

# 산림 환경 협력 현황 및 전망

---

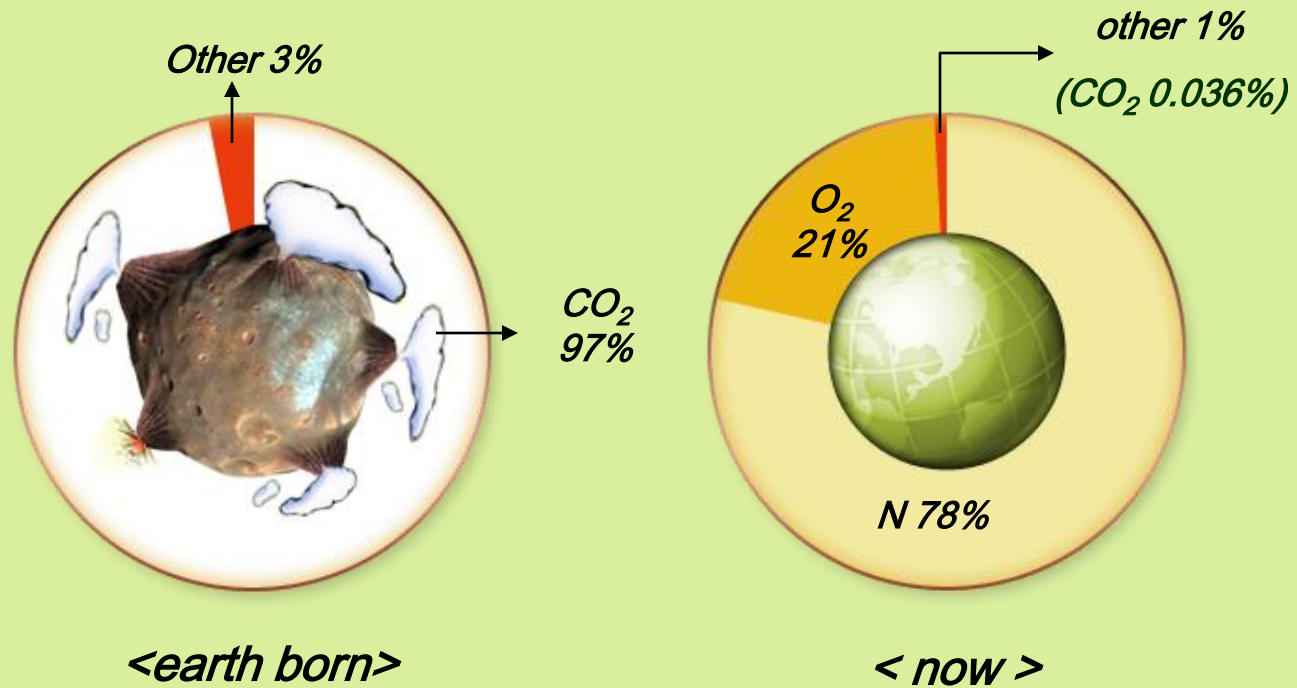
2013. 11. 5

박 동 균

# Role of Forest

## Air

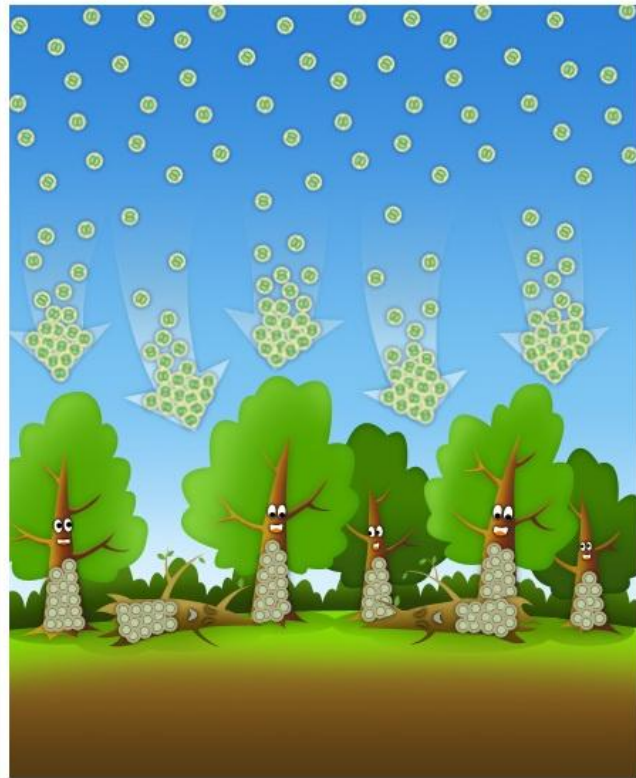
### Early stage and now



# *Forest – Sink & Sequestration/Fixation*



# *Forest – Absorb $CO_2$*



# *Forest for Clean Environment*





# *Pollution source*



# *Is World Sustainable?*

- Climate Change
- Deforestation & Desertification
- Energy Shortage
- Raw Material Shortage
- Polarization (S-N)
- Diversity

