M0184 Consolidated REDD Methodology & AUDef Module

Verra's REDD+ team & consultants

20 April 2023

Photo: Bale Mountain REDD Project

Webinar Objectives

Stakeholders understand:

- Methodology at a high level
- Key changes since public consultation
- Current stage and next steps

Agenda

- Introduction
- Overview of activity data collection and allocation
  - Activity data collection
  - Risk mapping and allocation
  - Roles and responsibilities
- Deep dive into the *Module for Estimating Emissions Reductions from Avoiding Unplanned Deforestation*
- Next steps

Methodology development team

- Methodology/overall support
  - Dr. Tim Pearson (GreenCollar)
  - Kevin Brown (Wildlife Conservation Society)
  - Dr. Sarah Walker (Wildlife Conservation Society)
  - Simon Koenig (Climate Focus)
  - Dr. Till Neeff (independent)
  - Dr. Igino Emmer (Silvestrum)
  - David Shoch (TerraCarbon
- Risk mapping and modeling and allocation procedures
  - Dr. Lucio Pedroni (Carbon Decisions International)
  - Juan Felipe Villegas (Carbon Decisions International)
  - Prof. Robert Gil Pontius (Clark University)
  - Prof. J. Ronald Eastman (Clark Labs)
  - Dr. Rebecca Dickson (Terra Carbon and Clark Labs)
- Verra staff
  - Salvador Sánchez Colón, Manager, REDD+ Technical Innovation
  - Basanta Gautam, Manager, REDD+ Technical Innovation
  - Marie Calmel, Senior Technical Manager, Natural Climate Solutions
  - Julie Baroody, Senior Director, Forest Carbon Innovation

Context

Photo: FUNDAECO / REDD Conservation Coast Project

Current method & motivation for new approach

Reference regions

- The only approach readily available in the voluntary carbon market for establishing avoiding unplanned deforestation (AUDef) project baselines

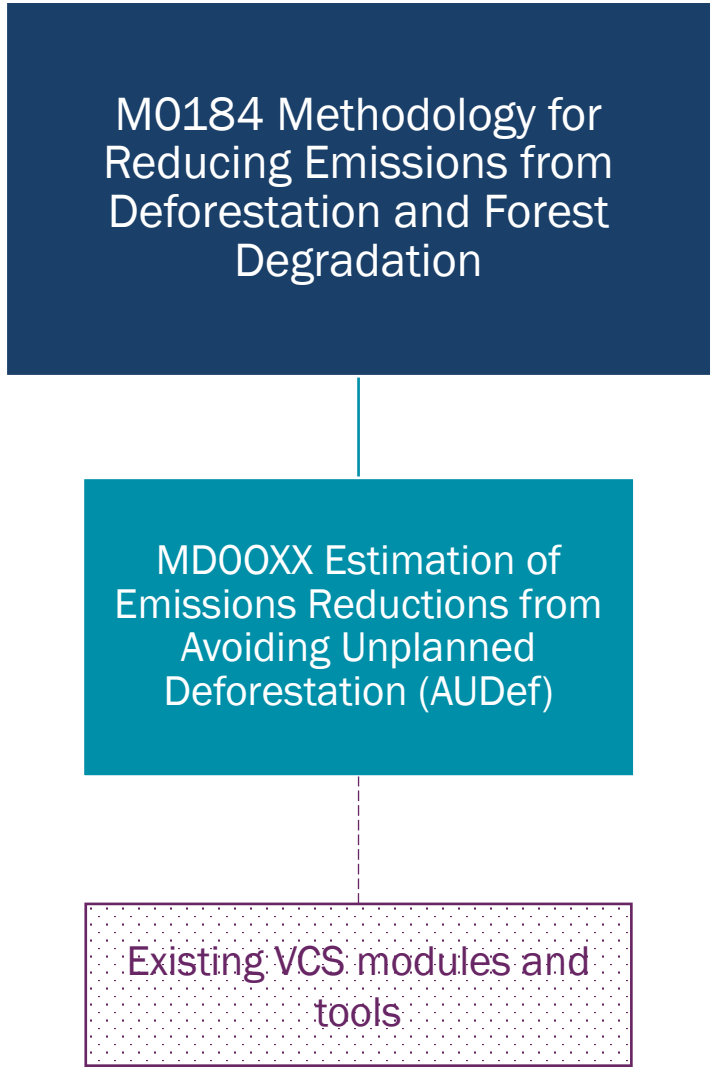
Drivers for alternative methods

- Data/technology is at a point to enable new approaches that are workable and credible
- Alignment with government actions & accounting

