

Roles of RS and GIS in the implementation of National REDD+ Action Program

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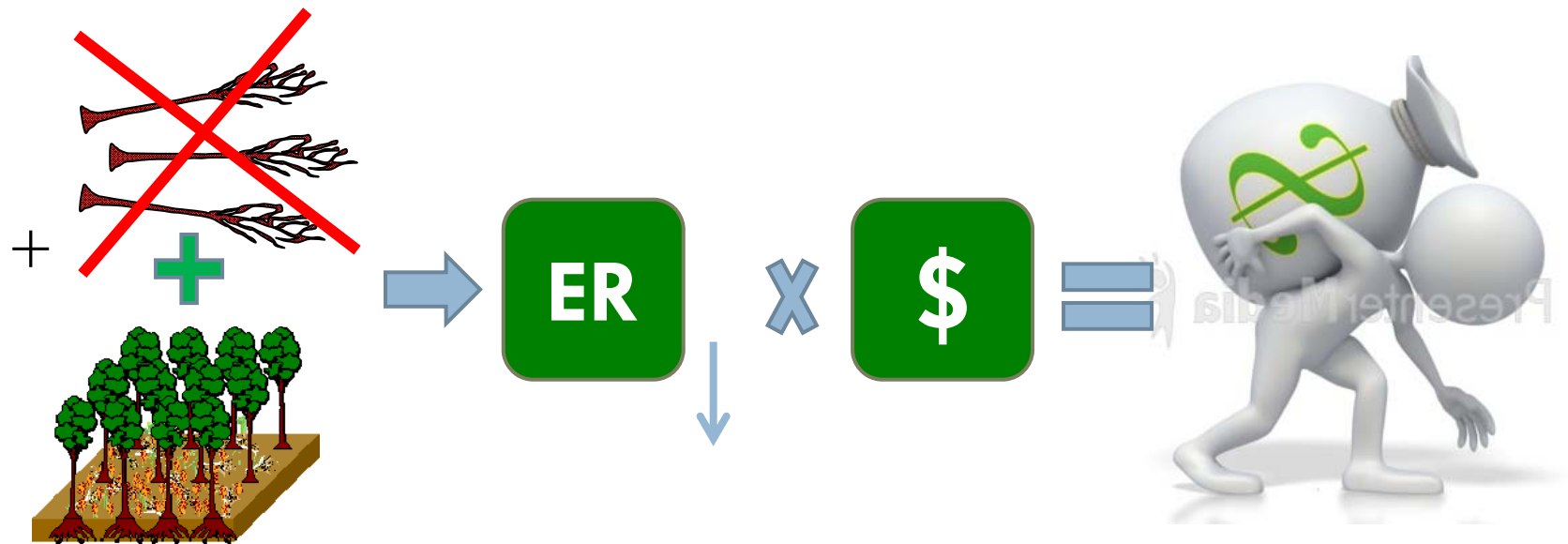
Director of FCPF Project



1. Brief introduction on REDD+ Initiative

What is REDD+?

- REDD+ is an international initiative on “reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries”
- Developing countries are provided technical and financial support for REDD+ implementation