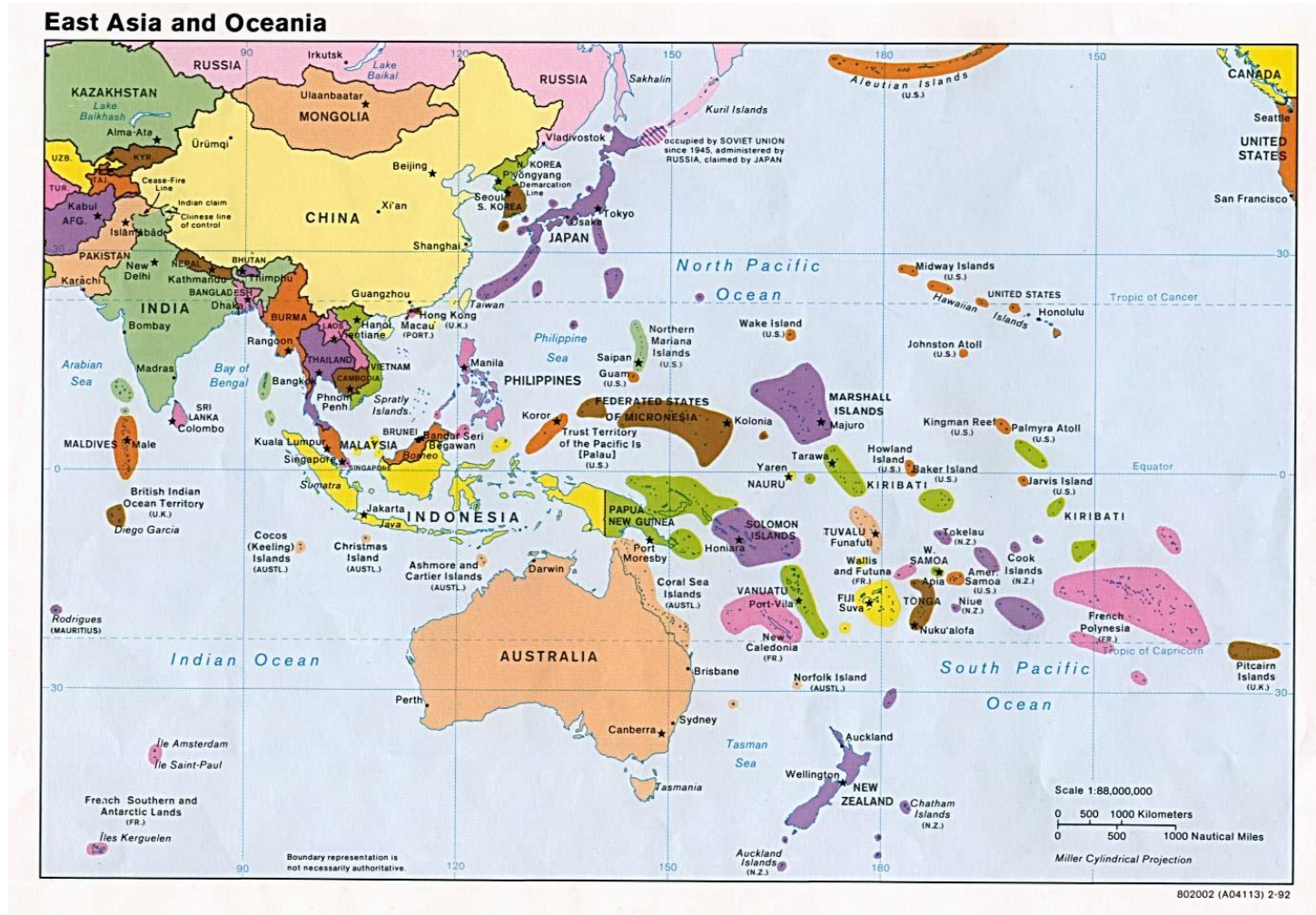
# *Megatrends*

*(John Naisbitt)*

1. Information Society
2. High Technology / High Touch
3. Decentralization
4. Net Working
5. Global Economy
6. Self-Help
7. Participatory Democracy
8. South - South cooperation
9. Long-Term Plan
10. Multiple Opinion



# Importance of NE and SE Asia



802002 (A04113) 2-92

## ***Korea with GMS***

	<b>Area (km<sup>2</sup>)</b>	<b>Population</b>	<b>Forest area (km<sup>2</sup>)</b>
GMS	1,936,860	225.3 mil	903,870
Korea (S)	99,260	48.2 mil	62,220

***1. GMS: Greater Mekong Sub-region***

***Cambodia, Laos, Myanmar, Thailand, Vietnam, (Southern China)***

***2. Territory and forest area data from FAO***

# *Forestry in GMS*

- Forests are being lost faster than they are being planted (8 million ha of forest between 1990 and 2010)
- As natural forest are disappear, Environmental Services are being lost with them
  - 1) Myanmar: largest areas of forest among GMS
  - 2) Lao PDR: highest proportion of forest cover
  - 3) In general, forest area is falling at -0.4% annually
  - 4) Viet Nam and Thailand are increasing due to public and province afforestation efforts
- Pulpwood and rubber plantations are expanding forest
- Ignore forest degradation?

## ***FA & Rate of Changes in FA/GMS***

	<b>FA 2010</b>	<b>Forest Cover</b>	<b>Annual Changes in Forest Area(%)</b>		
	(‘000ha)	(%)(planted)	1990-00	2000-05	2005-10
Cambodia	10,094 / 9,528	57(69)	-1.1	-1.5	-1.2
Lao PDR	15,751 / 15,191	68(224)	-0.5	-0.5	-0.5
Myanmar	31,733 / 30,264	48(998)	-1.2	-0.9	-0.9
Thailand	18,972 / 19.363	37(3986)	-0.3	-0.1	0.1
Viet Nam	13,797 / 15,373	42(3512)	2.3	2.2	1.1
<b>Total</b>	<b>90,387</b>	<b>48</b>	<b>-0.5</b>	<b>-0.3</b>	<b>-0.4</b>

*Note : For planted area unit is 1000 ha;*

## *Dilemma in GMS*

- Rapid & intense exploitation of land/natural resources; land security, environmental destruction, migration/poverty
- Millions of hectares of agricultural, forest and common lands; transferred to grow rubber, acacia/eucalyptus, corn, cassava
- Investors from India/Vietnam/China/Thai/Korea/Australia
- Investments promoted by donors, ADB, WB, consulting firms to maximize economic revenues from “degraded” forests, & idle /under-utilized lands, to increase reforestation & to alleviate poverty
- No detailed forest resources inventory has been carried out & statistics still requires significant improvement

# *Forest /Forestry in Future*

- Forest resources :
  - i) Depletion is dominant trend in the GMS
  - ii) Planted forests are expanding, productivity increased
  - iii) Forest cover is likely to fall to 46% by 2020
- Forest cover loss has decoupled from economic growth, but is expected to increase gradually in Thailand
- Cambodia's forests will continue to decline
- Forest cover loss in LAO PDR is forecast to increase
- In Myanmar, forest cover stabilization may be some way off  
lack of engagement in REDD
- In Viet Nam, forest cover is likely to increase at a high rate



- REDD is likely to promote forest protection : International funding to reduce emissions from deforestation and degradation will reduce timber production from natural F.
- Forest health and vitality are threatened in numerous ways
- Economic and human resource constraints may yet limit SFM expansion
- Defor. and forest degradation will continue at lower rates.
- REDD play an increase role: REDD-related measures will improve monitoring