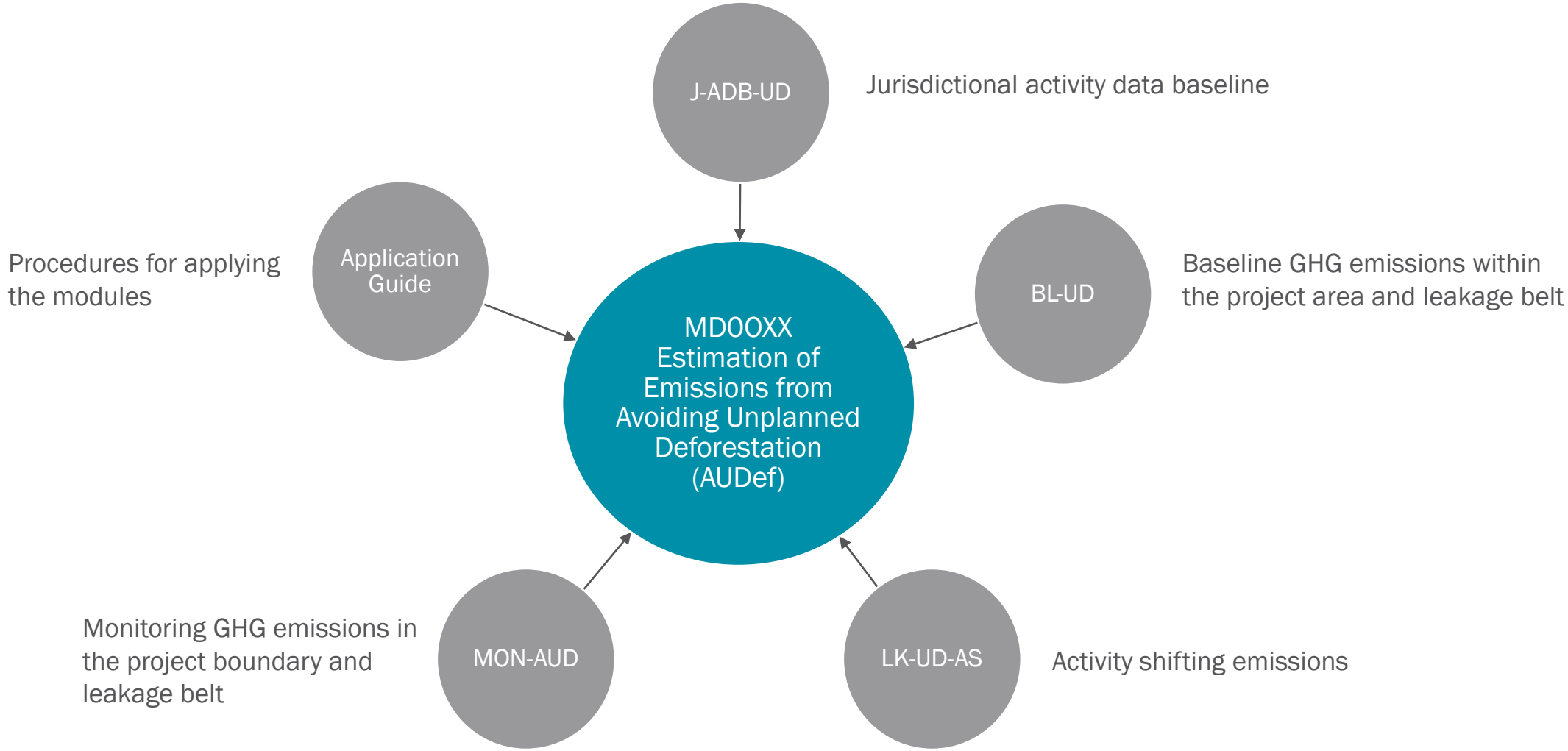
How is REDD evolving?

