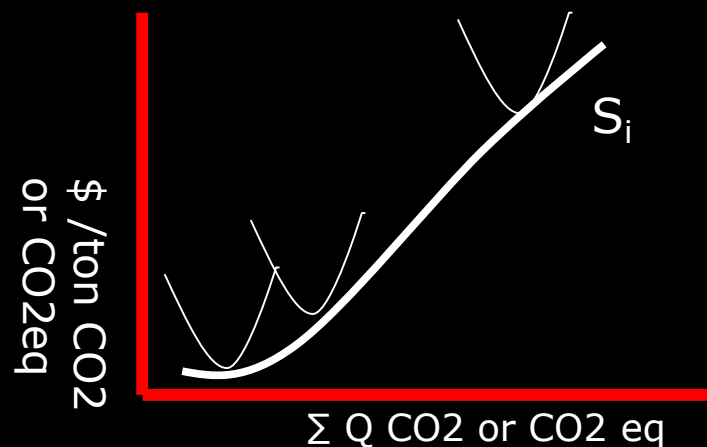
3. INVESTMENT

MARKET



UNDERSTANDING ECONOMIC OF CLIMATE CHANGE: **FOREST RELATED**

- ◆ SCHEME AND VALUE OF CARBON FORESTS (Sequestration, Stocks, -Emission)
- ◆ TRANSFER PRICE MECHANISM (market based), Carbon Offset...
- ◆ Eliasch Review 2008: have to include forests carbon in the market for ambitious overall emission target
- ◆ WHAT IS ABATEMENT COST, COST CURVE, long-term, global /regional supply-demand



Towards Green: examples

Source: Edi Setijawan, researcher Indonesia Central Bank.

