REDD+ Current status and future direction

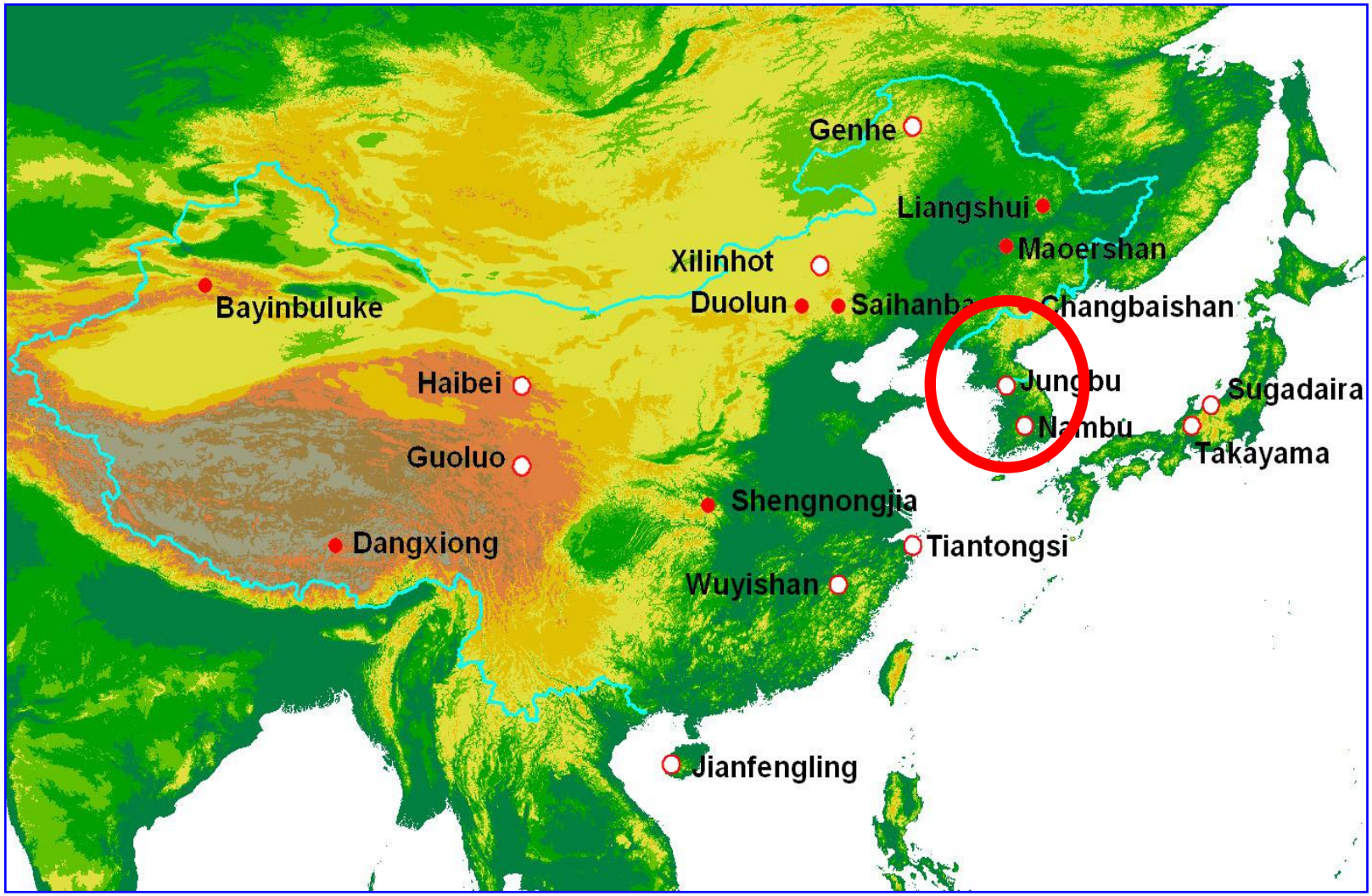
- Sharing experience and Plan for REDD +-

Korea Forest Service

Global Forest Resources Cooperation Division

Korea University

Division of Environmental Science and Ecological Engineering



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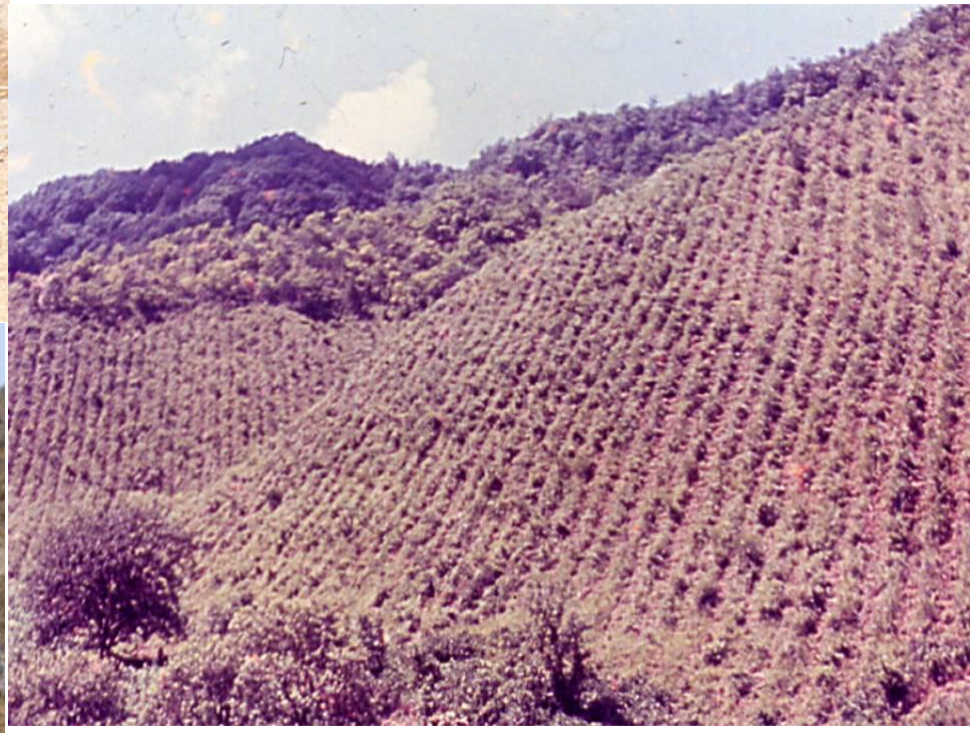

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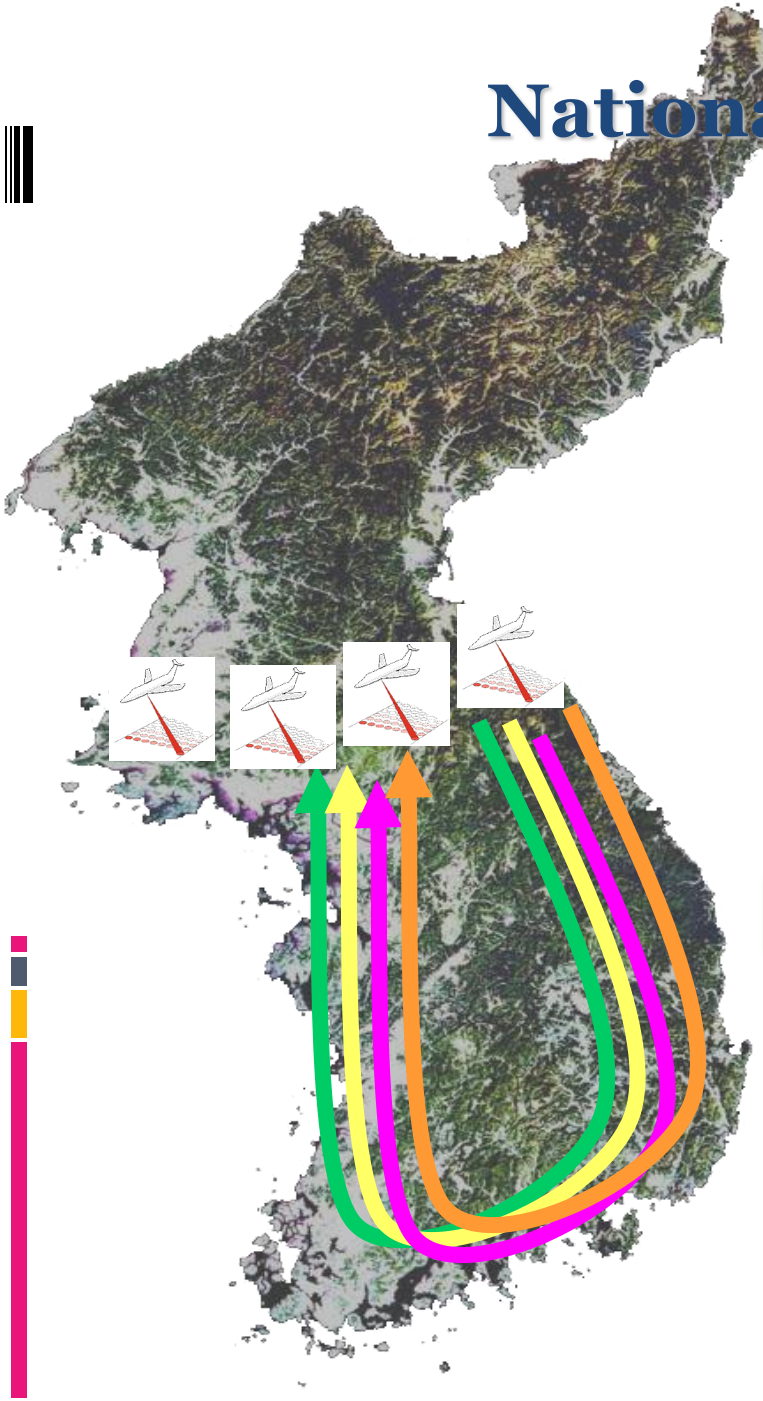
Contents

NFI in Korea

Ground based Carbon Stock System

Application for Forest Carbon Map

National Forest Inventory System



The 1st National Forest Inventory
1972 - 1974 [3 Years]

The 2nd National Forest Inventory
1978 - 1980 [3 Years]

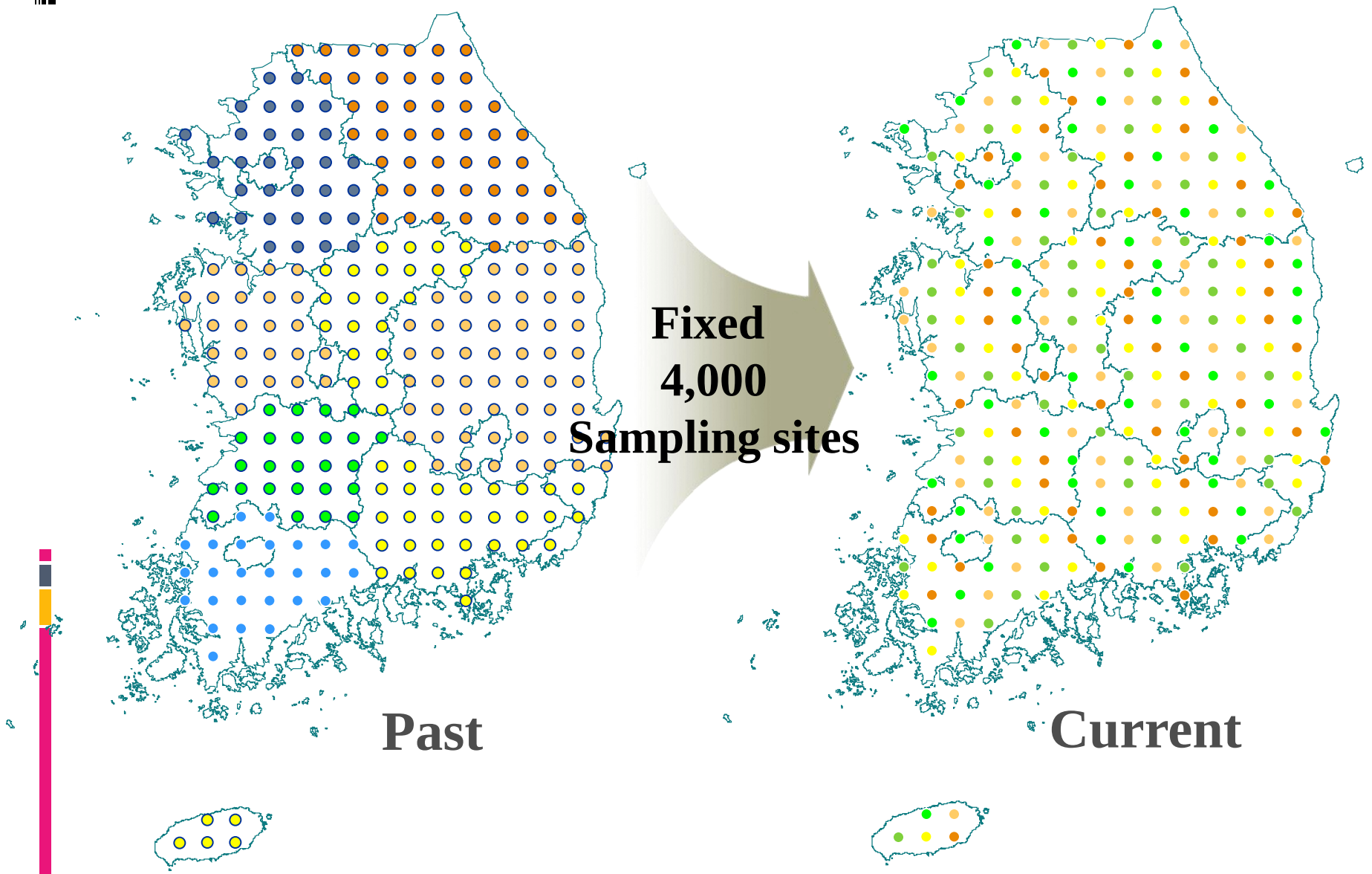
The 3rd National Forest Inventory
1986 - 1992 [7 Years]

The 4th National Forest Inventory
1996 - 2005 [10 Years]

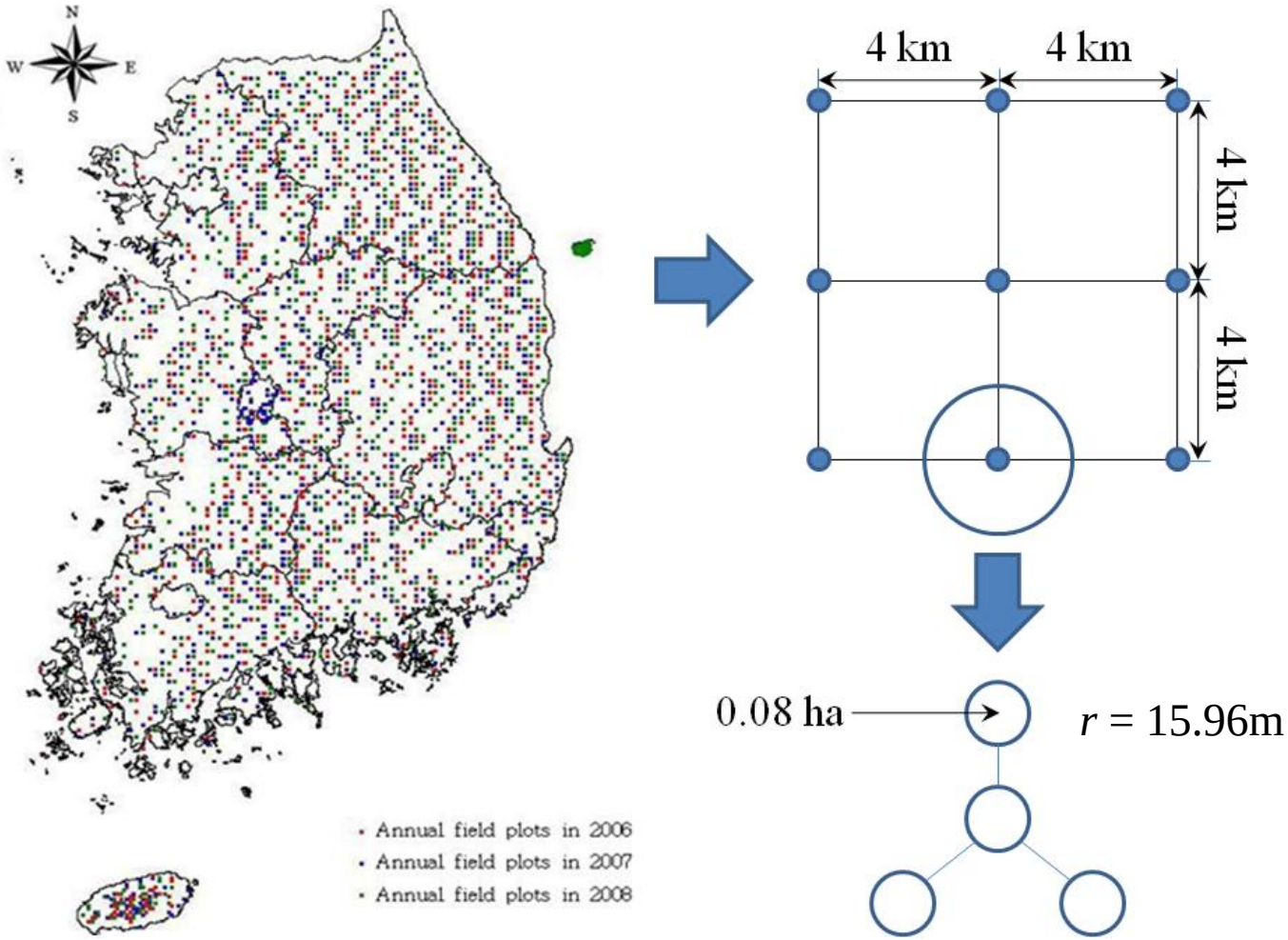
the 1st ~ 3rd Inventories

- Division of forest inventory
- Division of soil inventory
- 40 ~ 50 personnel of teams

