Development of NFMS in Vietnam

-Cooperation between Central and Region in MRV system-

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What can National Forest Monitoring Systems (NFMS) do?
～Development of NFMS and MRV systems for REDD+～

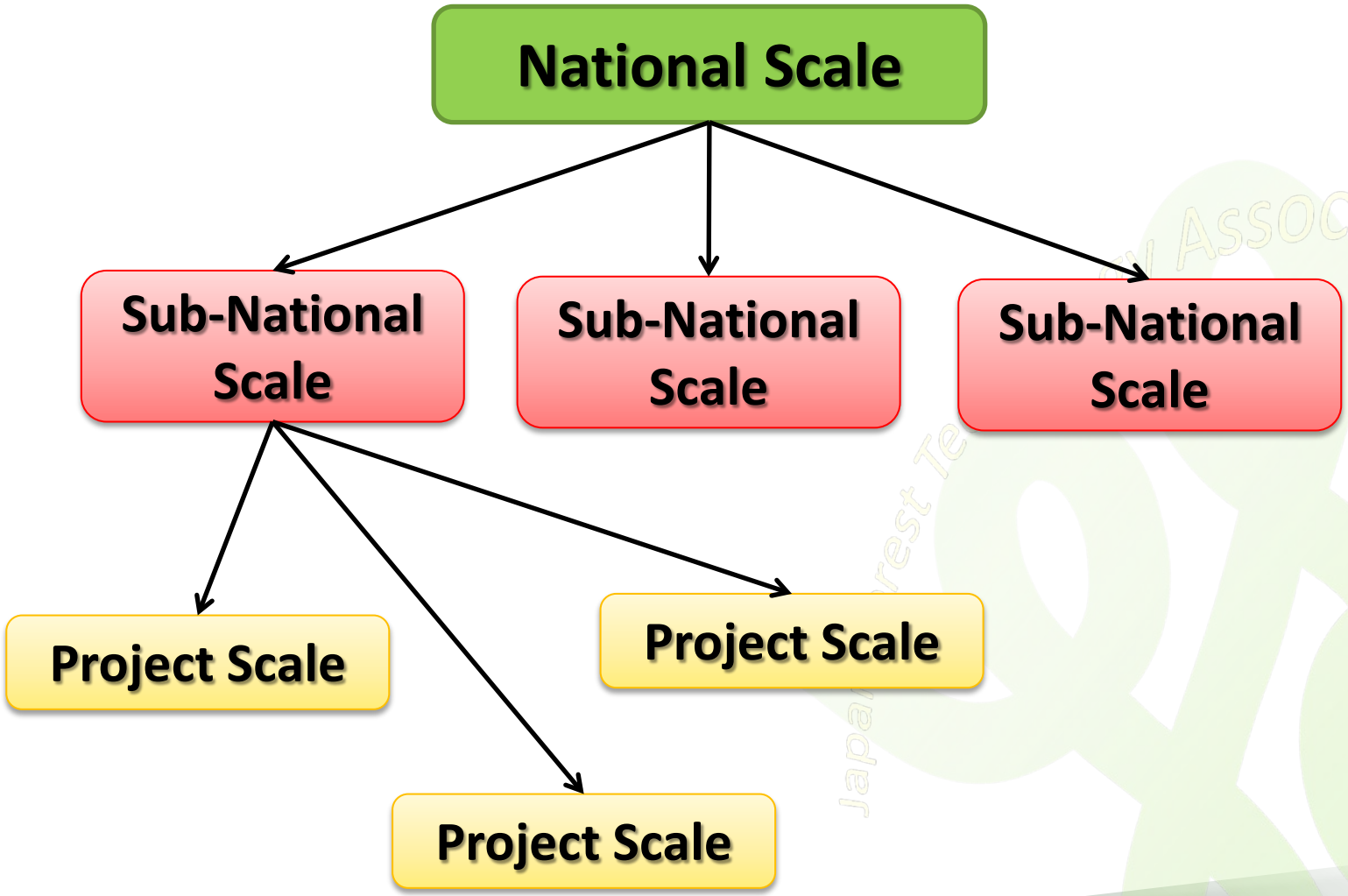
Doha, 28th Nov 2012

Outline of Presentation

- Cooperation between Central and Region in National Forest Monitoring System
- Technical issues of FREL/FRL
- Stepwise approach for National Forest Monitoring System and MRV

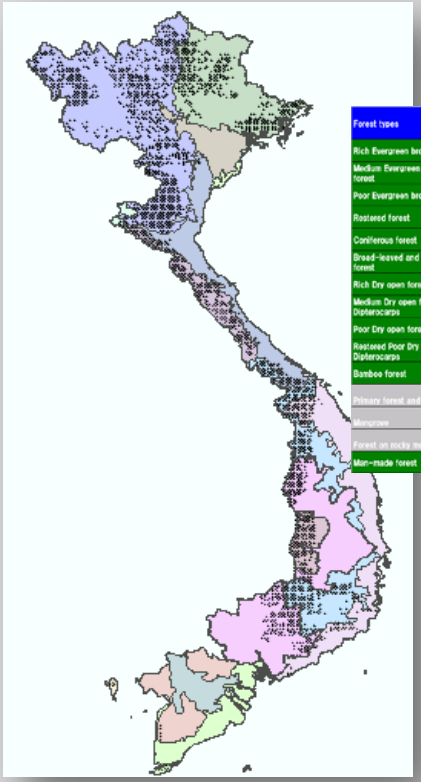
Cooperation Between Central and Region in National Forest Monitoring System