# *Climate Change with Forest*

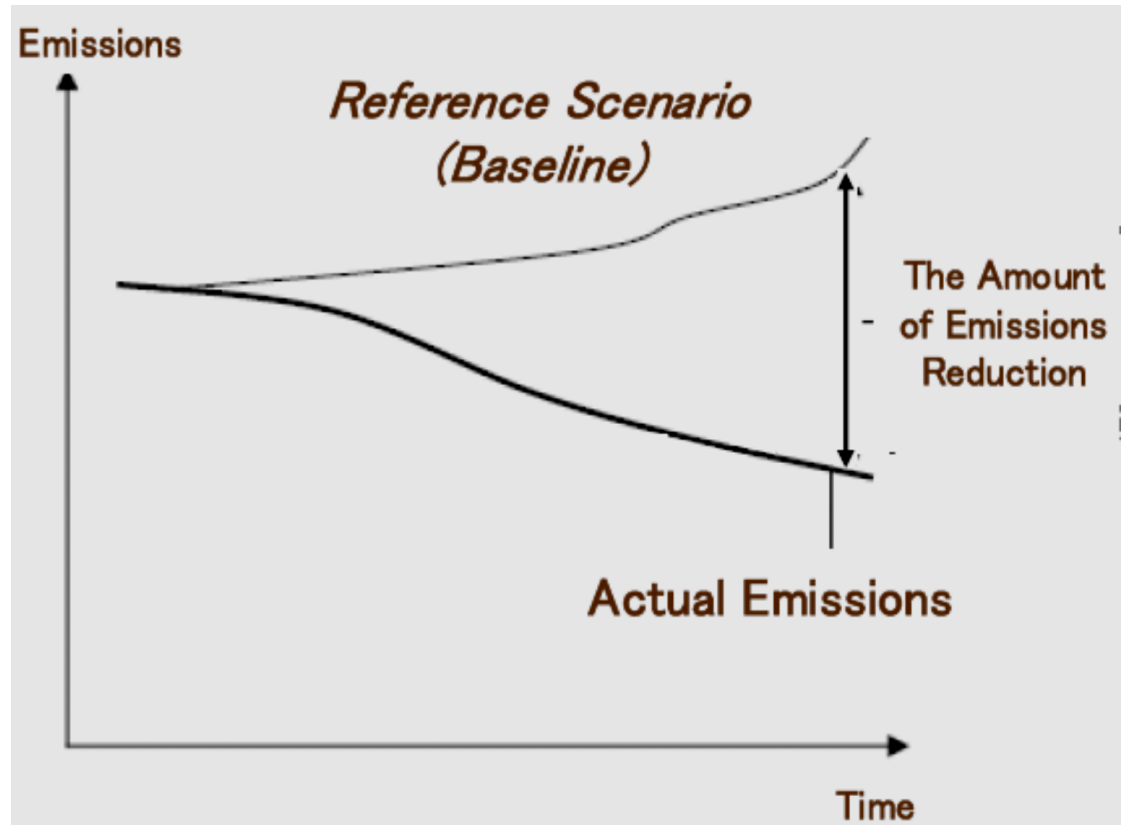
- Deforestation / forest degradation account for 13-17% of annual GHG emissions: not addressed by the KP
- Deforestation occurring in tropical forest countries
- Drivers are multiple/diverse & complex issues
  - 1) national and international factors/ influences
  - 2) regional differences
  - 3) competing land use
    - i) to other land cover(ag., grazing, water reserviors, etc)
    - ii) conversion to long fallow shifting cultivation
    - iii) convert to plantations forests - oil palm plantations
- Degradation(loss of density) from closed to open forest

## ***REDD or ‘REDD+***

- Bali Action Plan (2007) calls for  
“policy approaches and positive incentives on issues relating to REDD in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries”
- REDD+ is mainly to compensate developing countries & forest-dependent communities for the protection of tropical forests or the reduction of forest degradation.
- A broader definition of REDD adds methodological and financial issues, but removes perverse incentives
- Limiting financial compensation to reduced deforestation / degradation may discourage early action

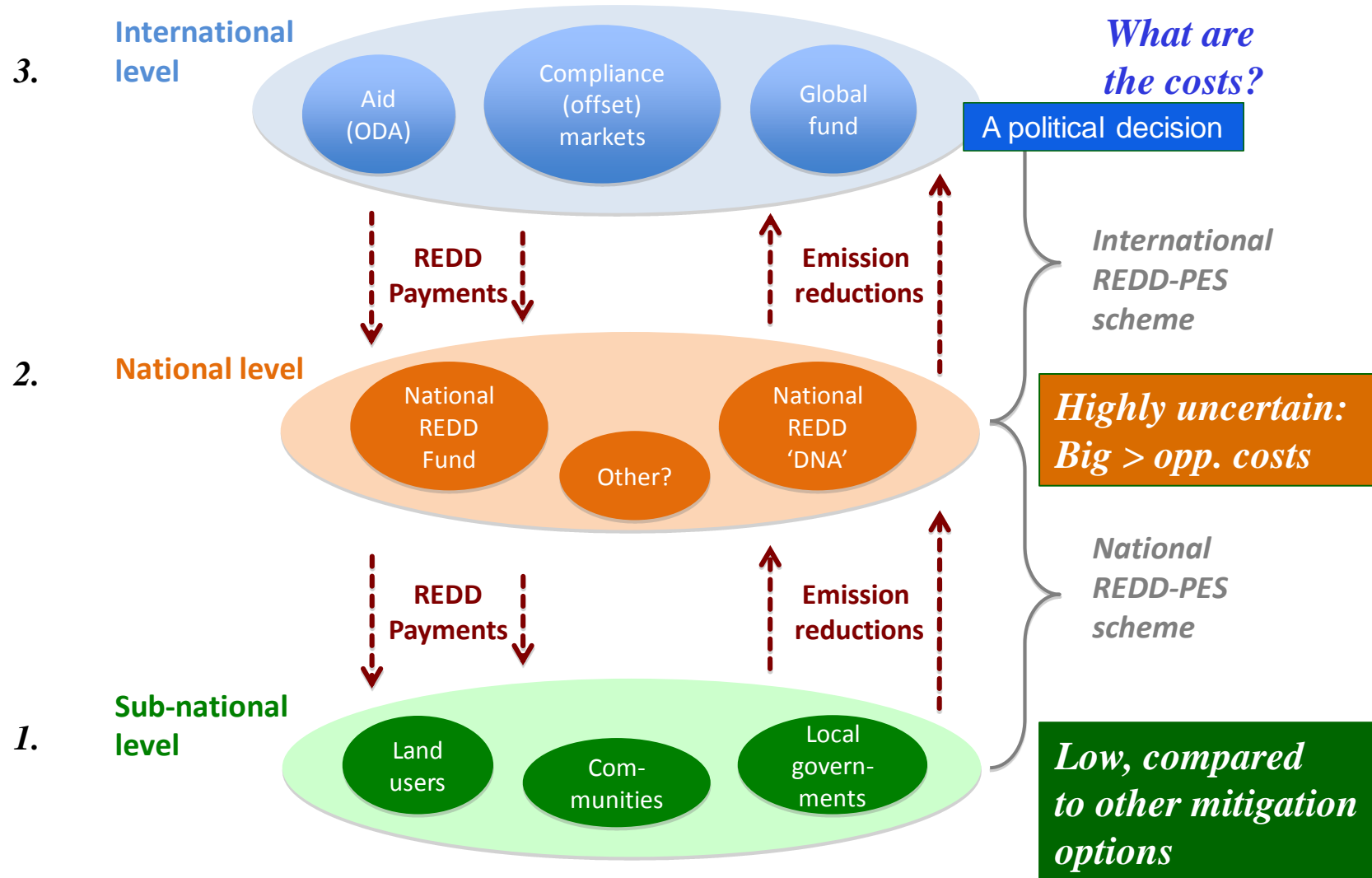
# *Concept of REDD*

- 1) Setting the Reference Scenario (Baseline) of deforestation from historical trend
- 2) Implementation of measures to avoid deforestation
- 3) Monitoring and accounting the amount of emission reduction
- 4) Payment from financial mechanism according the amount of emission reduction



