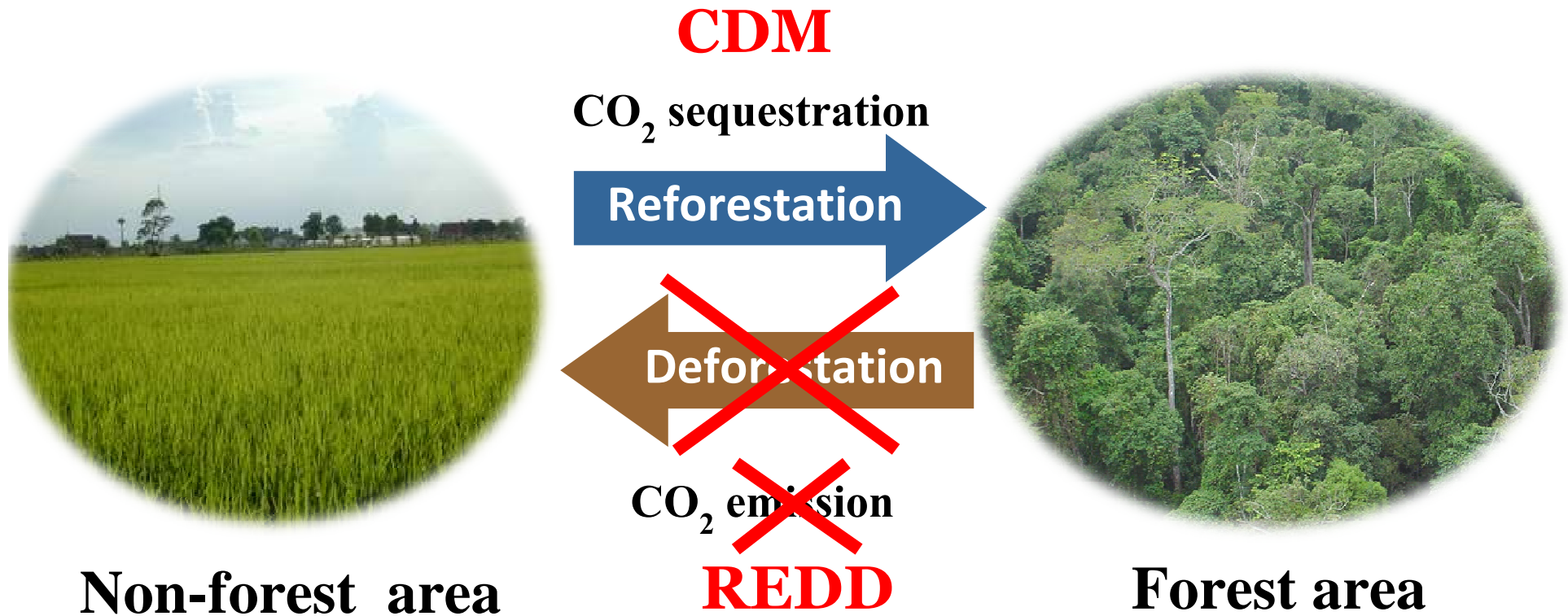Post-2012 new Market Mechanisms
Queen Sirikit National Convention Center
15 June 2012

REDD+: How to generate and sell Carbon Credits ?