Key activities

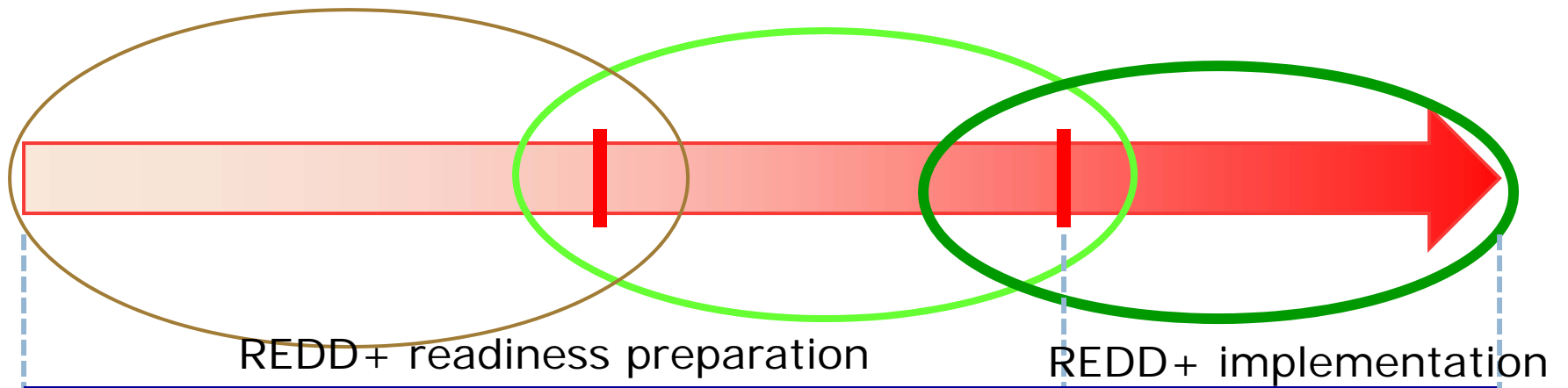


Five key activities are identified by the Cancun Agreement (Decision 1/CP.16):

- a) Reducing emissions from deforestation
- b) Reducing emissions from forest degradation
- c) Conservation of forest carbon stocks
- d) Sustainable management of forests
- e) Enhancement of forest carbon stocks

Roadmap of REDD+ implementation

Cancun Agreement: REDD+ is implemented in phases



Development of national strategies/ action plans, policies and measures, and capacity-building

Implementation of national policies, further capacity-building ; **results-based demonstration activities**

Results-based actions) – **fully MRVed**



2. Preparation for REDD+ implementation in Vietnam

REDD+ implementation in Vietnam



- REDD+ is considered as one of many measures that protects and uses sustainably the existing forests and expands the forests into non-forested areas, and contributes to improvement in livelihoods of local communities;
- Vietnam has been actively participated in REDD+ readiness preparation since 2008; National REDD+ Action Program (NRAP) is approved by Prime Minister in June 2012;
- REDD+ is a key component of National Strategies on CC, Green Growth and contributes to obtain the target of reducing 20% reducing emissions from agricultural and rural sector by 2020;

Approaches of REDD+ implementation in Vietnam

- Comply with UNFCCC/IPCC principles and guidance;
- Consistent with national policies and national circumstances: NRAP is parts of and support for achievement of objectives of the NSCC, NSGG, National Forest Development Strategy, emissions reduction in agricultural and rural sector;
- **Landscape-based approach:** not only activities within the forestry sector, agricultural and other sector will be taken into account to deliver comprehensive, effective packages for substantial and permanent ER;
- **Step-wise:** to reduce uncertainties and allow scaling up; two sub-periods: 2012-2015, 2016-2020 and onwards, which are suitable with national circumstances and adequate support;

Key REDD+ Readiness Projects

- UN-REDD Vietnam Program Phase II (2013-2015): US\$30 million funded by Norway with technical support from FAO, UNDP and UNEP;
- FCPF/WB REDD Readiness; ER-PIN for Carbon Fund is approved;
- USAID “Low emissions from Asian Forests – LEAF” + “SilvaCarbon Prog.”
- USAID “Vietnam Forests and Delta Program: US\$ 25 mill. from 2012-2017”;
- “Exploring mechanisms to promote high biodiversity conservation through REDD+” funded by BMU, Germany;
- “Advancing understanding on C stock enhancement” funded by BMU, Germany
- JICA-funded “Dien Bien REDD+ Pilot Project”

These projects provide support for capacity building either at national or sub-national levels and demonstrating result-based emission reduction that enable Vietnam to benefits from additional support and future REDD+ payments.



3. Key requirements for REDD+ implementation and roles of remote sensing & GIS

What the REDD+ countries requested to collect data and to develop NFMS, MRV, FRELs/FRLs?

