GOFC-GOLD

Global Observation of Forest and Land Cover Dynamics

From uncertain data to credible numbers: applying the conservativeness principle to REDD

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Outline of chapter “Guidance on Reporting”

- Issues and challenges in reporting
- Overview of reporting principles and procedures
- What are the major challenges for developing countries?
- The conservativeness principle

Outline of the presentation

- Analysis of REDD context
- How to address the uncertainty in REDD estimates?
- Implementation of the “conservativeness principle”
- Take-home messages

Analysis of REDD context

The link to positive incentives requires robust REDD estimates, i.e., *real, transparent, demonstrable, verifiable*.

Specific requirements for REDD will likely follow the general current principles for estimating and reporting to UNFCCC:

- *Transparency* in methods used.
- *Consistency* along time.
- *Comparability* among Parties.
- *Completeness*, in terms of categories, gases and pools.
- *Accuracy*, i.e. estimates should be systematically neither over- nor under-estimated, so far as can be judged, and that *uncertainties* are quantified and reduced so far as practicable.

+ independent review

Which are the main challenges for developing countries?

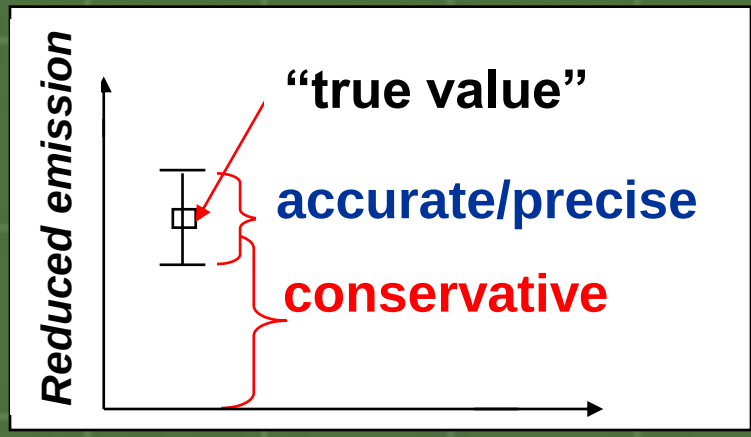
Analysis of scientific literature and submissions to UNFCCC / FAO suggest that most of current estimates are based on uncertain input data (area change and C stock change/area).

Although adequate methods exist, many countries will likely encounter economic / technical difficulties in fulfill the completeness and accuracy principles.

Uncertain REDD estimates may undermine the credibility of reduced deforestation as a mitigation option.

How to address uncertainty in REDD estimates?

with the **conservativeness** principle:
when accuracy and precision cannot be achieved, the reduced emissions should not be overestimated (or at least the risk of overestimating should be minimized)



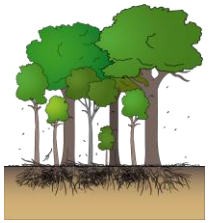
- Conservativeness is already in the Kyoto Protocol.
- A consensus is emerging on its use in REDD context (e.g., submissions from Parties).

What conservativeness could mean in practice for REDD?

Implementing conservativeness to REDD

Few examples:

1. Incomplete estimate (e.g. soil C emissions not estimated)

	Area deforest. (ha x 10^3)	Carbon stock change (t C/ha)		Emissions (area deforested x C stock change, t C x 10^3)	
		Biomass	Soil	 Biomass + SOIL	 only Biomass NO SOIL
Reference period	**10**	100	50	1500	1000
Assessment period	**5**	100	50	750	500
Reduction of emissions (reference level – assess. period, t C x 10^3)				**750**	**500**