Dr. Ladawan Puangchit
Faculty of Forestry, Kasetsart University

Carbon Credits in Forestry Sector

CDM

CO_2 sequestration

Reforestation

Deforestation

CO_2 emission
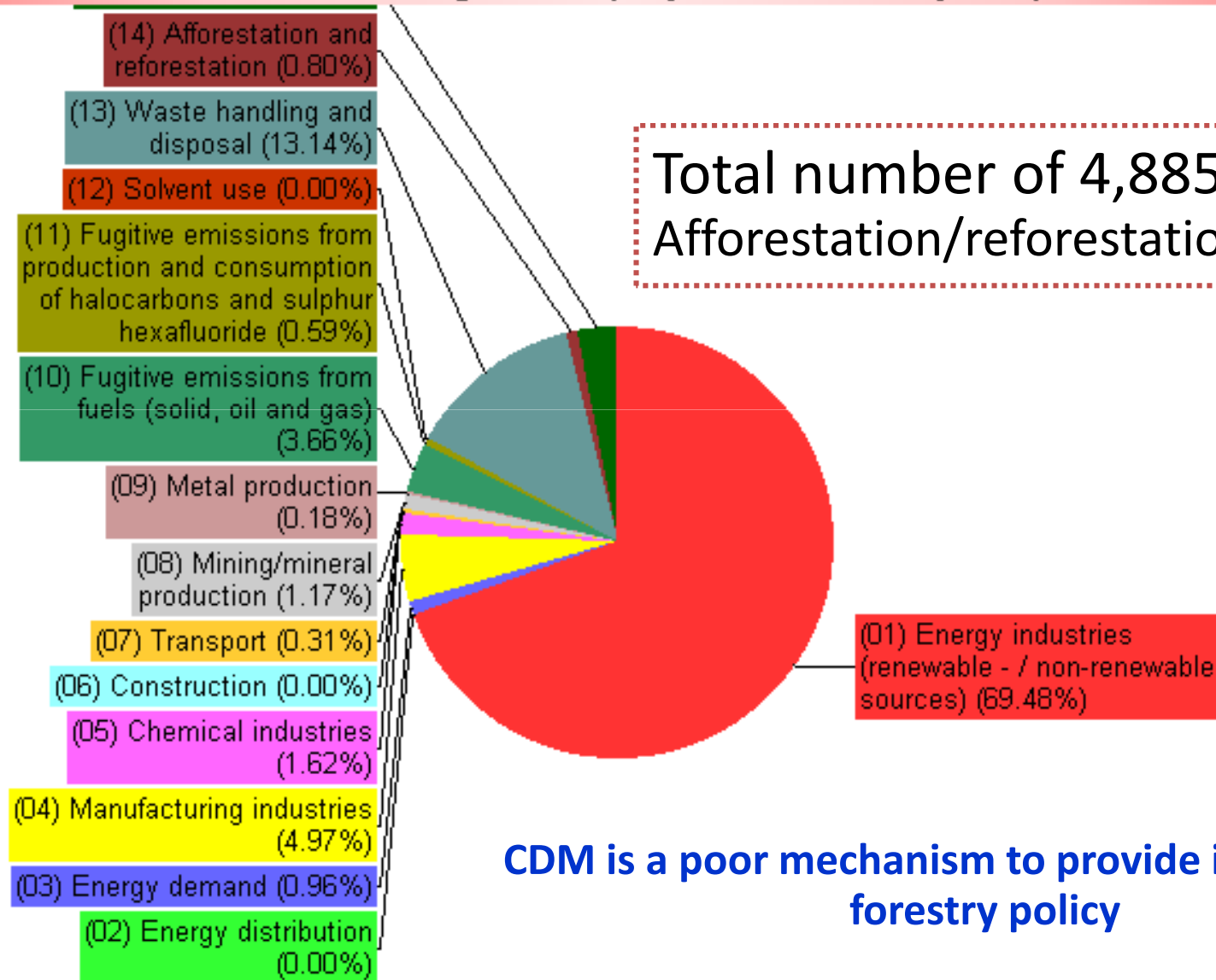
REDD

Non-forest area

Forest area

AR produces carbon credits from planting

REDD produces carbon credits from maintaining existing forest carbon stock

2

Registered CDM Projects
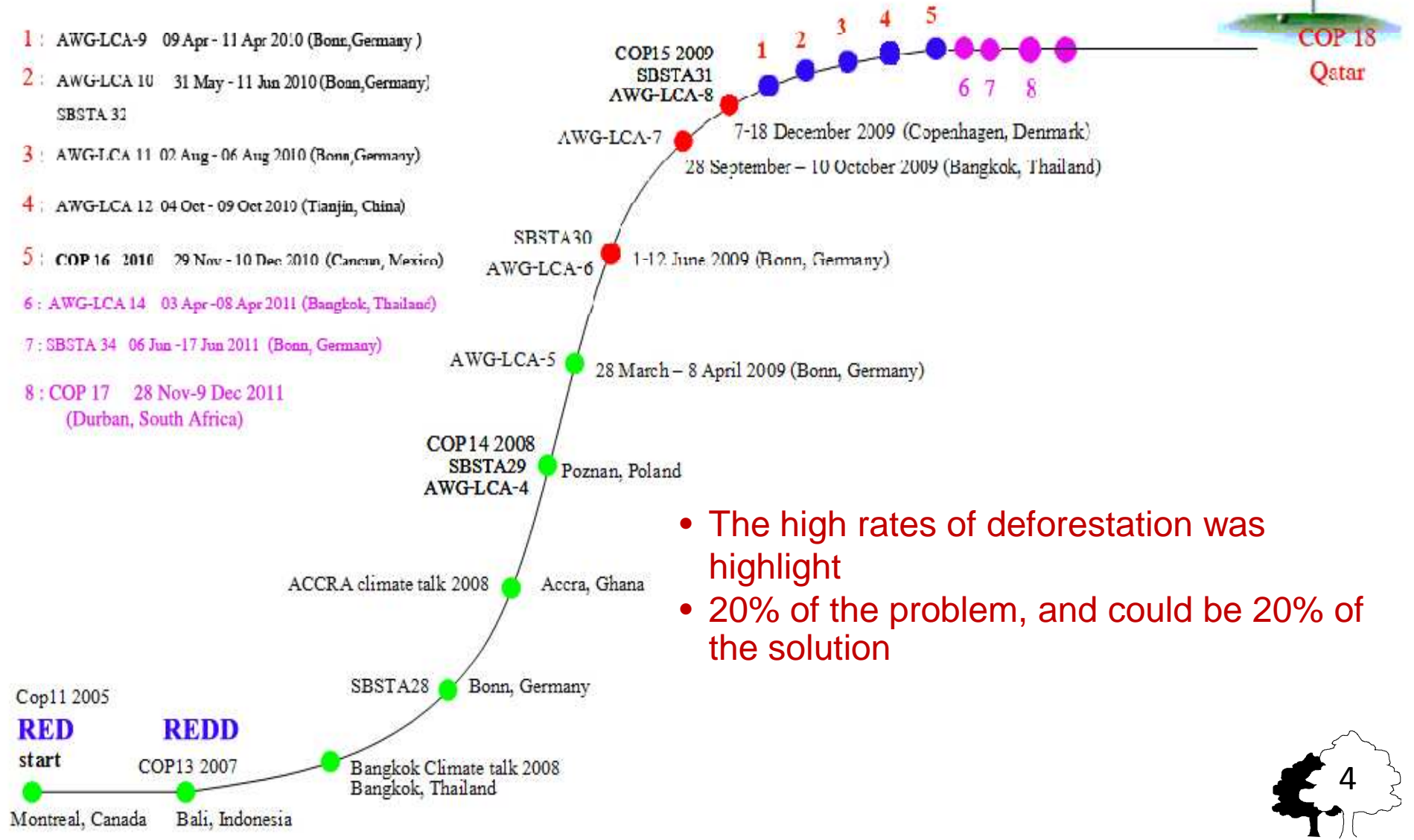
Distribution of registered project activities by scope

(14) Afforestation and reforestation (0.80%)

(13) Waste handling and disposal (13.14%)

(12) Solvent use (0.00%)

(11) Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride (0.59%)

(10) Fugitive emissions from fuels (solid, oil and gas) (3.66%)

(09) Metal production (0.18%)

(08) Mining/mineral production (1.17%)

(07) Transport (0.31%)

(06) Construction (0.00%)

(05) Chemical industries (1.62%)

(04) Manufacturing industries (4.97%)

(03) Energy demand (0.96%)

(02) Energy distribution (0.00%)

(01) Energy industries (renewable - / non-renewable sources) (69.48%)

Total number of 4,885 projects
Afforestation/reforestation : **39** (0.80%)

CDM is a poor mechanism to provide incentives for forestry policy

REDD+ : a new attractive mechanism

REDD+ Negotiation Route

REDD+ Consensus!