Shall be consistent with

- ❑ **Decision 4/CP.15:** Develop NFMS & use of IPCC GPG
- ❑ **Decision 2/CP.16:** Develop NFMS and FRELs/FRLs
- ❑ **Decision 2/CP.17:** Modalities for development of national Information System on safeguards and FRELs/FRLs
- ❑ **Decision 11/CP.19:** Modalities for national forest monitoring systems
- ❑ **Decision 13/CP.19:** Guidelines and procedures for the technical assessment of submissions from Parties on proposed FRELs and/or FRLs
- ❑ **Decision 14/CP.19:** Modalities for measuring, reporting and verifying

What the REDD+ countries requested to do?

Cancun Agreement:

1. **A robust and transparent national forest monitoring system** for the monitoring and reporting of the activities in accordance with national circumstances, and with the provisions contained in decision 4/CP.15, and with any further elaboration of those provisions agreed by the Conference of the Parties;
2. **A national forest reference emission level (FREL) and/or forest reference level (FRL);**
3. **A system for providing information on how the safeguards are being addressed and respected throughout the implementation of the activities**

What the REDD+ countries requested to do?

Decision 4/CP.15 (Methodological guidance for activities):

To establish, according to national circumstances and capabilities, robust and transparent NFM systems and, if appropriate, sub-national systems as part of NMSs that:

- (i) Use **a combination of remote sensing and ground-based forest carbon inventory approaches** for estimating, as appropriate, anthropogenic forest-related GHG emissions by sources and removals by sinks, forest carbon stocks and forest area changes;
- (ii) Provide estimates that are transparent, consistent, as far as possible accurate, and that reduce uncertainties, taking into account national capabilities and capacities;
- (iii) Are transparent and their results are available and suitable for review as agreed by the Conference of the Parties;



The Warsaw REDD+ Framework

The decision 11/CP.19: Modalities for national forest monitoring systems

- (i) The development of NFMS for the monitoring and reporting of the REDD+ should take into account the guidance provided in decision 4/CP.15 and be guided by the most recent IPCC guidance and guidelines as a basis for estimating anthropogenic forest-related GHG emissions by sources, and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes;
- (ii) Robust NFMS should provide data and information that **are transparent, consistent over time, and are suitable** for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes resulting from the implementation of the REDD+ activities

The Warsaw REDD+ Framework

The decision 11/CP.19: Modalities for national forest monitoring systems

(i) **NFMS should:**

- Build upon existing systems, as appropriate;
- Enable the assessment of different types of forest in the country, including natural forest, as defined by the Party;
- Be flexible and allow for improvement;
- Reflect, as appropriate, the phased-approach as referred to in decision 1/CP.16, paragraphs 73 and 74;

(ii) NFMS may provide, as appropriate, relevant information for national systems for the provision of information on how safeguards are addressed and respected



The Warsaw REDD+ Framework

The decision 14/CP.19: Modalities for measuring, reporting and verifying

- (i) Measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes resulting from the implementation of the REDD+ activities, is to be consistent with the methodological guidance provided in decision 4/CP.15, and any guidance on the measurement, reporting and verification of NAMAs by developing country Parties as agreed by the COP, and in accordance with any future relevant decisions of the COPs;



The Warsaw REDD+ Framework

The decision 14/CP.19: Modalities for measuring, reporting and verifying

- (i) The data and information used by Parties in the estimation of anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes should be transparent, and consistent over time and with the established FRLs and/or FRLs
- (ii) The data and information should be provided through the **biennial update reports** by Parties



Roles of RS and GIS

1. Development of FRELs/FRLs
2. REDD+ planning: analyzing historical forest/land-use changes; identifying key drivers behind forest changes, interventions and prioritized areas
3. Measuring, reporting and verifying of REDD+ activities, including NFMS and NRS
4. Providing data and information for compiling the *biennial update reports and fulfilling the international reporting requirements*