- Shorter baseline periods for REDD projects
- Consolidating methodologies
- Risk-based jurisdictional allocation

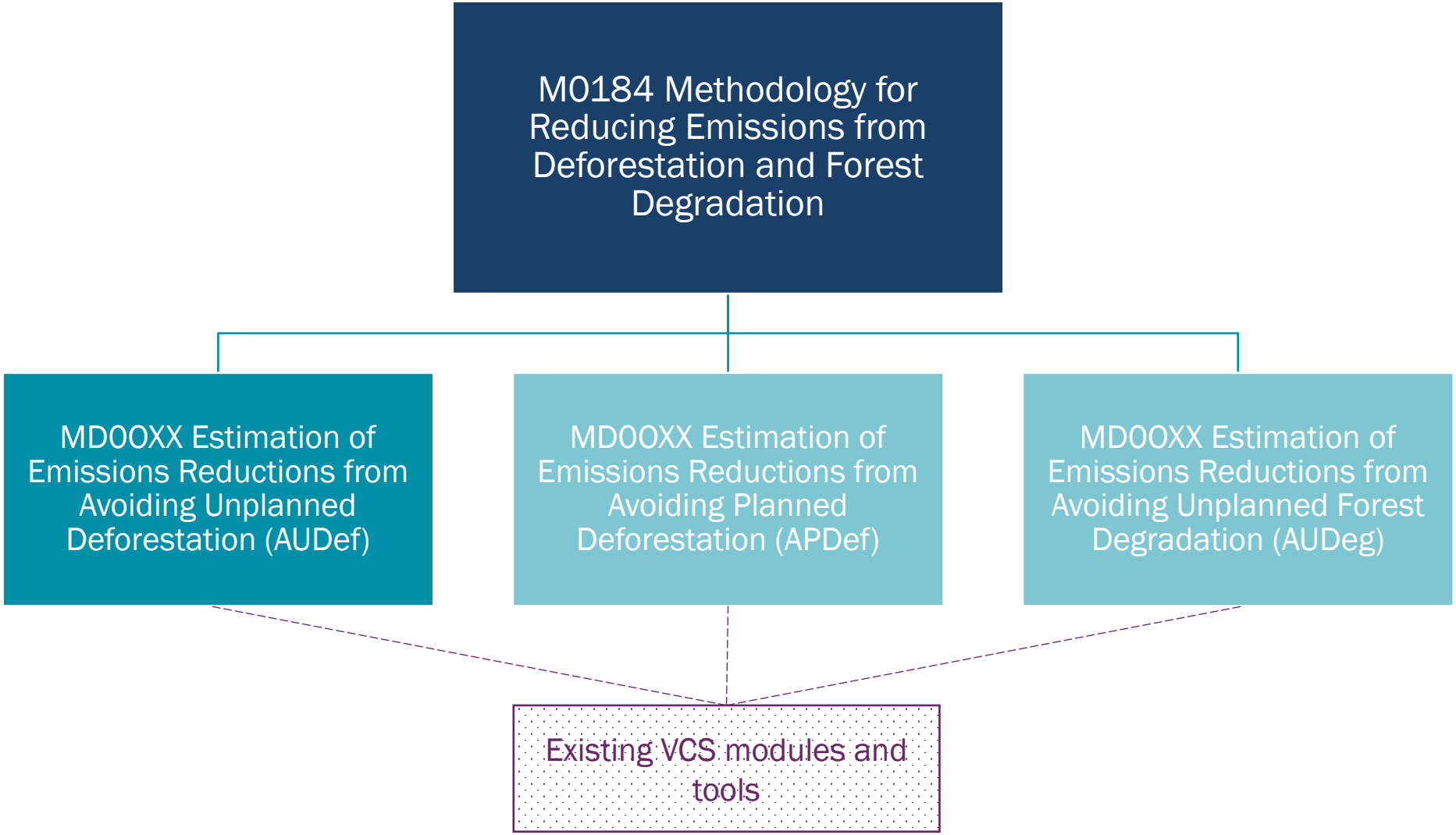
Current methodology structure



Public consultation modules combined



Future methodology structure



Additional changes from consultation version

- All Verra avoiding unplanned deforestation projects will now use this methodology
  - Firm timeline for adoption
- Roles and responsibilities for data generation clarified significantly
- General simplification

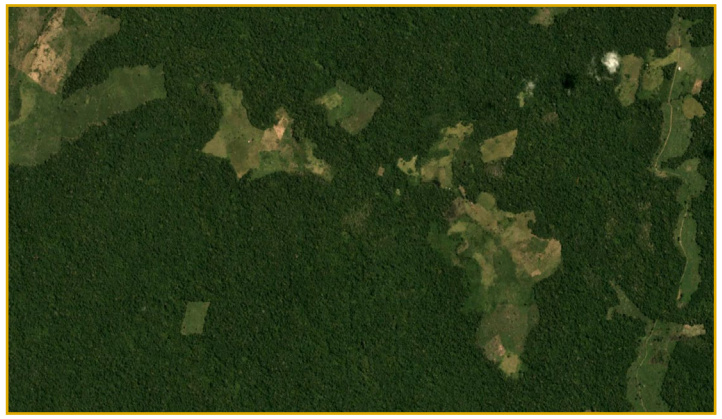
Activity data collection and allocation

Photo: Nick Hall
Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile

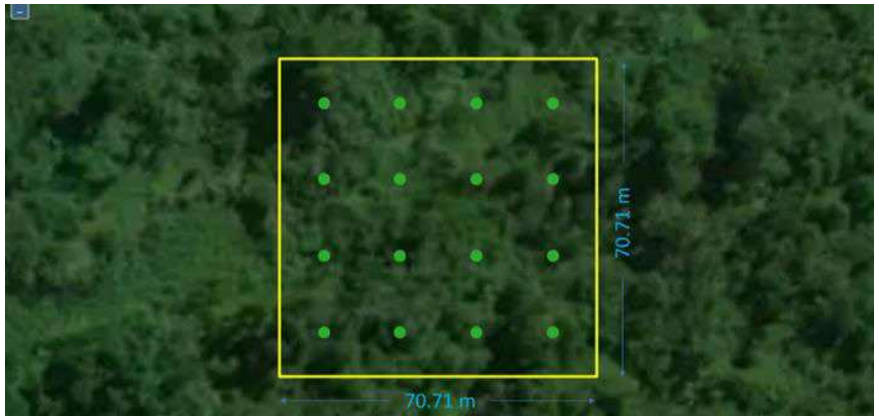
Activity data collection, risk mapping and allocation, roles and responsibilities

Activity data and forest cover benchmark maps

Temporal satellite imageries



Sample plots



Forest cover benchmark map (forest-non-forest at 3-time points over the HRP)

Land cover change transitions (stable forest, stable non-forest, **deforestation**, and forest regrowth)

- Jurisdictional activity data is data on the magnitude of deforestation taking place during a given period of time
- Forest cover benchmark map (FCBM) is a map showing forest-non-forest in a jurisdiction

Activity data and forest cover benchmark maps - requirements

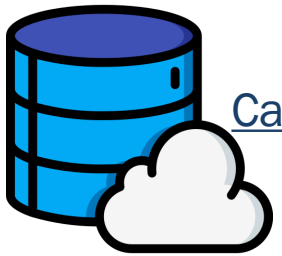
Primary Data/product	Minimum Requirement
Satellite imagery	10m & 30m spatial resolutions after and before 2015, respectively
Uncertainty of deforestation estimates	≤ 10% at a 90% CI
Accuracy of change category (closed forest)	90% & 70% for forest (end of HRP) and deforestation (during HRP) classes, respectively
Accuracy of change category (open forest, i.e., <50% CC)	80% & 60% for forest and deforestation classes, respectively