Annual Inventory System



National Forest Inventory System

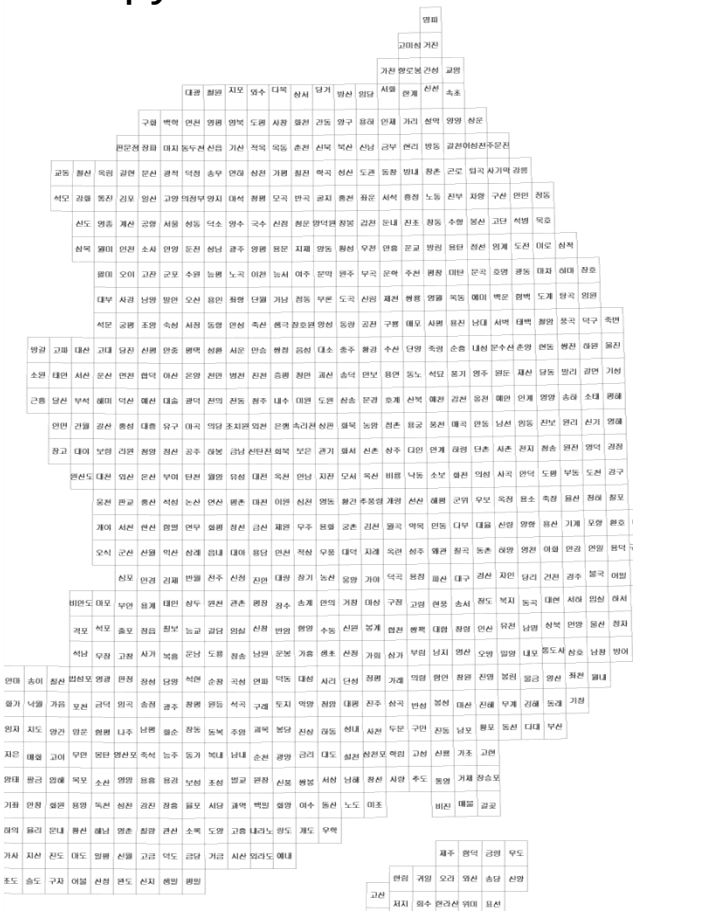


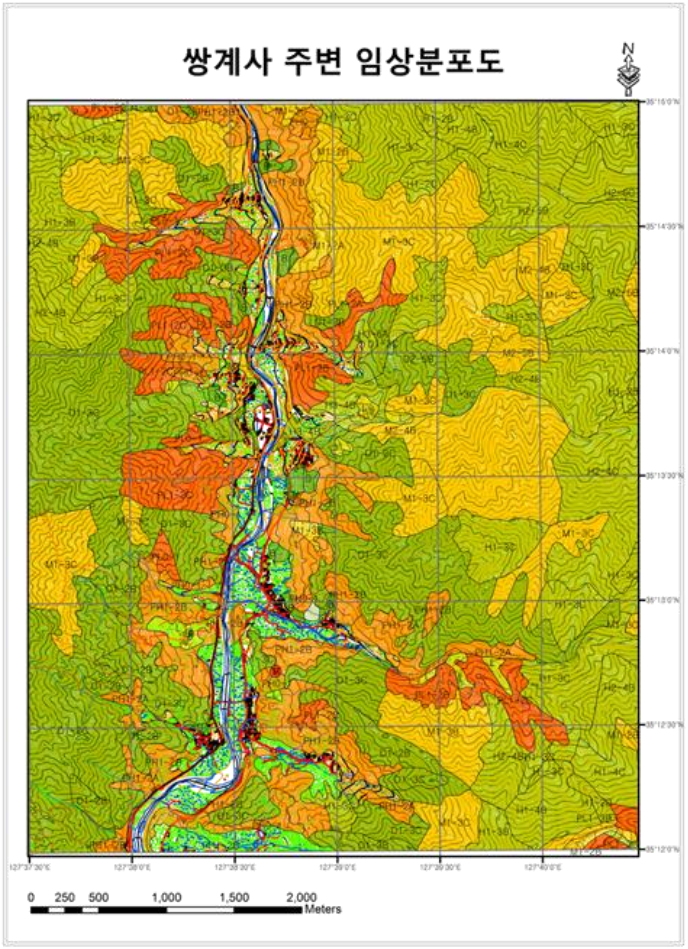
Forest Type Map

Using Satellite Image System Application for Forest Carbon Map

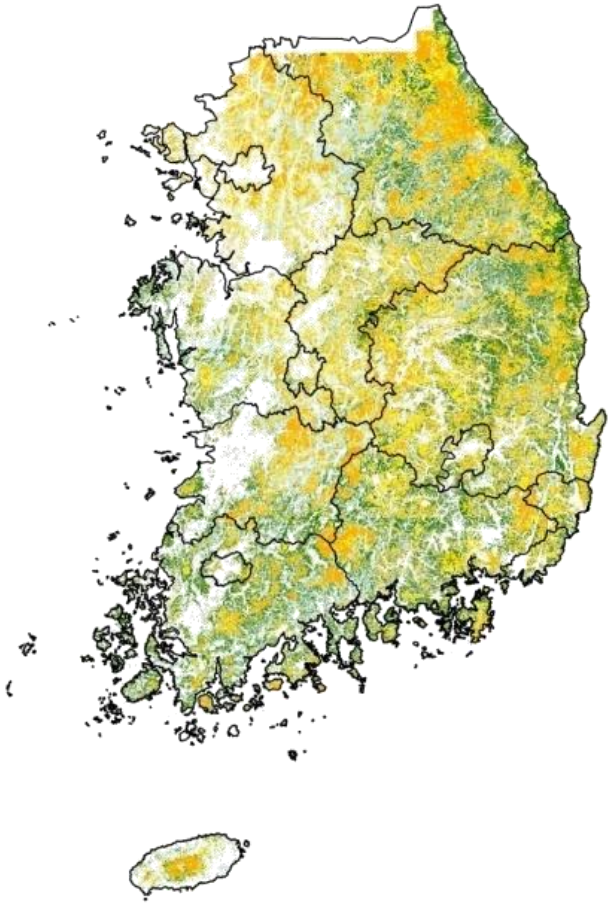
Forest Type Map

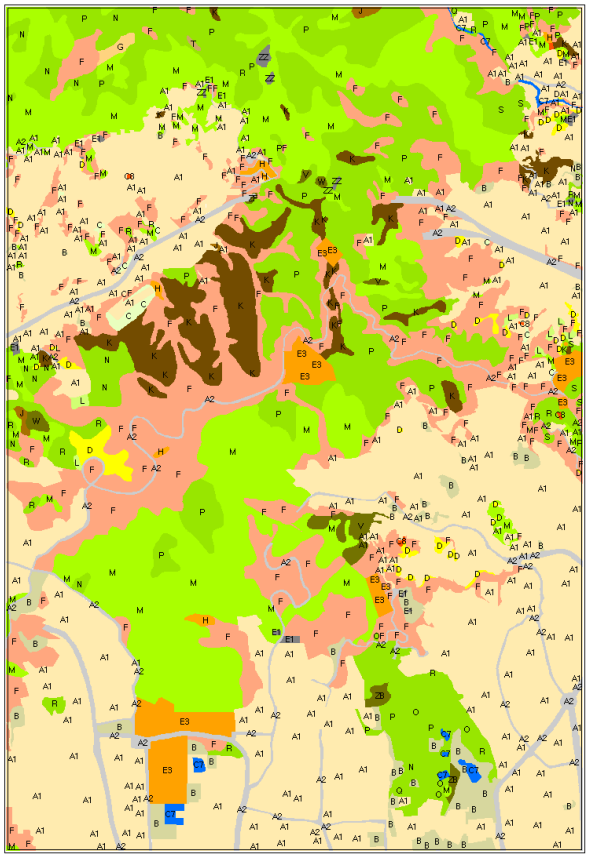
- Korea Forest Service prepared Forest Cover Maps (1:5,000) using aerial photos by scale 1:5,000.
- The maps include the information on tree species, stand age, DBH class and canopy closure.





Digital Forest Type Map

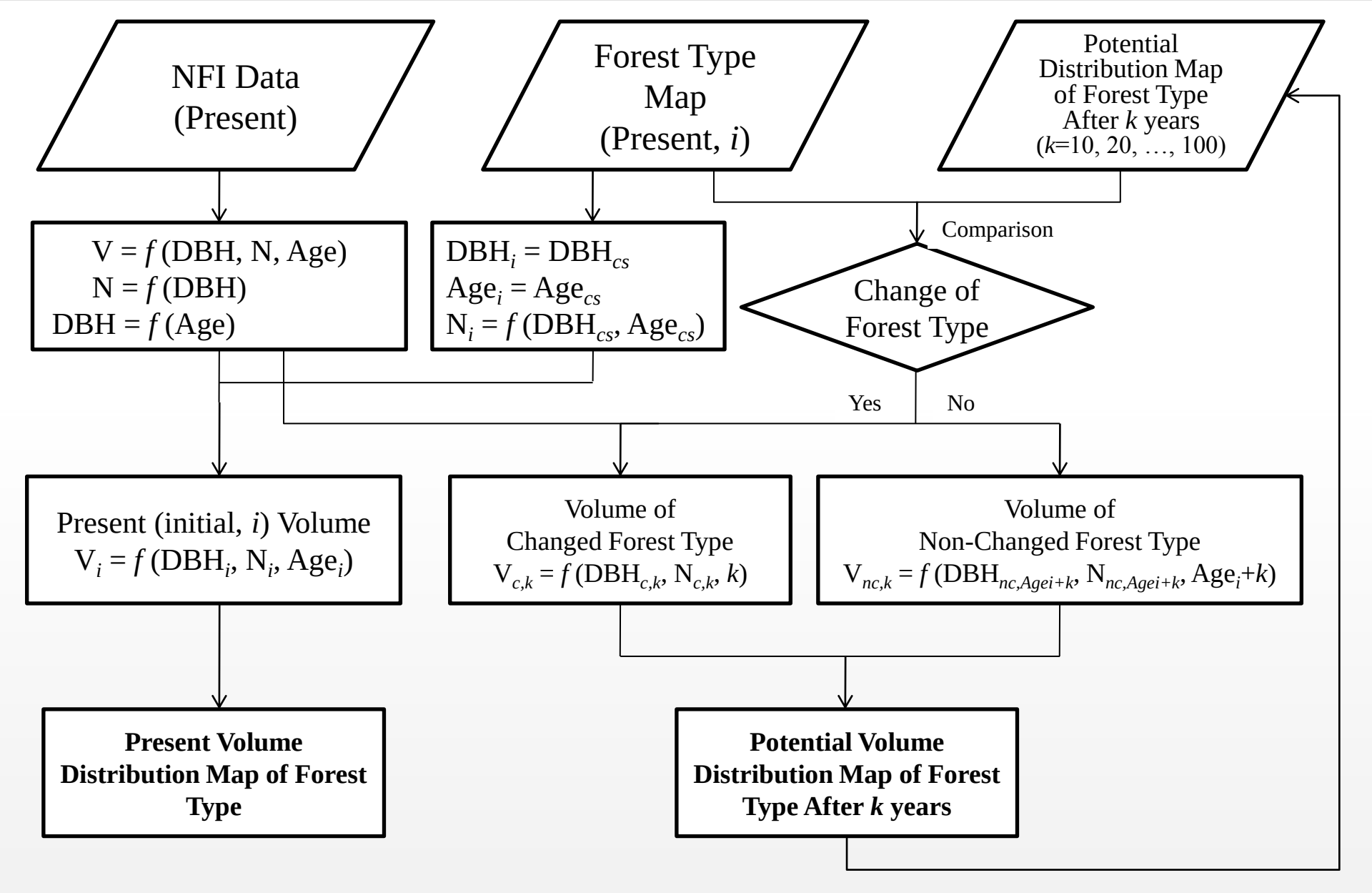




Forest Growth Model

using NFI Data

Forest Growth Model using NFI data



Algebraic Differences form of Regression models

Regression models

$$dbh = a \cdot age^{b}$$

$$h = 1.2 + a \cdot e^{\frac{b}{dbh}}$$

$$N = a \cdot dbh^{b} \cdot c^{dbh}$$

$$v = a \cdot dbh^{b} \cdot h^{c}$$

Algebraic Differences form of Regression models

$$dbh_{i+1} = dbh_i \cdot \left(\frac{age_{i+1}}{age_i} \right)^{b}$$

$$h_{i+1} = h_i \cdot \frac{1.2 + a \cdot e^{\frac{b}{dbh_{i+1}}}}{1.2 + a \cdot e^{\frac{b}{dbh_i}}}$$

$$N_{i+1} = N_i \cdot \left(\frac{dbh_{i+1}}{dbh_i} \right)^{b} \cdot c^{(dbh_{i+1} - dbh_i)}$$

$$v_{i+1} = v_i \cdot \left(\frac{dbh_{i+1}}{dbh_i} \right)^{b} \cdot \left(\frac{h_{i+1}}{h_i} \right)^{c}$$

Regenerated with new tree species by potential forest cover

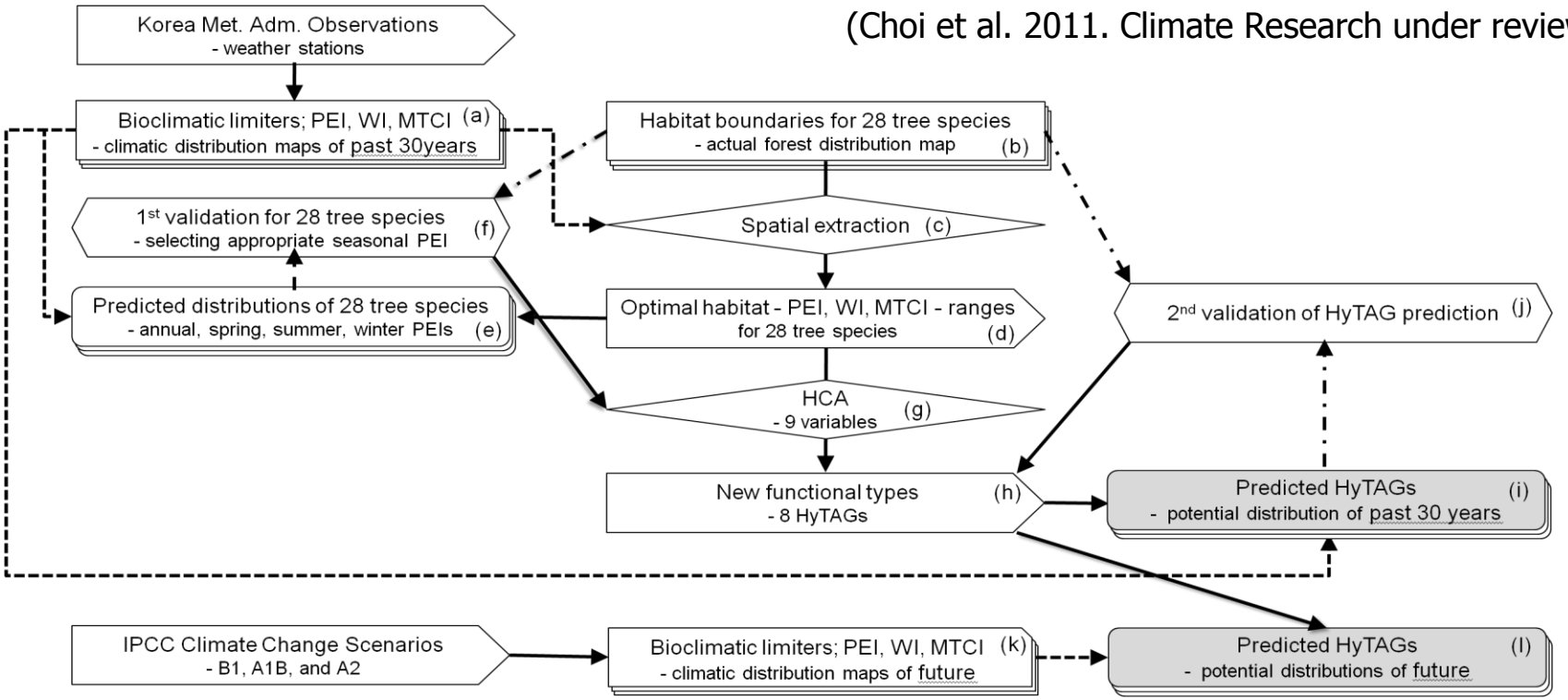
Remained current species

HyTAG model (Potential Forest Type Model)

Overall Scheme of HyTAG model

- Using the Hydrological and thermal indices, related to the forest distribution;
  - Precipitation Effectiveness Index (PEI) of Thornthwaithe (1948)
  - Warmth Index (WI) of Kira (1945)
  - Minimum Temperature of the Coldesr month Index (MTCI) of Neilson(1995)