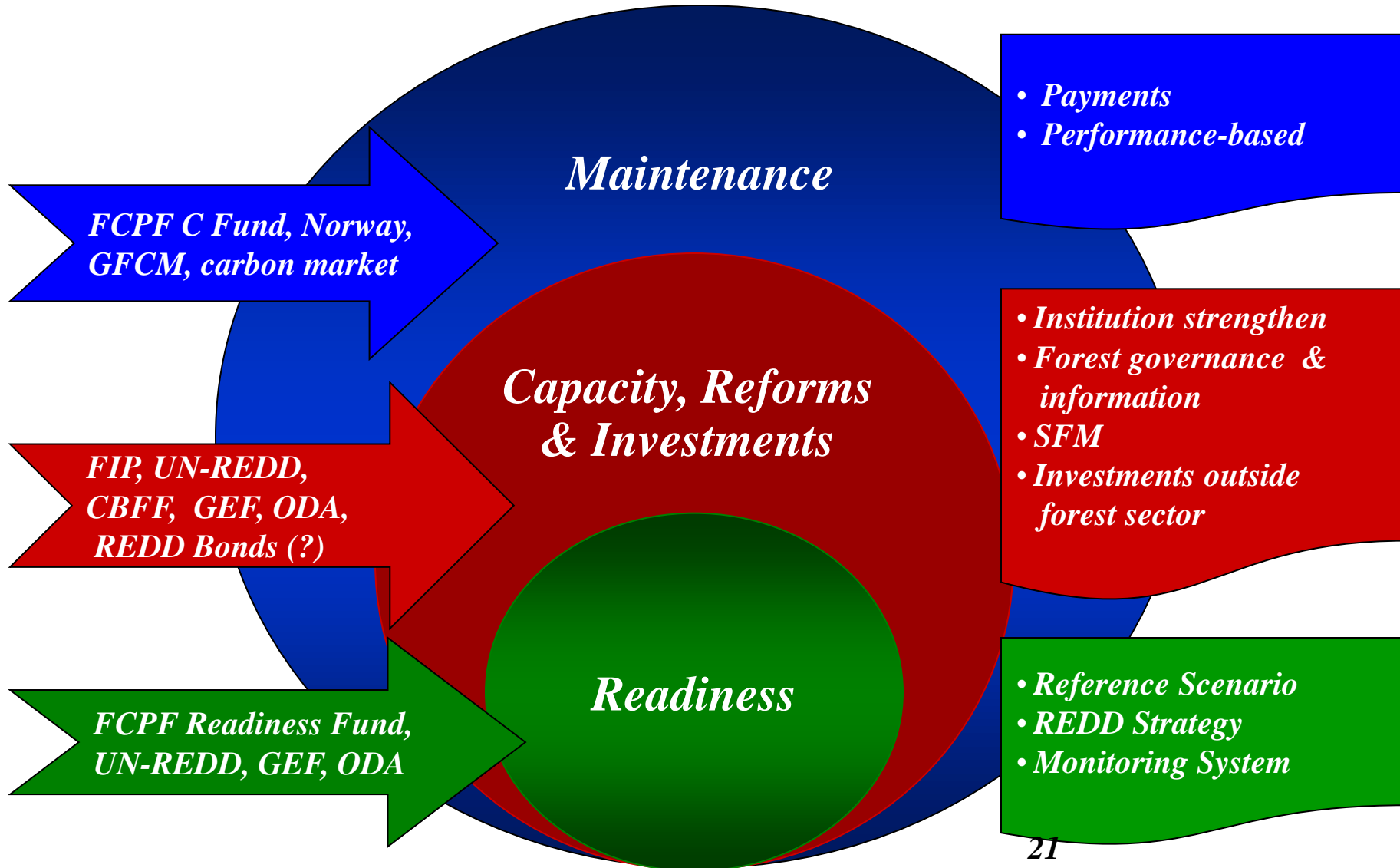
- What will it cost:
  - 1) Paying for avoided emissions, paying for ES
  - 2) Costs & consequences of alternative models for maintaining forests and forest carbon
  
- Three types of costs:
  - 1) Landowners costs (opportunity costs)
  - 2) Government costs (budget costs)
  - 3) Int'l payment for REDD (Annex I transfer to non-An. I)
  
- The costs depend very much on:
  - 1) How much REDD we want
  - 2) What type of REDD mechanisms we have in mind
  - 3) How rights (and duties) are defined