Request for Proposals for Development of Jurisdictional Activity Data and Forest Cover Benchmark Maps for VCS Avoiding Unplanned Deforestation Projects – Deadline: 30 April 2023

REDD Methodology page

Crowdsourced supplemental data

Data	Potential Use
Sample plots, spatial stratification, land cover maps, identified exclusions, etc.,	Activity data (AD) generation
Remote sensing imagery, ancillary spatial data, projects FCBMs, etc.,	Forest cover benchmark maps (FCBMs)
Maps of potentially arable land/ protection status/accessibility, carbon stock maps.	Maps of available land for activity shifting, EF for outside leakage belt



Call for submission of supplemental materials from stakeholders – Deadline: 14 May 2023

Available data submission

Allocation of jurisdictional activity data

- Jurisdictional activity data are allocated to projects in the jurisdiction proportionally to the local risk of deforestation
  - The *Unplanned Deforestation Risk Modeling and Mapping Procedure (UDef-RP)* is used for assessing/projecting deforestation risk in a spatially-explicit fashion
  - The *Unplanned Deforestation Allocation Procedure (UDef-AP)* is used for allocating portions of the jurisdictional activity data to projects within the jurisdiction
- Projects develop local-level estimates of relevant emission factors
- Allocated activity data × estimated emission factors = projects' baselines

Unplanned Deforestation Risk Modeling and Mapping Procedure (UDef-RP)

- Formulated and pilot tested
- Benchmark model:
  - Deforestation risk = f(Distance to forest edge)
- Alternative, information-richer models:
  - Deforestation risk = $f(X_1, X_2, ..., X_p)$
- Identification of model "best able" to predict deforestation in the coming years:
  - Largest Area Under the Total Operating Characteristic Curve
  - Uppermost Total Operating Characteristic Curve

The Jurisdictional Deforestation Risk Model for the Validity Period

Unplanned Deforestation Allocation Procedure (UDef-AP)

- Initial version:
  - Developed in the context of VCS Jurisdictional and Nested REDD Framework
  - Aimed at allocating portions of a jurisdictional FREL to nested projects
  - Spreadsheet tool
- (On-going) revision of the *UDef-AP*:
  - To be used for either:
    - VCS Jurisdictional and Nested REDD program or
    - Consolidated REDD Methodology
  - Able to allocate portions of either:
    - jurisdictional FREL (to projects nested in a JNR program)
    - jurisdictional activity data (to projects within the jurisdiction using the Consolidated Methodology)

