

MANGLARES Y VERRA/VCS: EXPERIENCIAS CON INICIATIVAS FINANCIADAS POR LIVELIHOODS- DANONE

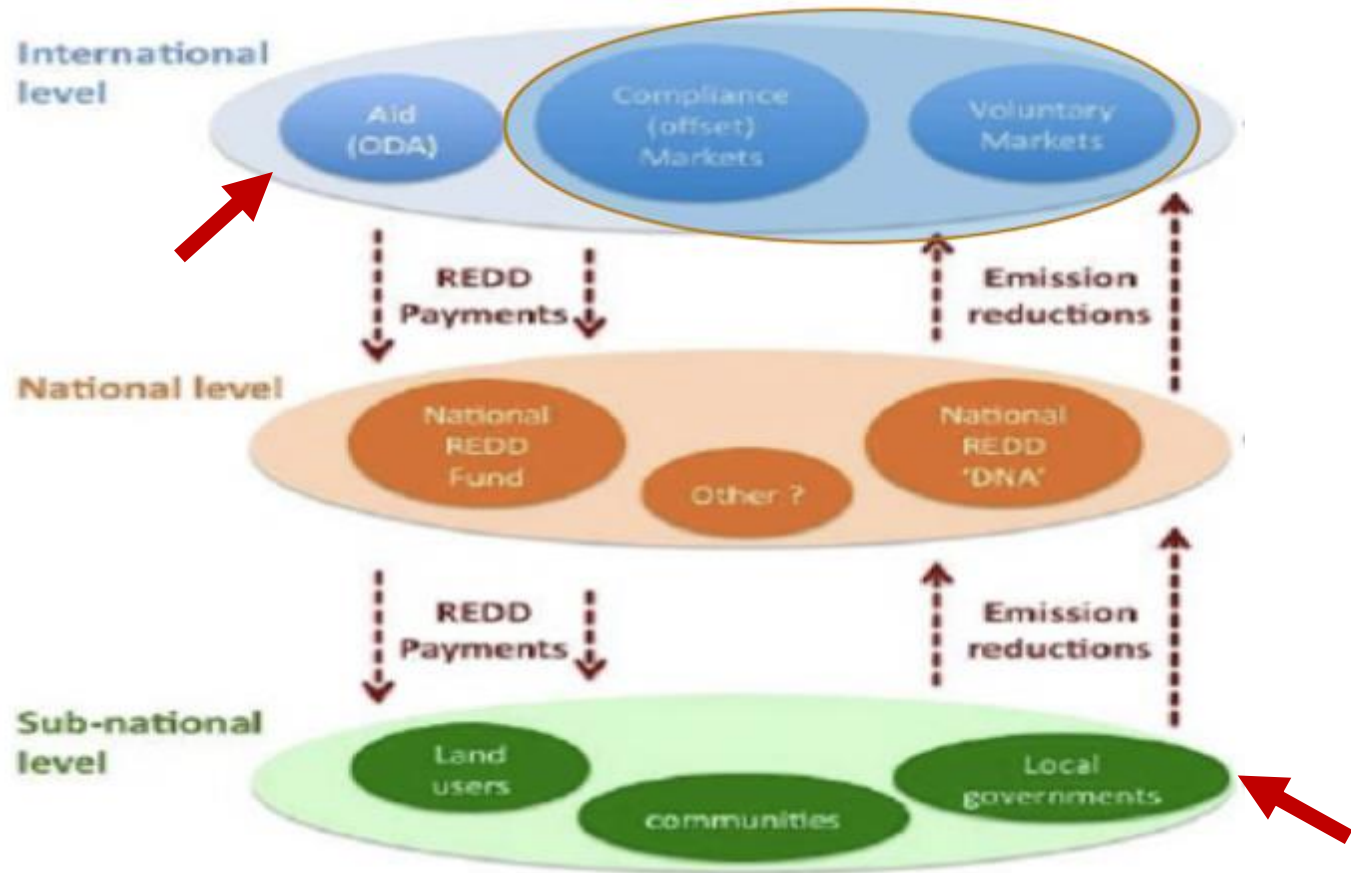
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26 September 2019

Standard comparison of VCS to UNFCCC Blue Carbon

Universal, quantifiable ecological service metric for forests

Performance-based payments



(1) General UNFCCC vs. specific VCS guidelines

Art 4.1(d) Paris Agreement NDCs

“parties shall promote sustainable management, promote and cooperate in the conservation and enhancement...of sinks and reservoirs of greenhouse gases (GHGs) not controlled by the Montreal Protocol including biomass, forests and oceans....”

Ad hoc Paris Agreement (APA) 3(b)

Information to facilitate Clarity, Transparency, and Understanding (ICTU) of NDCs

APA3(c)

Accounting for parties NDCs

APA5

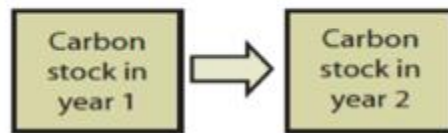
Guidelines for Transparency Framework for action and support, and Assessment for Completeness

APA6

Global Stock Take sources of input and development of modalities

(2) Stock-difference VCS vs. gain-loss UNFCCC emission factor accounting

1) Stock-difference approach



$$\Delta C = (C_{t_2} - C_{t_1}) / (t_2 - t_1)$$

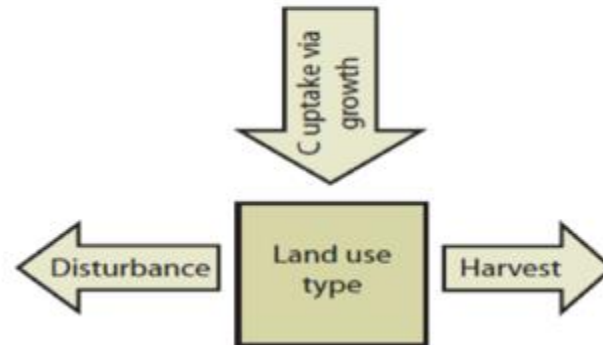
Where

ΔC = Annual carbon stock change in pool (tC/yr)

C_{t_1} = Carbon stock in pool at time t_1 (tC)

C_{t_2} = Carbon stock in pool at time t_2 (tC)

2) Gain-loss approach



$$\Delta C = \Delta C_{\text{gain}} - \Delta C_{\text{loss}}$$

Where

ΔC = Annual carbon stock change in pool (tC/yr)

ΔC_{gain} = Annual gain in carbon (tC/yr)

ΔC_{loss} = Annual loss in carbon (tC/yr)