# Global REDD scheme

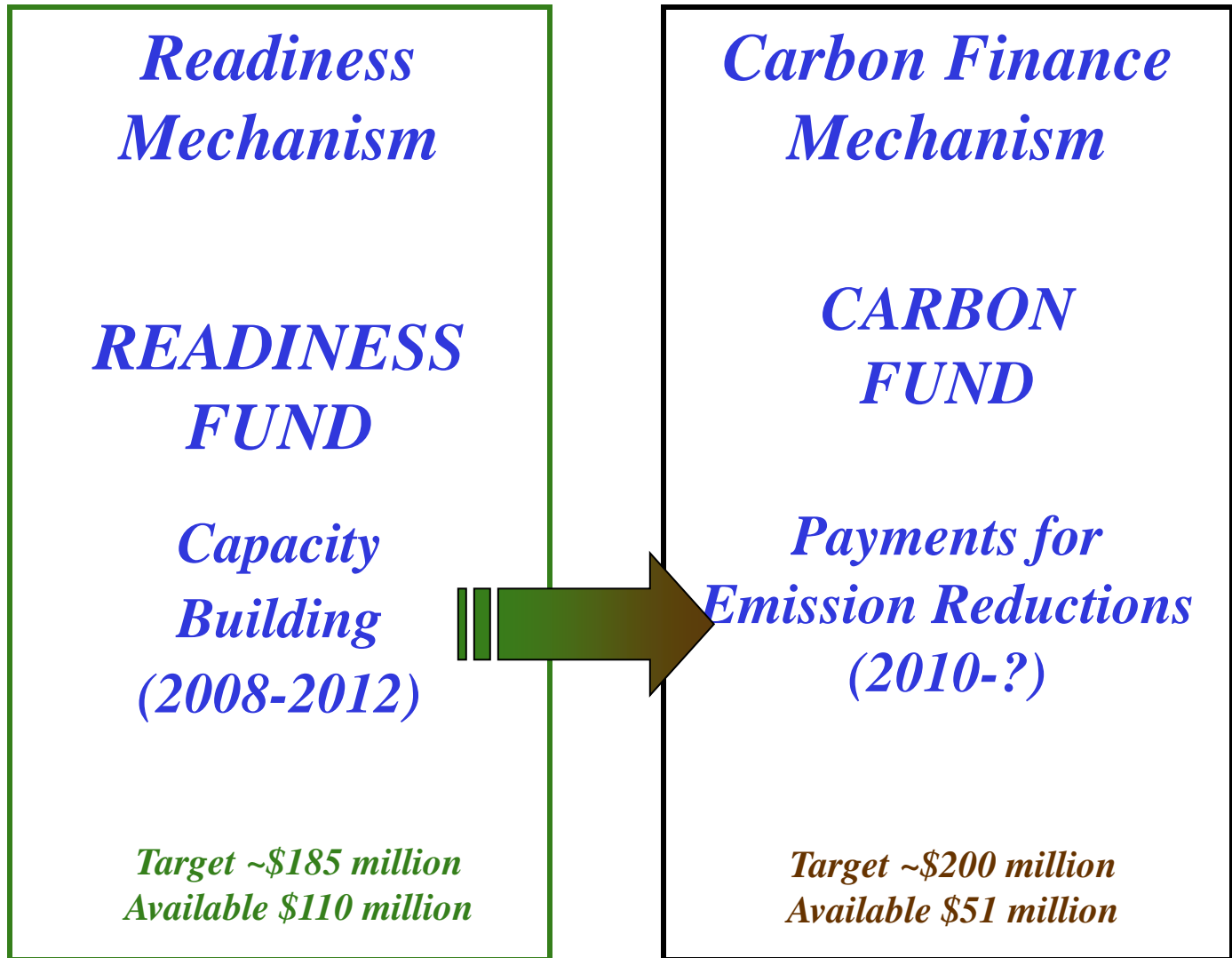




# *Three Phases of REDD*



# *Two Mechanisms*



## *Further Issues*

- *Enhancement of forest carbon stocks could result in conversion of land (including forests) to industrial tree plantations, with serious implications for biodiversity, forests and local communities*
- *Conservation means risk of evictions and loss of rights for indigenous peoples and local communities*
- *Sustainable management of forest could include subsidies to commercial logging operations*

## *Gender / Women*

- Forests are also much more than mere receptacles of carbon provide livelihoods, sustenance and income to more than 1.6 billion people around the world, farmers and indigenous peoples who depend most on the forests, and primarily women whose survival depends on the supplies they find in the forests.
- For centuries, rural women have been responsible for domestic chores; caring for and feeding their families; and tending the family's crops, including the exchange of seeds and selling the produce grown

## *Challenges in NE Asia*



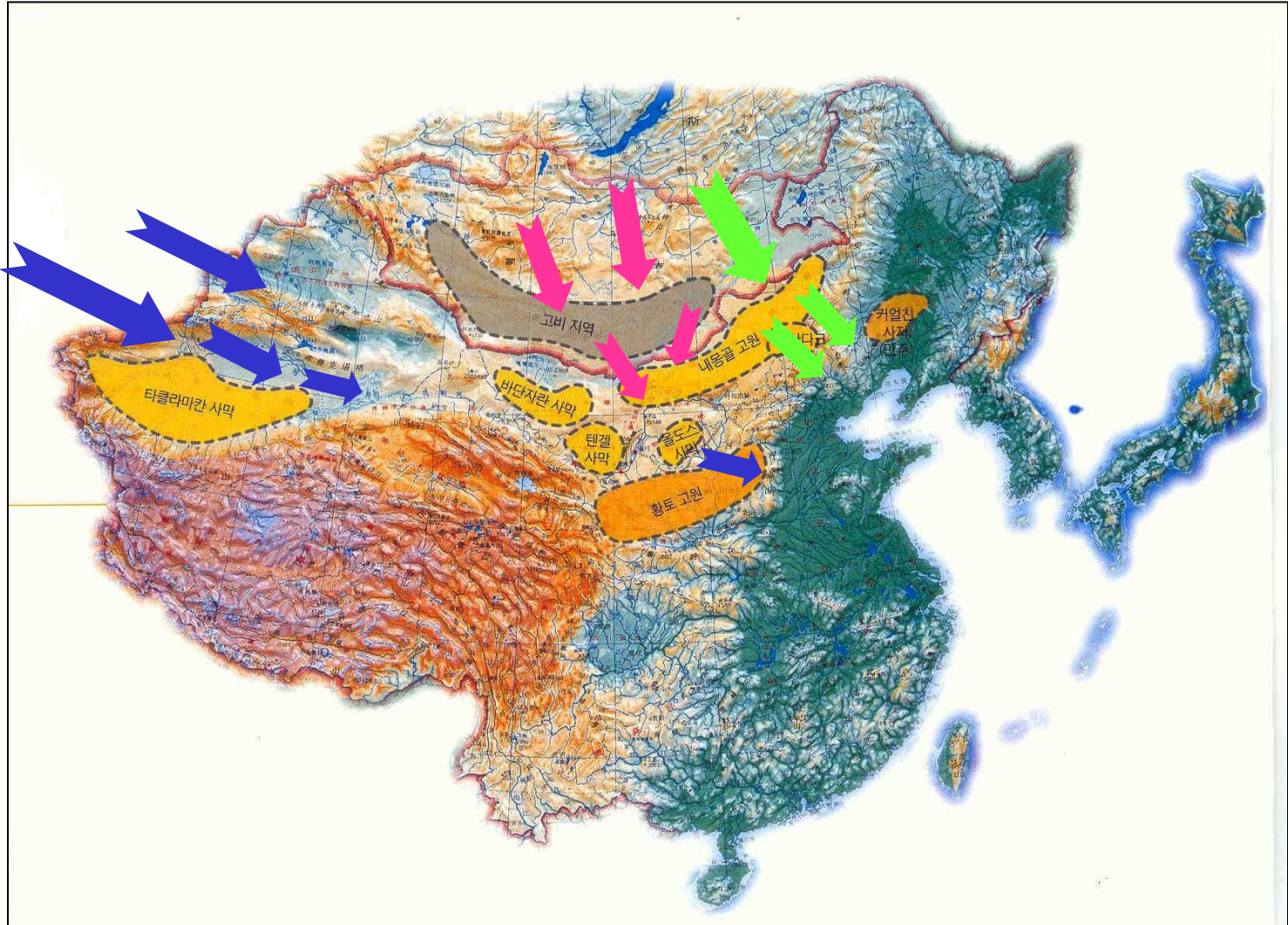
*Int'l Network for Combating Degradation / Pest& Insect  
and Reforestation / Forest Fire*

# *Common Issues in NE ASIA*

1. Yellow Dust & Desertification problem
2. Rehabilitation of Degraded Forestland
3. Climate Change Impact
4. Eco-system and Future Life in Danger
5. Short of Cross-Border Collaboration
6. Short of Available Fund & Technology
7. Need to Train & Educate on rehabilitation



# *Origin of DSS*



# *Chinese Government Efforts*



Stop food production, back to Forest



Years later after planting



# *Inner Mongolia by NEAFF:2004-6/350ha*



**Maowusu sandy land**

# *Forest Resources of Mongolia*

- Total Forest Land : 15 Mil. Ha (11%) , Natural F.: 80%)  
    잎갈나무 (Siberian larch, *Larix sibirica*) – 60%,  
    구주적송 (Scotch pine, *Pinus silvestris*), Siberian cedar (*Pinus sibirica*)  
    Siberian fir (*Abies sibirica*), Spruce (*Picea obovate*), Birch (*Betula plathypilla*)  
    Aspen tree (*Populus tremula*), Saxaul
- Forest Resources Degraded last 30years
- Annual Growth : 1.5~2.0 m<sup>3</sup>/ha

## *Causes of Desertification*

- Overgrazing
- Inappropriate Practices(range land, crop land)
- Deforestation
- Planning problems in Urbanization
- Forest Fire

# *Factors of Degradation*

## *Overgrazing*

- Heavy pasture degradation in adjacent forest steppe and steppe regions led increase number of livestock in this region.
- Speedily increase of number of livestock have degraded forest ecosystem and the growth condition of forest especially regeneration have worse.