UK GOV

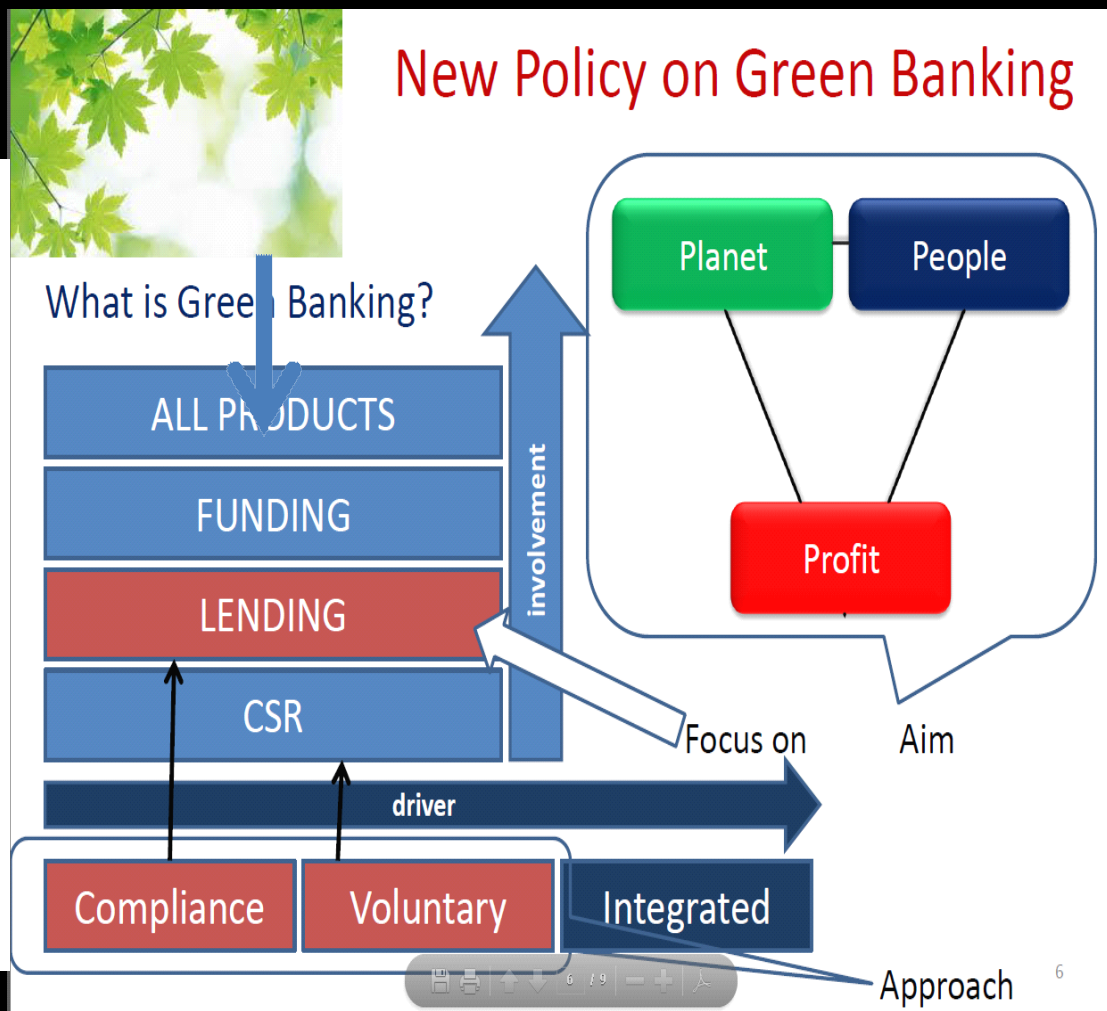


House of Commons
Environmental Audit
Committee

The Green Investment Bank

Second Report of Session 2010-11

Volume I: Report, together with formal minutes, oral and written evidence



FOREST BIOMASS AND FUTURE RENEWABLE ENERGY...



GreenJet Fuel



Green Fuel A Honeywell UOP technician holds a vial of the company's "green fuel"—a diesel equivalent that actually delivers more power and can be made from a variety of oils



WOOD and its wastes can be converted to aviation fuels, diesel, and methanol.

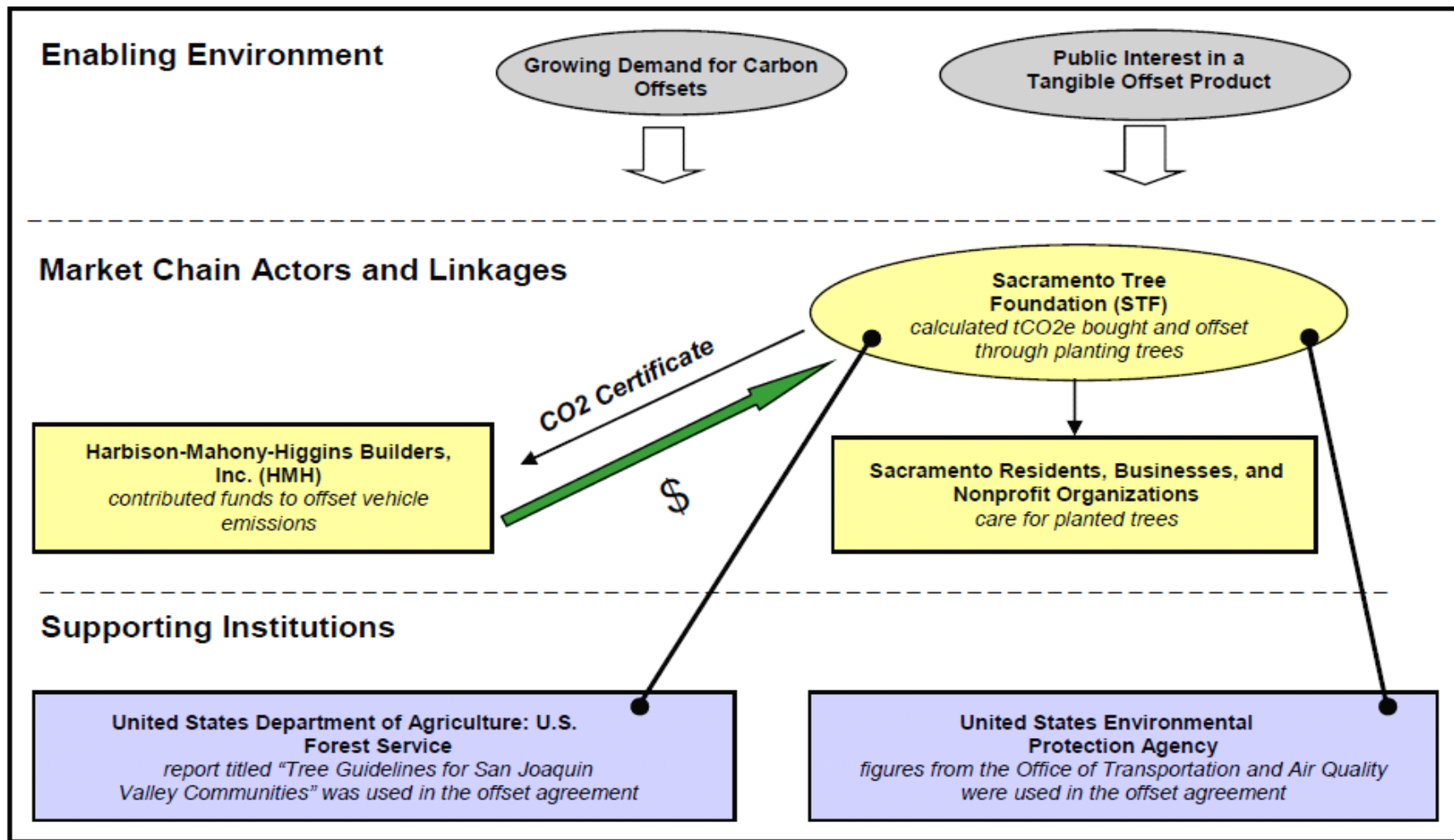
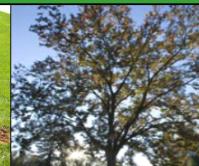