Roles of RS & GIS



Past

Present

Future

Application of RS & GIS on change detection

Forest Type in the year 2000

Forest Type in the year 1990

Year	Forest Type in the year 1990	Year 2000													Category of Non Forest					Grand Total
		Evergreen broadleaf forest, rich forest	Evergreen broadleaf forest, medium forest	Evergreen broadleaf forest, poor forest	Evergreen broadleaf forest, rehabilitation forest	Deciduous forest	Bamboo forest	Mixed timber forest	Coniferous forest	Mixed broadleaf and coniferous forest	Mangrove forest	Limestone forest	Plantation	Limestone area (no forest)	Bare land, sand, fragmented trees	Water body	Residential area	Other land		
1990	Evergreen broadleaf forest, rich forest	23,871	8,241	6,470	1,874	100	897	1,640	0	222	0	0	23	0	2,108	5	17	2,583	48,033	
	Evergreen broadleaf forest, medium forest	8,415	23,156	1,803	2,673	158	1,135	3,193	0	0	0	0	139	0	4,272	19	1,183	31,171	77,316	
	Evergreen broadleaf forest, poor forest	1,184	22,034	53,630	11,500	1,054	1,003	7,417	0	0	0	0	1,460	0	11,774	223	652	28,435	140,375	
	Evergreen broadleaf forest, rehabilitation forest	348	2,734	13,117	3,893	69	886	9,182	0	229	0	0	2,551	0	5,539	20	255	17,143	55,971	
	Deciduous forest	74	324	718	959	47,140	0	0	0	0	0	0	0	0	5,316	45	701	14,461	69,744	
	Bamboo forest	6	253	477	2,812	1	4,722	2,865	0	0	0	0	568	0	3,413	5	11	1,495	23,623	
	Mixed timber forest	357	7,373	8,990	7,321	7	3,558	30,794	0	1,939	0	0	1,330	0	5,094	43	11	4,905	71,722	
	Coniferous forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Mixed broadleaf and coniferous forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Mangrove forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Limestone forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Plantation	0	0	47	12	0	0	0	0	0	0	0	450	0	79	1	21	385	965	
	Limestone area (no forest)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2000	Bare land, sand, fragmented trees	204	1,089	12,322	4,987	3,175	2,263	3,242	0	131	0	0	2,579	0	12,940	144	803	41,610	85,490
Water body		1	4	9	8	0	0	0	0	0	0	0	3	0	21	2,321	75	248	2,718	
Residential area		0	0	8	0	0	0	0	0	0	0	0	72	0	113	9	122	466	791	
Other land		10	626	1,728	3,561	233	940	1,182	0	25	0	0	1,478	0	9,866	484	7,798	47,116	75,098	
Grand Total		34,470	65,833	99,371	39,600	51,943	15,411	66,527	0	2,554	0	0	10,655	0	60,535	3,320	11,651	189,974	651,844	

Category of Forest

Category of Non Forest

Category of Forest

Category of Non Forest

Forest degradation

Forest enhancement/
regrowth

Deforestation

Reforestation

Roles of RS & GIS



National MRV Framework

National REDD+ Information System

National Forest Monitoring System

Monitoring of
Forest
resources,
REDD+
implementation

M

LMS

EF (NFI)

GHG-I

M(RV)

Information
on
safeguards

Activity Data

Land Monitoring

X

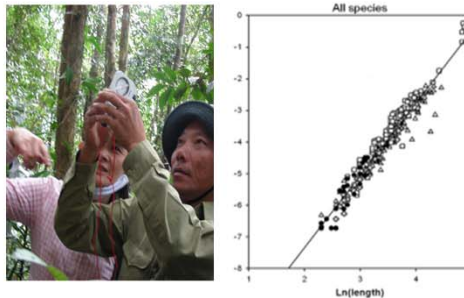
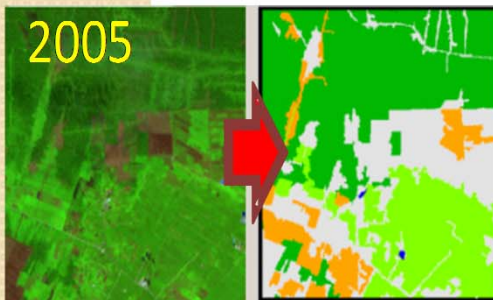
Emission Factor