REDD-plus scheme and Scale



Interim National Forest Monitoring in National Scale

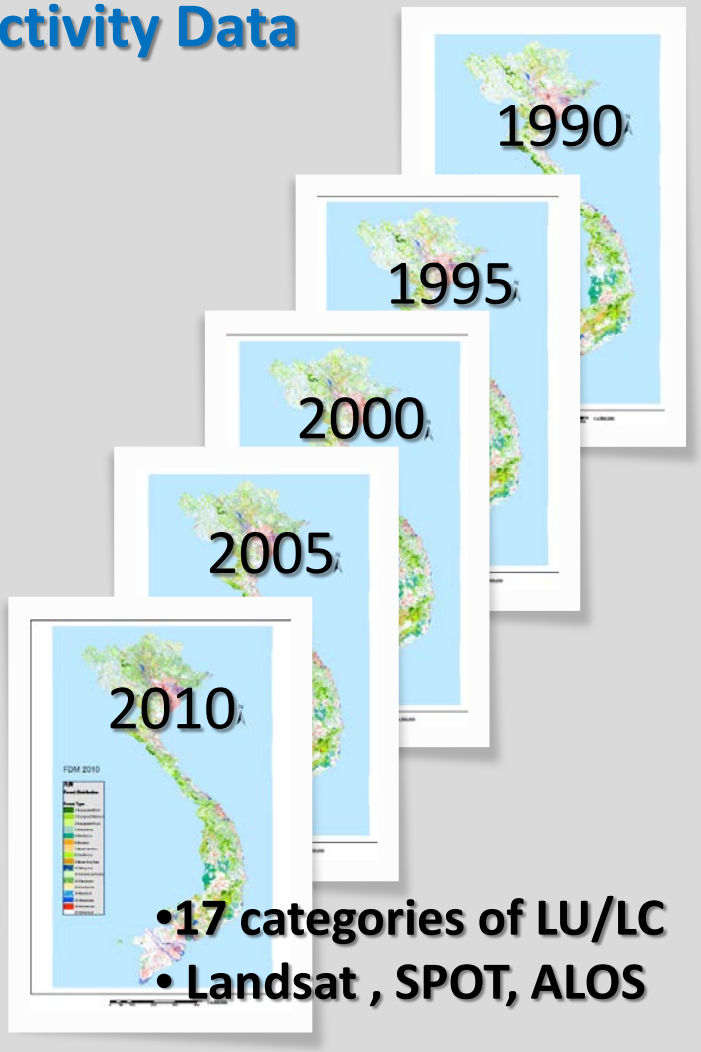
Emission Factor



Forest types	Northwest	Northeast	Northeastern	North middle centre	South middle centre	Highland	Southeast	Mekong river delta
Rich Evergreen broad-leaved forest	343.44			306.15	239.44	219.40	295.45	
Medium Evergreen broad-leaved forest	85.15	80.70		136.33	149.99	149.50	180.96	
Poor Evergreen broad-leaved forest	37.25	34.24		81.92	74.18	85.72	75.95	79.34
Restored forest	33.51	20.81		32.85	70.35	86.67	83.04	67.43
Coniferous forest		30.60		65.50	94.04	95.74	180.90	
Broad-leaved and coniferous mixed forest						106.73	179.86	
Rich Dry open forest of Dipterocarps						149.07	226.64	
Medium Dry open forest of Dipterocarps						134.97	175.62	
Poor Dry open forest of Dipterocarps						70.47	77.83	
Restored Poor Dry open forest of Dipterocarps						70.60	89.62	
Bamboo forest	35.97	30.36		83.41	52.60	60.14	63.03	
Primary forest and natural forest								
Mangrove								
Forest on rocky mountain								
Man-made forest	20.79	20.66		11.15	10.46	19.33	4.56	

- 5 years Interval
- 8km Systematic
- 1995; 1,682 plots
- 2000; 3,621 plots
- 2005; 4,200 plots
- 2010; 2,100 plots