COP 18
Qatar

1 : AWG-LCA-9   09 Apr - 11 Apr 2010 (Bonn, Germany)

2 : AWG-LCA 10   31 May - 11 Jun 2010 (Bonn, Germany)
   SBSTA 32

3 : AWG-LCA 11 02 Aug - 06 Aug 2010 (Bonn, Germany)

4 : AWG-LCA 12 04 Oct - 09 Oct 2010 (Tianjin, China)

5 : COP 16 2010   29 Nov - 10 Dec 2010 (Cancun, Mexico)

6 : AWG-LCA 14   03 Apr - 08 Apr 2011 (Bangkok, Thailand)

7 : SBSTA 34   06 Jun - 17 Jun 2011 (Bonn, Germany)

8 : COP 17   28 Nov - 9 Dec 2011
   (Durban, South Africa)

COP15 2009
SBSTA31
AWG-LCA-8

AWG-LCA-7   7-18 December 2009 (Copenhagen, Denmark)

28 September – 10 October 2009 (Bangkok, Thailand)

SBSTA30
AWG-LCA-6   1-12 June 2009 (Bonn, Germany)

AWG-LCA-5   28 March – 8 April 2009 (Bonn, Germany)

COP14 2008
SBSTA29   Poznan, Poland
AWG-LCA-4

ACCRA climate talk 2008   Accra, Ghana

- The high rates of deforestation was highlight
- 20% of the problem, and could be 20% of the solution

SBSTA28   Bonn, Germany

Cop11 2005
RED   **REDD**
start   COP13 2007

Bangkok Climate talk 2008
Bangkok, Thailand

Montreal, Canada   Bali, Indonesia

4

What is REDD+??

- REDD - Reducing Emissions from Deforestation and Forest Degradation in Developing Countries - is an effort to create a financial value for the carbon stored in forests

- There are 5 eligible activities:
  - Reducing emissions from deforestation
  - Reducing emissions from forest degradation
  - Enhancement of carbon stocks
  - Conservation of forests
  - Sustainable Management of Forests

Because of these uncertainties, it is unlikely that countries will receive the full value of the emission reductions achieved
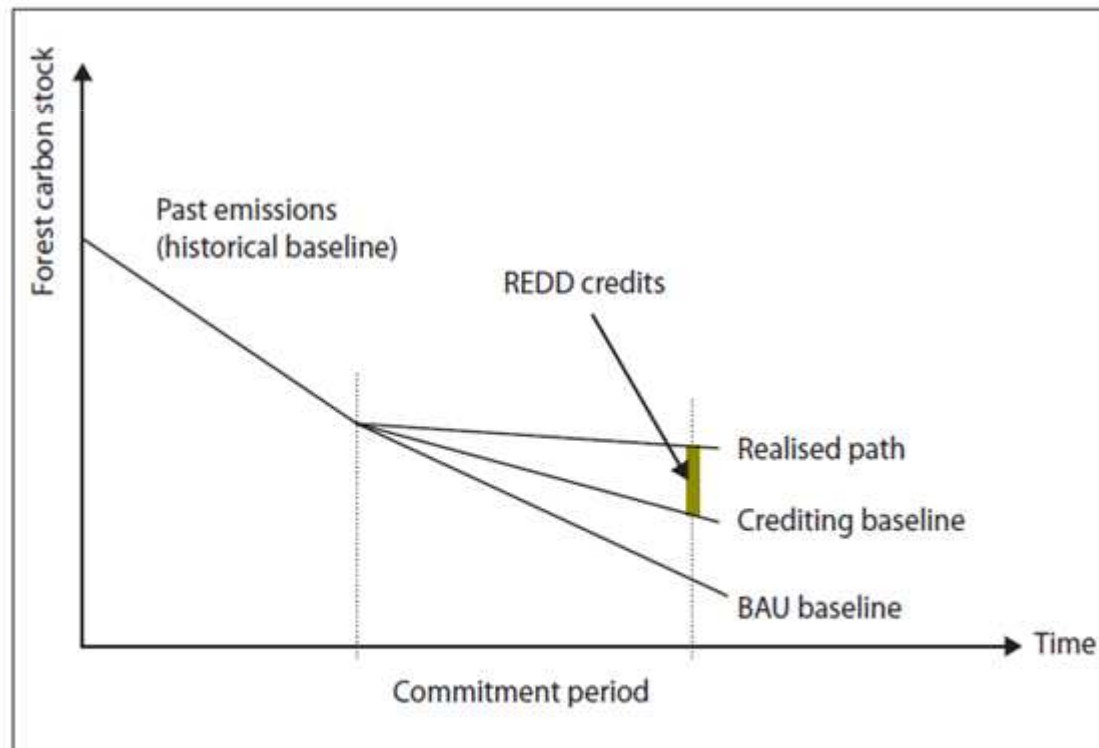
1) Setting the Reference Scenario (Baseline) of deforestation from historical trend
2) Implementation of measures to avoid deforestation
3) Monitoring and accounting the amount of emission reduction
4) Payment from financial mechanism according the amount of emission reduction

7

Measure to avoid deforestation

Well-stocked (> 70%)	Medium (40 - 70%)	Degraded (20 - 40%)	Fallow (6 years)	Plantation (Teak/ 6 years)
~ 220 t C/ ha	~ 62 t C/ ha	~ 20 t C/ ha	32 t C/ ha	51 t C/ ha
~ 792 t CO2/ ha	~ 223 t CO2/ ha	~ 72 t CO2/ ha	~ 115 t CO2/ ha	~ 184 t CO2/ ha

With CO_2 valued at US$ 5 per tonne, the dense forest has a value of around US$ 3,800 per ha, while degraded forest is only about US$ 350 per ha.