estimate accurate

estimate not accurate, but conservative

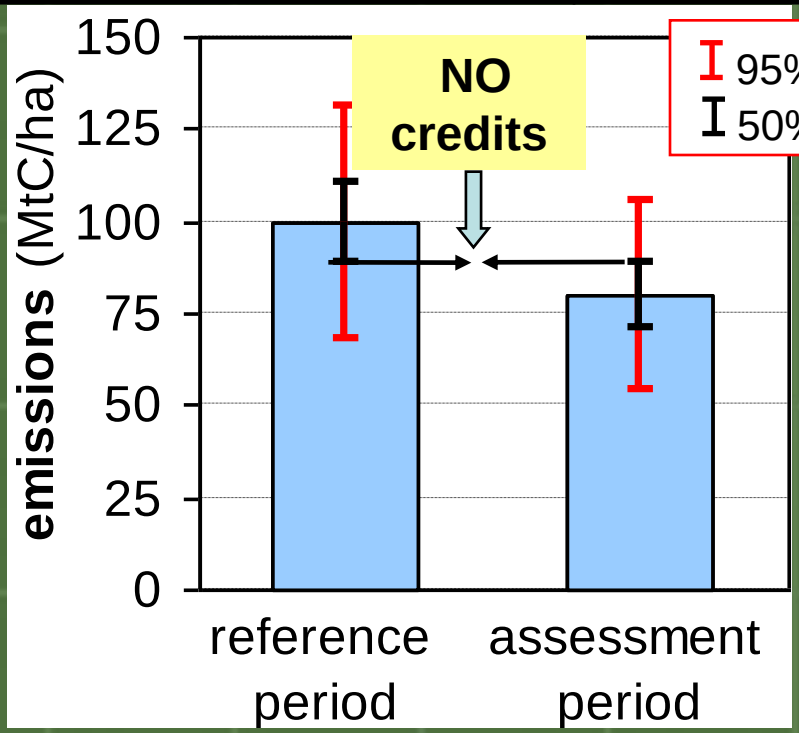
2. Uncertain estimate

ACTIVITY DATA

EMISSION FACTOR

Emissions = area deforested x C stock change

	Refer. period	Assess. period	Uncertainty (95% CI)
Activity data (Mha/yr)	1.0	0.8	10
Emission factor (t C/ha)	100	100	30
Emissions (M t C/yr)	**100**	**80**	32



95% confidence interval

50% confidence interval

probabilities that the true value is in the interval shown

A simple way to decrease the risk of overestimating the emission reduction (i.e. to be conservative), is taking the lower bounds of, e.g., the 50% or 95% confidence interval.

If we take the 50% CI, the example yields no credits

However, in the REDD context, what is relevant is the uncertainty of the emissions reduction (IPCC: uncertainty in the TREND