Key stakeholders

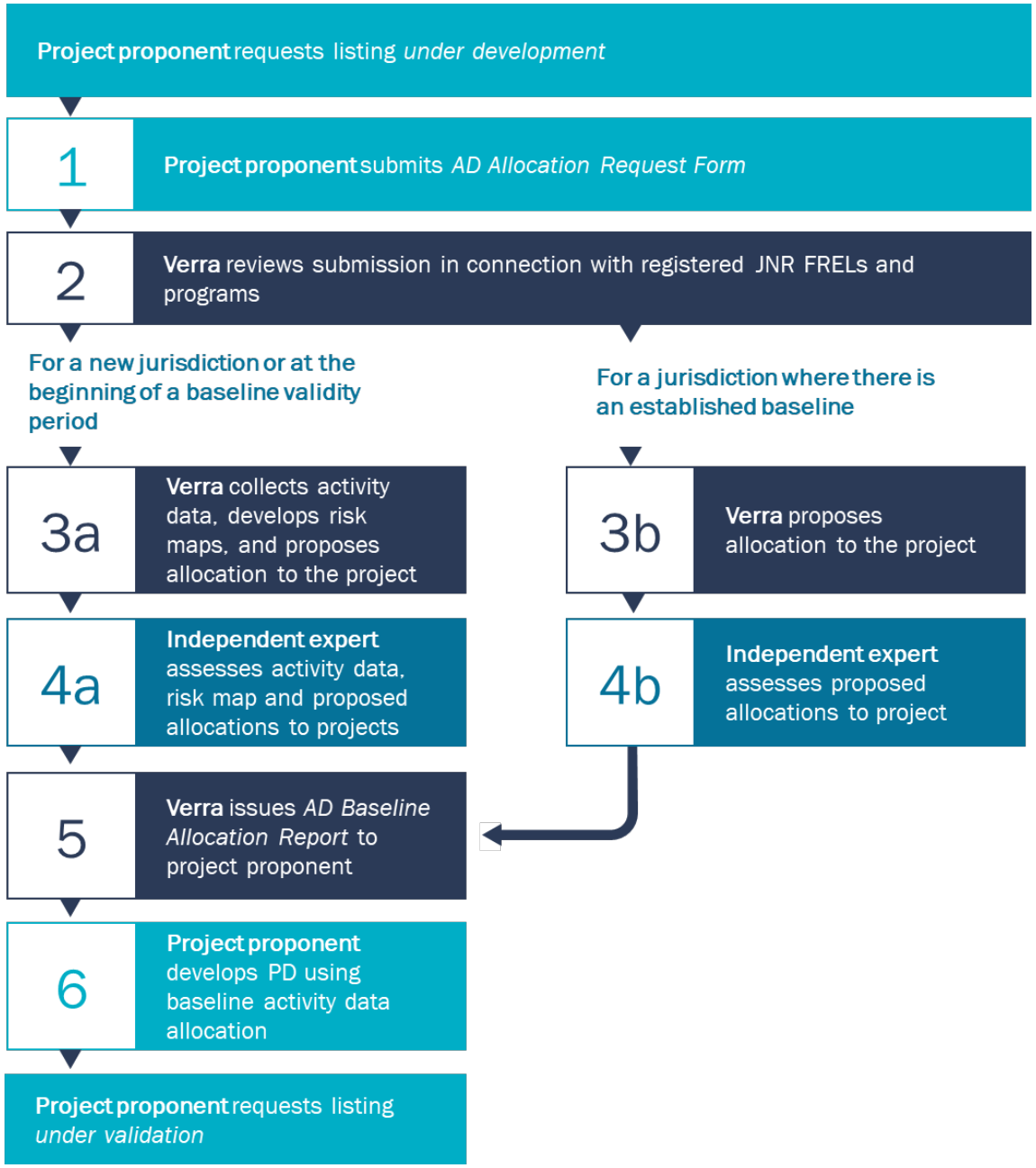
Jurisdictional AD and risk map production

- Conducted by data service provider(s) on behalf of Verra
  - Data service providers may be project proponents
  - Assessed by independent expert reviewers
- Any stakeholder may submit jurisdiction-wide supplemental data
- Project proponents may submit project-specific forest cover benchmark map

Project-level actions

- Project proponents create baseline using allocated AD and project-specific emission factors
- VVBs assess projects

Process


Project proponent requests listing under development
1
Project proponent submits AD Allocation Request Form
2
Verra reviews submission in connection with registered JNR FRELs and programs
For a new jurisdiction or at the beginning of a baseline validity period
For a jurisdiction where there is an established baseline
3a
Verra collects activity data, develops risk maps, and proposes allocation to the project
3b
Verra proposes allocation to the project
4a
Independent expert assesses activity data, risk map and proposed allocations to projects
4b
Independent expert assesses proposed allocations to project
5
Verra issues AD Baseline Allocation Report to project proponent
6
Project proponent develops PD using baseline activity data allocation
Project proponent requests listing under validation

Process

Before validation

- PP requests pipeline listing (PL) under development and submits an *AD Allocation Request Form*
- PD development includes project-specific forest stratification map and eventual "post-processing" of AD allocated to leakage belt
- PP requests PL under validation
- Proceed as usual: public comment period → validation by a VVB → registration

At verification

- PP prepares the monitoring report using allocated baseline data
- PP monitors deforestation in project area and leakage belt using the samples-based approach
- Project verified by a VVB