One option for government is to charge developers for the carbon that they will be removing; this will provide an incentive for developers to use land with the lowest carbon stocks

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Status of REDD+

- Negotiations on REDD+ focus on two aspects:
  - **Technical issues**: What can be included, what data is required, how to assess biomass, how to validate?
  - **Financial issues**: Fund-based or market-based?
- In addition there are some operational concerns:
  - **Equity**: Some countries have much historical deforestation, others very little. Some countries have small forest areas, others large. How to make REDD+ beneficial to all countries?
  - **Displacement**: How to avoid moving deforestation from REDD countries to other countries?
  - **Country capacity**: How do developing countries gain the right technical and institutional capacity to effectively implement REDD?

8

Geographic distribution of countries sorted into country types

Country Type
- 1: HFLD
- 2: HFMD
- 3: HFHD
- 4: MFMD
- 5: LFLD

Type 1: HFLD	Type 2: HFMD	Type 3: HFHD	Type 4: MFMD	Type 5: LFLD	
1 - Belize	7 - Bolivia	18 - Cambodia	24 - Cameroon	31 - Angola	43 - India
2 - French Guiana	8 - Brazil	19 - Ecuador	25 - Equatorial Guinea	32 - Central African Republic	44 - Kenya
3 - Gabon	9 - Colombia	20 - Honduras	26 - Guatemala	33 - Costa Rica	45 - Laos
4 - Guyana	10 - Congo	21 - Indonesia	27 - Liberia	34 - Cote d'Ivoire	46 - Madagascar
5 - Peru	11 - Congo, DRC	22 - Solomon Is.	28 - Myanmar	35 - Cuba	47 - Mozambique
6 - Suriname	12 - Malaysia	23 - Zimbabwe	29 - Nicaragua	36 - Dominican Republic	48 - Nigeria
	13 - Mexico		30 - Paraguay	37 - El Salvador	49 - Philippines
	14 - Panama			38 - Ethiopia	50 - Senegal
	15 - Papua New Guinea			39 - Ghana	51 - Sierra Leone
	16 - Venezuela			40 - Guinea	52 - Sri Lanka
	17 - Zambia			41 - Guinea-Bissau	53 - Tanzania
				42 - Haiti	54 - Thailand
					55 - Uganda
					56 - Vietnam

9

Tools and Techniques

- Collecting and analyzing the data can be done using a variety of techniques and tools:

  - **Field data collection**
    - Large volumes of basic data can be collected by local communities
    - Much advanced data needs to be collected by professional foresters

  - **Remote sensing, aerial photography**
    - Establishment of forest area, activity data
    - Determine forest charactersitics
    - Stratification of forest resources

  - **Statistical analysis of data to extract trends**

  - **Secondary data**
    - Population census
    - Government statistics
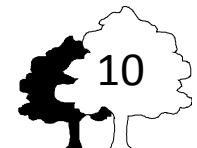
Data required

Activities data **X** Emission Factor
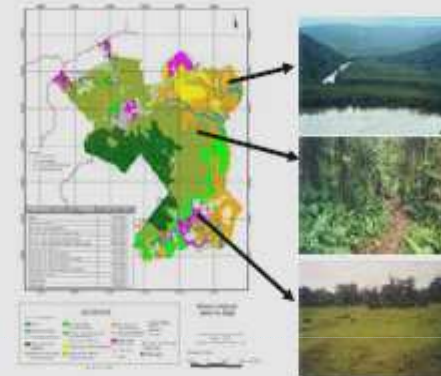
The area of forest

The biomass of the forest and its properties

Measuring and Monitoring
Carbon Storage by Winrock International
(2 M acres worldwide)

Carbon measuring and monitoring

1. Establish baseline
2. Conduct measurements at preset intervals

Stratifying the project area increases measurement efficiency

Developing Sampling Design

Identify what project will look like at the end

Establish preliminary plots in each stratum of target area to estimate carbon stocks and their variation