(Choi et al. 2011. Climate Research under review)



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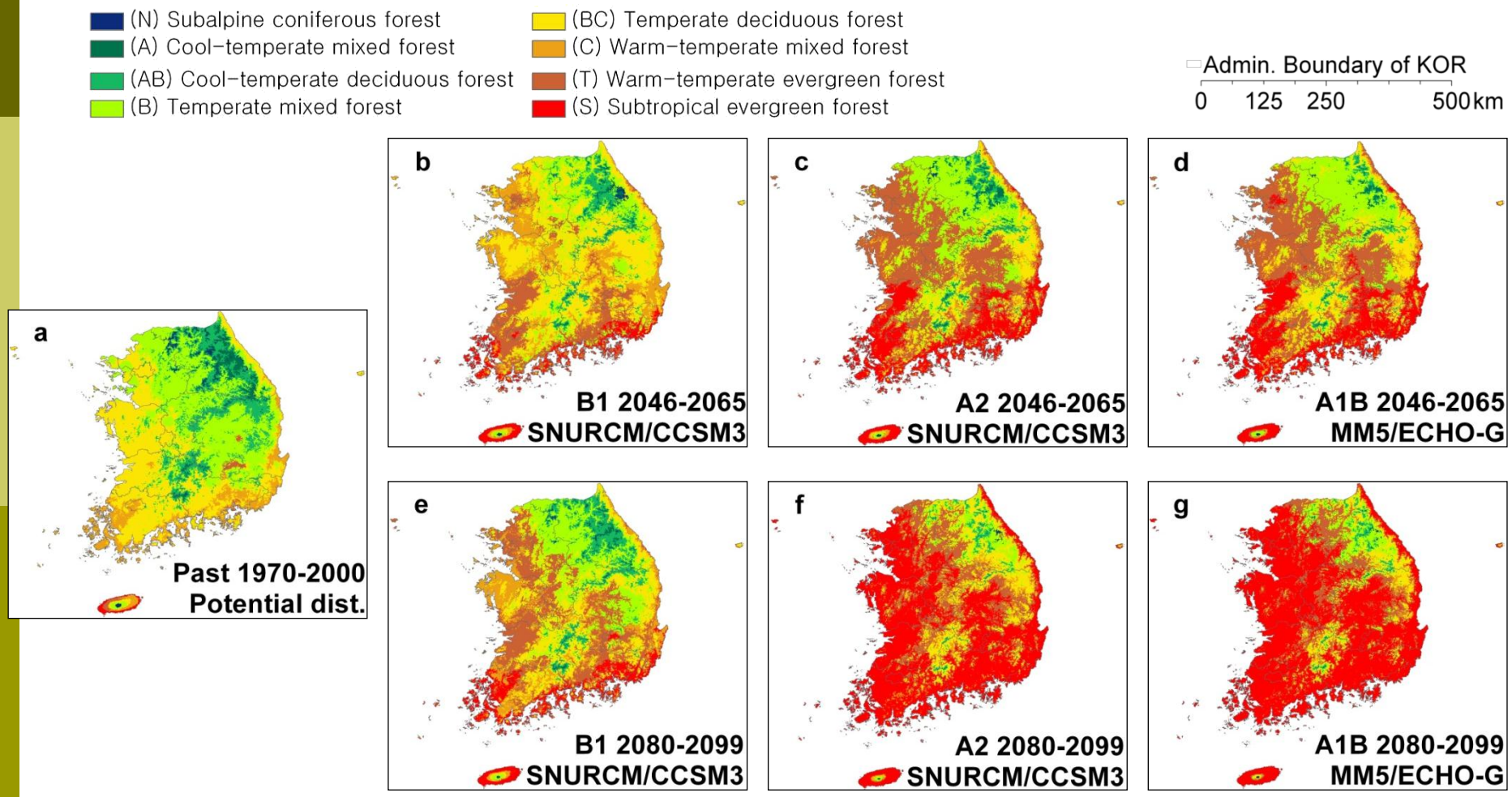
HyTAG Model - Potential Forest Type with Climate Factors

✓ Changes in potential forest distribution under IPCC scenarios



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Forest Carbon Model

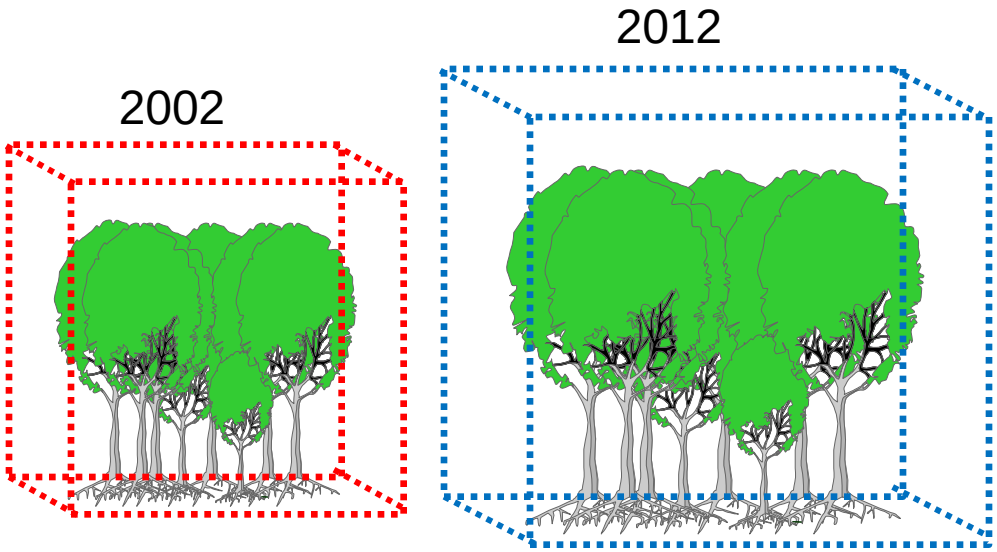
Stock Differences

✓**Carbon Storage** ➡ **by volume**

- **Quantifying current volume**
- **Meaning the measurement of forest carbon storage at the current point of time**

✓**Carbon Sequestration** ➡ **by annual growth increment (stock differences)**

- **Quantifying the volume increment between two period into amount of carbon sequestration**
- **Meaning the measurement of amount of sequestration between at the point of time**



2012 Carbon storage **2002 Carbon storage**

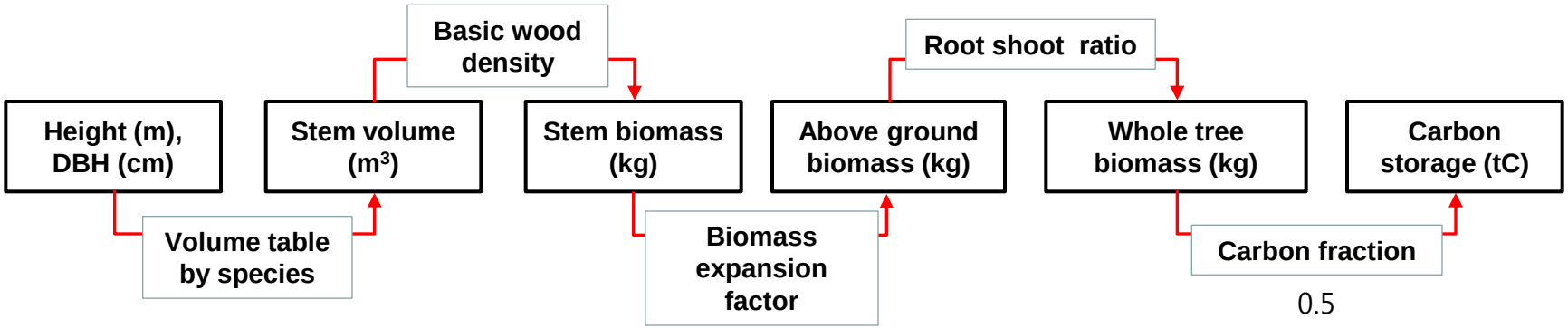
C - C = C

Carbon sequestration in 10 years = increment of growth

Biomass & Carbon Expansion Factors

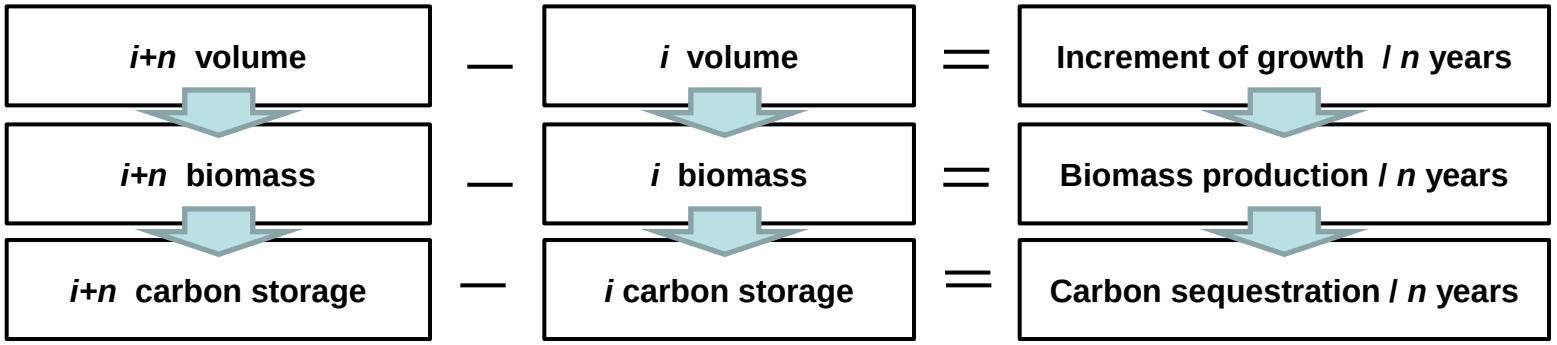
✓ **Quantification of carbon storage**

- **The method of calculating forest carbon storage in *i* year**



✓ **Quantification of carbon sequestration**

- **The method of calculating forest carbon sequestration during *n* years**



Calculation of Forest Carbon Storage

- Forest carbon storage using the wood basic density, biomass expansion factors and carbon conversion index
  - Step 1: Converting forest volume into above ground biomass using Wood Basic Density and Biomass Expansion Factors by tree species
  - Step 2: Converting biomass into forest carbon storage using Carbon Conversion Index (0.5)

	WBD	BEF
Japanese Pine	0.47	1.40
Korean Pine	0.41	1.85
Japanese Larch	0.45	0.32
Pitch Pine	0.51	1.39
Deciduous Trees	0.70	1.43

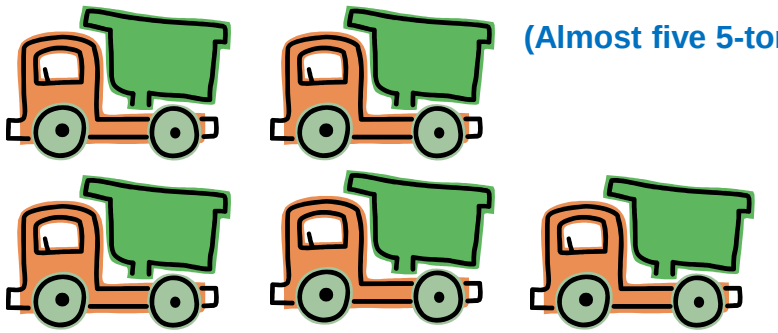
Forest carbon storage and sequestration

- ✓ **An example of estimating carbon storage**
  - **Estimation of per hectare carbon storage in 2009 and 2010 of South Korea**

<2009>

Forest type	Volume (m^3)	Biomass (Tg)	Carbon (tC)
Coniferous forest	115.9	53.3	26.7
Deciduous forest	109.6	75.6	37.8
Mixed forest	111.4	64.1	32.0

Average per hectare carbon storage in 2009: **32.16tC**



(Almost five 5-ton trucks)

<2010>

Forest type	Volume (m^3)	Biomass (Tg)	Carbon (tC)
Coniferous forest	130.3	59.9	30.0
Deciduous forest	125.3	86.5	43.2
Mixed forest	133.2	76.6	38.3

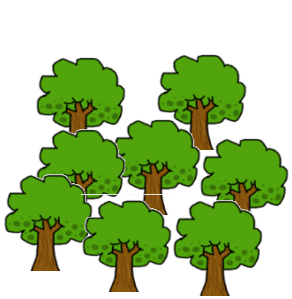
Average per hectare carbon storage in 2010: **37.16tC**

(Almost six 5-ton trucks)

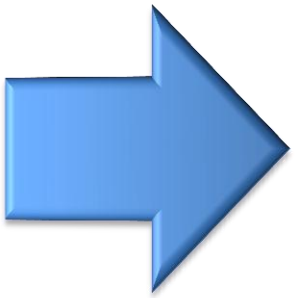
Forest carbon storage and sequestration

✓**Example of estimating carbon storage**

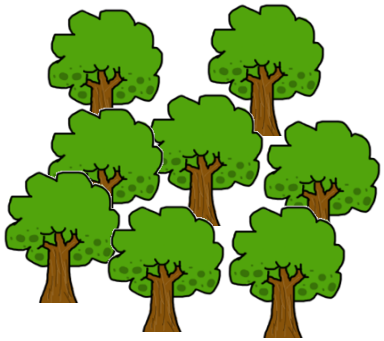
- ✓ **Estimating carbon sequestration per 1 ha during 2009 ~ 2010 in South Korea**



2009
(32.16tC)



sequestration
5.00tC



2010
(37.16tC)

The forest area of 1 ha stored a 5ton-truck of carbon

- ✓ **Estimating carbon sequestration during 2009~2010 in whole of South Korea**
  - ✓**5.00tC/ha X 6,164,470ha = 30,822,350tC**

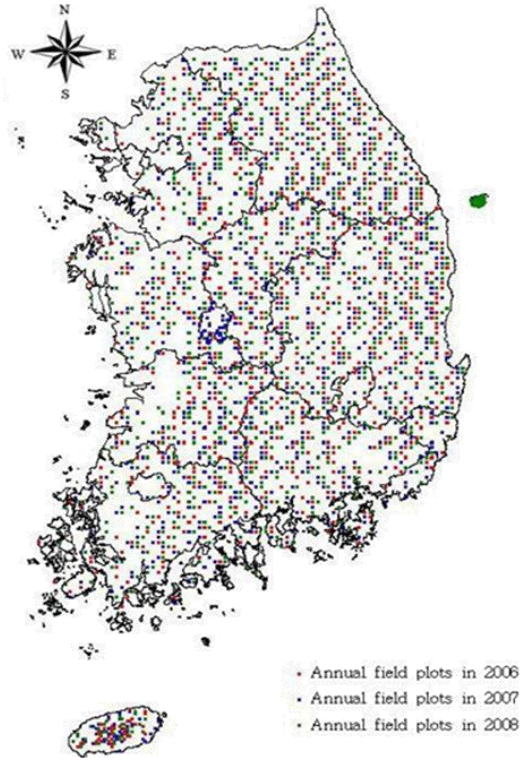
The Korea forest stored 6.16 million 5-ton trucks of carbon

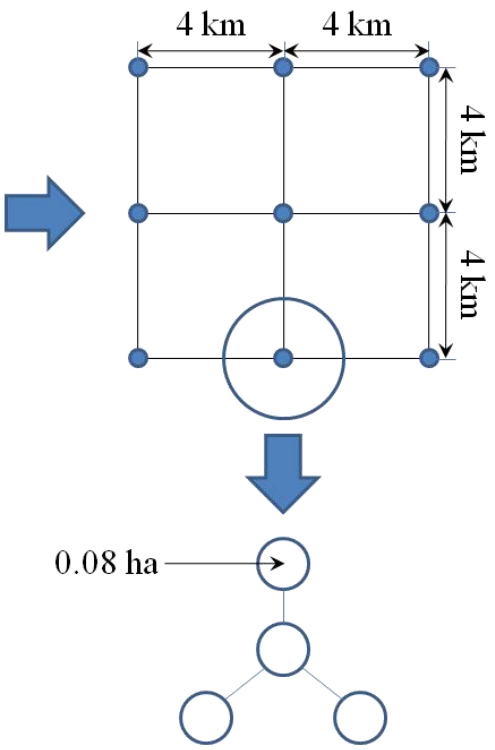
- ✓ **Fundamental law for low-carbon green growth**
  - ✓ Article 5- government should expend the carbon sinks widely and promote applying of forest biomass, according to forest conservation and composition.