Carbon inventory
Allometric equations

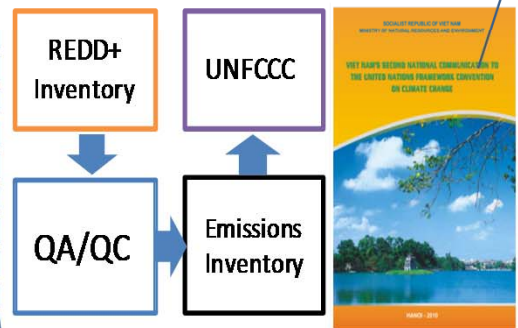
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REDD+ GHG
Inventory

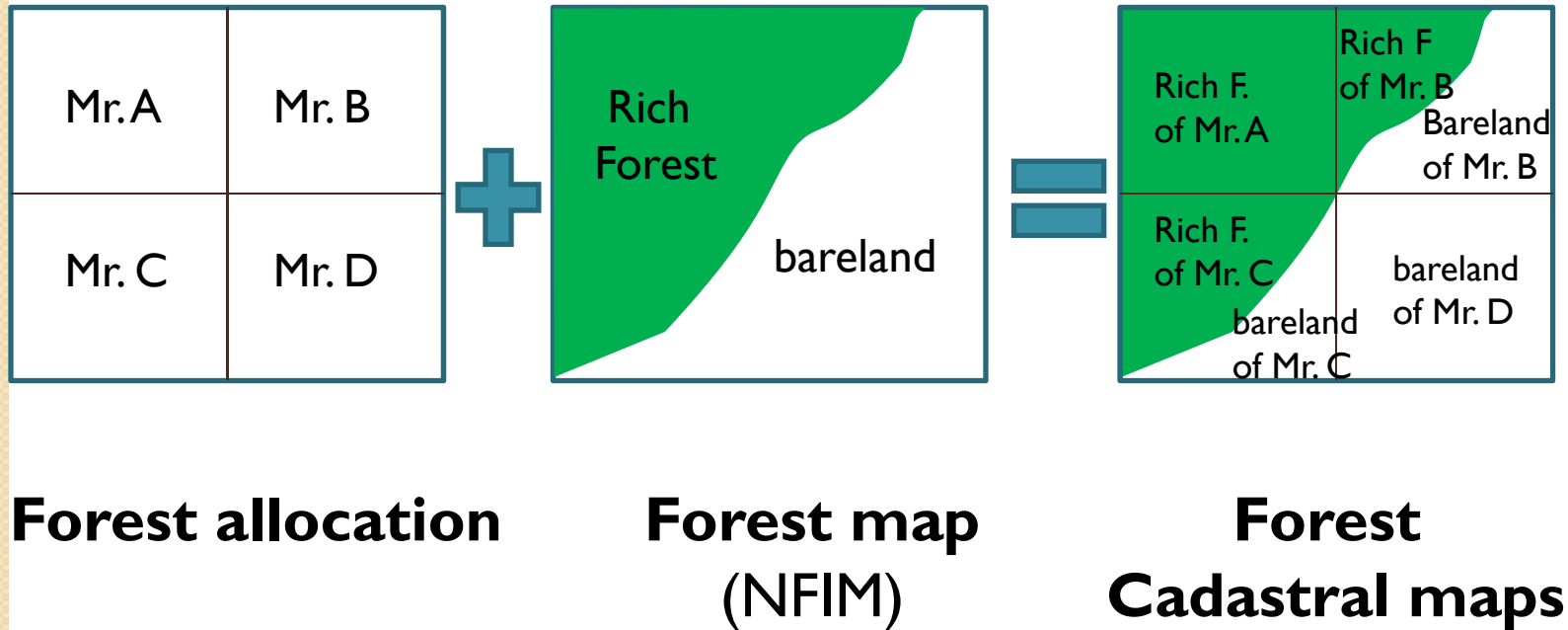
GHG Emissions and
Removals



National
Communications



Forest management profile





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