(3) Final step of payment for performance and MRV still inchoate for UNFCCC REDD+ projects

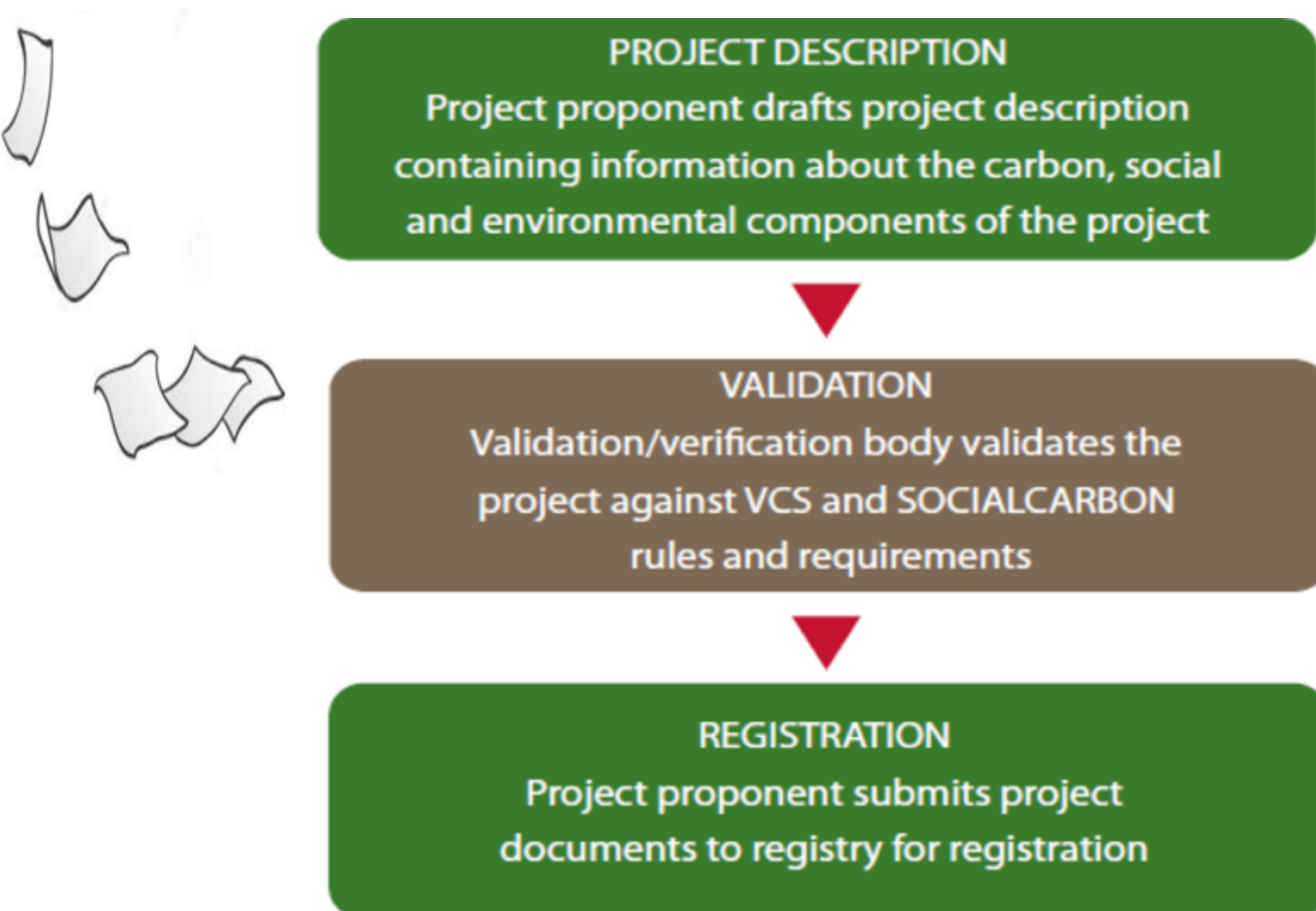
Comparison of global voluntary standards for AFOLU carbon offsets



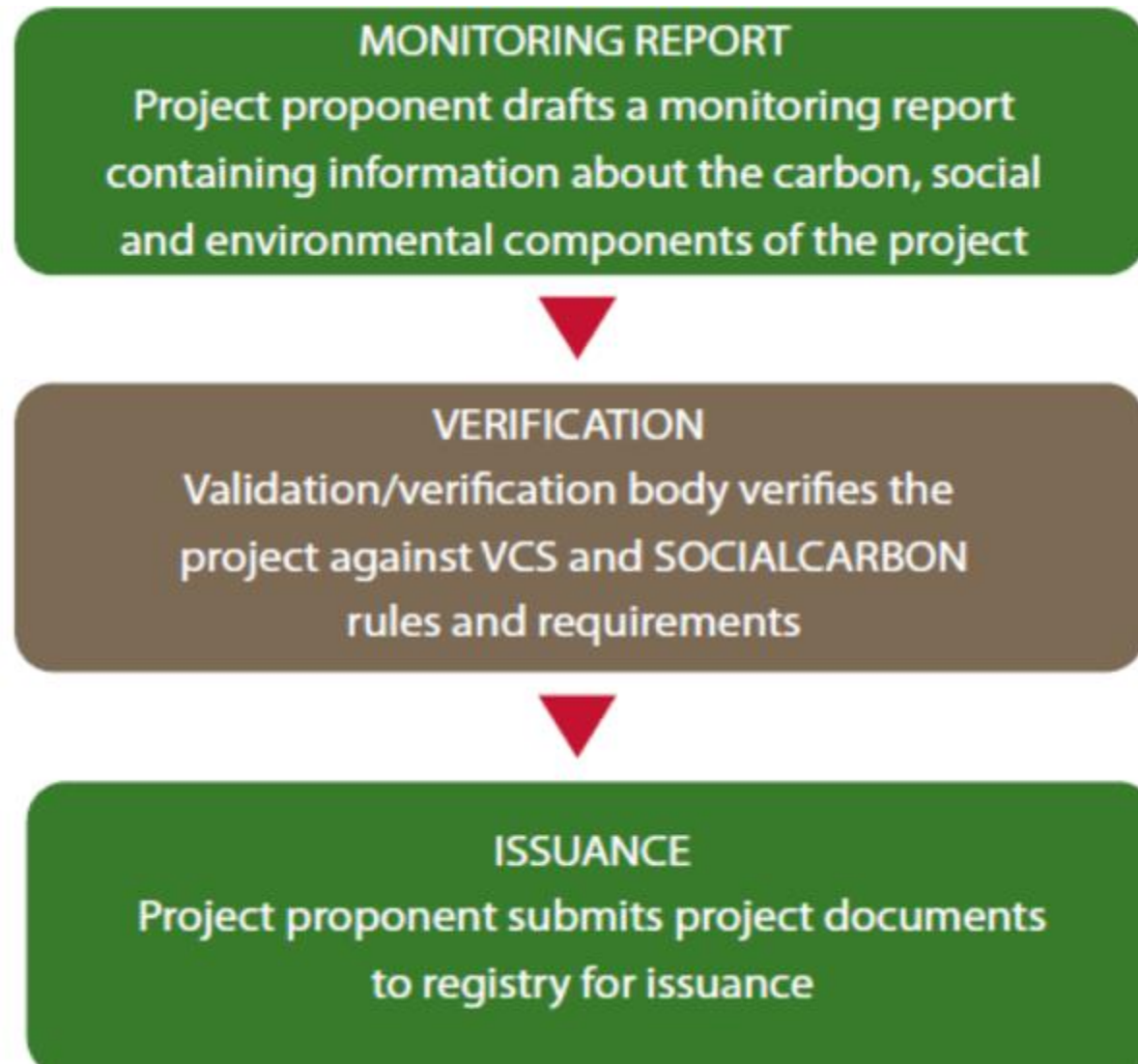
Standard	Plan Vivo	VCS & CCB
Market size	<5% of transacted offsets per Forest Trends	>80% of transacted offsets per Forest Trends
Market price	\$10 USD/tonne CO ₂ e	\$5 USD/tonne CO ₂ e
Typical development costs (5 yrs.)	>\$25,000 USD project develop >\$10,000 USD auditing	>\$100,000 USD project develop >\$40,000 USD auditing
Typical project land area	500 HA for reforestation	2,500 HA for reforestation
Project land ownership	>67% legally owned by rural communities	No restrictions could be government, NGO, private or community ownership
Co-benefits/safeguards	Required and >60% of annual financial gains must go to communities	Optional unless CCB used and no financial gain distribution requirements