Forest Carbon Map (NFI + FTM)

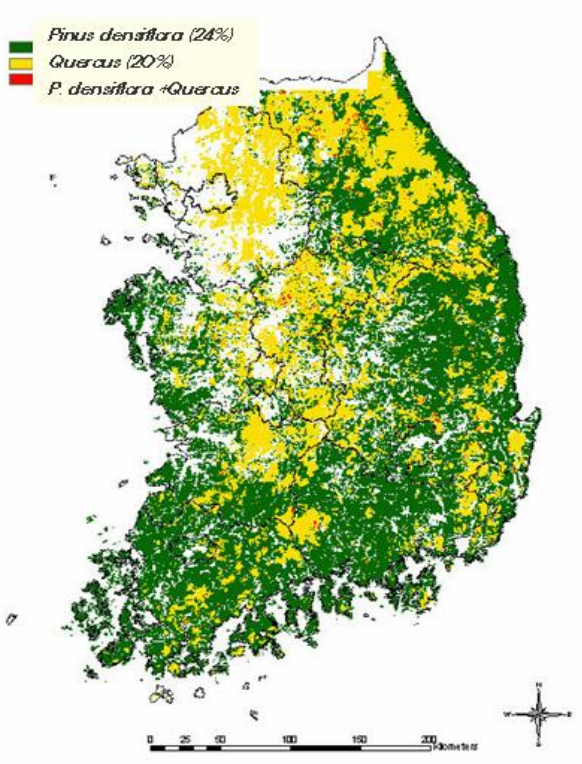
Forest Carbon Map (NFI+ FTM)

- ✓ **The forest carbon map can be prepared, using National Forest Inventory (NFI) Data and Forest Cover Map (FCM).**





<National forest Inventory>

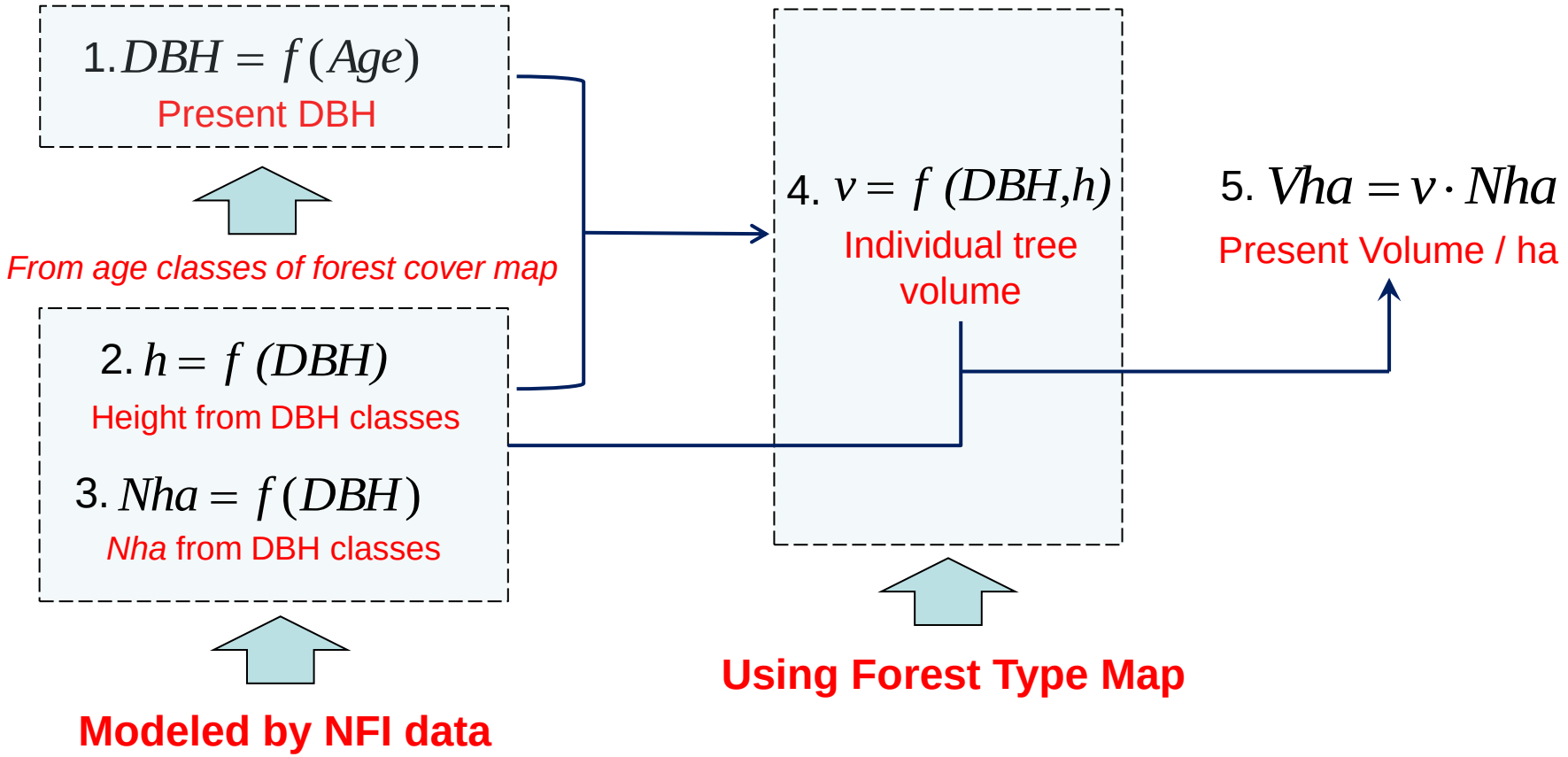


<Forest cover map>

Carbon storage based on NFI and FTM

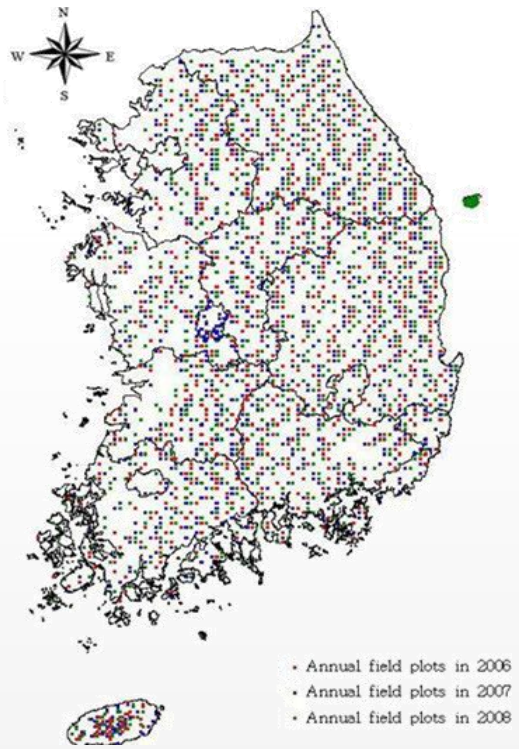
- **Models were developed with the basis of growth factors data by tree species of NFI**

$$DBH = a \cdot age^{b} \quad h = 1.2 + a \cdot e^{b/DBH} \quad Nha = a \cdot DBH^{b} \quad v = a \cdot dbh^{b} \cdot h^{c}$$

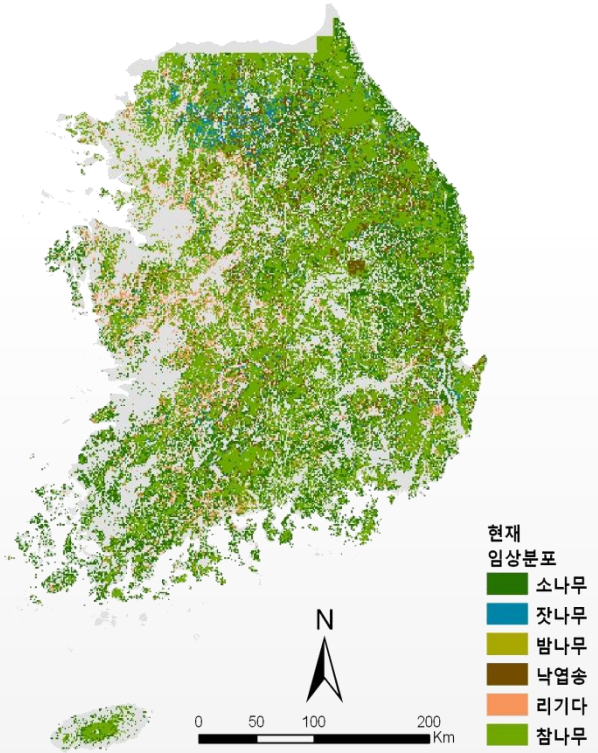


Korean National Data

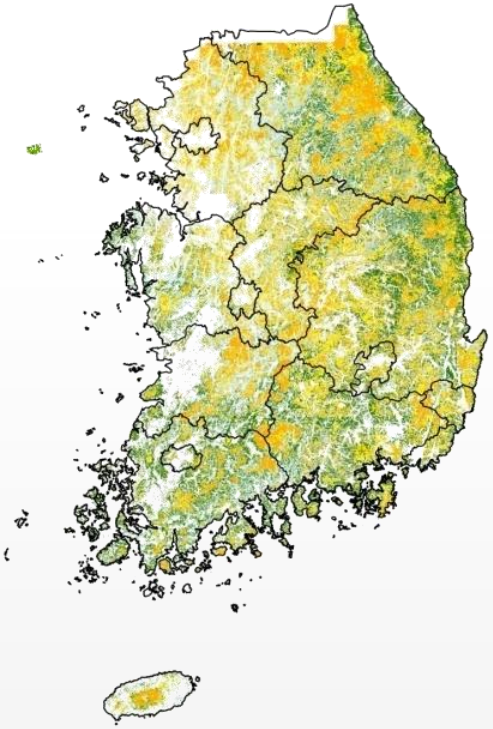
- 5th Forest Inventory Data by Korea Forest Service
- 5th Forest Type Map by Korea Forest Service
- Actual Vegetation Map by Ministry of Environment



Plot Distribution of NFI



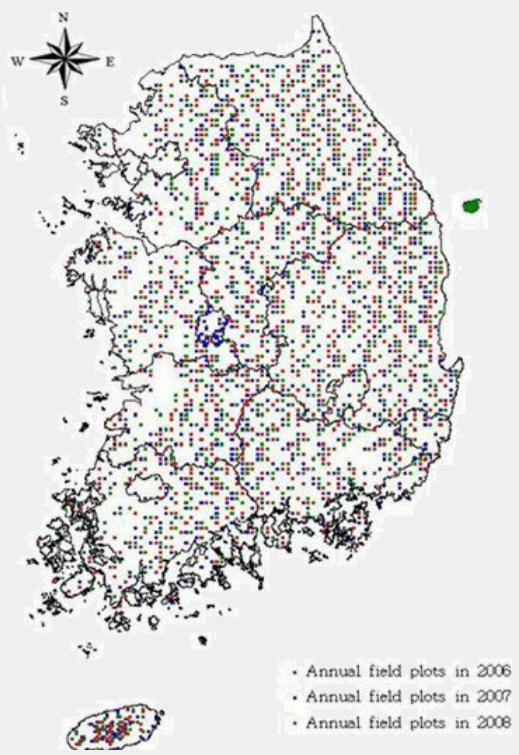
Forest Type Map

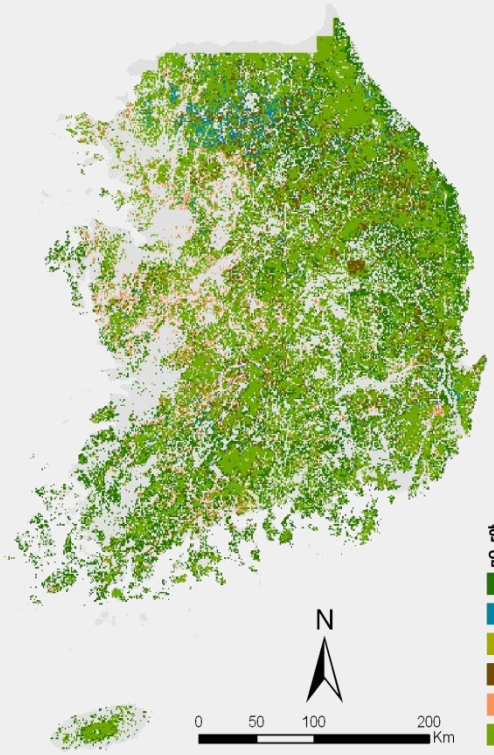


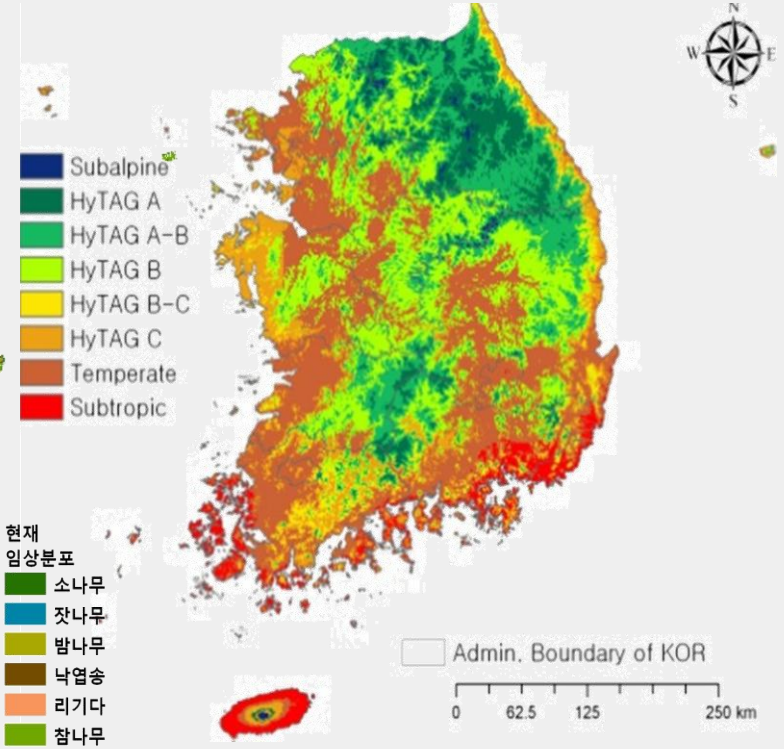
Actual Vegetation Map

Estimation of Forest Carbon Storage

- **Field Inventory** – **National Forest Inventory (NFI) Data**
- **Remote Sensing Technique** – **Actual Forest Type Map (AFTM)**
- **Forest Cover Model** – **HyTAGs (Potential Forest Type Map)**







Field Survey
NFI Data

Remote Sensing
Actual Forest Type Map

HyTAGs
Potential Forest Type Map

Estimating carbon storage in the future

- **Different Forest Management Scenarios**

No consideration for tree species change

Scenario 1

Tree species will not be changed in future climate

Consideration of tree species change

Artificial regeneration

Scenario 2

Immediate regeneration to potential tree species
(Lag time not applied)

Scenario 3

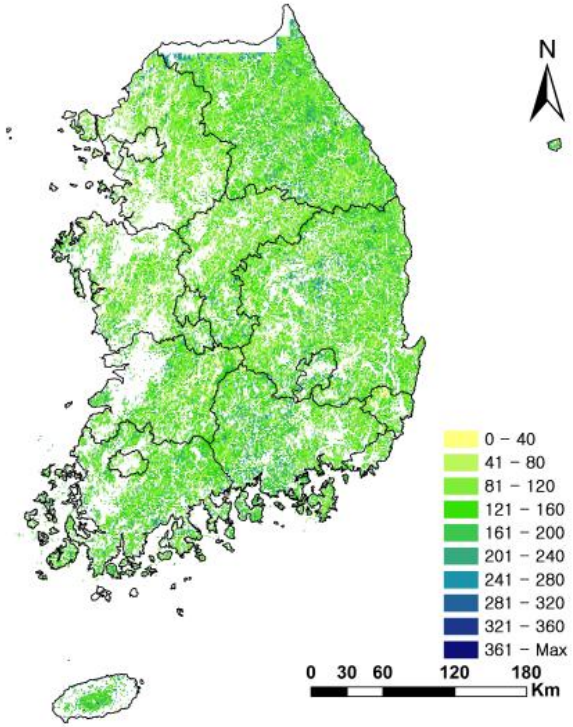
Regeneration to potential tree species when cutting age reached
(Cutting age applied)

Natural Regeneration
Scenario 4

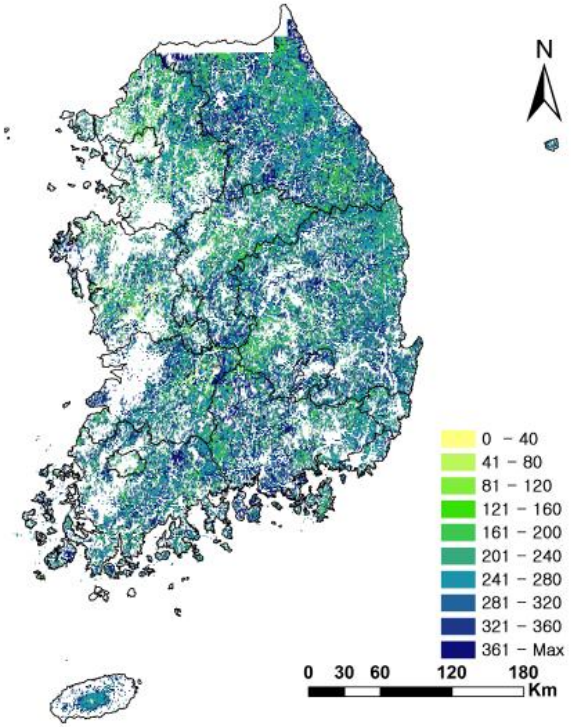
(Lag time applied)