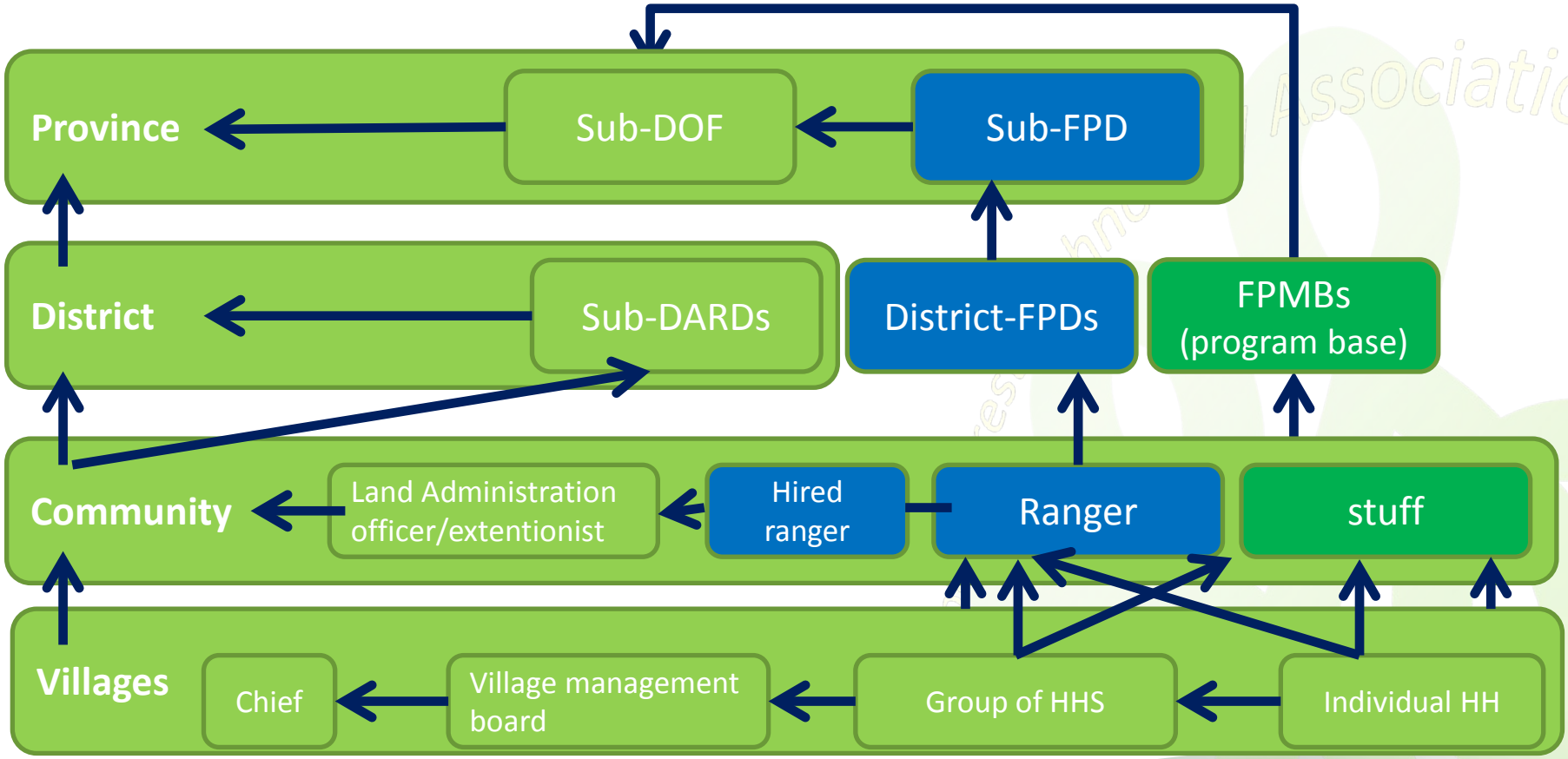
Activity Data



- 17 categories of LU/LC
- Landsat , SPOT, ALOS

Interim National Forest Monitoring in Provincial Scale

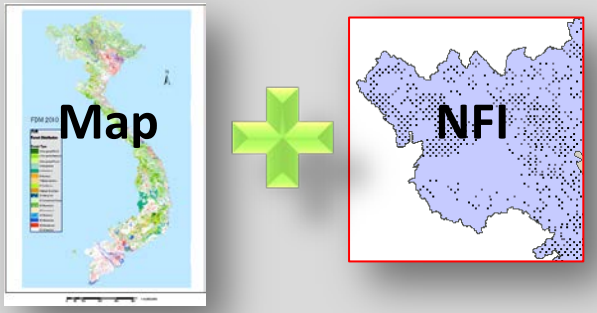
- Leading agency: FPD (Forest Protection Department)
- Reporting forest violation(illegal cutting, forest fire)



Cooperation Between Central and Regional in National Forest Monitoring

National FM

- Monitoring by every five years interval
- 2.5m High Resolution Satellite and covering entire country
- NFI with systematic sampling design



Provide Map Information

Every 5 years

Auxiliary information for next Inventory

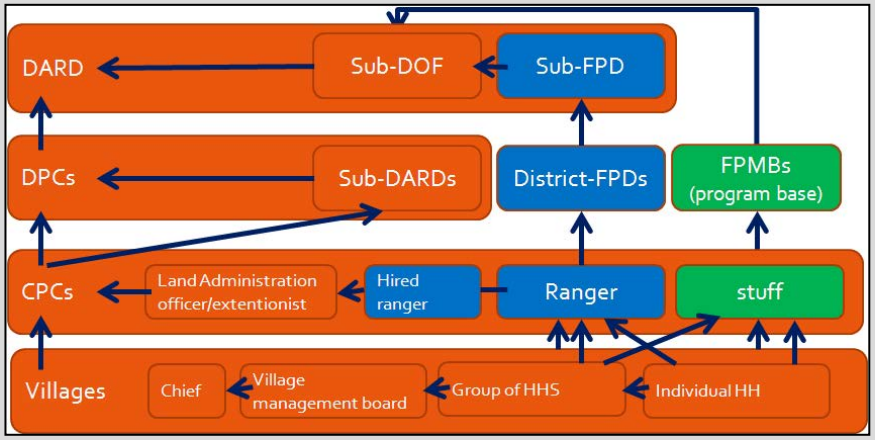
Annually

Base map for monitoring

Provide field information

Province FM

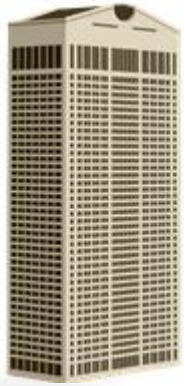
- Annual monitoring in Provincial scale
- Illegal cutting, forest fire, Enhancement of forest
- Monitoring by Forest Ranger and Local community