Introduction to Verified Carbon Standard (VCS)

Phase 1: “validate project's compliance with applicable VCS rules”



Phase 2: “verify quantity of emission reductions or sequestration relative to baseline”



VCS Standard Elements

Project entities (financial proponent, technical developer, local implementer, auditor)

Project activities/interventions

Legal compliance and ownership

Biodiversity and social welfare safeguards

Impermanence risk buffer calculation

VCS Methodology Elements

Boundaries (geographical, temporal, carbon pools, GHGs (CO₂, CH₄, N₂O))

Baseline scenario

Additionality (VCS Tool VT001- credible LU alternatives, legal compliance, investment and other barriers, common practice analysis)

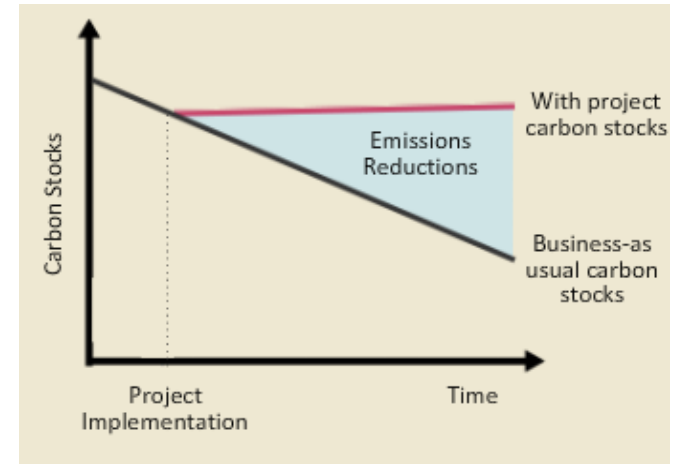
Ex ante/ex post baseline and project emissions and removals

Leakage calculation

Monitoring protocol

Avoided deforestation mangrove project activity

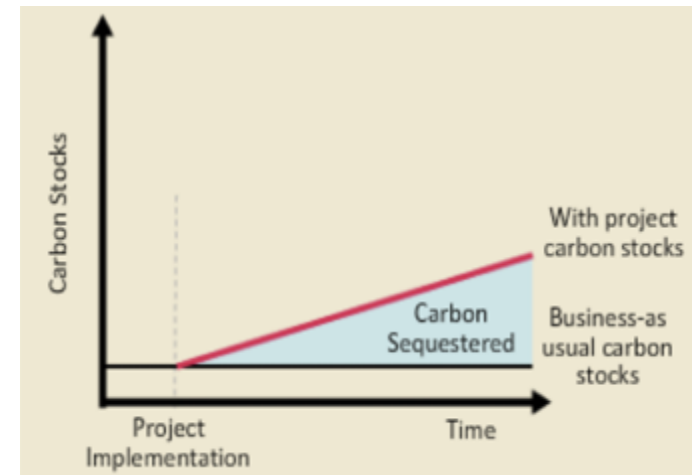
VM-0007: REDD+ methodology framework with peatland re-wetting or conservation (REDD-MF Wetlands Rewetting and Con. (WRC))



Reforestation mangrove project activity

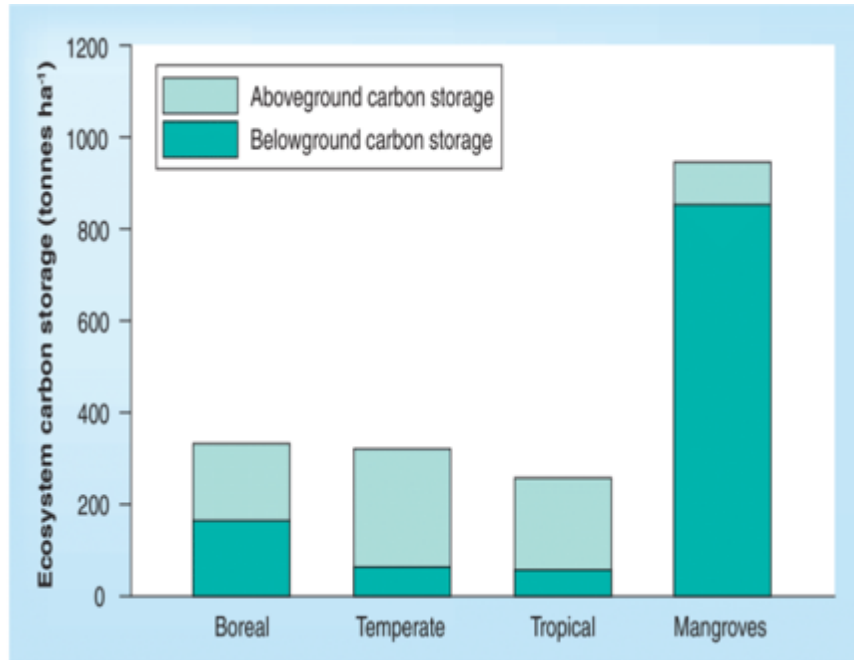
AR-AM0014: Afforestation and reforestation of degraded mangrove habitats