Scenario 1: Tree species fixed

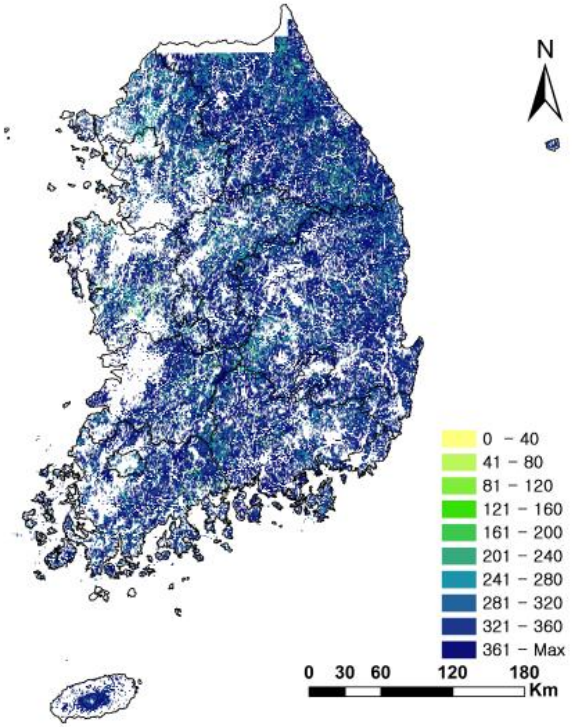
- ✓ **Assuming that current tree species are not changed even if climate changed**



(a) Current
(125.36m^3/ha)



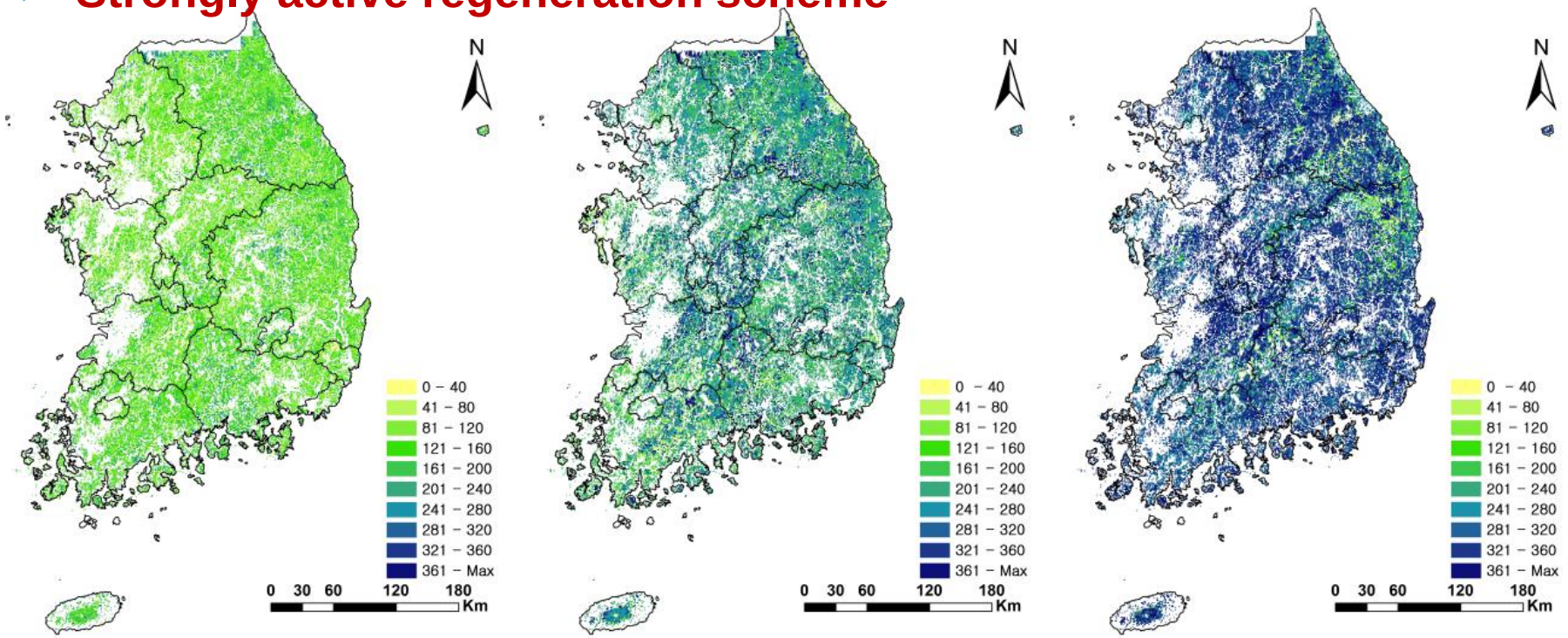
(b) After 50 years
(337.38m^3/ha)



(c) After 100 years
(496.19m^3/ha)

Scenario 2: Immediate regeneration to potential tree species

- ✓ **Immediate regeneration to potential tree species of HyTAGs when the current species is changed into a potential species in future**
- ✓ **Strongly active regeneration scheme**



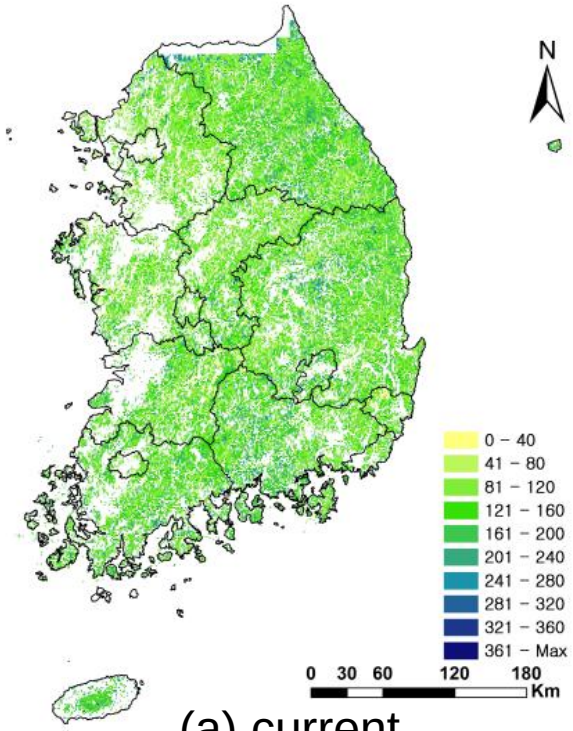
(a) Current (125.36m^3/ha)

(b) After 50 years (271.06m^3/ha)

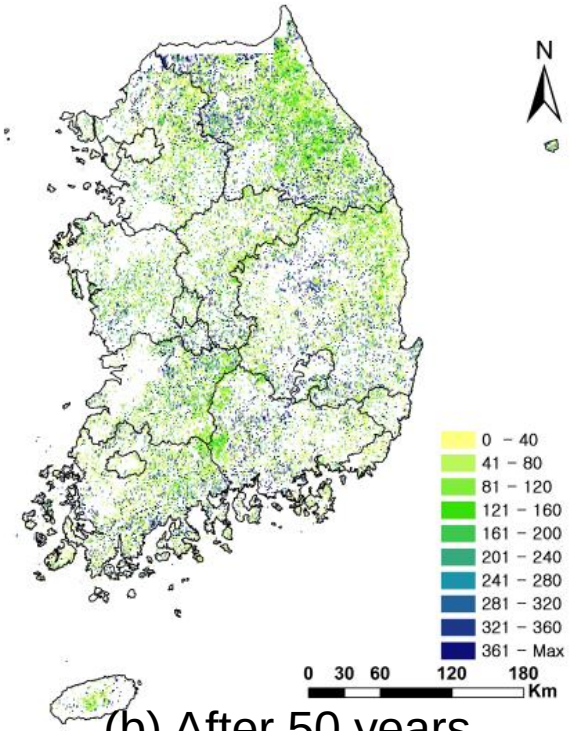
(c) After 100 years (388.66m^3/ha)

Scenario 3: Regeneration to potential tree species when cutting age reached

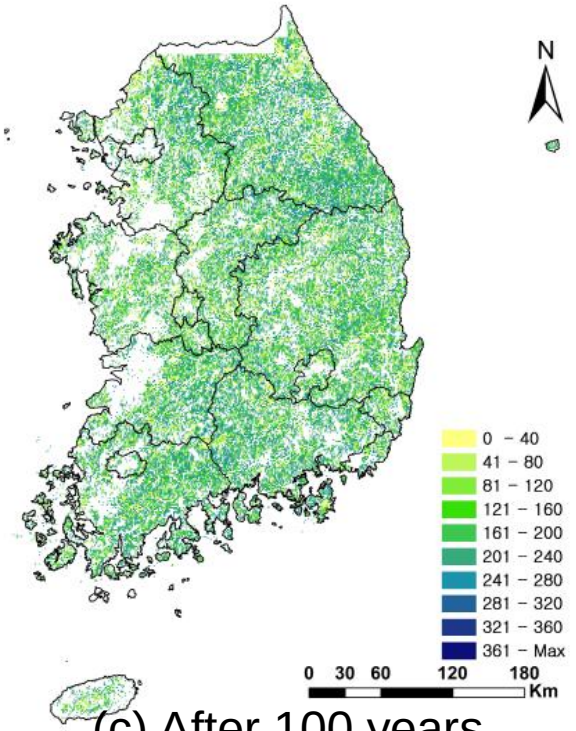
- ✓ **Considering cutting age of current tree species**
- ✓ **Regeneration to potential tree species of HyTAGs when cutting age reached**
- ✓ **Active regeneration scheme**



(a) current (125.36m³/ha)



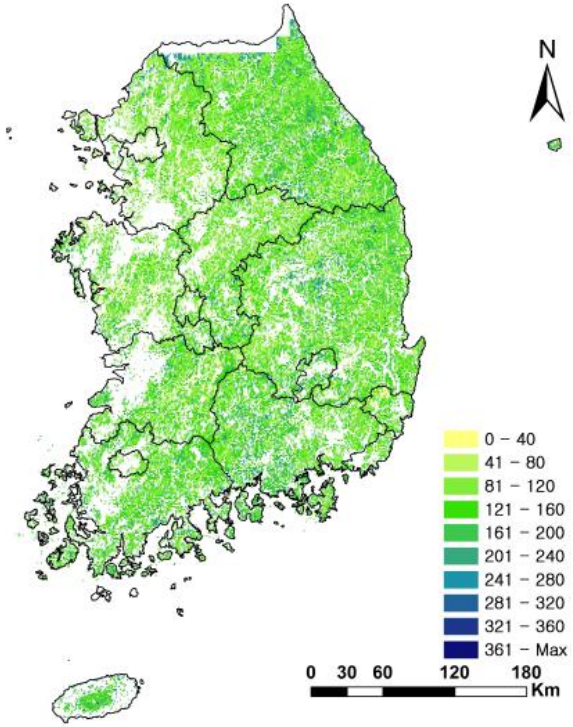
(b) After 50 years (166.29m³/ha)



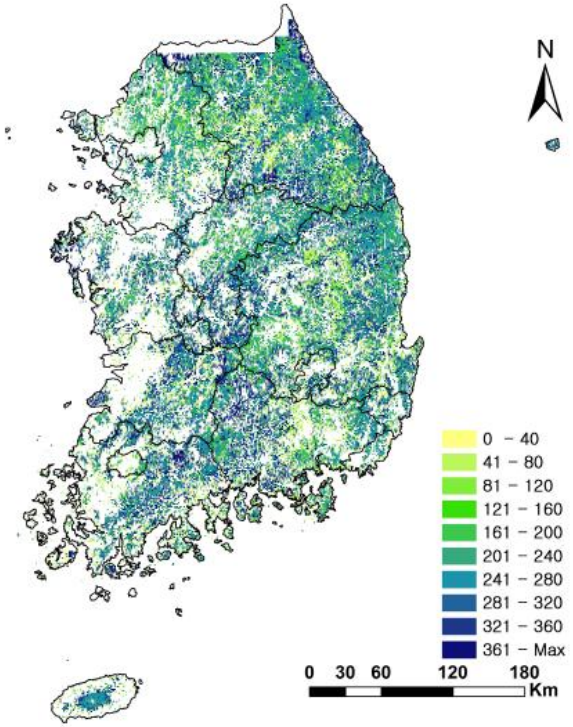
(c) After 100 years (206.85m³/ha)

Scenario 4: natural regeneration

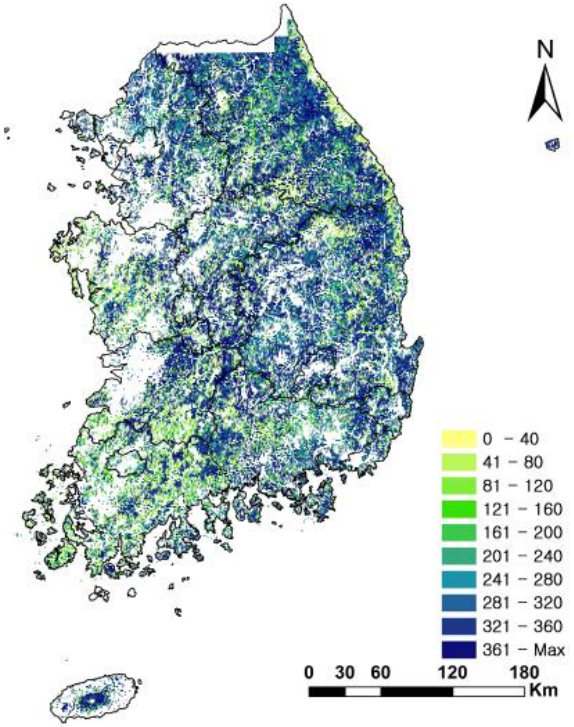
- ✓ **Lag time applied (morality delay)**
- ✓ **Trees disappears perfectly in the location after lag time passed**



(a) Current
(125.36m^3/ha)

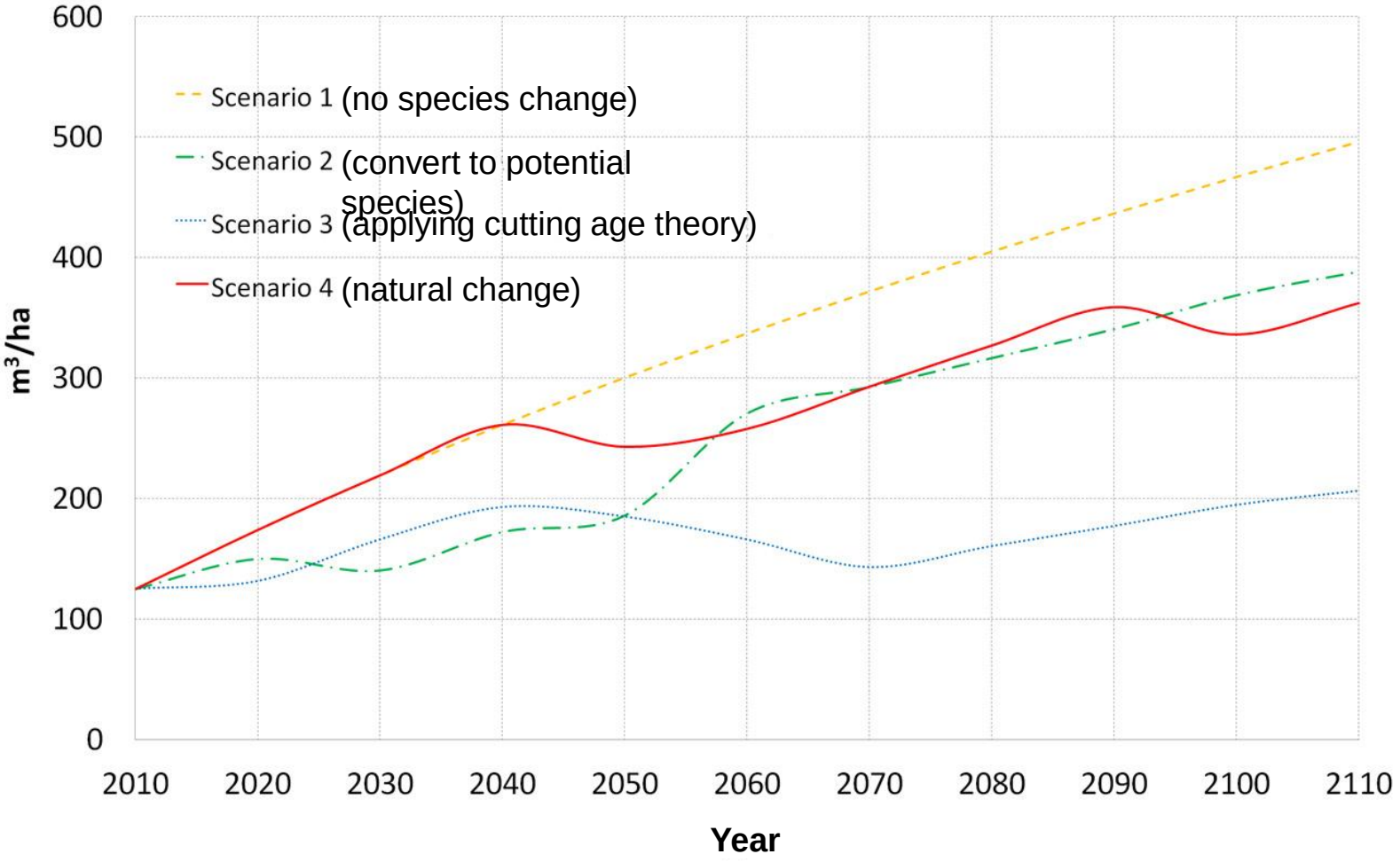


(b) After 50 years
(259.36m^3/ha)