# *Factors of Degradation*

## *Logging*



Unjustified tree logging is a common negative influence, increased during past few years

Consequence of logging :

▶ Loss of biodiversity

▶ Worse conditions of natural forest regeneration prevailing

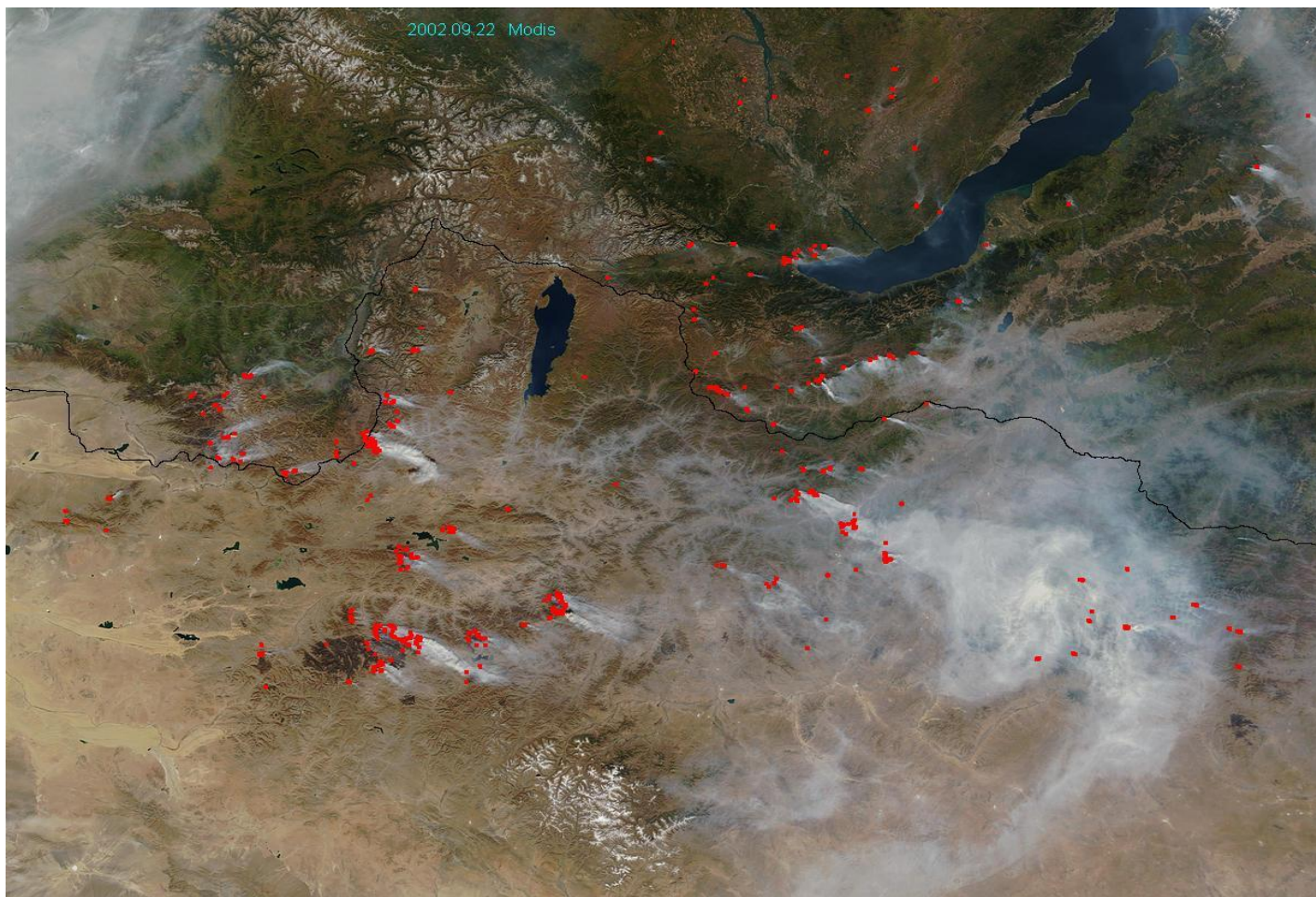
▶ Increase risk of wild fires and forest insects

▶ Disturbance of ecological balance

▶ Deforestation and desertification take place



# ***Fires on the MODIS (2002.09.22)***



# *Insect /Pest*



Larch stands affected by harmful insects



# Current state of Desertification

- According to UNCCD definition over 90 percent of total territory of Mongolia is highly vulnerable to desertification.
- 72.3% of Mongolia's territory is affected by land degradation, out of which 5% is very severely, 18% severely, 26% moderately and 23% is weakly affected.

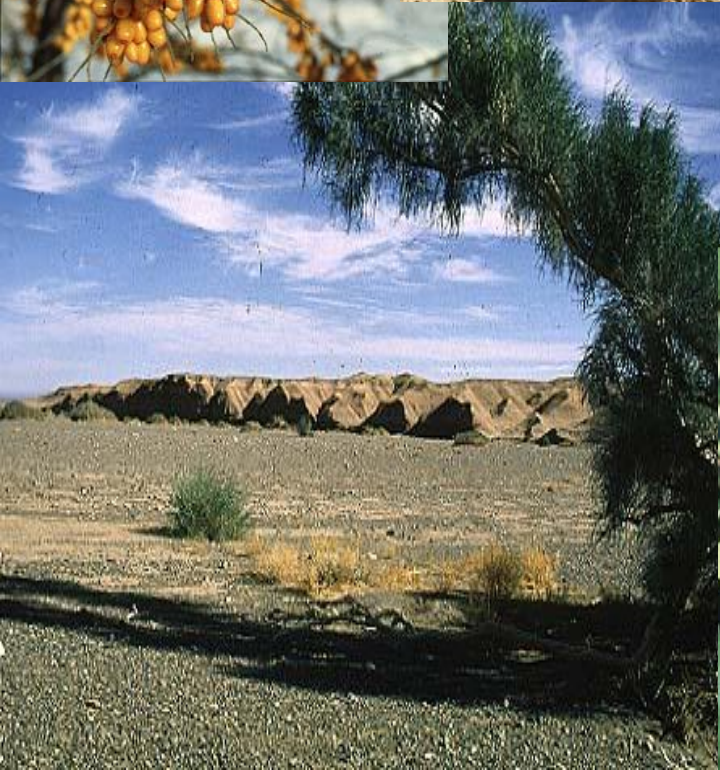


# *Mongolia Government Efforts*



Green Belt – Ecological Windbreak forest 3500km until 2030 / Main & additional belts of Belt”, which will be built in the Gobi & steppe regions