VM-0033: Methodology for tidal wetland and seagrass restoration



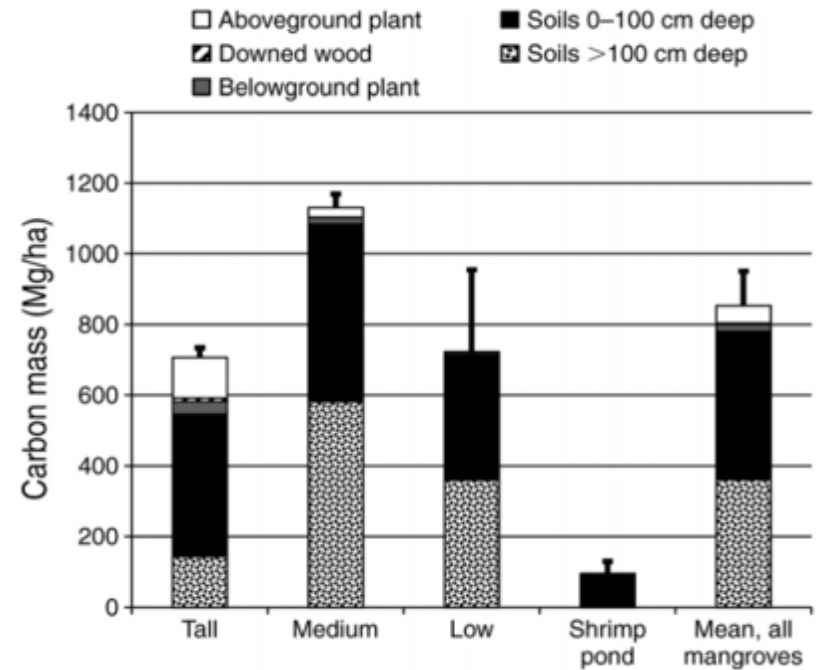
Dominance of soil carbon stocks in mangroves

Global forest types



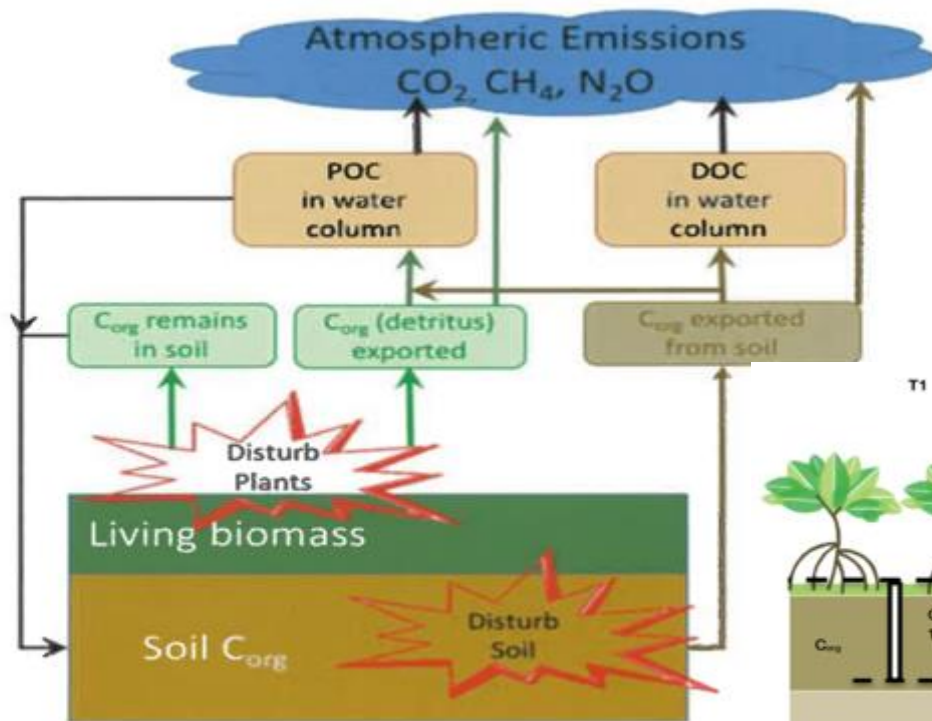
Alongi, D. 2012

Dominican Republic mangrove types

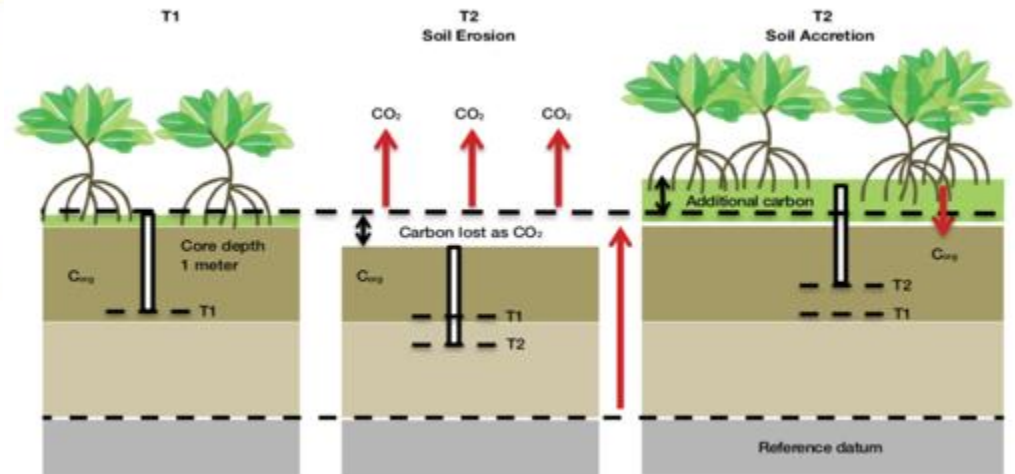


Kaufmann, J.B. et al., 2014

Soil carbon stock dominance due to allochthonous deposition and autochthonous accumulation



Serrano, O. et al. 2019



Howard et al., 2014

Soil carbon burial rates in
mangroves globally (n=34)
829 +/- 143 SE g CO₂e/m²/yr