(c) After 100 years
(363.39m^3/ha)

Compareing volume by each scenario and area change



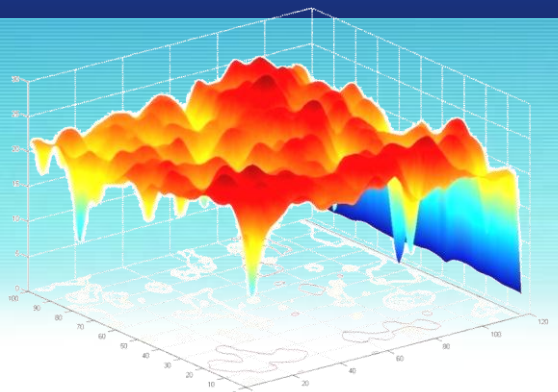
Plot and Tree based Carbon Stocks using LiDAR

Process of estimation

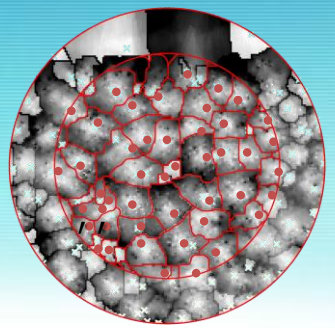
- Generation of Canopy Height Model using the difference between DSM and DTM (a)
- Individual tree delineation using watershed segmentation method (Kwak et al., 2007) (b)
- Tree top detection and tree height estimation to be the highest value in delineated tree crown (b)
- k-means statistics (c)

$$SOD_{i..k} = \sum_{i}^{k} \left| Centroid_{i..k} - Object[n] \right|$$

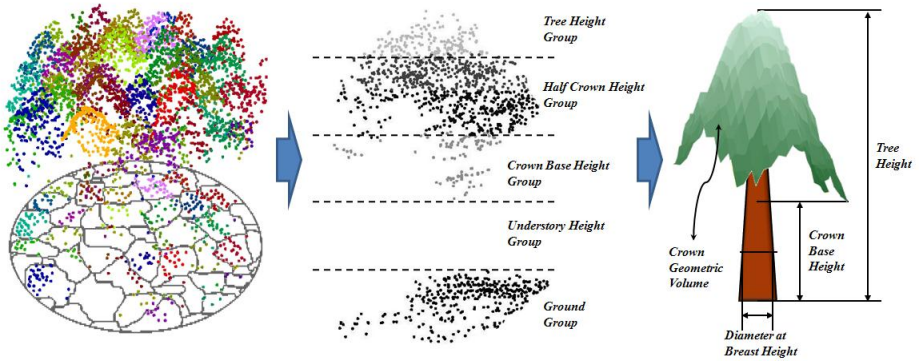
- Indirect Extraction of DBH from LiDAR (d, e)
  - DBH = $a(CA)^b$
  - CA means Crown Area
- Tree Volume (d)
  = Crown Geometric Volume
  + Stem volume below CBH



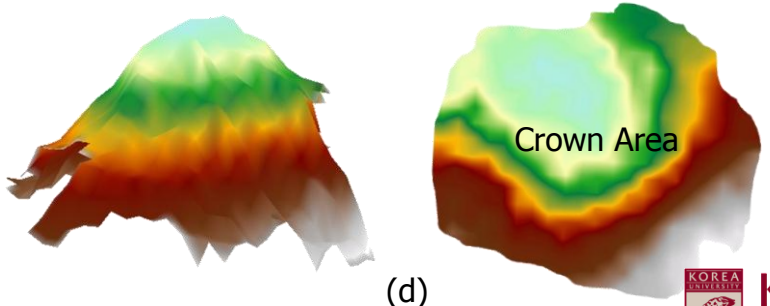
(a)



(b)



(c)



(d)

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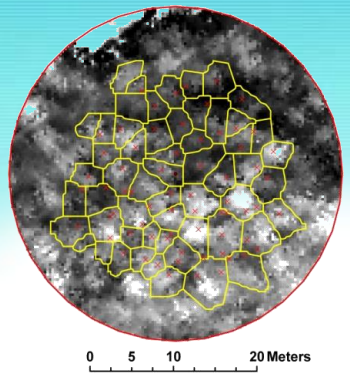
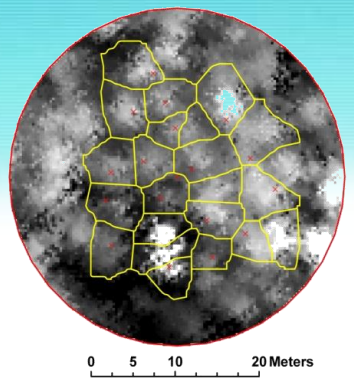
Plot and Tree based Carbon Stocks using LiDAR

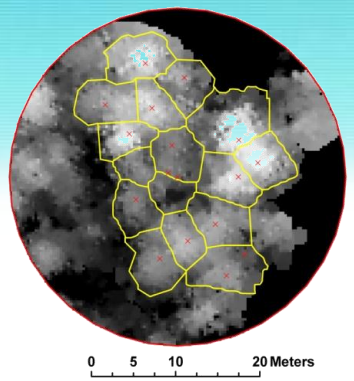
✓ Individual tree delineation by density



(a) High (1,340 N/ha)



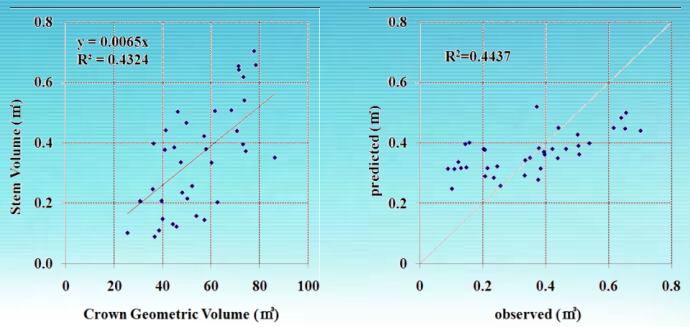
(b) Medium (370 N/ha)



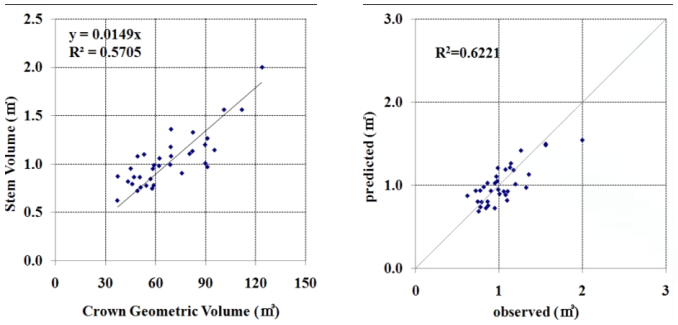
(c) Low (240 N/ha)

✓ Estimation of SV and Biomass by density

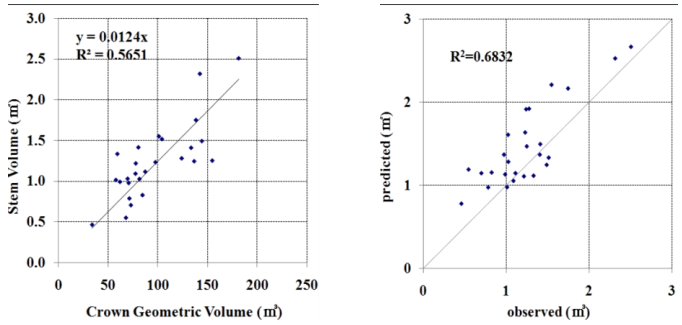
factor	Class of tree density	Max.(kg)	Min.(kg)	Mean (kg)	Std. (kg)
Stem Biomass	High (67 N/0.05ha)	243.82	116.44	171.68	31.27
	Medium (37 N/0.1ha)	723.59	322.46	474.71	107.82
	Low (24 N/0.1ha)	1,253.76	366.90	687.31	231.17
Above ground Biomass	High (67 N/0.05ha)	314.53	150.21	221.47	40.34
	Medium (37 N/0.1ha)	933.43	415.98	612.37	139.09
	Low (24 N/0.1ha)	1,617.36	473.31	886.63	298.21



(a) High (1,340 N/ha)



(b) Medium (370 N/ha)



(c) Low (240 N/ha)

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Plot and Tree based Carbon Stocks using LiDAR

✓ Estimation of biomass and carbon storage capacity

Plot No. (20m x 20m)	No. of trees		Estimate error (%) (2/1)	Crown area (m2)		Estimate error (%) (4/3)
	Observed (1)	Predicted (2)		Observed (3)	Predicted (4)	
1	15	17	113	15.5	16.3	105
2	15	18	120	11.3	13.0	115
3	28	28	100	11.3	12.5	111
4	32	34	106	11.1	9.5	86
5	41	42	102	11.0	9.4	85

✓ Field measurement and fused image extraction on DBH and carbon storage capacity

Plot No.	Field-derived (Mean)		Fused image-derived (Mean)	
	DBH (cm)	C (kgC)	DBH (cm)	C (kgC)
1	35.2	159.7	31.0	123.3
2	33.8	147.1	28.9	107.3
3	31.1	124.3	27.5	97.0
4	24.2	74.5	24.8	78.5
5	23.5	70.2	24.0	73.4

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REDD+ Current status and future direction

- Sharing experience and Plan for REDD +-

Korea Forest Service
Global Forest Resources Cooperation Division

I. National GHGs emission, C potential in Korea

Carbon sequestration in Forest, Korea

- 64 percent of land area covered by forest (6.4M ha)
- forest growing stock estimated at 800M ㎥ (126 ㎥ / ha)
- 35M CO2 tons sequestrated in forests in 2009
  - 5.7% of total national emissions

- **Outlook for CO_2 sequestration** (Million tons of CO_2)

Year	2005 (measured)	2009 (estimated)	2020 (estimated)
National GHGs emissions	594	608	813
CO_2 capture by forest sector (Capture rate ,%)	37 (6.2)	35 (5.7)	31 (3.8)

Cited from Ministry of Environment, Korea Forest Service


II. How to proceed for REDD+ project

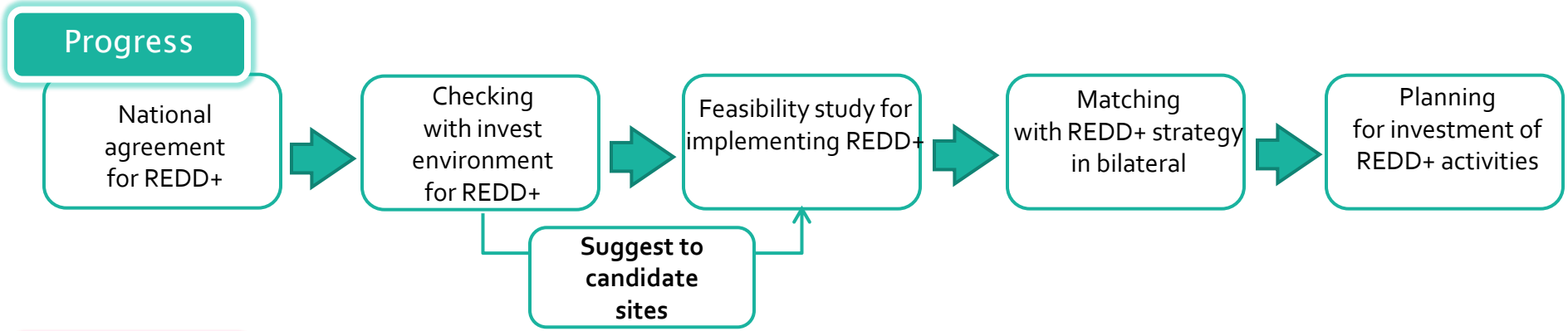
REDD+ agenda from KFS

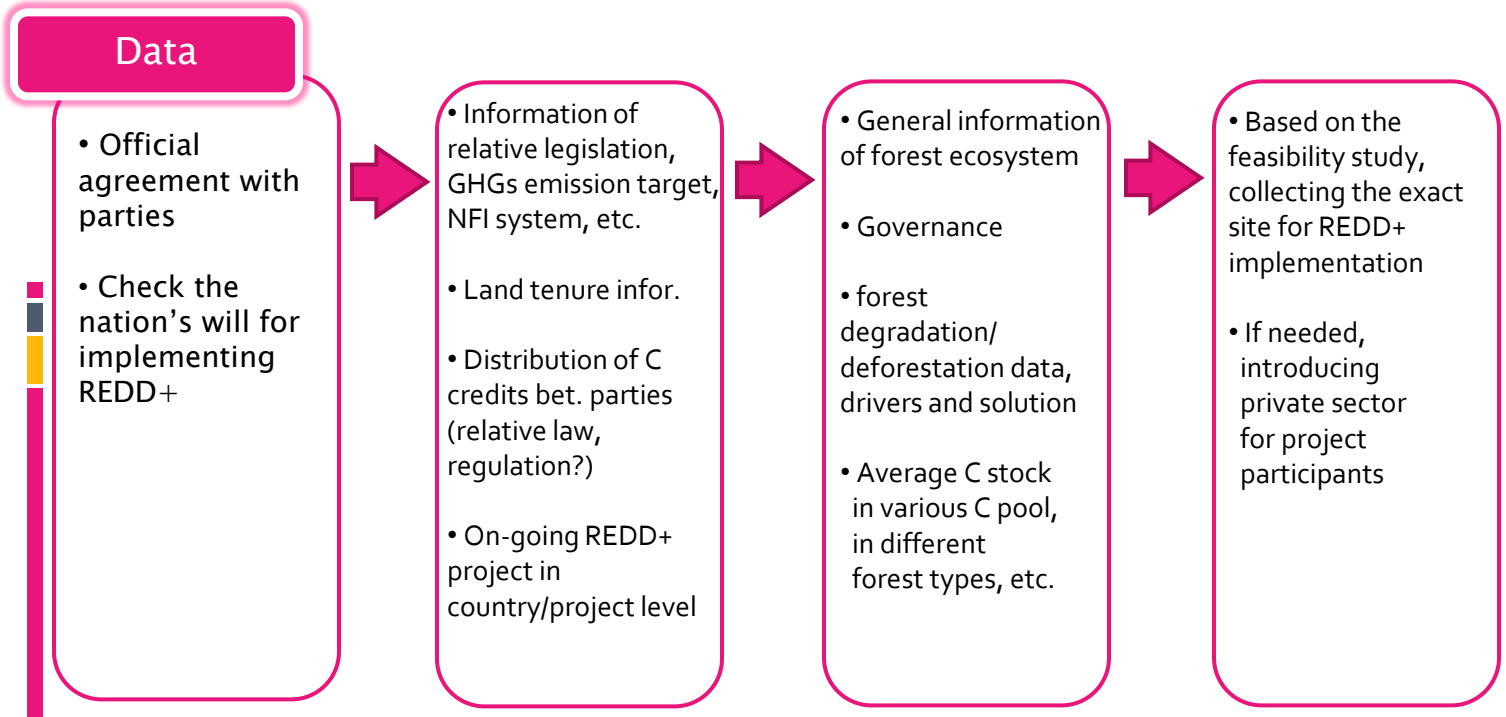
- **Vision**
  - ✓ Contribution of mitigation/adaptation action for climate change by improving forestry C sequestration
  - ✓ Expansion of REDD+ projects with combining PES and CSR activities
- **Goal**
  - ✓ Securing 10M CO_2 tons/year for carbon offset until 2020
- **Securing suitable REDD+ project area**
  - ✓ Collecting a target nation for implementing projects, considering the REDD+ potential, bilateral relations, investment conditions, etc.
    - o **Indonesia, Cambodia, Myanmar and Lao PDR, etc.**
  - ✓ Perform the REDD+ project validity check on the project target area
    - o **(2012) Sumatra in Indonesia, (2013) 3 regions in Cambodia**

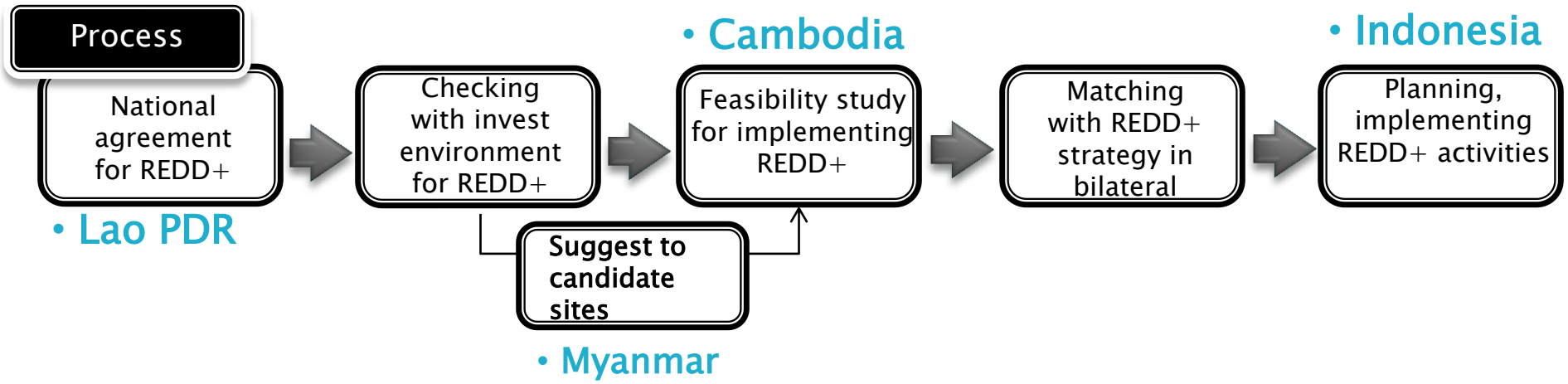
Cooperation of REDD+ implementation based bilateral agreement in developing countries