2. Uncertain estimate (continued)

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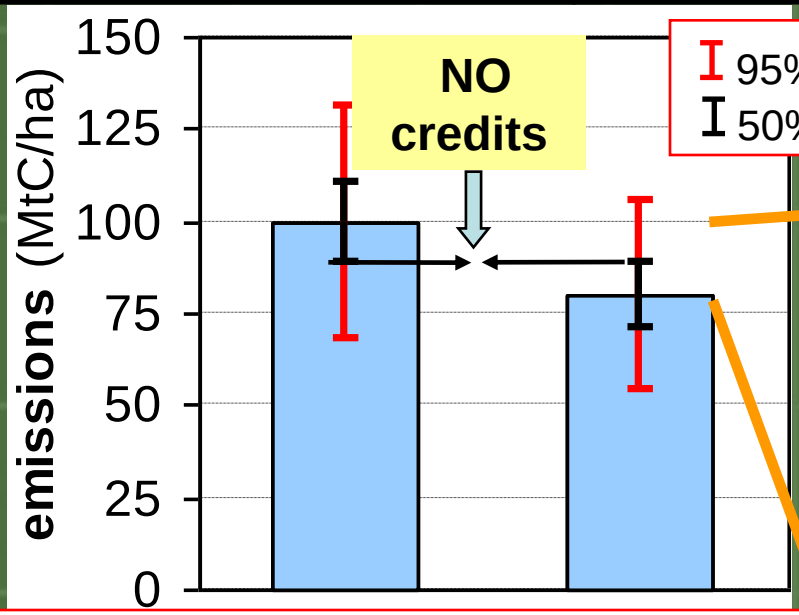
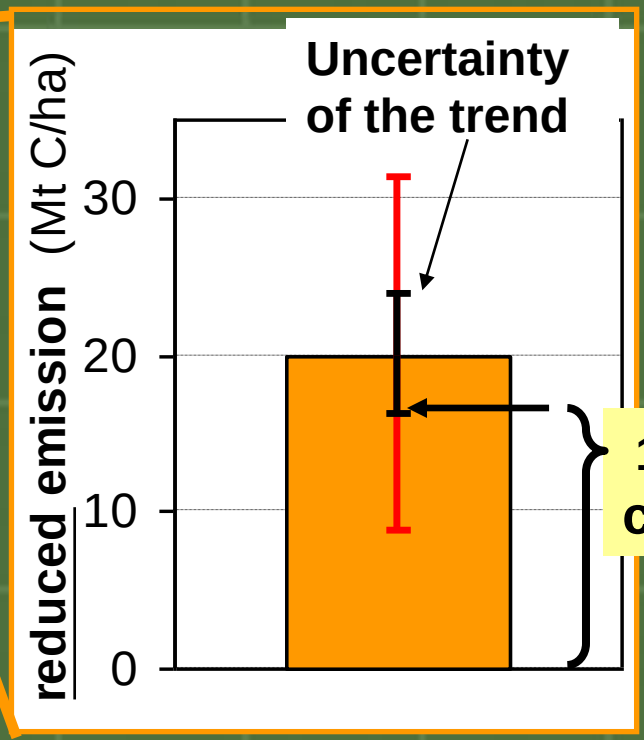




In line with IPCC assumptions, we consider that in REDD context uncertainties of Emission Factors are CORRELATED between periods, and thus do not affect the % uncertainties of the trend

Being conservativeness on the **uncertainty of the trend** has relevant consequences:

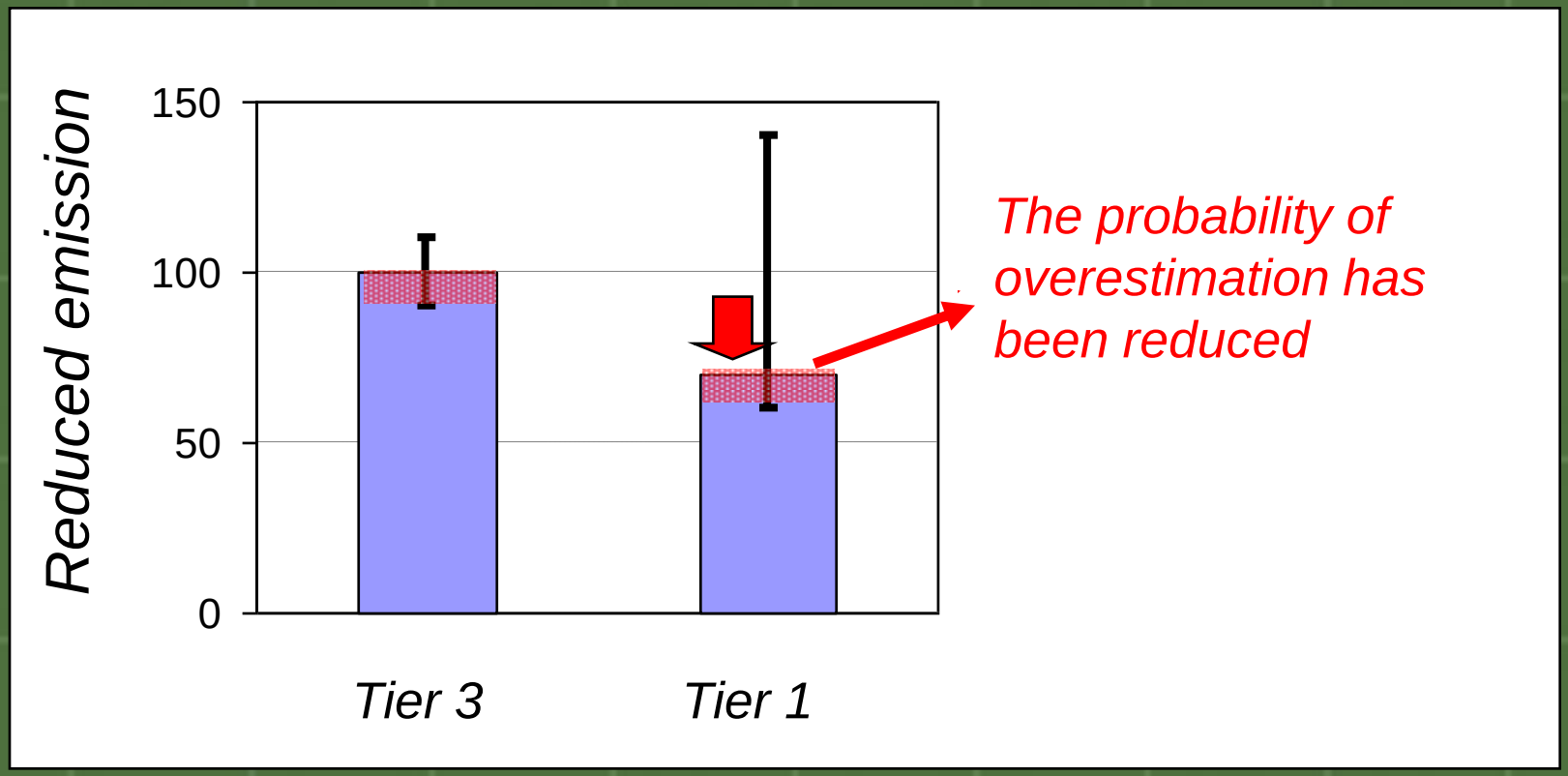
1. A slight reduction of the claimed REDD “credits” would make them more credible.

2. Uncertainty of Activity Data (area deforested) is very important. There is a clear incentive to decrease it.

3. Uncertainty of Emission Factor is irrelevant for the trend. This, however, does not undermine the importance of collecting accurate Emission Factor: a systematic error will affect the trend irrespective of its uncertainty !

3. An estimate is not consistent with IPCC Guidelines

Likely, during the review it will be treated as an AI Country. E.g. a very high value of biomass is given, not properly documented. This is NOT CONSERVATIVE. The reviewer may substitute this with a Tier 1 (default) value. However, a default value has a high uncertainty, which is corrected with a "*conservativeness factor*".



Take-home messages:

REDD estimates should be accurate and precise

If you can't be accurate and precise, at least **be conservative:**

- Incomplete estimates may be acceptable IF conservative (e.g., soil ignored).
- Uncertain estimates can be corrected easily and conservatively based on uncertainty of the trend

Any remaining problem which causes NON conservative estimates will be addresses in the review phase .

Implementing the conservativeness principle:

- *Increases the credibility of any REDD mechanism*, i.e. decreases the risk that economic incentives are given to "hot air".
- *Rewards the quality of the estimates*: more accurate/precise estimates, or a more complete coverage of C pool, likely translate in higher REDD values, thus allowing to claim for more incentives: *If REDD starts with conservativeness, accuracy will follow*.
- *Allows flexible monitoring requirements*: if conservativeness is satisfied, Parties could be allowed to choose themselves the level of accuracy to reach, depending on national circumstances.
- *Stimulates a broader participation*, i.e. allows developing countries to join the REDD mechanism even if they cannot provide very complete / accurate estimates.
- *Helps the comparability of estimates across countries*
- *Helps prioritizing monitoring efforts*

Thank you!