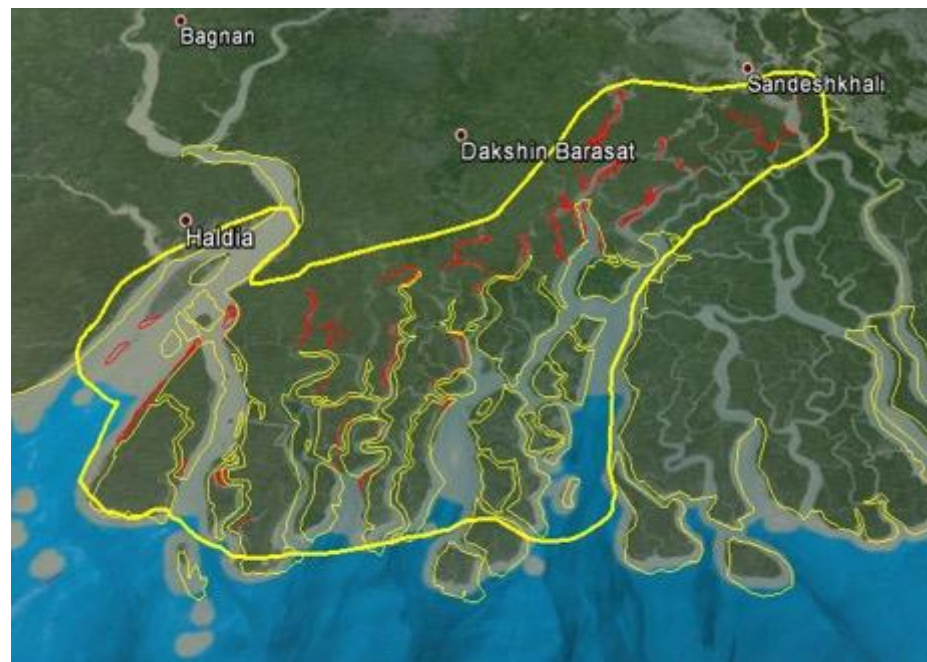
McLeod D. 2011

Project	Standard, methodology, participants	Project size	Leakage and impermanence risk buffers	Normalized offset quantities verified
Mangrove restoration grouped project, Senegal	AR-AM0014, Livelihoods, Oceanium (NGO), AGRESTA, SCS & Tuv-Sud, APX	10,415 HA, national government ownership	0%, 10%	2009-14 141,631 tons CO2e= 28,326 tons CO2e/yr= 2.7 t CO2e/ha/yr
				2014-17 123,906 tons CO2e= 41,302 tons CO2e/yr= 4 t CO2e/ha/yr

Project	Standard, methodology, participants	Project size	Leakage and impermanence risk buffers	Normalized offset quantities verified
Mangrove restoration in Aech and North Sumatra, Indonesia	CCB, AR-AM0014, Livelihoods, YAGSU (NGO), UNIQUE, SCS, APX	5,106 HA, community ownership	0%, 13%	2011-15 125,391 tons CO ₂ e= 31,348 tons CO ₂ e/yr= 6.2 t CO ₂ e/ha/yr
Reforestation of degraded mangrove lands, Myanmar	AR-AM0014, Worldview International Foundation, village conservation committees, Prime Carbon Co, RINA, APX	2,147 HA, regional government ownership	0%, 10%	2015-18 31,744 tons CO ₂ e= 10,581 tons CO ₂ e/yr= 5 t CO ₂ e/ha/yr

Project	Standard, methodology, participants	Project size	Leakage and impermanence risk buffers	Normalized offset quantities verified
India Sunderbans mangrove restoration	AR-AM0014, Livelihoods, NEWS (NGO), UNIQUE, SCS, APX	4,404 HA, national government ownership	0%, 15%	2010-15 75,081 tons CO ₂ e= 15,016 tons CO ₂ e/yr= 3.4 t CO ₂ e/ha/yr

India Sunderbans Mangrove Restoration



–20-30 ppt salinity
–4-6 meter tides
–5,000 TPHA to 2,500 TPHA
–*Avicennia* spp. at coastal
Interface to *Rhizophora* spp.
Upland