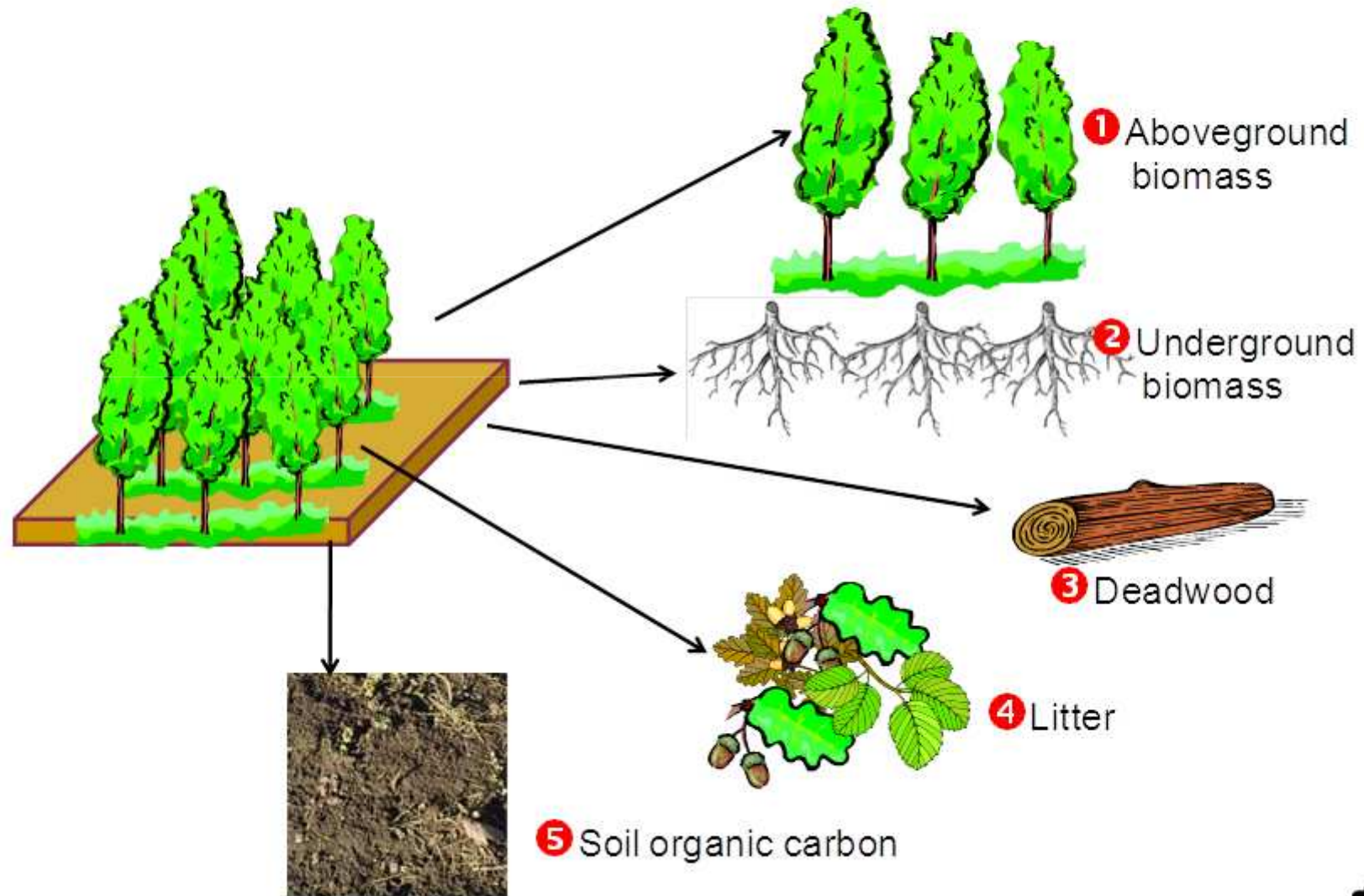**Install permanent measuring plots in a standard design**
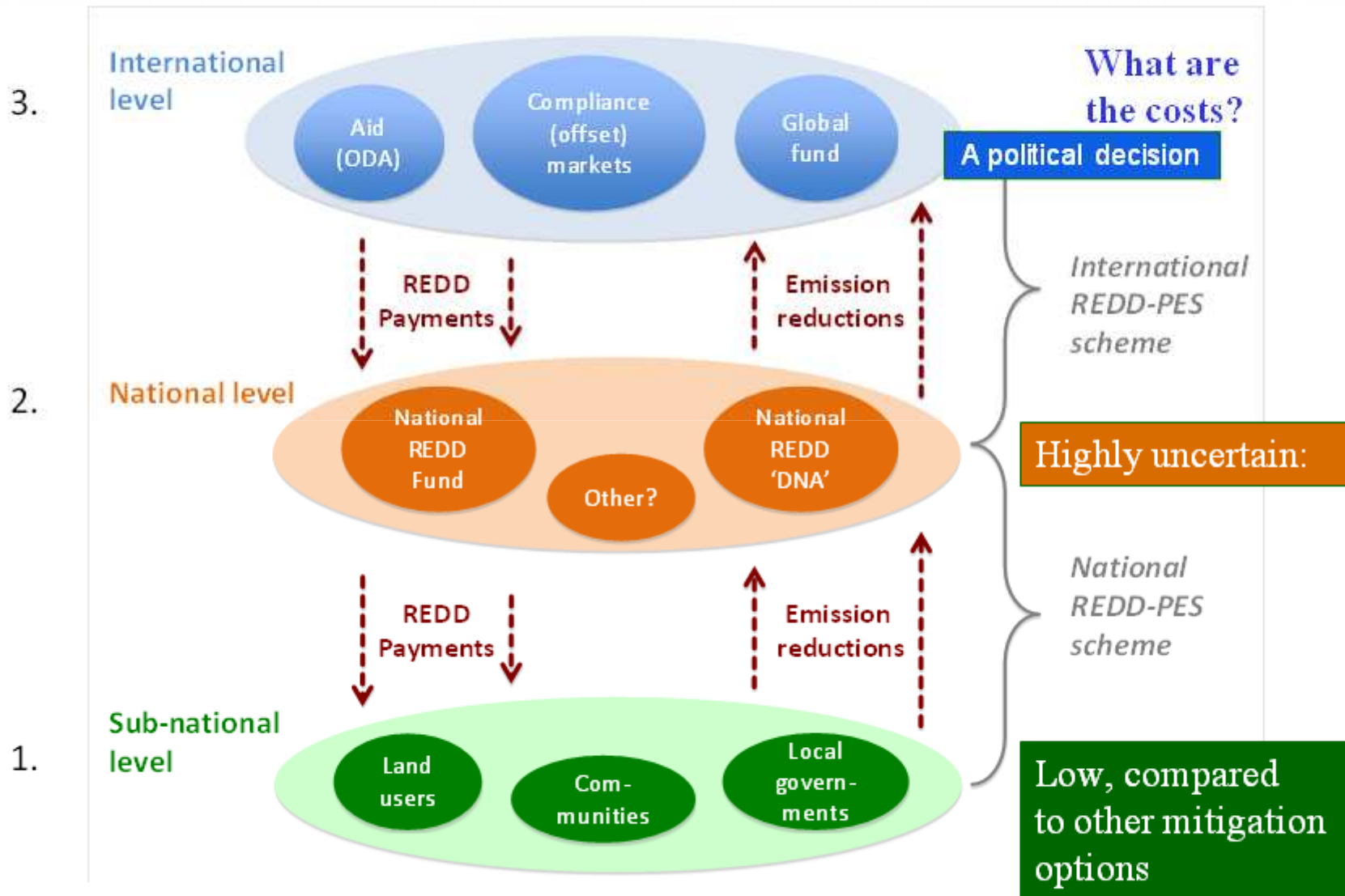
Permanently mark plot center and locate with GPS