Source: Univ of Washington & MoF, Jakarta 17 Nov 2011

Existing example
(US domestic)...
BAGAIMANA INDONESIA ??



Carbon Offsetting Through
Urban Tree Planting:
The Sacramento Tree Foundation and
Harbison-Mahony-Higgins Builders, Inc.



opportunity...VOLUNTARY MARKET...

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American Carbon Registry Nested REDD+ Requirements

ACR Announces Open Public Comment Period for ACR Nested REDD+ Standard

August 28, 2012: **Winrock International**, a world leader in developing environmentally rigorous forest carbon standards and methodologies, has developed technical guidance for registration on its **American Carbon Registry** (ACR) of REDD+ projects nested within a jurisdictional accounting framework.

The **ACR Nested REDD+ Standard** was developed by Winrock International and ACR with assistance from a jurisdictional REDD+ Technical Advisory Team. ACR welcomes **stakeholder comments and feedback** on the Standard through September 28, 2012.

The **ACR Nested REDD+ Standard** provides registration requirements for project-level REDD+ activities – including conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks – following baseline, leakage, monitoring and other technical requirements developed at the jurisdictional level provided these meet certain minimum criteria. The *ACR Nested REDD+ Standard* also defines social and environmental safeguard requirements for registration of REDD+ projects.

Email 31st January 2012:
REDD+ Methodologies will be ready approx by summer 2012

August 29, 2012

American Carbon Registry mgrady@winrock.org via mail125.us2.rsgsv.net
 American Carbon Registry <mgrady@winrock.org>
yetti.rusli@gmail.com
 Wed, Aug 29, 2012 at 1:54 AM
 ACR Announces Open Public Comment Period for Nested REDD+ Standard
mail125.us2.rsgsv.net
mail125.us2.rsgsv.net
[Unsubscribe from this sender](#)