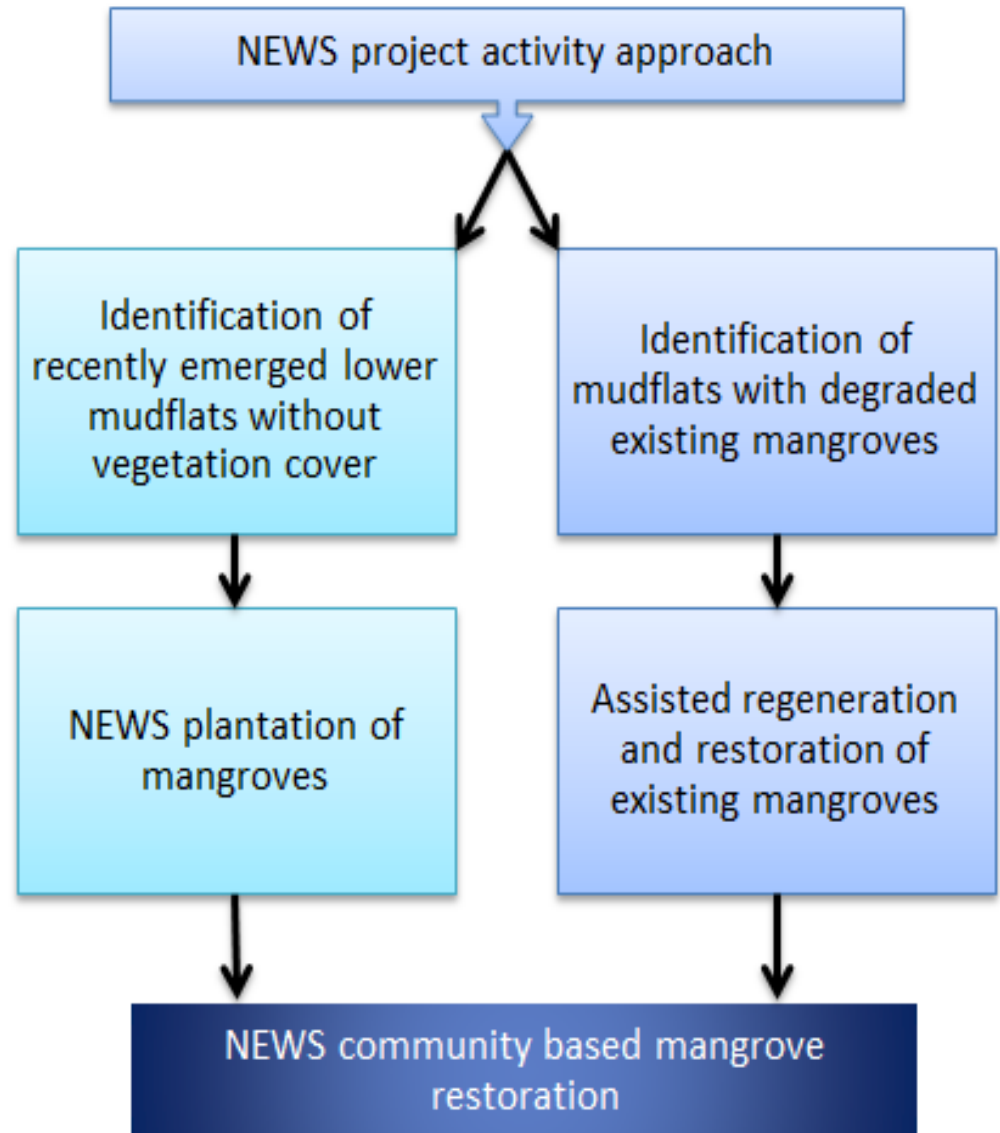


Illustration of project implementation

2. Community involvement – nursery establishment and replanting



Illustration of project implementation

1. Community sensitization and planning of restoration activities



Illustration of project implementation

3. Maintenance and monitoring (community based)



PROJECT BENEFITS

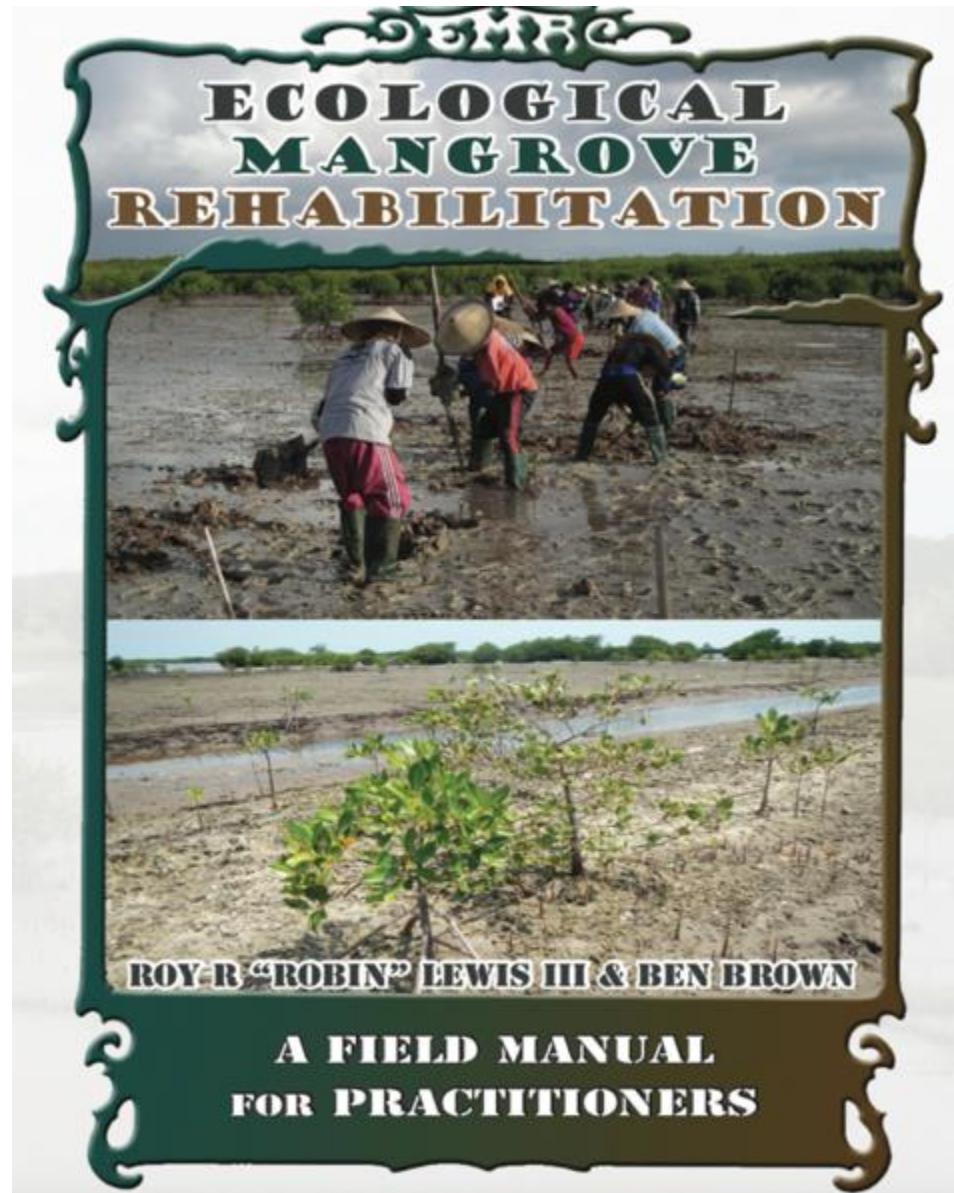


LIVELIHOODS
Act today for a better future



- Women trained on planting and management earn USD \$50-\$250 per month
- +17% increase in fish/ shrimp (since project start)
- Sea/ river shoreline protection— 644 km protected
- Reduction of salination of inland freshwater reservoirs and rice paddies
- Restoring UNESCO world heritage biodiversity site including endangered tiger populations