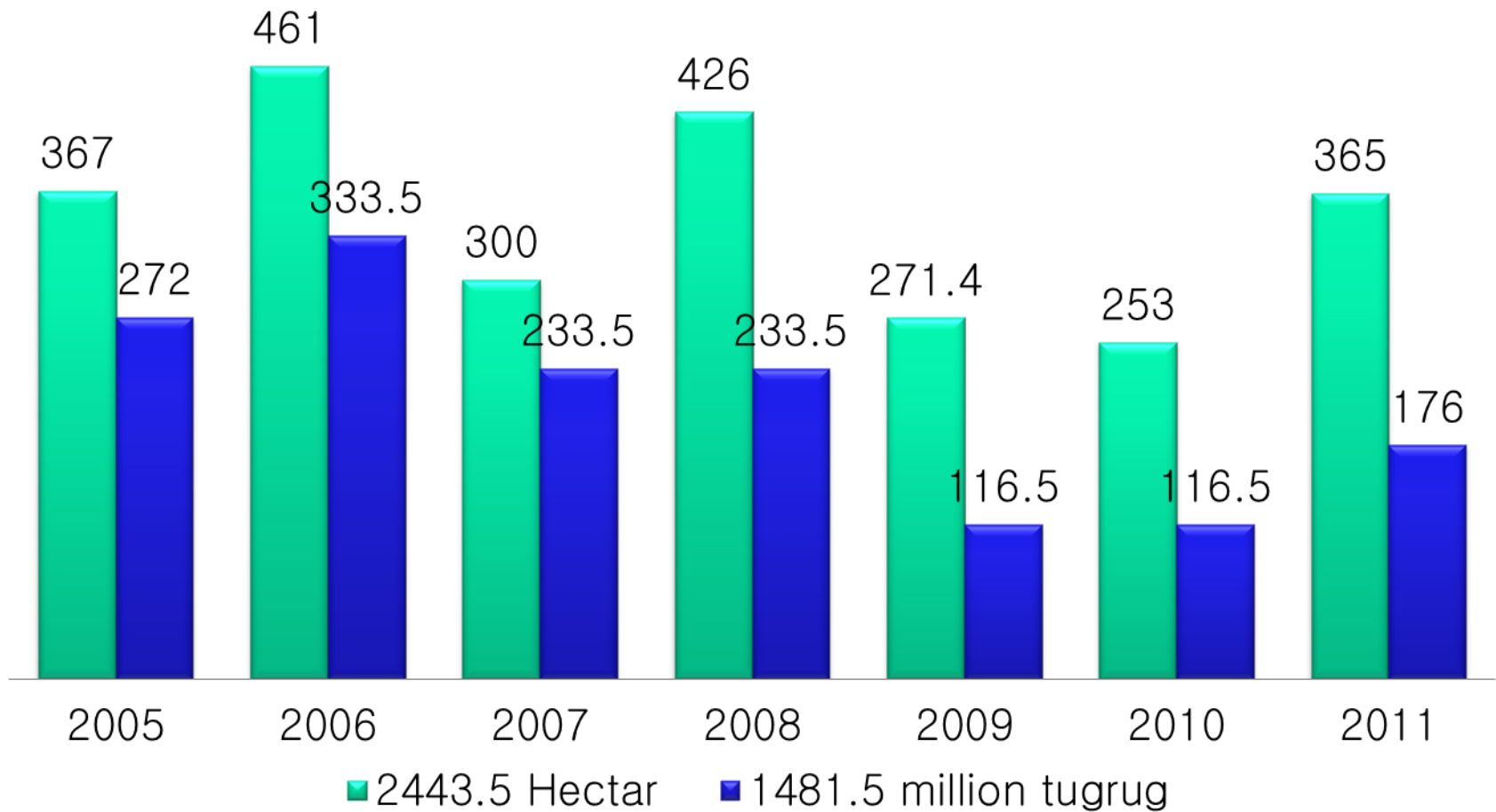


Species of  
trees to be  
planted under  
the “green  
belt”

Programme :

Aspen, poplar  
willow,  
saxaul,  
Hippophae,  
Caragana,  
Oleaster,  
Tamarisk,  
hawthorn,  
buckthorn  
juniper, wild  
oats, pines

# *Afforestation/reforestation wind break activities*





# *Steps of reforestation*

## *Restoration during the exploration*



### *Technical restoration*



### *Biological restoration*



# *Saxaul Rehabilitation*

- Introduced tube seedling in Gobi areas;
- Seedlings transferred to nature;
- Young saxaul area expanded by 10 ha in target soums
- A survival rate of the planted seeds is above 70 %