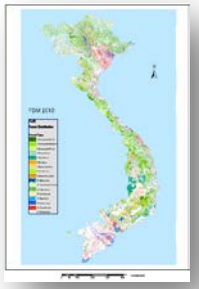


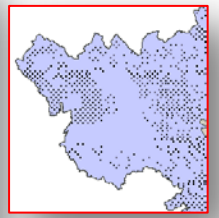
(Proposed by JICA Project)

Cooperation Between Central and Regional in National Forest Monitoring

Central Level







- Provide forest map
- Provide satellite data
- Provide emission factor
- Reporting for GHG-I

Province Level

•FPD
•DARD

•FPD
•DARD

- Compiling all data
- PDCA of Policy Measure
- Verification of REDD Action

District Level

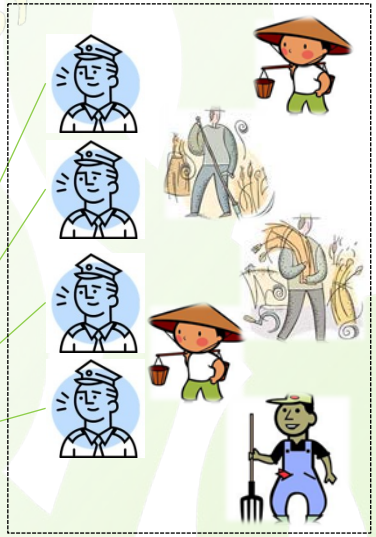
•District FPD
•Sub-DARD

•District FPD
•Sub-DARD

•District FPD
•Sub-DARD

- Data input on GIS
- Data check

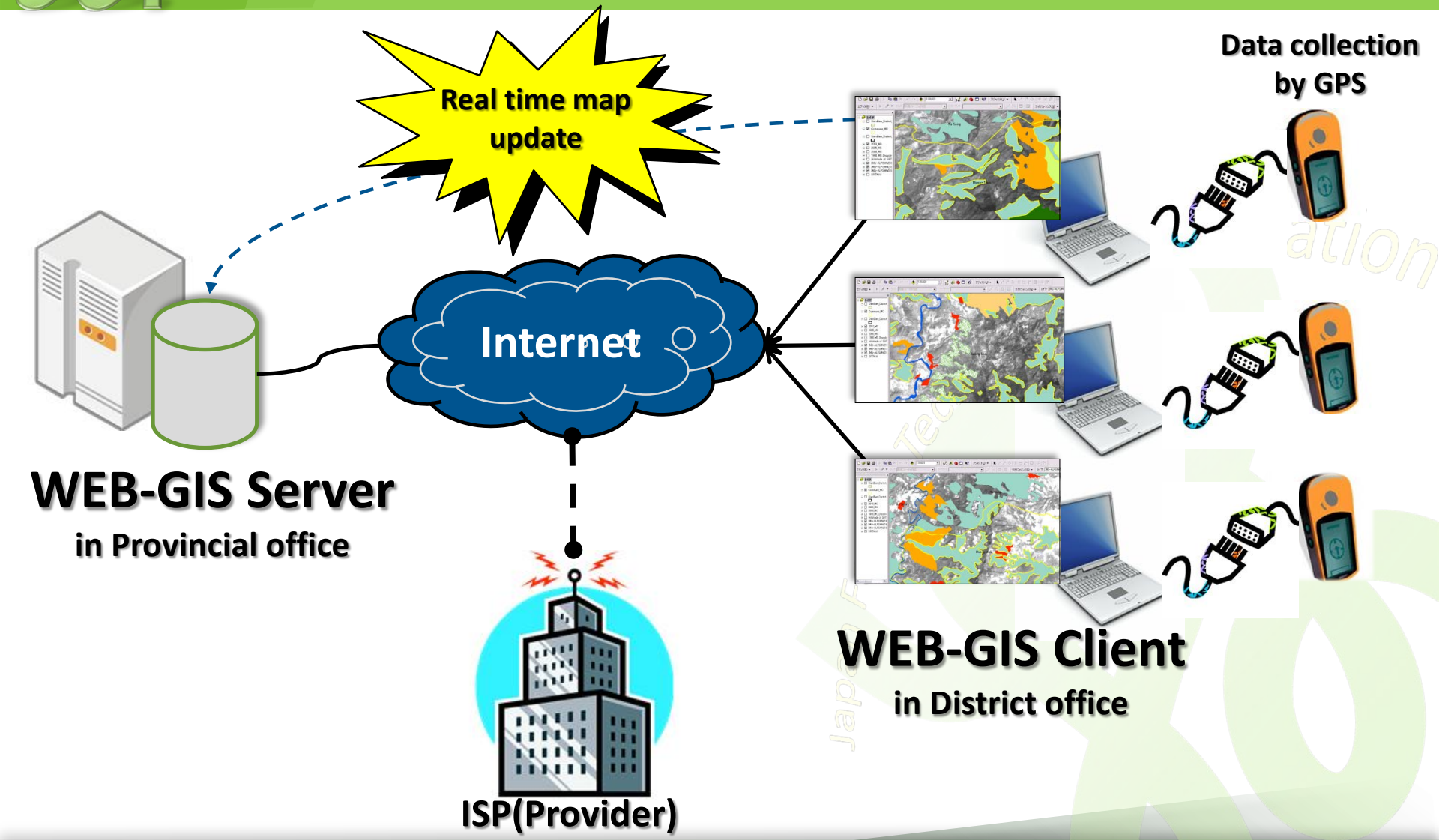
Commune Level



- Collecting data by GPS
- Cooperation with local people

(Proposed by JICA Project)

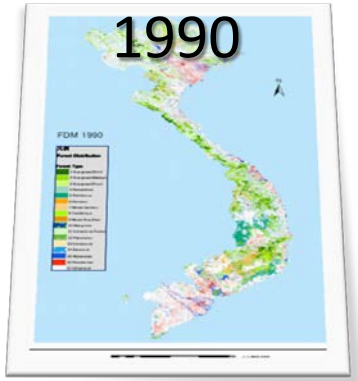
Advanced Technology in Reporting

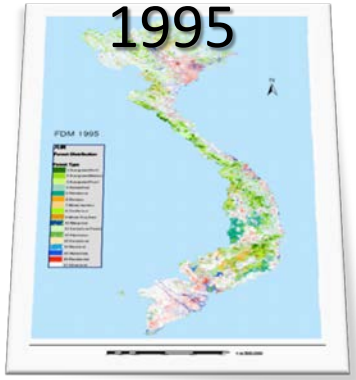


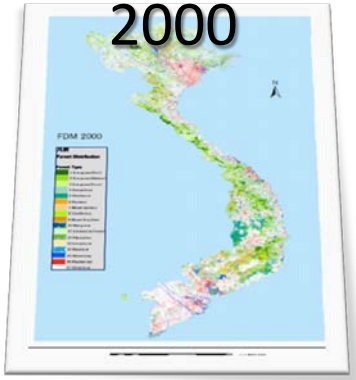
(Under developing FORMIS Project)

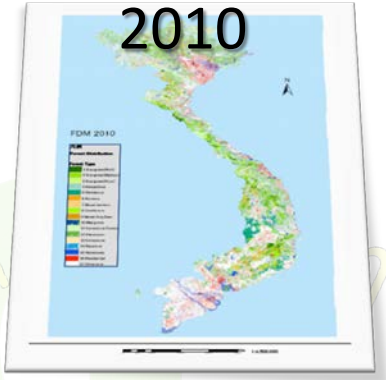
Technical Issues of FREL/FRL

Construction of FREL/FRL









90'～95'

R1 \ R2	1	2	3	4	5	6	7	8	9	10	11	12
1												
2	646	283	157	110	228		297					
3												
4	959											
5	606	283	143	140			329					121
6	560	272	124	98		106	191	5			209	78
7	471	258	141	107			193	83				77
8			113	97								
9	518	261	117	74		75	173	96				77
10	477	283	127	143	224	189	240					121
11	546	276	154	121	185	119	205	203	200			123