- **Goal**
  - ✓ Securing 10M CO_2 tons/year for carbon offset until 2020
- **Sharing information (1st stage) and securing project area (2nd stage)**
  - ✓ Check the NFI system in each nations and investment environment
  - ✓ Considering REDD+ potential, bilateral relations, investment conditions, etc.
  - ✓ Support for REDD+ feasibility study to induce private sector
  - ✓ Collecting a target nation for implementing projects, considering the REDD+ potential, bilateral relations, investment conditions, etc.
    - o **Indonesia, Cambodia, Myanmar and Lao PDR, etc.**
  - ✓ Perform the REDD+ project validity check on the project target area
    - o **(2012) Sumatra in Indonesia, (2013) 3 regions in Cambodia**

Progress and data for REDD+ implementing





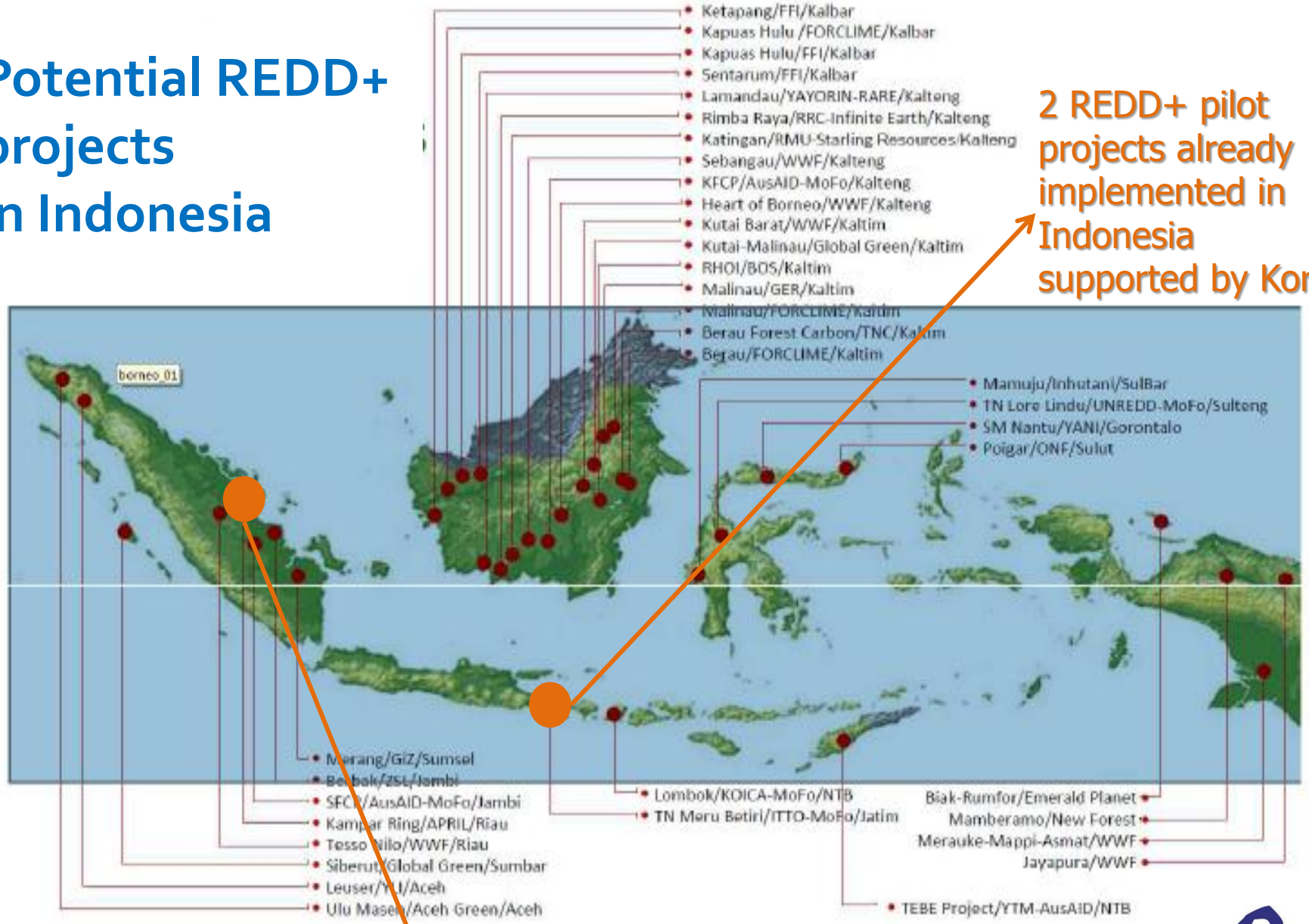

Process
National agreement for REDD+
• Lao PDR
Checking with invest environment for REDD+
Suggest to candidate sites
• Myanmar
Feasibility study for implementing REDD+
• Cambodia
Matching with REDD+ strategy in bilateral
Planning, implementing REDD+ activities
• Indonesia

Further cooperation in each nations

- **Indonesia**
  - ✓ Supporting relative data for the REDD+ project
  - ✓ Cooperating to successfully implement the projects through the project team
- **Cambodia**
  - ✓ Check for candidate sites based on feasibility study from Korean research team
- **Myanmar**
  - ✓ Checking with investment environment of REDD+
- **Lao PDR**
  - ✓ Suggest candidate sites for REDD+

III. Implementation REDD+ project in Indonesia

Potential REDD+ projects in Indonesia



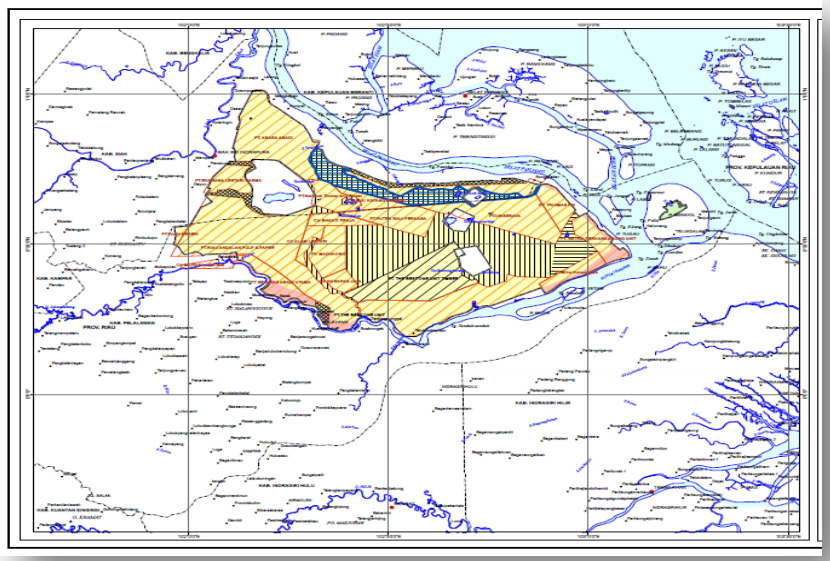
2 REDD+ pilot projects already implemented in Indonesia supported by Korea.

The 3rd REDD+ pilot project is newly implemented in Sumatra from 2012.

Eg. Ginoga, 2012

REDD+ project : Kampar, Sumatra, Indonesia

- **Project in Kampar peninsula, Sumatra island, Indonesia**
- **Participants**: Korea Forest Service, Ministry of Forestry of Indonesia, Riau Provincial Government(ROD signed in Jan., 2012)
- **Project area**: 14,000 ha of Kampar peat land
- **Project period & budget**: 3 years (2012~2014), US$3M
- **Objectives** : Forest survey, carbon cycle and carbon reductions study, Management planning, carbon credits trading, governance building for interested parties, education



Progress

INTENSIVE CONSULTATION WITH LOCAL GOVERNMENT OF RIAU PROVINCE

25 JAN. 2012
ROD SIGNED

19 JUNE 2012
STAKEHOLDERS WORKSHOP in RIAU

5 JULI 2012
PROJECT MANAGEMENT STRUCTURE APPROVED

31 JULY 2012
WORKING LEVEL DISCUSSION FOR PROJECT ACTIVITIES

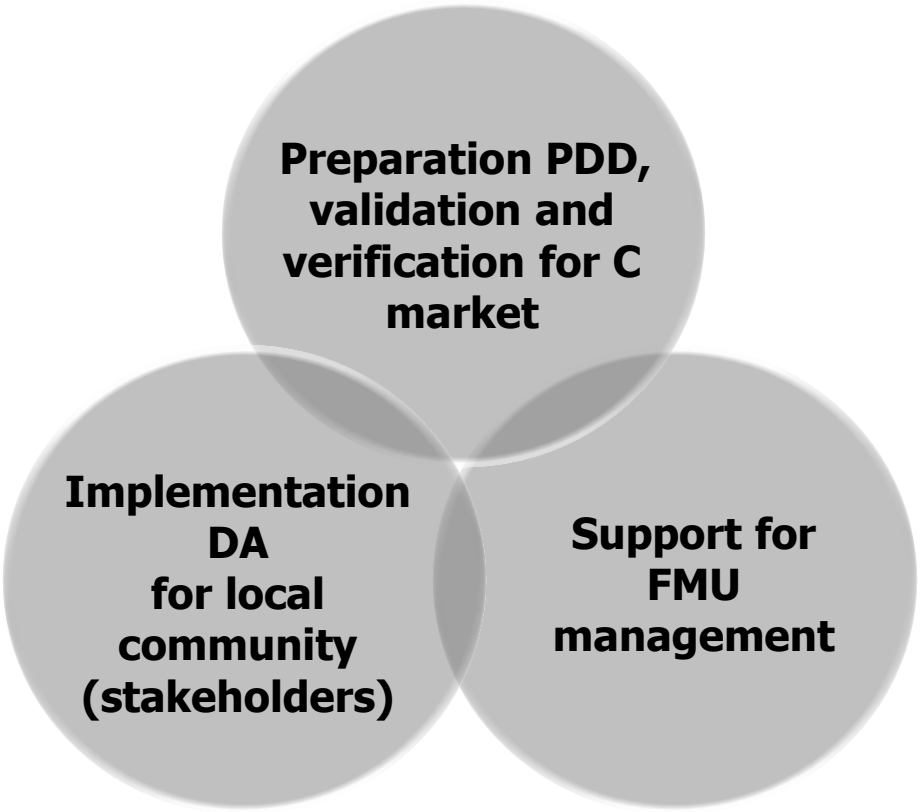
OCT - DEC 2012
THE MOF ASSIGNED THE STEERING COMMITTEE AND EXECUTING AGENCY

FEB. 2013
INTER-GOV'TAL WORKING LEVEL MEETING

APR. 2013
1ST JSC MEETING

JULY - AUG 2013
MEETING WITH CONCESSION HOLDER, KICK-OFF MEETING IN RIAU

Main activities & Work plan

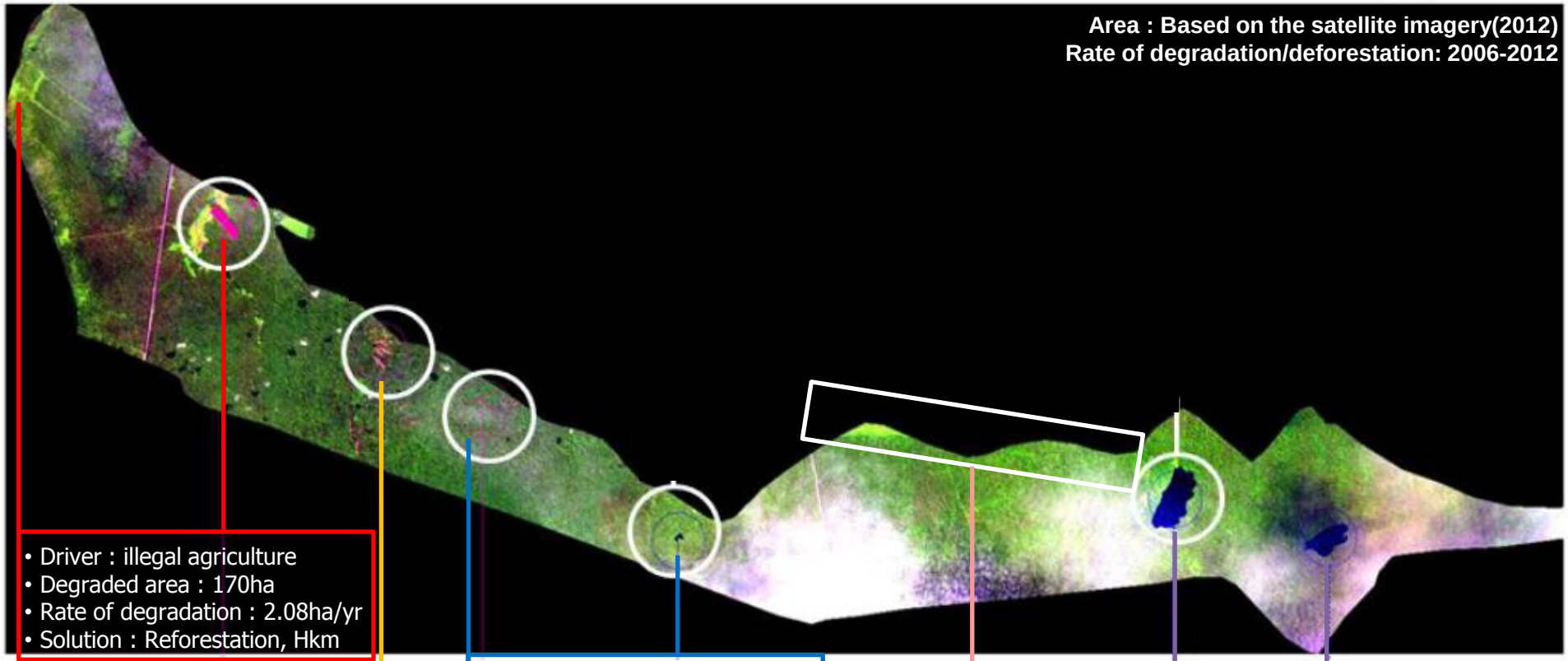


2012 Feasibility study for REDD+ project

2013-2014 Preparation for REDD+/FMU management joint project

2015 Implementation for REDD+/FMU management joint project

Work plan based on the DD analysis



- Driver : illegal agriculture
- Degraded area : 170ha
- Rate of degradation : 2.08ha/yr
- Solution : Reforestation, Hkm

- Driver : use for shelter and abandon
- Degraded area : 49ha
- Rate of degradation : 8.2ha/yr
- Solution : Reforestation, supporting for permanent shelter

- Driver : tree cutting and abandon
- Degraded area : 1461ha
- Rate of degradation : 27ha/yr
- Solution : Reforestation, Administrative action on encroachment

- Driver : Commercial cutting
- Deforested area : 267ha
- Solution : Reforestation, Administrative action on encroachment

- Driver : Illegal use for fire wood by comm.
- Deforested area : 230ha
- Rate of deforestation: 8.2ha/yr
- Solution : Reforestation, HTR

For Local community
– Supporting for reforestation by planting rubber trees
- Restoration peatswamp forest


Project area
- recovering deforested area
- implementation of forest monitoring system






Damaged forest fire('13.6-7)
– hot spot



Project area
- **Boundary checking following NFI system**
- **Survey forest inventory (25,000ha, 2yrs)**



REDD+ Project area

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KOREA FOREST SERVICE

Research on Feasibility of Cambodia REDD+ Project

Summary

Title

- Research on Feasibility of Cambodia REDD+ Project

Execution organization

- Eco-Network (Cooperated by Korea University, Prof. Lee, Woo-Kyun)

Term of Research

- May 24, 2013 ~ November 22, 2013 (6 months contract)