Planting scheme and community monitoring forms



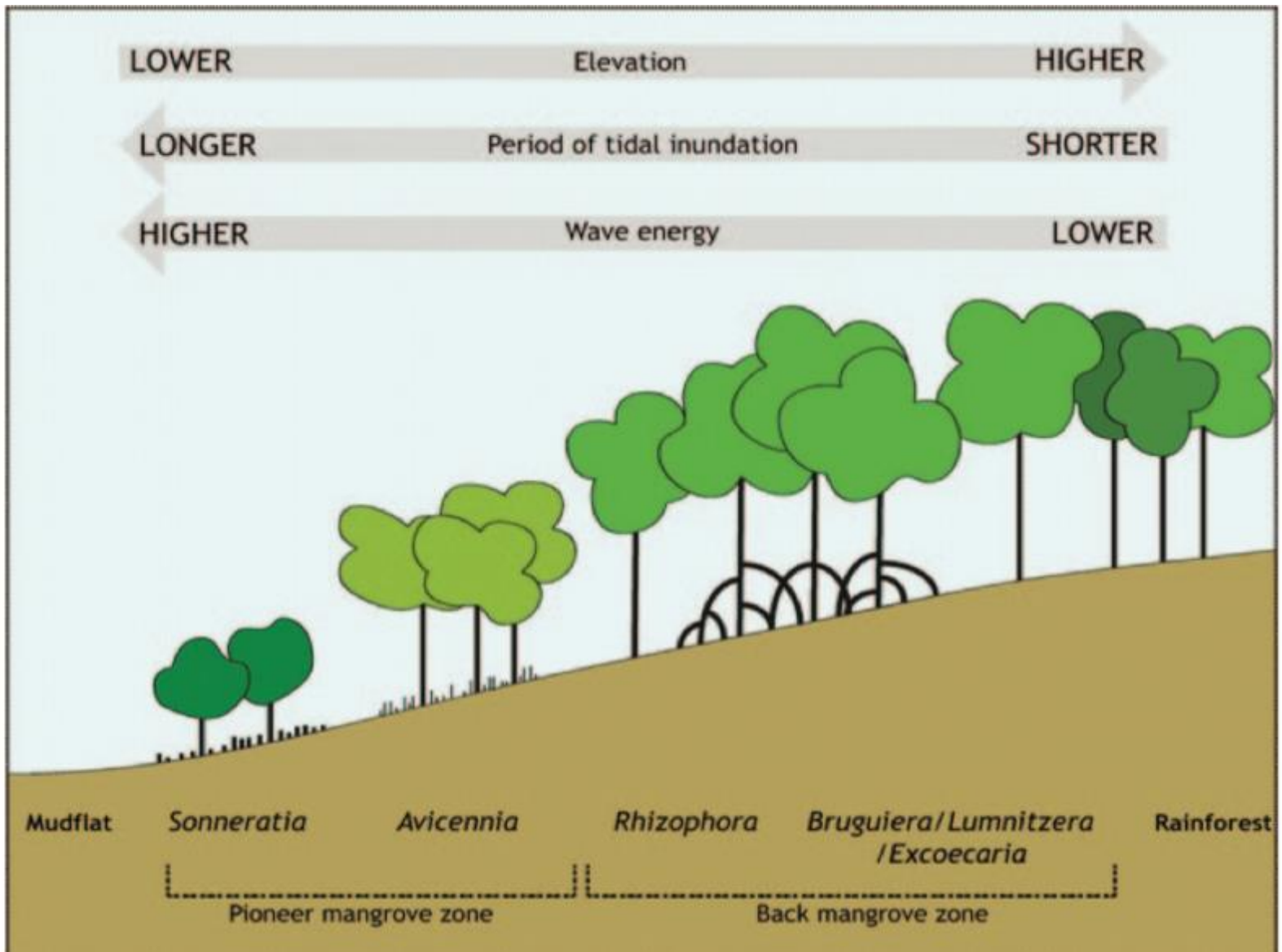
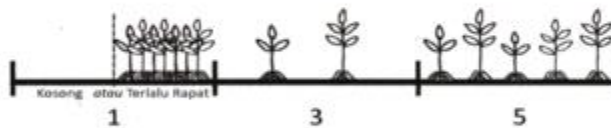


Fig. 9.4 Participatory EMR Monitoring - Data Sheet

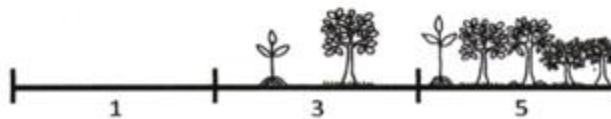
Village: _____ Site: _____
 Data Keeper : _____ Group: _____
 Date: ____/____/____ Time: ____ a.m./ p.m. Months After Initial Rehab: Time Zero + _____

Eco and Hydrological Indicators:

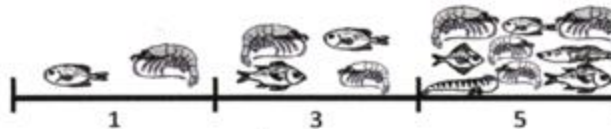
A1 - Density of Recruits



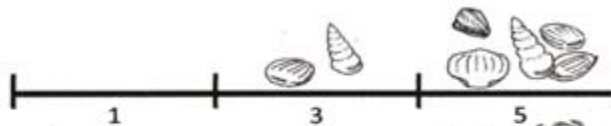
A2 - Diversity of Recruits



B1 - Fish & Shrimp Populations



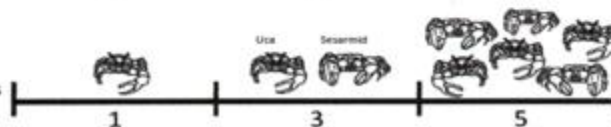
B2 - Population of Molluscs



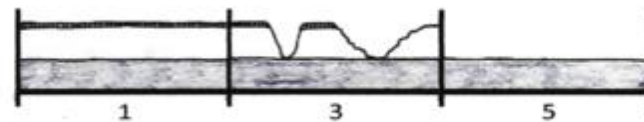
B3 - Population of Mangrove Crab (*Scylla* spp.)



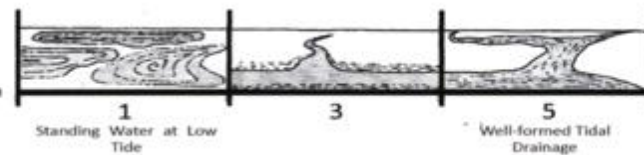
B4 - Population of Uca and Sesamid Crabs