12	529	279	131	135	219		316	298				120
14												

95'～00'

R1 \ R2	1	2	3	4	5	6	7	8	9	10	11	12
1			149	142						64		
2	489	274	107	144	241		258					
3										68		
4	660	295	187				330					
5	561	274	139	93		87	256					77
6	587	271	115	83		119	151				116	69
7	457	268	147	99			195	98				90
8												
9		290	104	65		96	99	90				88
10	448	276	124	141	237	126	181		94			87
11	459	278	142	141	255	85	172	127	233			84
12	465	277	129	125	183		184	223	363		20	64
14												

00'～05'

R1 \ R2	1	2	3	4	5	6	7	8	9	10	11	12
1		319	163	157						59		
2	434	271	112	148	214		236					
3										59		
4	472	300	130				249					
5	519	268	147	101		83	181	87				116
6	505	270	119	75		283	114	29			116	83
7	428	285	153	109		107	151	87				60
8												
9		250	118	68		75	95	86				77
10	435	280	143	146	226	121	202	340				88
11	449	280	143	134	257	75	154	166	268		150	195
12	449	277	134	140	180		190	95	169		78	201
14										69		124

00'～10'

R1 \ R2	1	2	3	4	5	6	7	8	9	10	11	12
1			181	157								75
2	604	282	144	157	178		279					
3										115		104
4	798	269										
5	508	275	158	131		78	219	92				67
6	516	272	135	94		66	118				165	103
7	417	272	121	116		82	181	146				79
8												
9		271	110	115		86	122			105	4	85
10	465	282	158	148	196	138	249					94
11	602	291	162	135	152	91	199	293	292			163
12	611	280	120	128	189	104	240		271			106
14												102

