PV CLIMATE TOOL

PT005

Tool for Assessment of Historic Deforestation on Small-scale Agroforestry

Version 1.0

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1 Summary

This *Tool* for 'Assessment of Historic Deforestation on Small-scale Agroforestry v1.0' describes the procedures for assessing whether a *Project Area* will pass or fail the **PM002** eligibility criterion associated with *deforestation assessment* within small-scale *agroforestry Projects*. *Deforestation* within the scope of this *Tool* is defined as the act of clearing trees (human-induced) resulting in forest land being converted to non-forest land. *Project Area*s with *deforestation* within the 10 years prior to *Project Area* onboarding will not be considered eligible and are therefore not able to participate in the *Project*, unless it can be demonstrated that the *deforestation* has occurred due to natural events. This *Tool* is used to determine whether *deforestation* has taken place on a *Project Area*. This *Tool* is applicable to *Projects* that apply small-scale *agroforestry* practices.

2 Sources

This *Tool* does not follow procedures from any other sources.

3 Definitions

All terms in this document follow the PV Climate Glossary and **PM002**, with the addition of the following definition:

Stand-replacement disturbance

In Hansen et al. (2013), a *stand-replacement disturbance* refers to a significant event that causes a forested area to change from a forest to a non-forest state. This type of disturbance can be due to various factors such as logging, fires, or other natural or human-induced activities that result in the complete removal of the forest stand.

4 Applicability Conditions

For this *Tool*, the applicability conditions of *Methodology* **PM002** should be met.

5 Procedures

This *deforestation assessment tool* uses globally available, peer reviewed, open access forest change products, i.e. the Hansen Global Forest Change product (Hansen et al. (2013)), land cover and land use maps (Van Tricht et al. (2023); Sirko et al. (2021)) or alternative global and/or local forest inventory data sources. The data sets have to be produced and/or updated annually.

The forest change product is used to determine tree cover loss.

The land cover and land use maps are used to exclude non-forest areas with tree cover.

Only human-induced tree cover loss within forest land is considered as *deforestation*. Applying this approach provides continuous and reliable forest change monitoring at a global scale. This ensures

that the *deforestation assessment* can be applied globally with reported accuracies and for the required temporal period.

The data sources used in this *Tool* should meet the following criteria:

1. The time period should extend at least 10 years prior to *Project Area* onboarding.
2. The extent of the data should cover the *Project Area*.
3. Data must have a minimum spatial resolution of 30m.
4. Forest change products used to determine tree cover loss must be updated with a minimum frequency of one year.
5. Data must be open access or available on request by *Validation and Verification Bodies*. The data should have a supporting peer reviewed scientific publication with reported accuracy.

A flow chart illustrating the *deforestation assessment* approach is presented in Figure 1 and described further in the following steps:

1. Each *Project Area* is assessed to determine whether it has contained natural forested land within the 10-year period before *Project Area* onboarding. Forestlands are defined as areas with a % tree canopy cover between 10 and 60 percent, which are not primarily under agricultural or urban land use. The exact percentage of tree canopy cover is determined according to the forest cover definition of the country where the *Project Area* is located. If no such definition exists, 10% is used. Forest loss from 2001 to the beginning of the *monitoring* (Hansen et al. (2013)) is removed. Afterwards, agricultural areas and small buildings are further removed using land use and land cover datasets (Van Tricht et al. (2023); Sirko et al. (2021)). Where local or global forest inventory data is available, plantations are excluded.
2. *Deforestation* is assessed by evaluating tree cover loss data layers for each year of the 10-year period. The data layer needs to meet the data source criteria mentioned above. If deforestation is detected on the *Project Area*, the *Project Area* status will be set as “inactive”.
3. If the criteria in the previous steps are not met, *Stakeholders* who are familiar with the *Project Area* may submit evidence to prove that *deforestation* has occurred due to natural events (e.g. hurricanes, flooding, or natural forest fire) (See Table 1). This evidence is evaluated by Plan Vivo, *VVBs,* and *Project Coordinators*. In such instances, these *Project Area* may overrule the *deforestation assessment*.