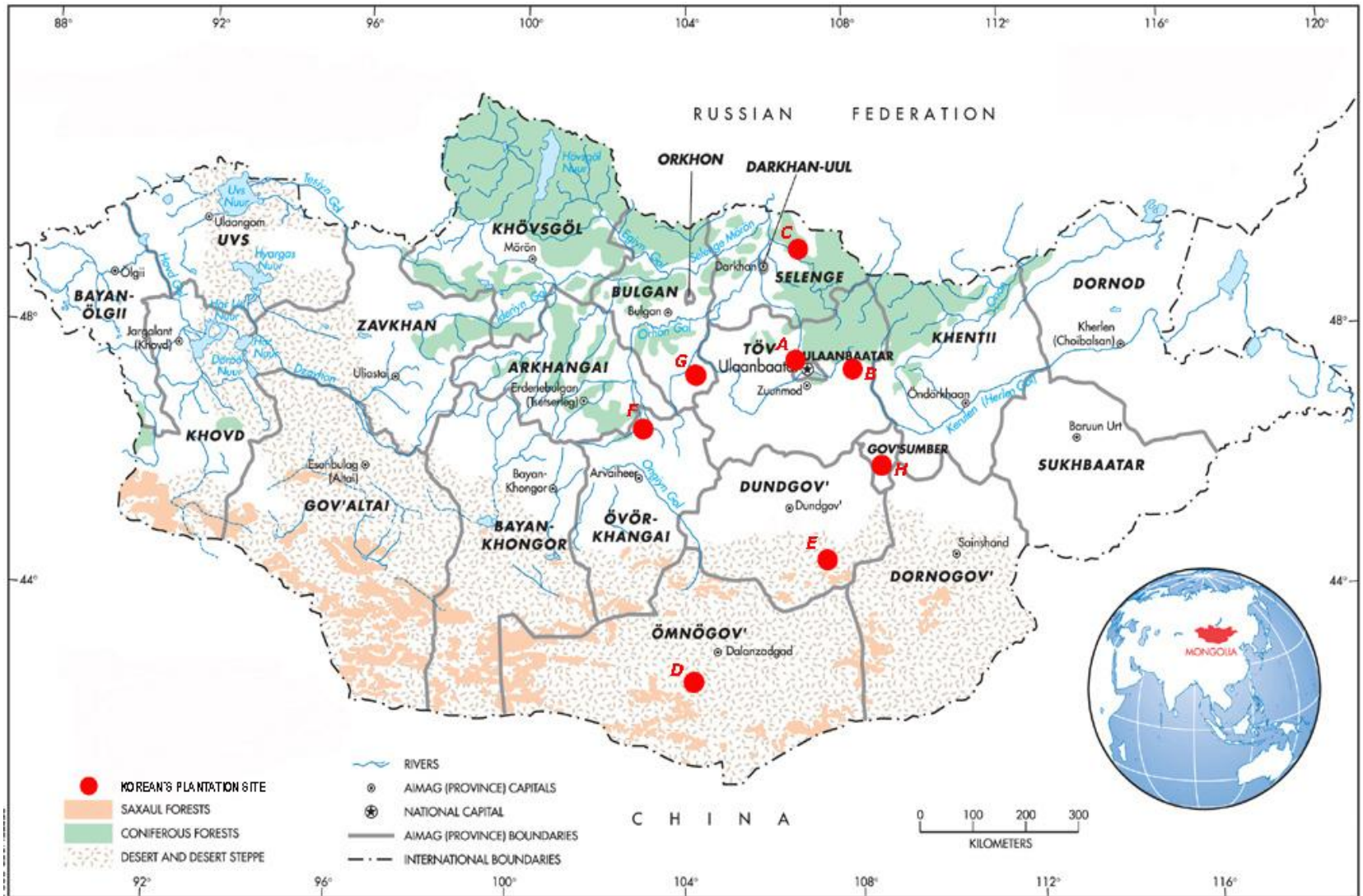
Seedlings were prepared into tube



Prepared seedlings transferred to nature



## *Tree plantation Sites*



Source : World Bank. 2006. Lessons from tree planting initiatives. Kang - MS

# ***Data on Plantation***

<b>No</b>	<b>Date of Reforestation</b>	<b>Area</b>	<b>Elevation (m)</b>	<b>Location</b>	<b>Distance from Sukhbaatar city (km)</b>	<b>Impact of Forest disturbance</b>
1	May, 2003	100	720	50°11'27.2" 106°26'30.8"	17 km to the east	Affected by forest fire in 1999.
2	May 2004	150	706	50°10'10.1" 106°24'52.5"	16 km to the east	Affected by forest fire in 1997
4	May, 2005	200	698	50°12'24.6" 106°28'41.6"	18 km to the south	Affected by forest fire in 2000 and high impact of grazing
5	May, 2006	250	694	50°12'16.2" 106°32'47.9"	24 km to the east	Affected by Forest fires in 1997, 2005 and logged area
7	May, 2007	300	703	50°09'42.2" 106°32'20.1"	30 km to the south east	Affected by Forest fires in 1998, 2005 and logged area.
8	May, 2008	350	700	50°07'23.8" 106°15'54.2"	None forest area and 18 km to the south	Affected by Forest fires in 1986, 1993, 1997

2003-08



*Tujiin nars in Selenge*



## *Plantation in 2005*



# *Gobi Desert in 2005*

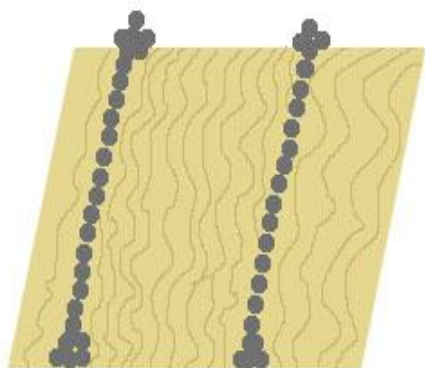
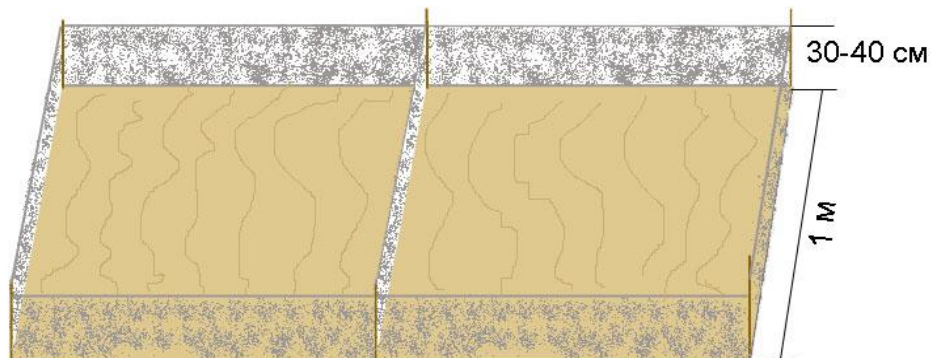
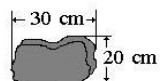
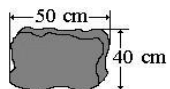
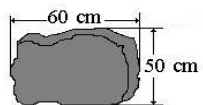
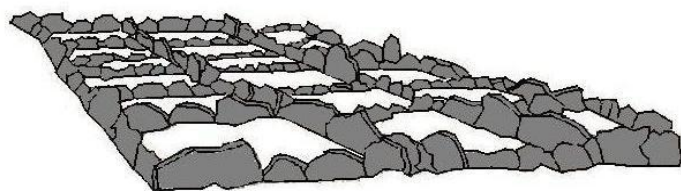




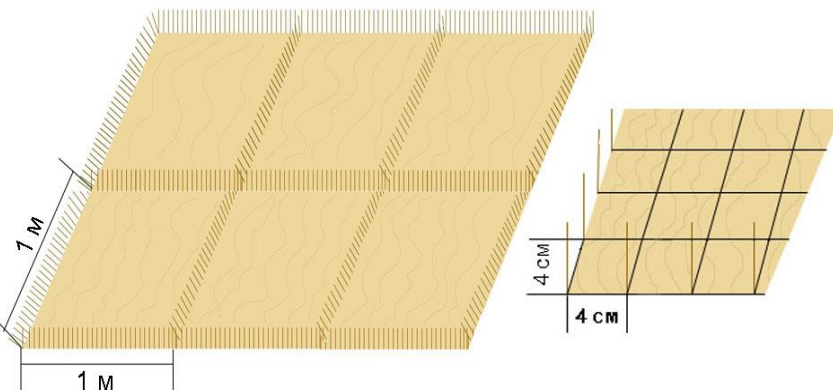
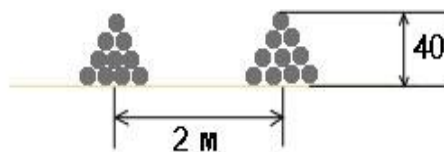
# *Sand fixation in South Gobi - 2003/5*



# *Methods of sand fixation*



- - 4 cm
- - 7 cm
- - 13 cm









Mongolia: Global Warming Hurting South Gobi Grasslands | Pulitzer Center - Windows Internet Explorer

http://pulitzercenter.org/articles/mongolia-global-warming-south-gobi-tsogtbaatar-grass

Google graphic Search More >>


Mongolia: Global Warming Hurting South Gobi Grassla...

GATEWAYS

## DOWNSTREAM HEAT OF THE MOMENT

PROJECT



Heat of the Moment



Daniel Grossman

*Grantee*

Daniel Grossman has been a print journalist and radio and web producer for 20 years. He holds a Ph.D. in political science and a B.S. in physics, both from MIT. He is a 2008 Alicia

Park (left) and Tsogtbaatar by their windbreak in Dalanzadgad. Image by Dan Grossman. Mongolia,

start 6 Internet Explorer Microsoft PowerPoint ... Links >> 오전 8:57