



# **Summary of first workshop**

**2nd Expert workshop on lessons learned from Accuracy Assessments in the context of REDD+**

Oslo, 26-28 June 2017

# Introduction

- Countries supported by FAO/FCPF facing issues on the application of accuracy assessments and estimation of AD
- A first Technical Workshop on Lessons learned from Accuracy Assessments in the context of REDD+ was conducted 3-4 April
- Objectives were:
  1. Share **experiences and challenges** in the **application of Accuracy Assessment** (using Olofsson et al.);
  2. To discuss the identified challenges and **identify options** to address them;
  3. To make practical recommendations on **good practice guidance** and **set the framework** for a GPG document.

# Introduction

- As part of the workshop there were **general** discussions in plenary, and **specific** discussions on three issues:
  - How to reduce uncertainties cost-effectively, now (for RL)?
  - How to address different classes, forest types ?
  - How to take into account uncertainty of the trend ? -> monitoring
- More information may be found in the shared report
- This presentation will summarize the conclusions in:
  - **What has been agreed?**
  - **What requires further discussion at this workshop?** (including areas of future research)

# Contents

- **What has been agreed?**
  - Objectives of area estimation and AA
  - Terminology
  - Education and knowledge sharing
  - Sampling plan structure and transparency
  - Sampling design
    - Estimator
    - Stratification
    - Number of samples and allocation
  - Response design
  - Implementation of sampling plan
- **What requires further discussion at this workshop?**

# What has been agreed?

- **Objectives of area estimation and AA:**
  - **Just\* pixel counting** given by maps **should not be used** as activity data as it is not IPCC compliant
  - **Reference samples should be used** instead to derive estimates of areas of change and confidence intervals
  - **Main objective** of AA → estimate **Activity Data**

*\* If not correctly specified and CI are not estimated, c.f. Naasset comment.*

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  - **Reference samples should be used** instead to derive estimates of areas of change and confidence intervals
  - **Main objective of AA** → estimate **Activity Data**
- **Terminology:**
  - The use of the terms “**accuracy assessment**” and “**adjusted map area**” in the context of the estimation of areas of change in REDD+ **should be avoided** as it creates confusion
  - Practitioners should **use appropriate statistical terminology**, e.g. unbiased estimate should be avoided

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  - Need to **educate practitioners** → additional efforts through GFOI, etc.

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- Education and knowledge sharing:
  - Need to **educate practitioners** → additional efforts through GFOI, etc.
- **Sampling plan structure and transparency:**
  - Sampling plan follow very **structured thought process:** objectives, response design, sampling design, analysis → **countries should present sampling plan this way**
  - **Transparency** in the presentation of the **information is needed** in order to allow reconstruction → confidence to stakeholders

# What has been agreed?

- **Sampling design - estimator:**
  - **Depends** very much on **objectives** and error information
  - **Cluster sampling** merits consideration when the cost of collecting reference data are high → reduces costs
  - **Model assisted estimators** (e.g. MAR) may be efficient when dealing with continuous variables

# What has been agreed?

- **Sampling design - Stratification:**
  - **Good stratification** depends on **high quality of change maps**
  - Stratification may be more useful **after design phase** once information on errors are available → post-stratified est.
  - Stratification criteria could be related to the **risk of change** and the **confidence of classification**
  - Stratification for the chosen **emission factors** should be kept in mind → minimum number of samples per stratum
  - Don't use population level stratified estimates to derive sub-population estimates (no top-down)
  - Monitoring → change in stratification might be challenging

# What has been agreed?

- **Sampling design – number of samples and allocation:**
  - Depends very much on the objectives:
    - If objectives target several classes, use strata in a post-stratified estimator
    - The optimal allocation of sampling design for multiple objectives yields small reductions and trade offs (monitoring)
    - Post stratified estimator creates the option to use different auxiliary data for different estimates.
  - Monitoring → Optimized allocation for one period, might limit for subsequent periods

# What has been agreed?

- **Response design:**
  - **Assessment unit:** Better pixels or group of pixels than p
  - **Source of reference data:**
    - For deforestation: contextual spatial and temporal information is needed
    - For degradation: contextual spatial and temporal information, and HR/VHR imagery is needed
  - **Reference labelling protocol:**
    - **This is an area for improvement**
    - Reference observations should be collected following the **same definitions as the country**, e.g. MMU, classification system
    - **Lack of adequate SOPs and QC** (training) /**QA** (several interpreters) affects quality of reference data

# What has been agreed?

- **Implementation of sampling plan:**
  - Currently: accuracy assessment is done at the **end of the process**
  - Should follow step-wise approach:
    1. **Study patterns** (based on existing data), i.e. understanding distribution errors, opportunities for stratification
    2. **Definition of sampling design** considering Objectives
    3. **Response design:** Definition of clear SOPs (country specific): Definitions, classes, MMUs, etc.
    4. **Generate input activity data** using the chosen methodology, for stratification (or other purposes)
    5. **Analysis**, i.e. stratified estimation of activity data

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- **General** → Practical module for the design and implementation of a sampling plan for estimating AD
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  - Clarify some terms → Gross deforestation, net deforestation, etc.

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- **General** → Practical module for the design and implementation of a sampling plan for estimating AD
- **Objectives of area estimation and AA:**
  - Explore the use of model-based (model-dependent) estimators
- **Terminology:**
  - Clarify some terms → Gross deforestation, net deforestation, etc.
- **Sampling design:**
  - Compilation of examples and experience, including examining the sample size allocation to strata chosen for different countries.
  - For monitoring → Explore fixed sample of permanent plots/reference data that are measured over time combined with temporary plots/reference data based on expected changes /risks

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- **Sampling design - stratification:**
  - Explore use of time series of satellite data for mapping forest types, including the use of different sensors over time
  - Explore the contribution of the emission factor uncertainty in relation to the uncertainty of the carbon emissions and uncertainty of the trend
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  - Monitoring → Explore guidance for updating stratification
- **Response design**
  - Assessment unit: What size of assessment unit should be used and how to use contextual information in order to label the assessment unit? (e.g. relation with MMU, forest definition, etc.)
  - Labelling protocol: move from categorical data (deforestation, degradation, gains) to more complex classes
  - What are minimum QA/QC procedures to ensure high quality

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- **Implementation of sampling plan**
  - How to take the result of the accuracy assessment to continuously improve the monitoring