C1 - Dike Wall Condition



C2 - Tidal Creek Formation



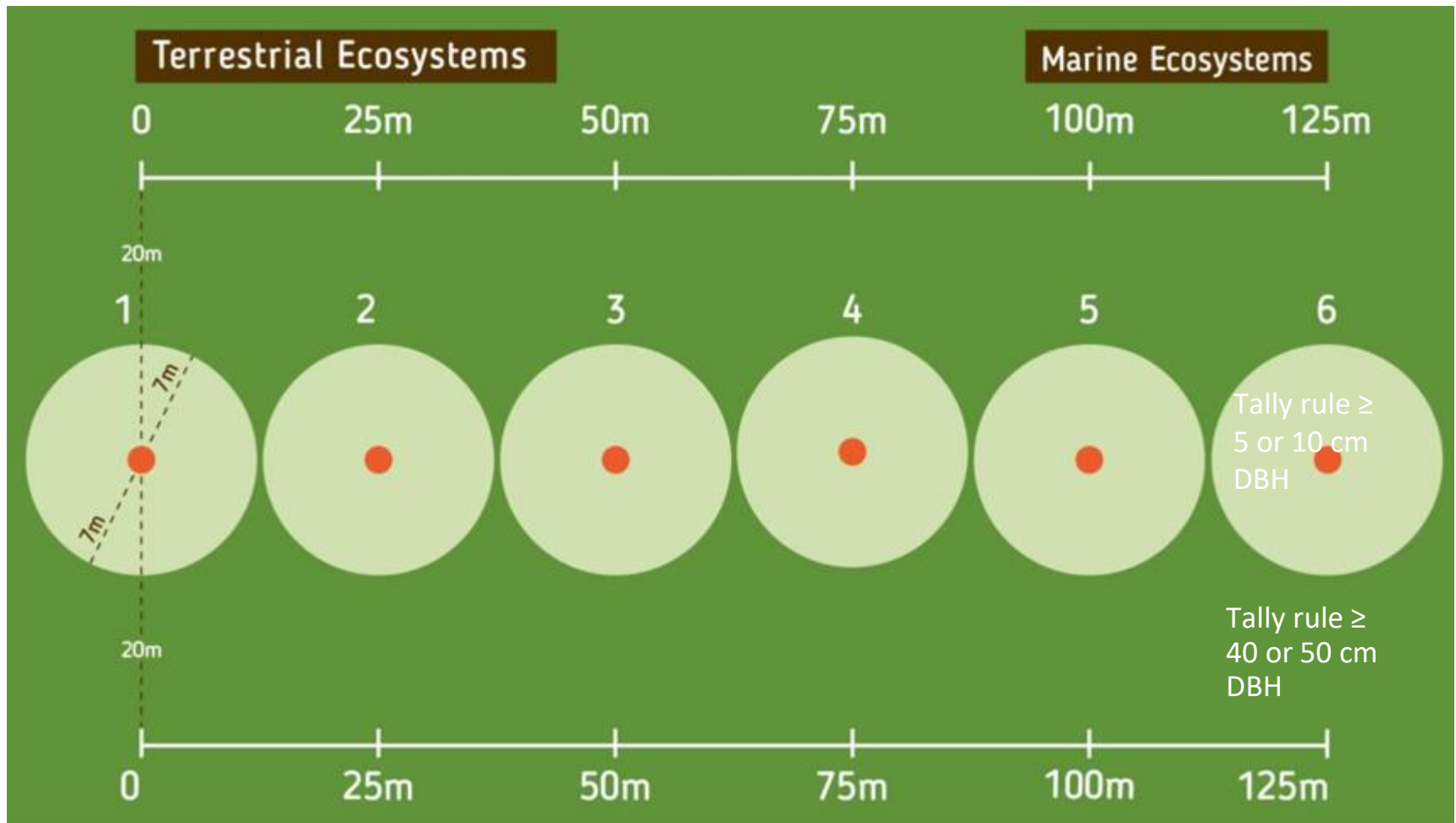
Measuring live tree biomass (emission factor) in mangroves

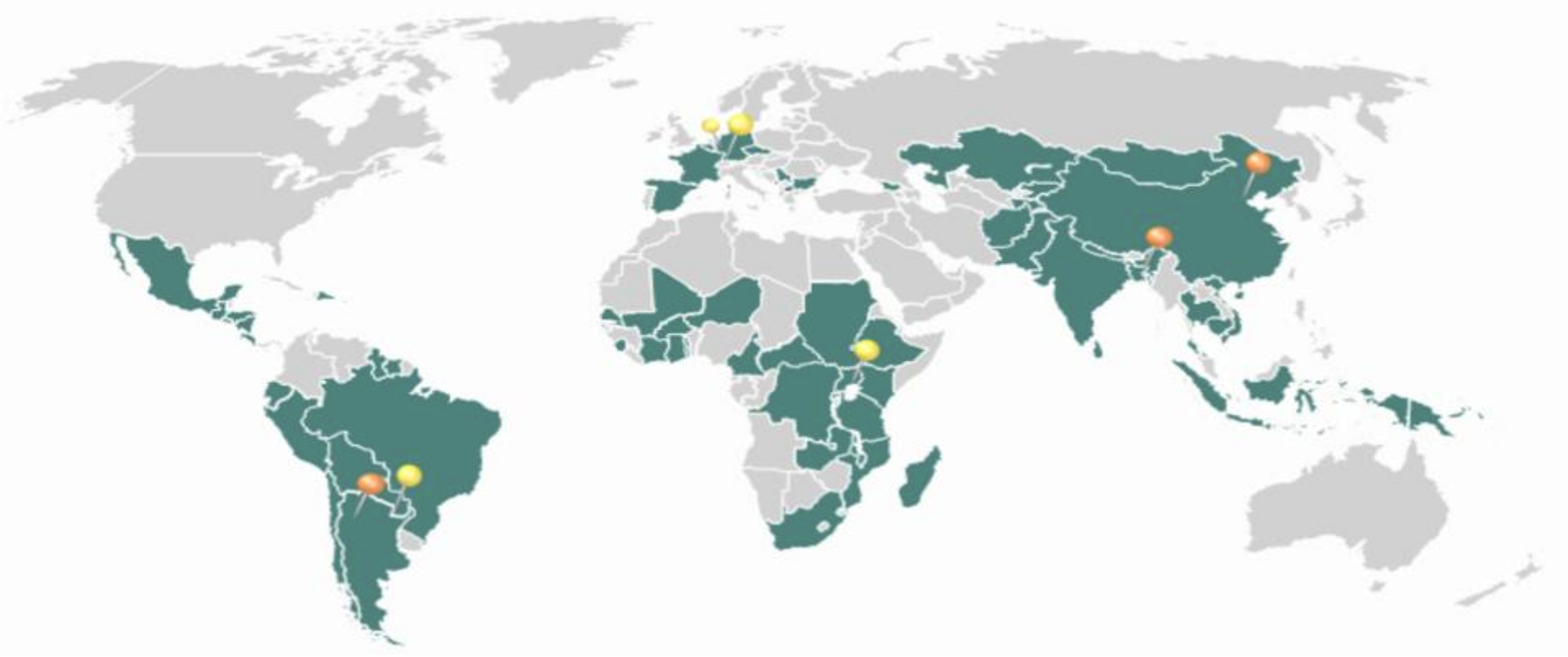


Protocols for the measurement, monitoring and reporting of structure, biomass and carbon stocks in mangrove forests

J. Boone Kauffman
Daniel C. Donato







- Emission factor measurement training
- Development of jurisdictional accounting framework
- VCS project develop. viability analysis, PD, MR, audit prep.



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