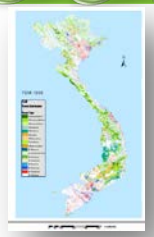
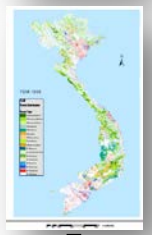
How to cook these basic information to identify carbon changes

Technical Issues to be Discussed

- **What is/are the difference(s)** between RL and REL and the associated methodological differences? —Recommend guidance
- Can a Party propose REL/RLs for a **subset of REDD+ activity types**?
  —If yes, under what conditions? (e.g. must include Deforestation)
- When is it appropriate to adjust **extrapolated historical trends**?
  —To address national circumstances, on a case by case basis
  —What type of information is needed to support adjustment?
- **What information** should be provided and in **what form** for the determination of REL/RL?
- What aspects of the construction of RL/RELs should allow for **comparability among countries**?
- How can we **avoid perverse incentives** through the exclusion of pools or activities?

(Discussion paper provided by secretariat at SBSTA expert meeting)

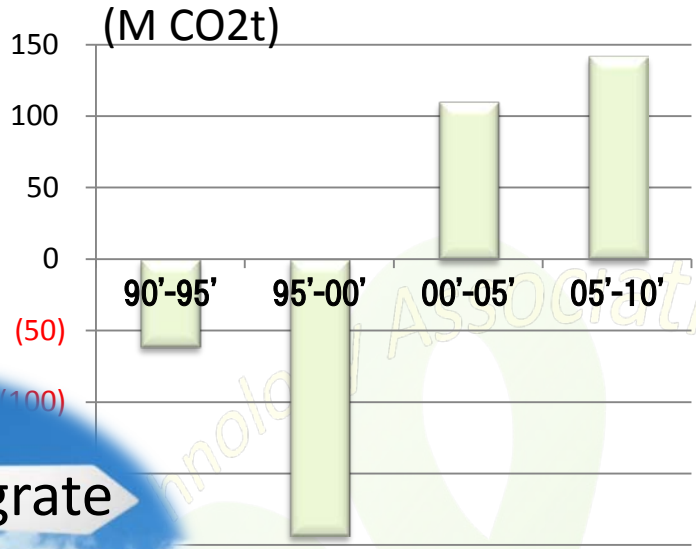
Technical Options in Stock Change Calculation

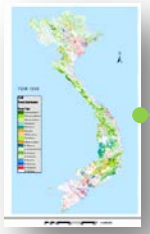
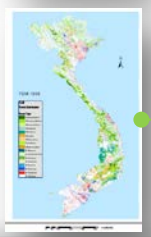



C Stock in 1990 (Ct)

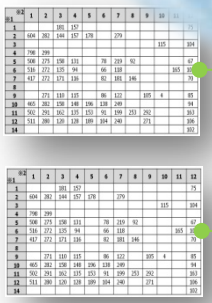
C Stock in 1995 (Ct)