At baseline reassessment

- The PP submits a new *AD Allocation Request Form* before drafting the monitoring report (MR)
- The baseline reassessment is validated by a VVB and the MR is verified by a VVB following the usual process

Module for Estimating Emissions Reductions from Avoiding Unplanned Deforestation (AUDef)

Photo: FUNDAECO / REDD Conservation Coast Project

The high-level view of the AUDef module

- Jurisdiction-level standardization of baseline activity data that is allocated to the projects via risk modeling
- Leakage divided between geographically-constrained agents (monitored in leakage belt) and non-geographically constrained agents
  - Leakage belt around project determined by Verra / DSP
  - Jurisdiction level standardization of factors associated with leakage by non-geographically constrained deforestation agents
- Project responsible for:
  - Development of emission factors
  - Activity data in project case (monitoring) of project area and leakage belt
- Activity data through remote sensing with resolution of at least 30 m up to 2015 and at least 10 m after 2015. Sampling approach required
- Uncertainty handled through discounting of both emission factors and activity data

Module overview

		Activity Data	Emission Factors	Net Emissions
Baseline		Verra (Appendix 1)	PP (5.3.1)	PP (5.3.1)
Project Emissions		PP (5.3.2)	PP (5.3.1)	PP (5.3.2)
Leakage	LB	PP (5.3.2)	PP (5.3.1)	PP (5.3.3)
	OLB	Verra (Appendix 2)	Verra (Appendix 2)	PP (5.3.3)

Applicability

- Methodology level : exclusion of tidal wetlands (expected to be included in update to VM0033)
- Module level:
  - Exclusion of planned deforestation
  - Exclusion of leakage prevention activities which will cause emissions not accounted in the module (drainage of wetlands, flooded agriculture, confined feeding operations
  - Where a JNR FREL exists
  - Where baseline post-deforestation constitutes reforestation

Overview of module steps

1. **Project efficacy**
   a. Define
      i. Leakage management area
      ii. Deforestation agents and causal chain
   b. Estimate
      i. Project efficiency at reducing deforestation
      ii. Internal permanence risks
      iii. Risks of leakage
2. **Define baseline**
   a. AD by risk class from Verra
   b. Allocate AD to strata
   c. Estimate discounted emission factors
   d. Determine annual baseline emissions
3. **Determine project emissions**
   a. Estimate ex-ante ERs
   b. Collect AD (inflate for uncertainty in PA)
   c. Determine net emissions
4. **Estimate leakage emissions**
   a. Leakage in leakage belt (geographically constrained)
   b. Leakage outside leakage belt (non-geographically constrained)
   c. Market effects leakage
5. **Sum to determine net emission reductions and subtract permanence deduction**

Uncertainty

- Handled through discounting of both activity data and emission factors rather than estimation of total offset uncertainty as in some existing REDD methodologies (typically only applied to emission factors)
- For activity data baseline deforestation is conservatively discounted (lowered), while in the monitoring case deforestation is conservatively inflated (raised).
- Approach is the same as in the JNR and builds on a published approach (*Neeff 2020. What is the risk of overestimating emission reductions from forests – and what can be done about it? Climatic Change 166: 26*)

Key elements of module

- **Boundaries**:
  - Jurisdiction, leakage belt and baseline validity period determined by Verra
- **Applicability**:
  - No planned deforestation, no tidal wetlands, no post-deforestation reforestation
- **Baseline**:
  - Standardized activity data, risk mapping and allocation across a jurisdiction conducted by Verra. Activity data discounted for uncertainty.
  - Emission factors developed by project proponent. Emission factors discounted for uncertainty
- **Monitoring**:
  - Project proponent collects activity data across PA and LB using sampled approach. AD inflated for uncertainty
- **Leakage**:
  - Leakage belt monitoring by project proponent
  - Deductions for leakage outside the leakage belt (important determination of immigrant proportion – $PROP_{IMM}$)