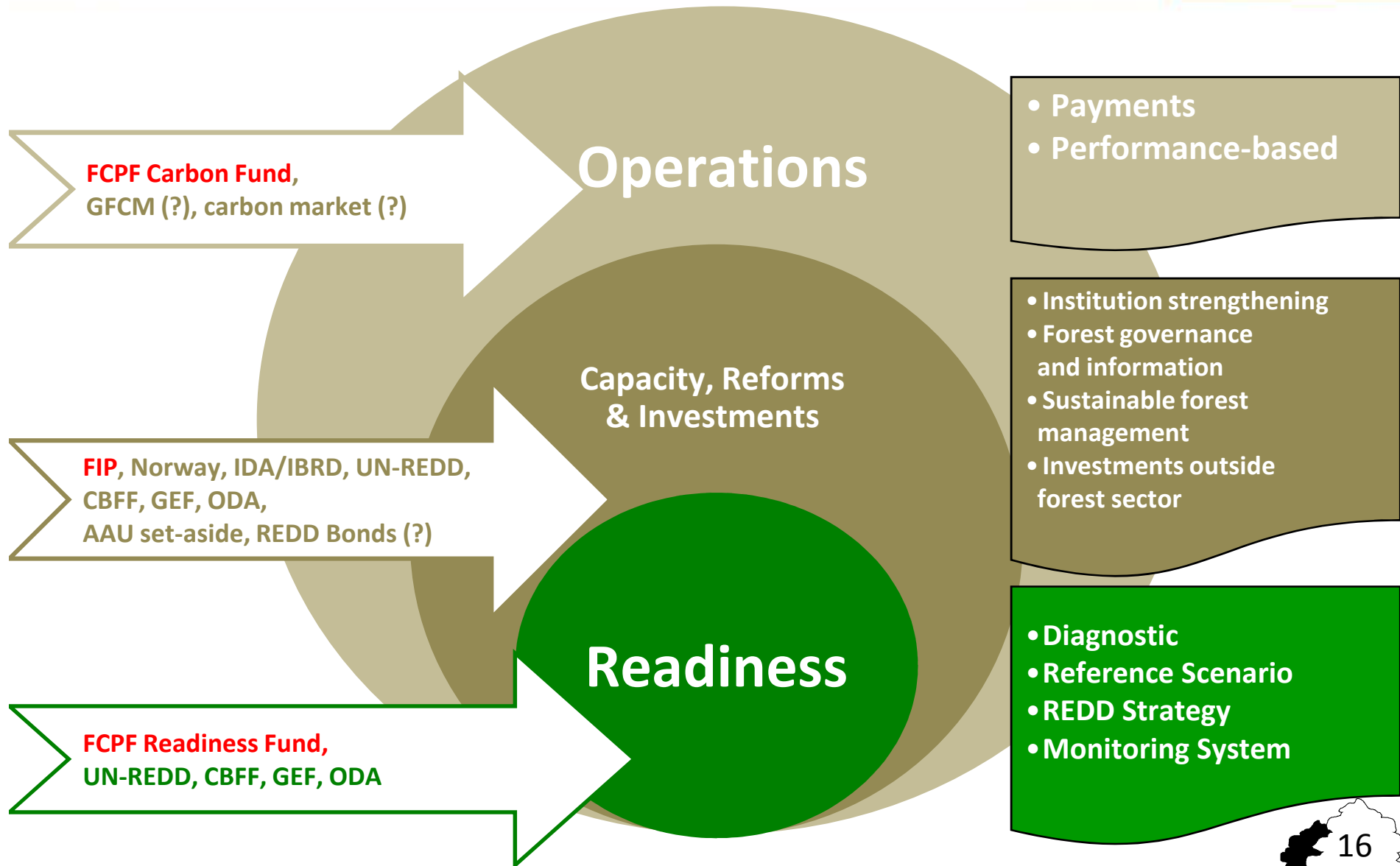| Tiers for emission factors: Change in C stocks |
| --- |
| 1. IPCC default values at a continental scale-high uncertainty |
| 2. Country specific data for key factors-medium to low uncertainty |
| 3. National inventory of key carbon stocks, repeated measurements of permanent sample plots-low uncertainty |

Carbon Pools under REDD+

1. Aboveground biomass
2. Underground biomass
3. Deadwood
4. Litter
5. Soil organic carbon

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Global REDD+ scheme

International level
3.

Aid (ODA)

Compliance (offset) markets

Global fund

What are the costs?

A political decision

REDD Payments

Emission reductions

International REDD-PES scheme

National level
2.

National REDD Fund

Other?

National REDD 'DNA'

Highly uncertain:

REDD Payments

Emission reductions

National REDD-PES scheme

Sub-national level
1.

Land users

Com-munities

Local govern-ments

Low, compared to other mitigation options

15

The Three Phases of REDD+

Operations

- Payments
- Performance-based

FCPF Carbon Fund, GFCM (?), carbon market (?)

Capacity, Reforms & Investments

- Institution strengthening
- Forest governance and information
- Sustainable forest management
- Investments outside forest sector

FIP, Norway, IDA/IBRD, UN-REDD, CBFF, GEF, ODA, AAU set-aside, REDD Bonds (?)