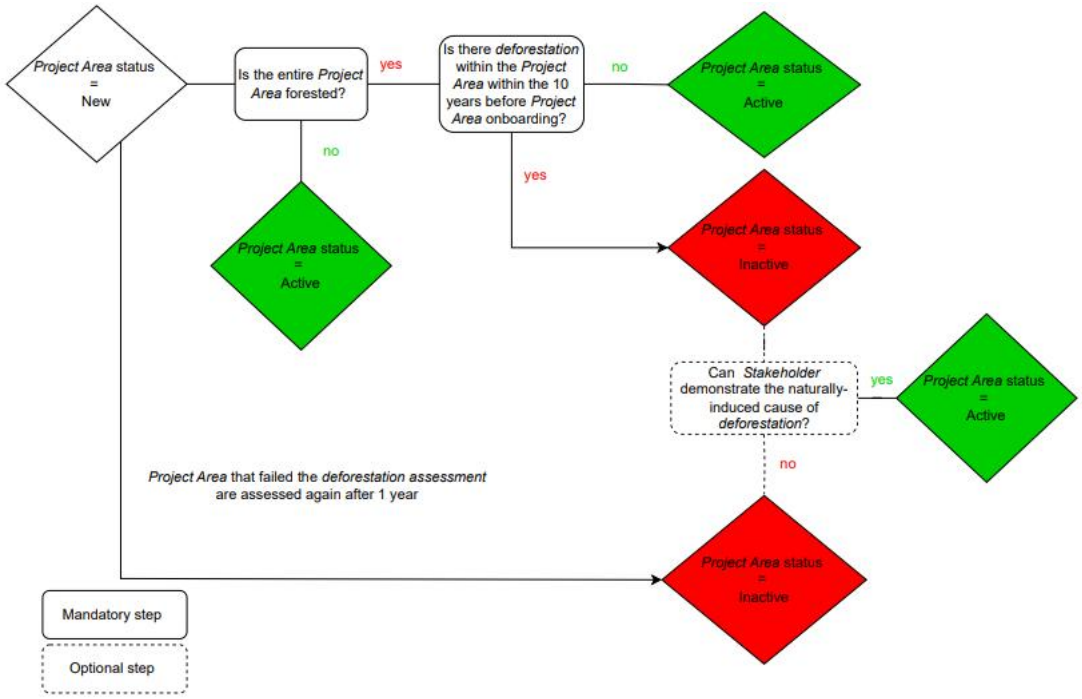

Figure 1. Process overview for remote and manual deforestation assessment.

If a *Project Area* fails the *deforestation* check and an overrule is not plausible, the *Project Area* will be reassessed for its eligibility in the following year.

Table 1. Scenarios resulting in a deforestation check failure where overrule is/isn't possible.

Natural/ Non-natural	Type of cause	Event	Overrule possible	Evidence examples
Natural	Direct natural cause (environmental stresses)	Tree loss through a forest fire	Yes	Photographs, video, witness statement, news articles, or research papers- eligible if plausible
	Direct/ Indirect natural cause	Tree damage (loss of productivity) through floods, droughts, or pests	Yes	Photographs, video, witness statement, news articles, or research papers- eligible if plausible
		Desertification of land natural cause (drought heat or low temperatures)	Yes	Photographs, video, witness statement, news articles, or research papers- eligible if plausible
Non-natural	Human cause	Desertification of land anthropogenic cause (chemical dump)	No	Not applicable

		Illegal and unsustainable logging	No	Not applicable
		Fuelwood *harvesting*	No	Not applicable
		Removal of dead, diseased trees (i.e. not able to provide benefits such as fruit or shade anymore)	Yes	Photographs, video, witness statement, or research papers- eligible if plausible
		Extensive clearing (for agriculture land or livestock ranching)	No	Not applicable
		Slash and burn agriculture	No	Not applicable
		Infrastructure of mining projects	No	Not applicable
		Urbanization	No	Not applicable

6 Parameters

Not applicable for this *Tool*, as there are no equations.

7 References

Hansen, M.C., et al., (2013). High-Resolution Global Maps of 21st-Century Forest Cover Change. Science, 342(15 November), p.850-853. https://doi.org/10.1126/science.1244693

Van Tricht, K., et al., (2023). WorldCereal: a dynamic open-source system for global-scale, seasonal, and reproducible crop and irrigation mapping. Earth System Science Data, 15(12), 5491-5515. https://doi.org/10.5194/essd-15-5491-2023

Sirko, W., et al., (2021). Continental-scale building detection from high resolution satellite imagery. arXiv preprint arXiv:2107.12283. https://doi.org/10.48550/arXiv.2107.12283