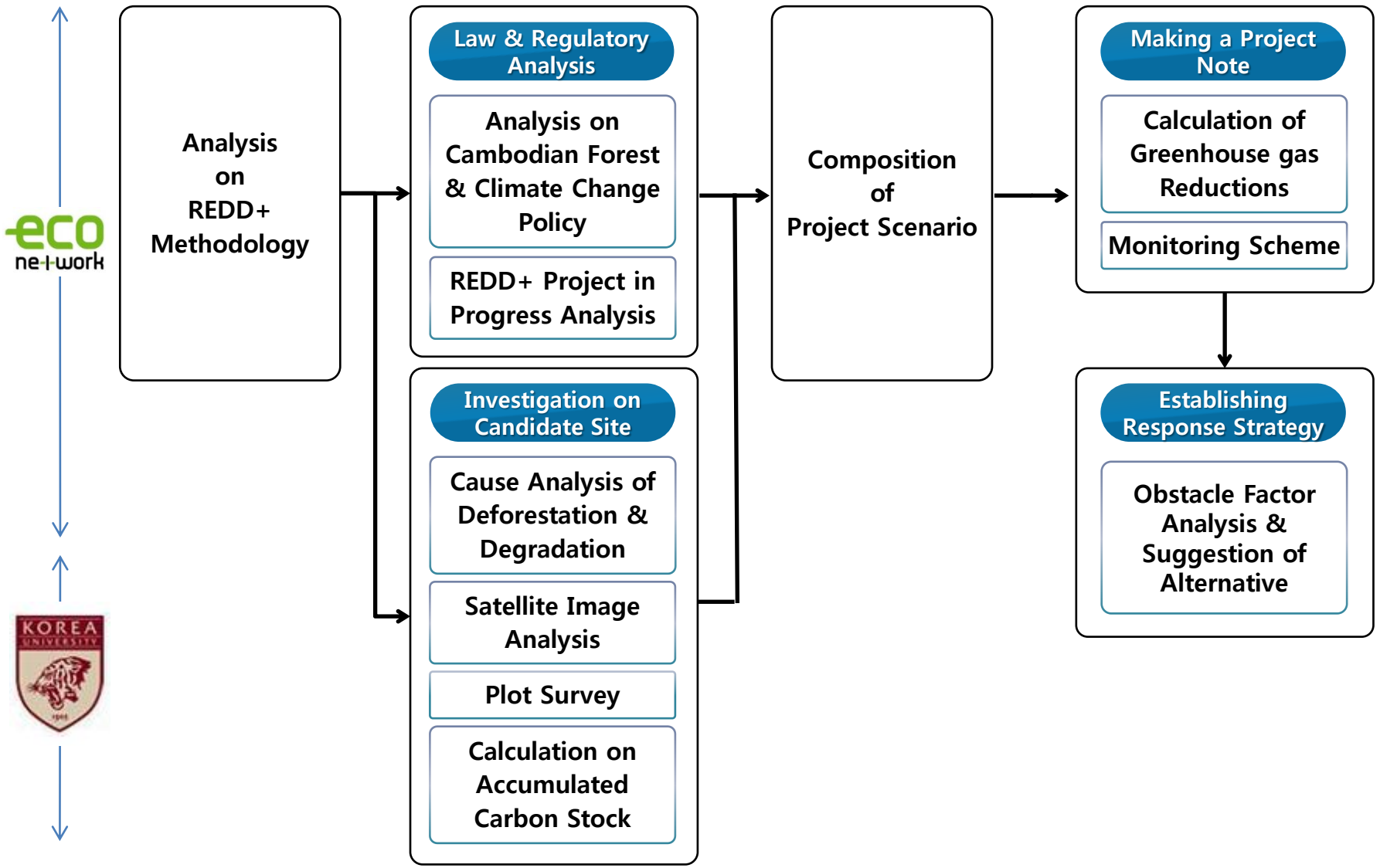
Purpose

- Establishment of foundation for securing overseas REDD+ forest CERs for greenhouse gas mitigation
- Demonstration project for feasibility assessment of Cambodia REDD+ Project

Contents

- Analysis on REDD+ Methodology
- Analysis on law and regulatory
- Investigation on Candidate Site
- Composition of Project Scenario
- Making a Project Note
- Establishing Response Strategy

Analysis Process



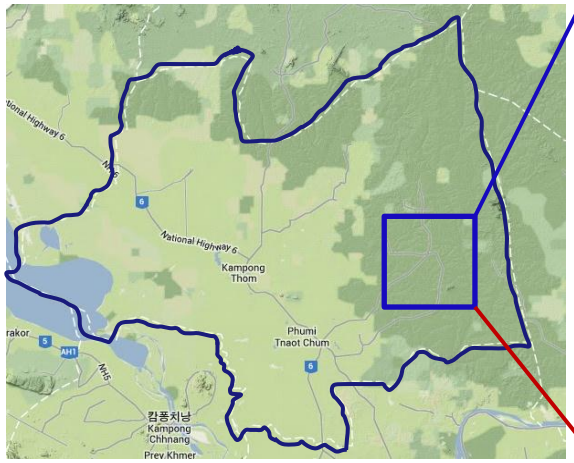
Investigation on Candidate Site

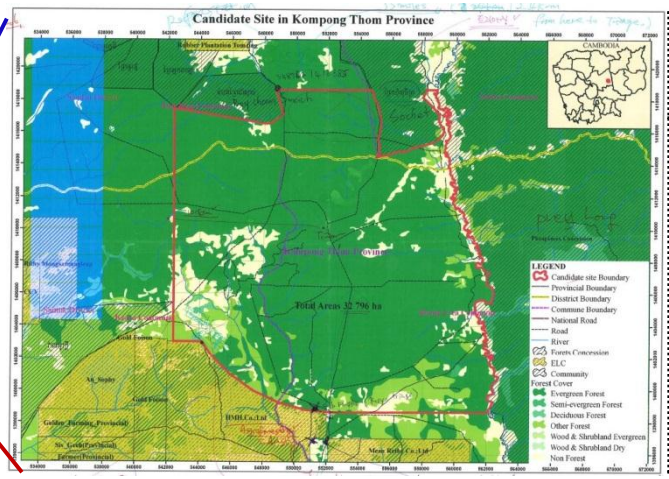
Candidate Site

Investigation on Candidate Site

Location & Area

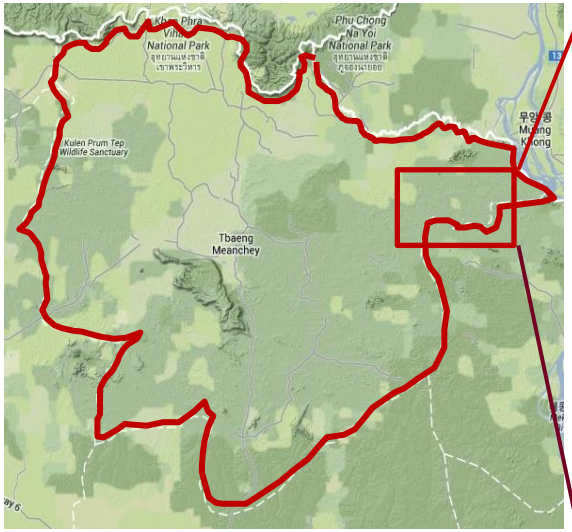
Kampong Thom

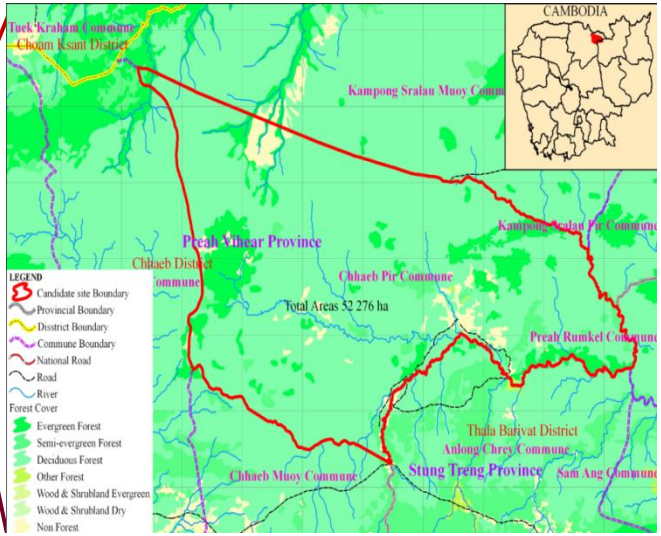




	Kampong Thom	
Area	Total	1,244,764ha
	Candidate Site	**32,796ha**
	Forest	656,057ha (52.7%)

Preble





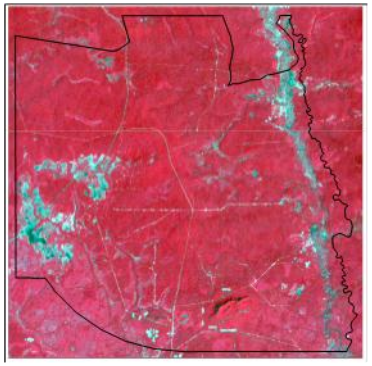
	Preah Vihear	
Area	Total	1,403,091ha
	Candidate Site	**52,276ha**
	Forest	1,337,068ha (95.3%)

Investigation on Candidate Site

Land Cover Change

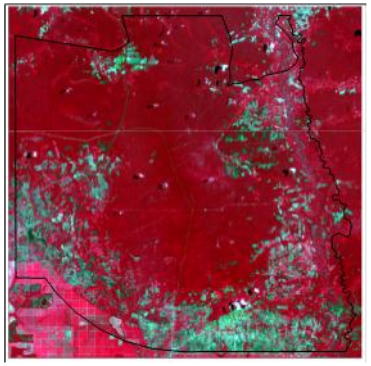
Kampong Thom

cover type	2003	2013	change	%
Evergreen	25,314	22,849	2,466 ↓	**-6.19**
Other forest	9,919	2,790	7,128 ↓	-17.89
Non-forest	4,597	14,191	**9,594 ↑**	**+24.08**



- Date : 2003.02.07
- Satellite: Landsat 7
- spatial resolution : 30m

Evergreen



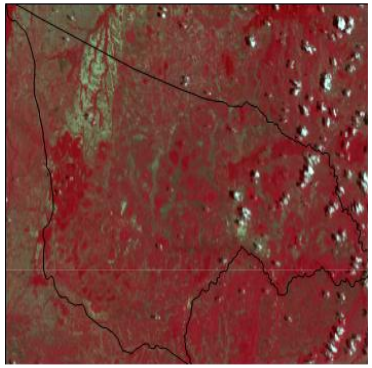
- Date : 2013.05.17
- Satellite : Landsat 8
- spatial resolution : 30m

Other forest

Non-forest

Preah Vihear

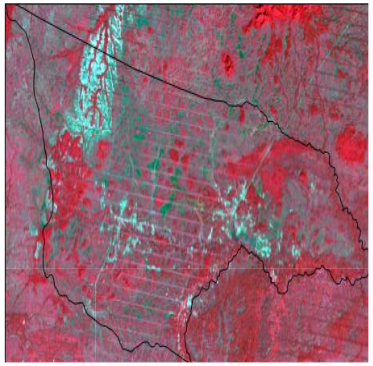
cover type	2003	2012	change	%
Semi-evergreen	27,719	9,857	17,862 ↓	-34.02
Deciduous	21,019	31,162	10,143 ↑	19.31
Wetland	1,798	5,609	3,811 ↑	7.26
Non-forest	1,966	5,873	**3,908 ↑**	**7.44**



- Date : 2003.04.12
- Satellite : Landsat 7
- spatial resolution : 30m

Semi-evergreen

Wetland



- Date : 2012.11.30
- Satellite : Landsat 7
- spatial resolution : 30m

Deciduous

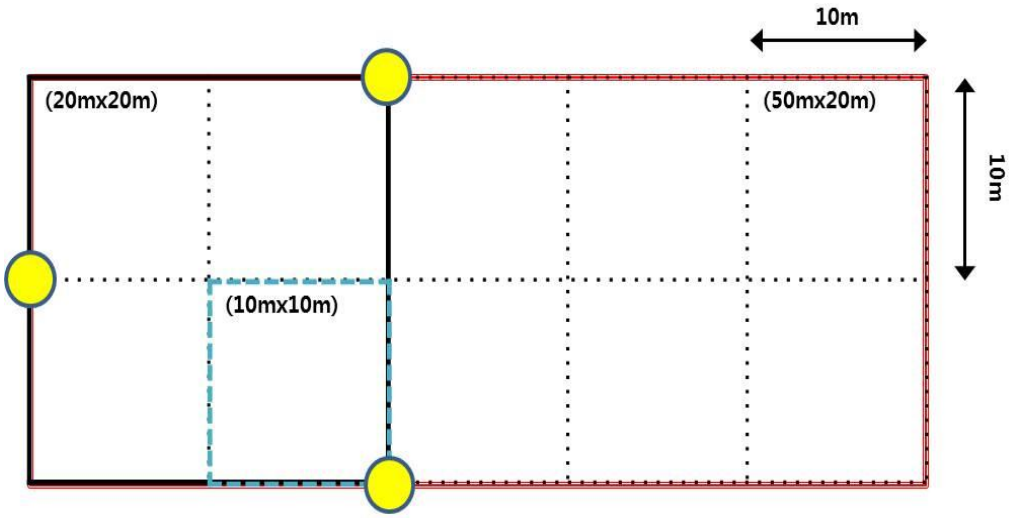
Non-forest

※ Refer to attached material 3 for classification accuracy

Investigation on Candidate Site

Ground based Carbon

Plot Design



Enumeration District Symbol	Classification
	large tree (DBH≥50)
	medium tree (50>DBH≥10) / dead wood
	small tree (DBH⟨10)
	soil / litter layer

Investigation Method

	Detail
Above ground	• Measuring dbh using diameter tape • If it is difficult, Laser dendro-meter should be used (Criterion RD1000, Laser Technology, USA)
Dead wood	• Standing and fallen tree • 'Machete test' was used for Rot ratings following IPCC NGGIP(2003)
Litter	• The plot size was set using 900cm^2 • Litter was collected and weighted using rectangle plot.
Soil	• Sampling using 1 meter core • Using 10cm core in wetland sampling

3. Investigation on Candidate Site

Ground based Carbon

Kampong Thom

Class	Plot No.	Sample Scale		
		Tree (number)	Soil (number)	Litter (g)
Ever green Forest	#1	37	26	300
	#2	24	21	446
Other Forest	#1	13	14	167
	#2	19	22	153
Total	6	100	122	1,066

Preah Vihear

Class	Plot No.	Sample Scale		
		Tree (number)	Soil (number)	Litter (g)
Semi Ever green	#1	37	10	272
	#2	28	16	-
	#3	12	19	119
Deciduous	#1	10	13	-
	#2	60	7	-
	#3	16		147
Wetland	#1	-	10	-
	#2	-	8	-
	#3	2	9	-
Grassland	#1	1	16	-
Total	10	166	108	538

3. Investigation on Candidate Site

Carbon Stocks

greenhouse gas stocks= relevant accumulation of carbon[tC/ha] x relevant areal change[ha] x unit conversion factor

region	type	Accumulation of Carbon(tC/ha)						areal change (ha)	carbon stocks (tC)	greenhouse gas stocks (tCO_2)
		above ground	below ground	dead wood	litter	soil	total			
Kampong Thom ('03~'13)	Evergreen	116	33	5	2	26	181	- 2,466	-446,265	- 1,636,304
	Other forest	18	5	0	3	22	48	- 7,128	-344,368	- 1,262,683
	Non-Forest	-		-	-	-	-	9,594		
Preah Vihear ('03~'12)	Semi-evergreen	200	56	1	1	49	308	- 17,862	-5,496,134	**- 20,152,493**
	Deciduous	56	16	3	1	36	113	10,143	1,145,661	4,200,757
	Wetland	0.2	0.1	0	0	26	26	3,811	98,623	361,616
	Non-Forest	-		-	-	-	-	3,908		

※ carbon accumulation of Kampong Thom area rate : above ground(total, 82.2%)>soil(14.1%)>dead wood(2.5%)>litter layer(1.2%)

※ carbon accumulation of Preah Vihear area rate : above ground(total, 83.2%)>soil (16%)>dead wood(0.5%)>litter layer(0.3%)

Summary of Candidate Site

Candidate Site

Category	Kampong Thom	Preah Vihear	Remarks
Potential For GHG Mitigation (Under assumption that deforestation will be reduced by 100ha for 10 years)	• 36,808 tCO_2	• **398,928 tCO_2**	• Preah Vihear showed higher potential reduction than the Kampong Thom
Partnership	• **CI Japan** - REDD Project is being undertaken near candidate site	• **WCS** - REDD Project is being undertaken near candidate site ※ 50% of candidate site is overlapped	• Partnership of both sites are limited - Kampong Thom * Site should be negotiated - Preah Vihear * Boundary should be rearranged
Governance	• **Association of Forest Management** - Voluntary participation of the local people - Regular joint-crackdown is being performed	• **Association of Forest Protection Council** - Discussion of forest protectio	• Association of Forest Management by public and private sector
Cost	• Population: **25,656 person ('08)** • Population growth: **120%**('98~'08) • Population density: 0.78person/ha ※ Four Commune	• Population: **14,538 ('08)** • Population growth:**33% ('98~'08)** • Population density: **0.27person/ha** ※ Six Commune	• Cost of REDD+ Project is estimated to be higher in Kampong Thom

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KOREA FOREST SERVICE

Capacity Building for REDD+

REDD+ Capacity building program (1)

✓ **Purpose**

- Promoting REDD+ implementation ability & Enhancing bilateral relationship
- Developing REDD+ module based on Korea forest rehabilitation experience

✓ **Duration**

- One week, two time in every year (from 2013)

✓ **Expected outcome**

- Identify shifts in policy and strategies after participating in this training program in participating countries, leading to useful insights
- Understand global trends of climate change issues
- Contribute to establishing the development plan of climate change sectors reflecting the Korean experiences and know-how

REDD+ Capacity building program (2) – Program details

✓ **Course subjects (6 topics)**

- Lecture 1 : Korean government forest policy and restore its forest
- Lecture 2 : Korean REDD+ policy and pilot project in developing countries
- Lecture 3 : Korean forest protection policy
- Lecture 4 : Korea FGIS
- Lecture 5 : Climate change and forest
- Lecture 6 : NGOs activities for forest recovering in developing countries

✓ **Field tour**

- Visiting a model forest of sustainable forest management in Korea
- National Institute of Forest science (Forest Research Institute, National Arboretum)




Thank you !

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