Readiness

- Diagnostic
- Reference Scenario
- REDD Strategy
- Monitoring System

FCPF Readiness Fund, UN-REDD, CBFF, GEF, ODA

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Two Mechanisms

Readiness Mechanism

READINESS FUND

Capacity Building

(since 2008)

$215 million
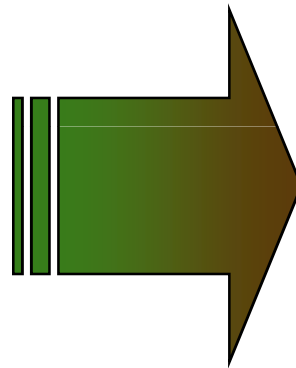
Carbon Finance Mechanism

CARBON FUND

Emission Reductions

(since 2011)

$ 225 million

R-Package is produced towards the end of 'phase 1'

3 REDD+ Readiness Phases (per Cancun Agreements)

1 National Strategies

2 Implementation of Strategies and Investments

3 Results-Based Activities (fully MRV'ed emission reductions)

R-Package

Capacity Building, institution strengthening, piloting

FCPF Readiness Fund

FCPF Carbon Fund

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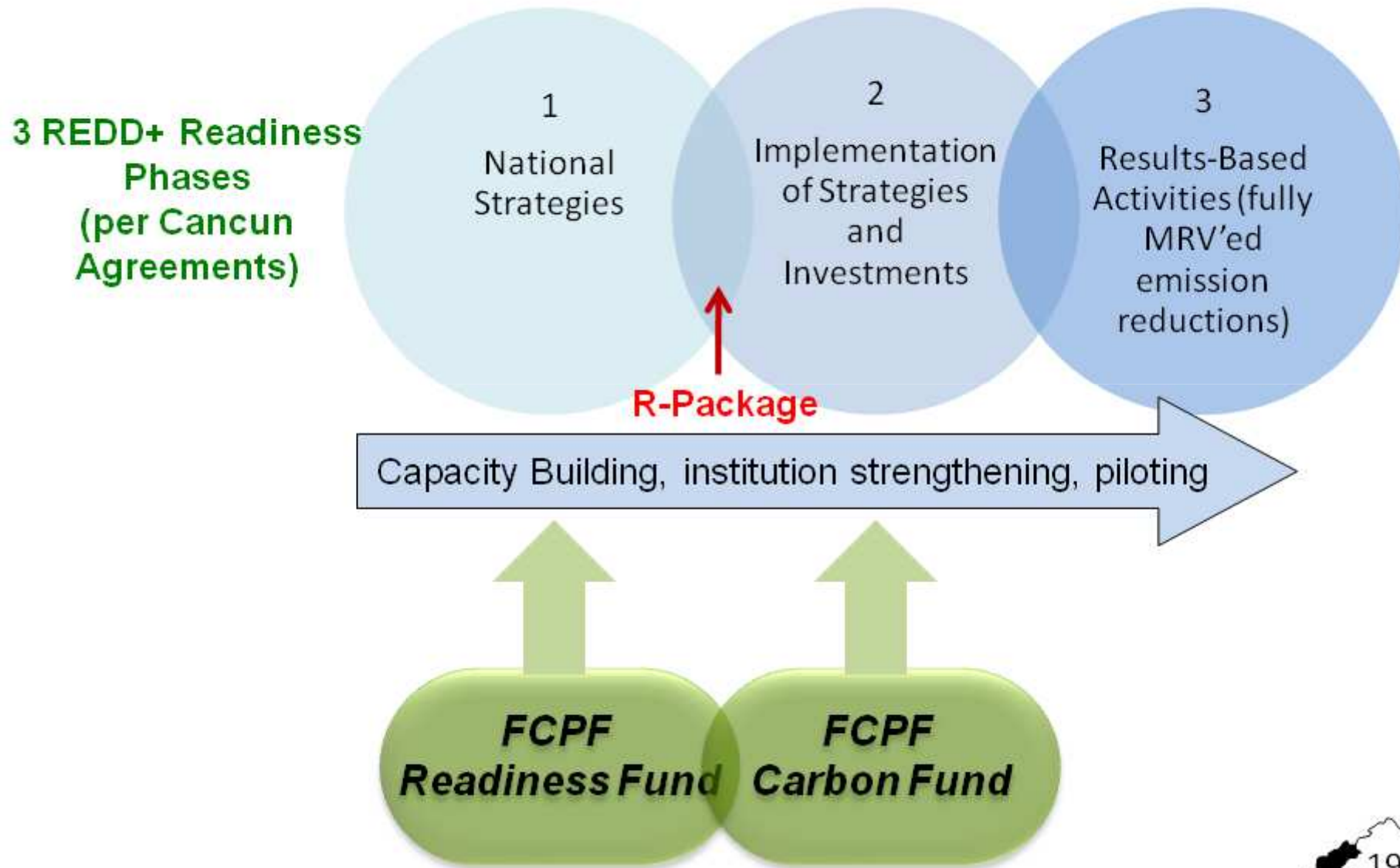
REDD+ Country Participants

South America
- Argentina
- Bolivia
- Chile
- Colombia
- Guyana
- Paraguay
- Peru
- Suriname

Meso-America
- Costa Rica
- El Salvador
- Guatemala
- Honduras
- Mexico
- Nicaragua
- Panama

Africa
- Cameroon
- Central African Republic
- Dem. Republic of Congo
- Equatorial Guinea
- Ethiopia
- Gabon
- Ghana
- Kenya
- Liberia
- Madagascar
- Mozambique
- Republic of Congo
- Tanzania
- Uganda

Asia & Pacific
- Cambodia (March 2010)*
- Indonesia (May 2009)*
- Lao PDR (December 2010)*
- Nepal (October 2010)*
- Papua New Guinea
- Thailand
- Vanuatu
- Vietnam (November 2011)*

* R-PP submission date

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FCPF process: from Readiness to Performance Payments

Readiness Fund

Investments, Piloting (Demonstration Activities)