C Stock Change 1990 to 1995

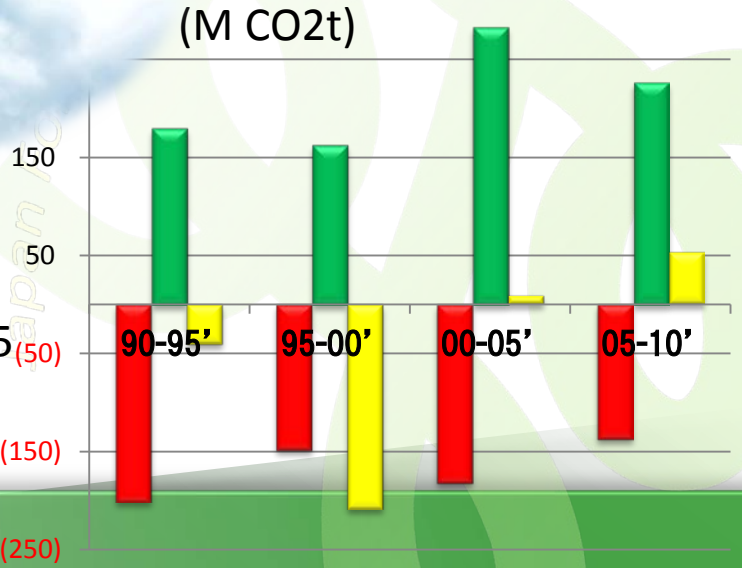


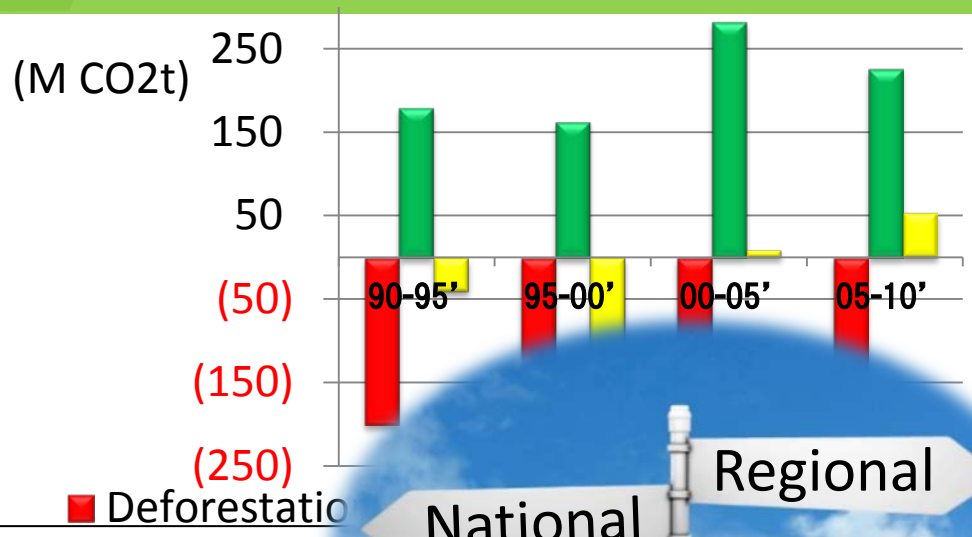
F.Type area Change 1990 to 1995 (ha)



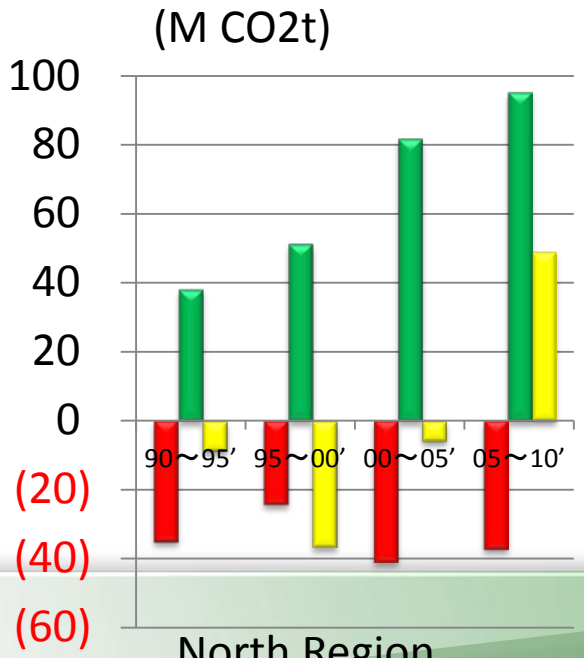
Emission Factor Change 1990 to 1995 (Ct/ha)