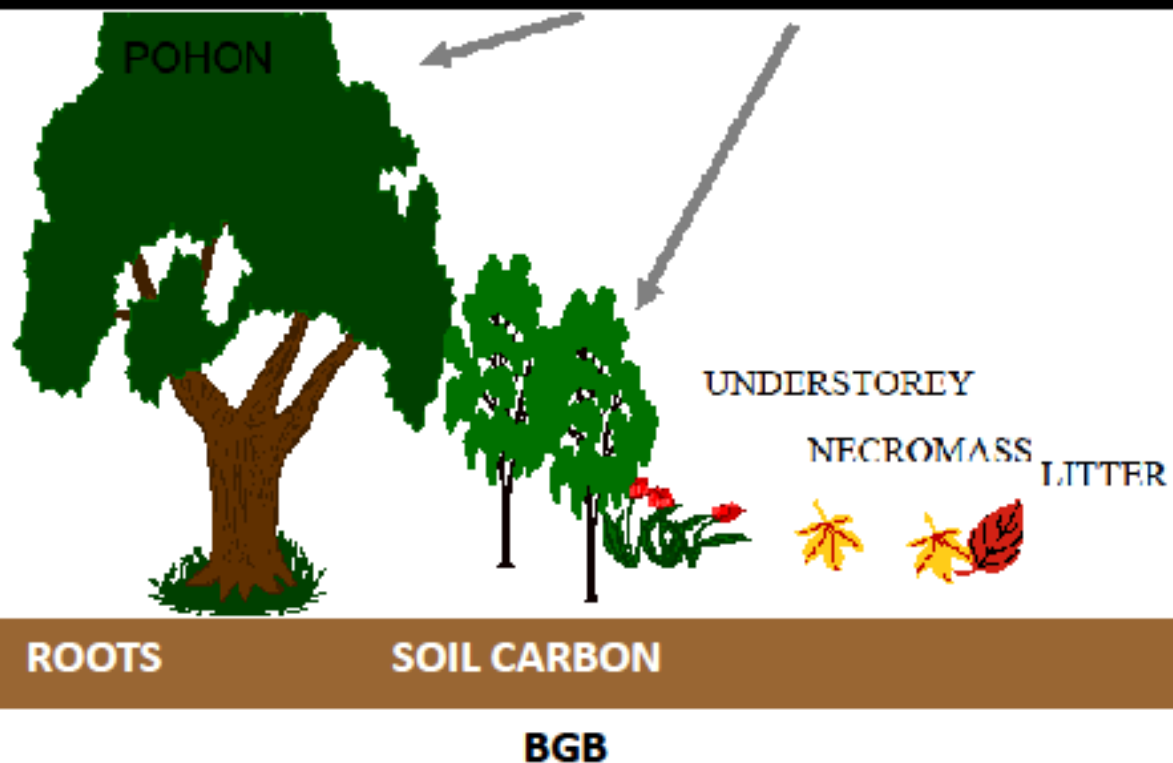
TO BE CONSIDERED

MISSING FROM IPCC:

- 5 CARBON POOLS (AGB, UNDER STOREY, NECROMASS, LITTER, AND BGB)
- (HARVESTED) WOOD PRODUCTS ????

Pool Carbon within products are missing from many global models

GAP ???



Challenge:

Forest CARBON, Climate change
(quadran of **companionship**/starter kit)

+ 20% CO2
FROM DEFOR/
LULUCF

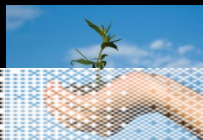
± 80% CO2 EMISSION FROM FOSIL FUEL

Reducing emissions :
Clean Technology
Clean energy
Markets (compliance,
voluntary)

**Trees as a
remedy/cure for CO2
in the atmosphere**
(ABSORBING CO2
COOLING DOWN
THE EARTH)

REDD

R E D D P L U S --- new AR CDM ?



F o r e s t + c a r b o n



LOCAL,

NATIONAL,

GLOBAL

STRATEGY: HUMAN RESOURCES SKILLS & CAPACITIES

- ◆ Technical (innovations, more involvement)
- ◆ Economics (economic of Scale, Value added/multiplier, global market & investment)
- ◆ Politics (International negotiation, national rule & regulation)

POWER OF SCALE UP



Inspired by

Michael Jackson

Song

"HEAL THE WORLD"
POEM OF

"TREES FOR BETTER LIFE"

Heal the world by planting trees

Planting more means absorbing
more CO2

Planting more means produce more
green products

These are the anchor of forest for
climate change solution..HEAL THE
WORLD BY PLANTING TREES..

Thank you

yetti.rusli@gmail.com