SESA   **ESMF**

Formulation   Readiness Preparation   Implementation

R-PIN   **R-PP**   Progress Report   **R-Package**   ER Program

PC Resolution

ER-PIN

Readiness Grant
Agreement
$200,000

Supplementary
Grant Agreement
$3.4m

ERPA
e.g. $40m

WB Due
Diligence

WB Due
Diligence

Assessment
Note

Carbon Fund

21

Status of **REDD+** in Thailand

ธค 2551	ทส. โดย อส. ส่ง R-PIN เพื่อขอรับเงินสนับสนุนจากกองทุน FCPF ธนาคารโลก
สค 2553	ธนาคารโลก ประเทศไทย แจ้งการสนับสนุนเงิน 200,000 USD ในการจัดทำ R-PP และให้ประเทศไทยส่งแบบขอรับเงิน
มีค 2554	อส. จัดทำแบบขอรับเงิน และแจ้ง สบน. ดำเนินการส่งในนามประเทศไทย (ระเบียบกระทรวงการคลัง ว่าด้วยการบริหารหนี้สาธารณะ พ.ศ.2549)
ตค 2554	อส. แจ้ง สบน. ให้ธนาคารโลก กรุงเทพฯ เป็นหน่วยเบิกจ่าย และ ธนาคารโลก กรุงเทพฯ ยืนยัน
กพ 2555	อส. ส่ง ToR ให้ธนาคารโลก กรุงเทพฯ ดำเนินการจัดจ้างที่ปรึกษา • International Consultant (Mr. Alastair Frazer) • National Consultant (คณะวนศาสตร์ ม.เกษตรศาสตร์)

Next Step…

ข้อเสนอโครงการฯ R-PP

FCPF พิจารณาสนับสนุน
งบประมาณ

ประเทศไทยดำเนินการตาม
แผนการเตรียมความพร้อมฯ

กระบวนการ

รับฟัง และ
แลกเปลี่ยนความ
คิดเห็นจากผู้มีส่วน
เกี่ยวข้อง

ทุกภาคส่วน

22
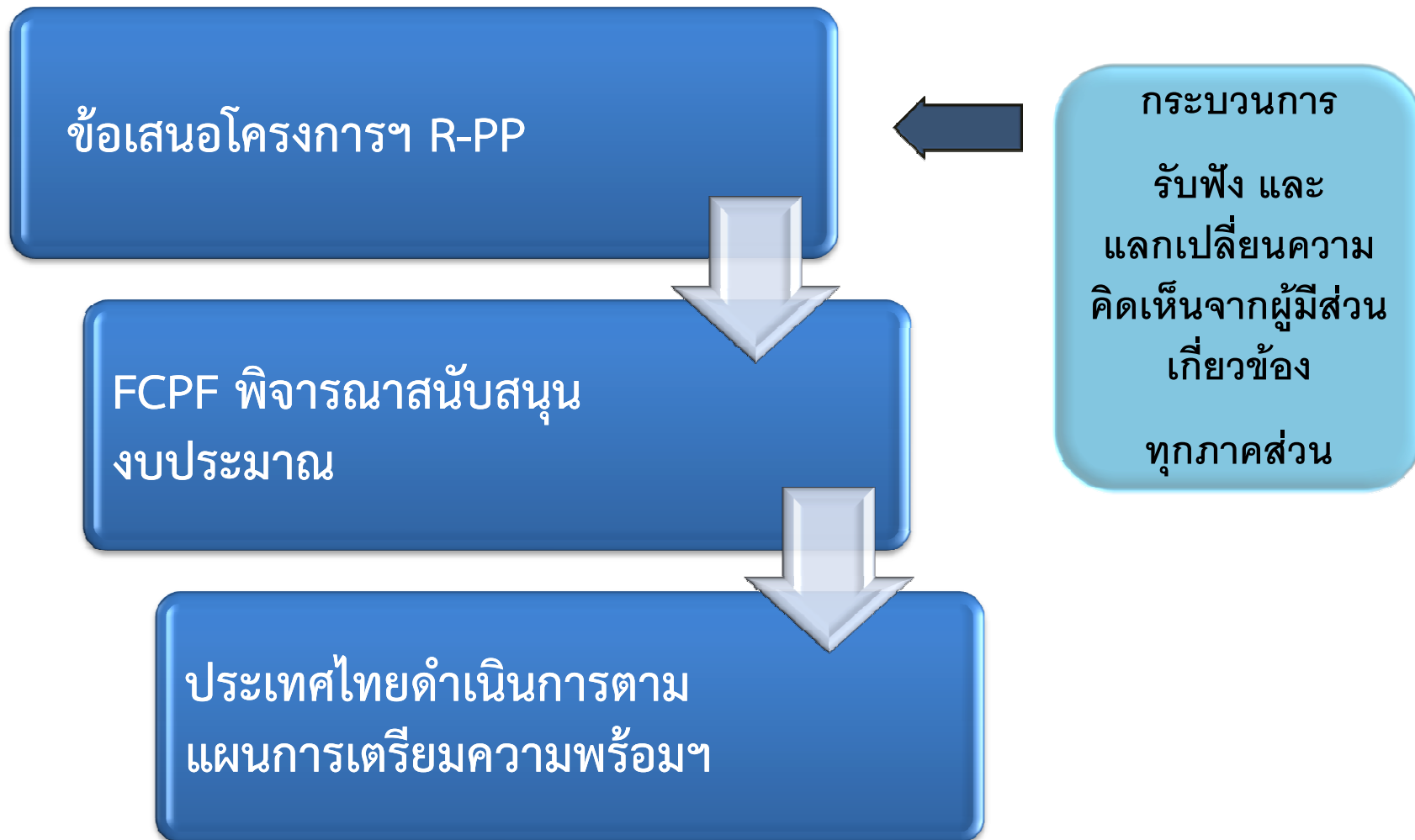
R-PP Purpose

The five core components are as follows:

1. REDD strategy options i.e actions to reduce deforestation and/or forest degradation

2. REDD management framework

3. Reference Emission Level(a scenario of forest cover change and emissions) for GHG emissions from REDD

4. A monitoring system to measure, report and verify the effect of REDD+ strategy on GHG emissions

5. Stakeholder consultation and a Social and Environmental Impact Assessment

Conclusion

o REDD+ credits have still not been accepted by the European Union Emissions Trading Scheme (EU-ETS). Credits must be traded on the voluntary carbon market, which is not yet regulated – up until now it has mainly served for the green image of corporations .

o Even without an international agreement, REDD+ will be continued under the guidance of the UN-REDD Programme, the Forest Carbon Partnership Facility, and the REDD+ Partnership, as REDD+ readiness activities continue.