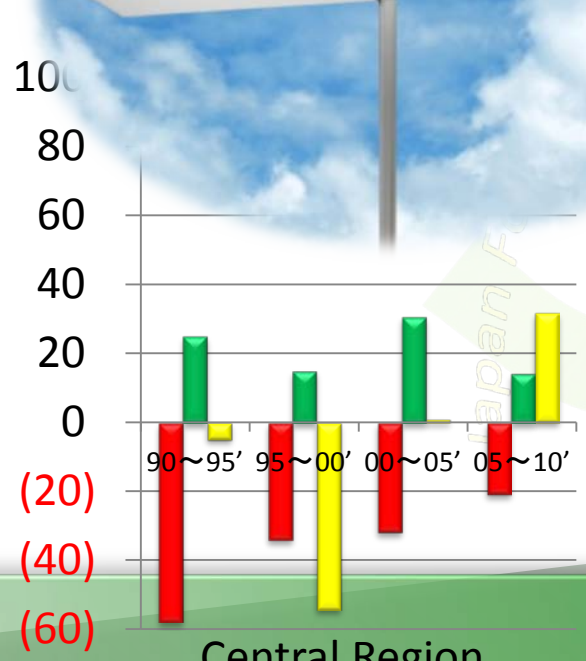


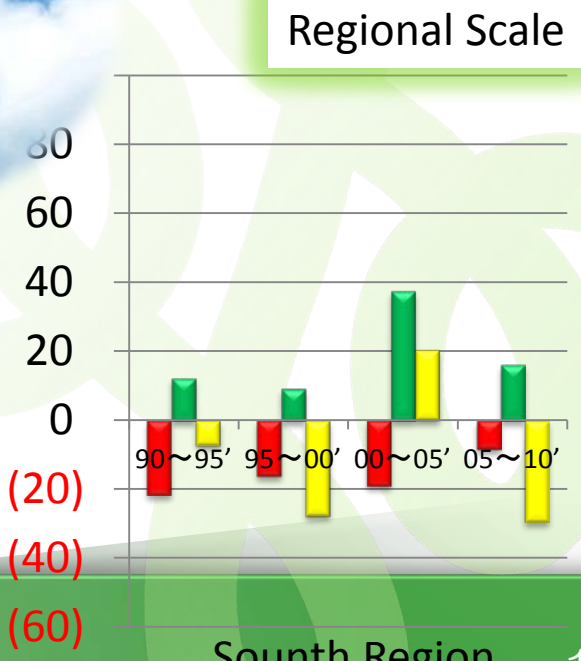
Technical Options in Aggregation



National Scale

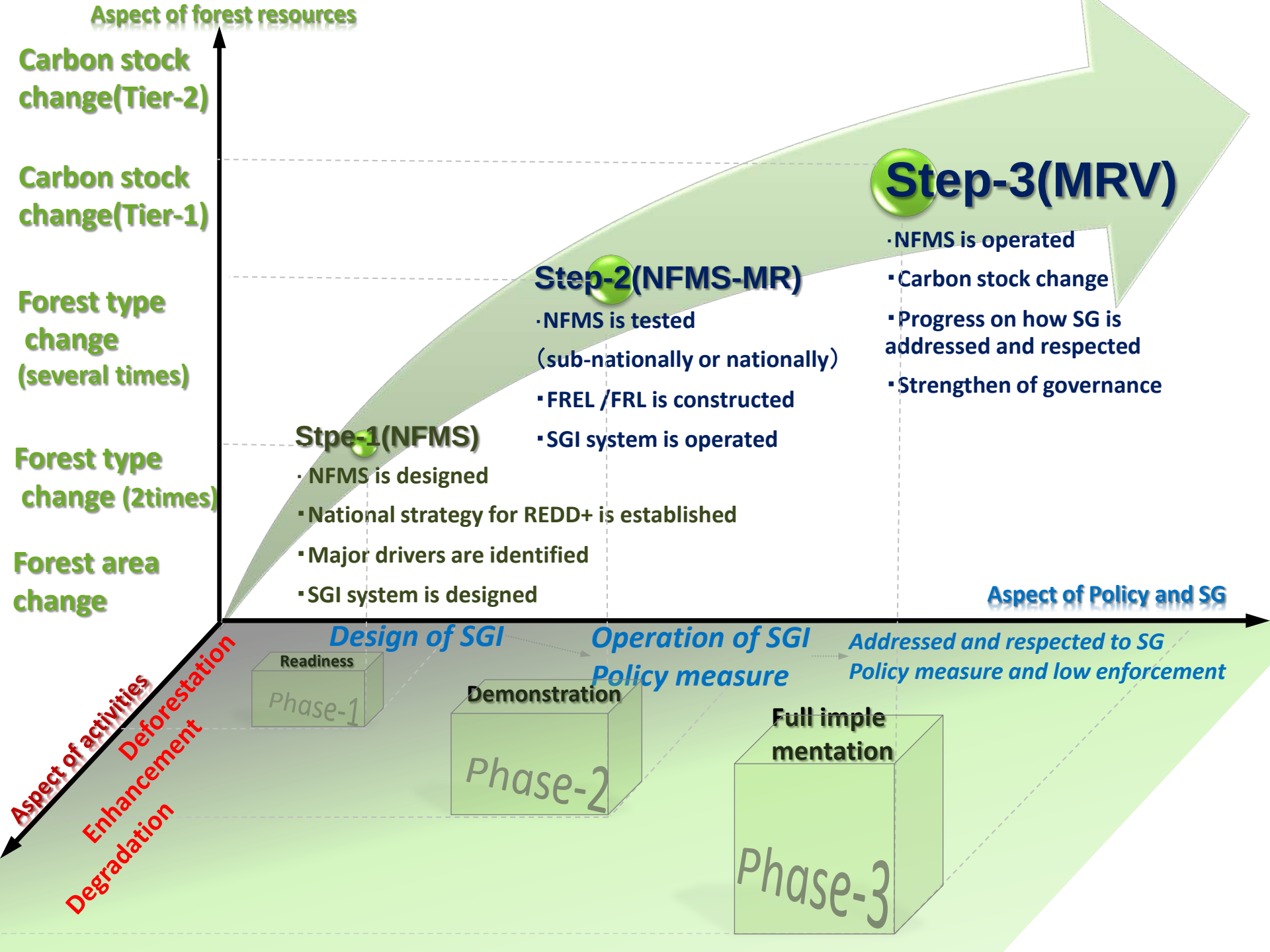






Regional Scale

Stepwise approach in National Forest Monitoring System


Aspect of forest resources
Carbon stock change(Tier-2)
Carbon stock change(Tier-1)
Forest type change (several times)
Forest type change (2times)
Forest area change
Step-3(MRV)
·NFMS is operated
▪Carbon stock change
▪Progress on how SG is addressed and respected
▪Strengthen of governance
Step-2(NFMS-MR)
·NFMS is tested
（sub-nationally or nationally）
▪FREL /FRL is constructed
▪SGI system is operated
Stpe-1(NFMS)
· NFMS is designed
▪National strategy for REDD+ is established
▪Major drivers are identified
▪SGI system is designed
Aspect of Policy and SG
Design of SGI
Operation of SGI
Policy measure
Addressed and respected to SG
Policy measure and low enforcement
Aspect of activities
Deforestation
Enhancement
Degradation
Readiness
Phase-1
Demonstration
Phase-2
Full imple mentation
Phase-3

Lesson and learn

- Cooperation between Central and Region is indispensable for full scale forest monitoring, but it needs capacity.

- When carrying out the design of national forest monitoring system, we can not reach full scale at a stroke. It is essential to apply Stepwise approach.

- In construction of FREL/FRL, there are several options for the development of methodologies.


Thank you for attention
Think ideally, act realistically
(May 2010,Nghe An province, Nobumitsu Miyazaki)