Activity data

- Area of deforestation monitored for two purposes:
  - Over the historical reference period within the jurisdiction, informs baseline validity period AD
  - Over the monitoring period for project, informs monitored project emissions
- A “sample based approach” is utilized in both cases, where sample plots are interpreted against a high resolution imagery time series
- Conservative discounts (for jurisdiction AD baseline) and inflation (for project monitoring) factors are calculated based on uncertainty of deforestation sample
- In both cases, certain areas maybe be mapped as ‘identified exclusions’ and effectively removed from AD accounting (natural disasters, planned deforestation, bodies of water, commercial plantations, etc.)
- Sampling stratification is required for only the project case, but will likely be employed in the jurisdiction as well

Jurisdictional vs. project AD estimation: major steps

STEP	Jurisdiction	Avoided Unplanned Deforestation Project
Define Sampling frame	Jurisdiction	AUDef project area + leakage belt
Delineate Identified exclusions	Since start of historical period; >1000ha	Since start of monitoring period; >100ha
Generate Sampling Strategy	Any representative approach allowed	Stratified sampling required
Interpret sample plots	Four main LCC categories: Stable Forest, Deforestation, Forest Regrowth, Stable Non-forest	Unplanned deforestation only
Estimate uncertainty	Uncertainty cannot exceed 20% of the estimate	No upper limit on uncertainty
Uncertainty discounting	Uncertainty over 10% results in discounting of AD	Uncertainty over 10% results in inflation of AD
Calculate AD	Single AD estimate for jurisdiction	AD reported separately for each project forest stratum and for project area & leakage belt

Jurisdictional vs. project AD estimation: Other distinctions

	Jurisdiction	UDef Project
Use	Informs jurisdictional AD over baseline validity period	Calculate project monitoring period emissions
Who does	Data service provider	Project proponent
When, over what period	Prior to start of each baseline validity period, over historical reference period (previous ~10 years)	At each project monitoring event, over previous monitoring period
Exclusions from sampling frame	Intertidal zone; commercial plantations; natural disturbances; planned infrastructure; planned deforestation; permanent water	Everything from jurisdiction + natural disturbances; planned deforestation (>100ha) observed during monitoring period
Stratification	Not required, but advantageous to be based on observed land cover change (e.g. stratify with a land cover change map)	Required for: 1) project forest strata, 2) accounting area (PA vs LB), and 3) minimum of three strata defined by expected frequency of observing deforestation

Next steps

Photo: Mark Godfrey
Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile

Methodology Publication & Project Transition

Oct 2020 - Mar 2022

- Finalization of JNR v4
- Options assessment & development of modules to standardize existing AUDD methodologies

Apr - May 2022

- Modules consultation

Jul - Aug 2022

- Review of comments
- Decision to move to consolidated methodology

Sep 2022 - Mar 2023

- Revision of modules per comments
- Revision of Risk Mapping & Allocation Tools

April – Jun 2023

- VVB assessment of methodology

Q3 2023

- Target for methodology publication
- Activity data from the first jurisdictions allocated to projects

Q4 2024

- Activity data available for all 40+ jurisdictions

2025

- All REDD projects use new meth or are nested within a JNR program

First Phase Jurisdictions

Country	Jurisdiction
Brazil	Acre State
	Amapá State
	Amazonas State
	Pará State
	Rondônia State
Cambodia	National

Country	Jurisdiction
Colombia	National
Democratic Republic of Congo	Mai Ndombe Province
Kenya	National
Tanzania	National
Zambia	National
Zimbabwe	National

Key resources

Subject to change before publication

Drafts

Draft *Methodology for Reducing Emissions from Deforestation and Forest Degradation*

Draft *Module for Estimation of Emissions Reductions from Avoiding Unplanned Deforestation*

Invitations to contribute

RFP for Development of Jurisdictional Activity Data and Forest Cover Benchmark Maps

Deadline: 30 April 2023

Call for submission of supplemental materials from stakeholders

Deadline: 14 May 2023

Note upcoming deadlines

Project transition timeline

Questions?

Photo: FUNDAECO / REDD Conservation Coast Project

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