The Papua New Guinea methodological approach to estimate carbon stock changes under REDD

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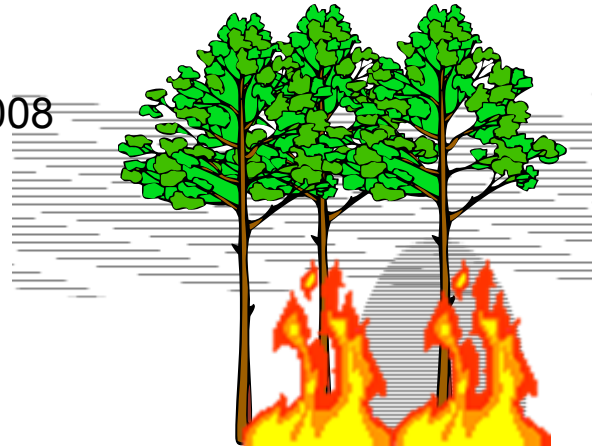
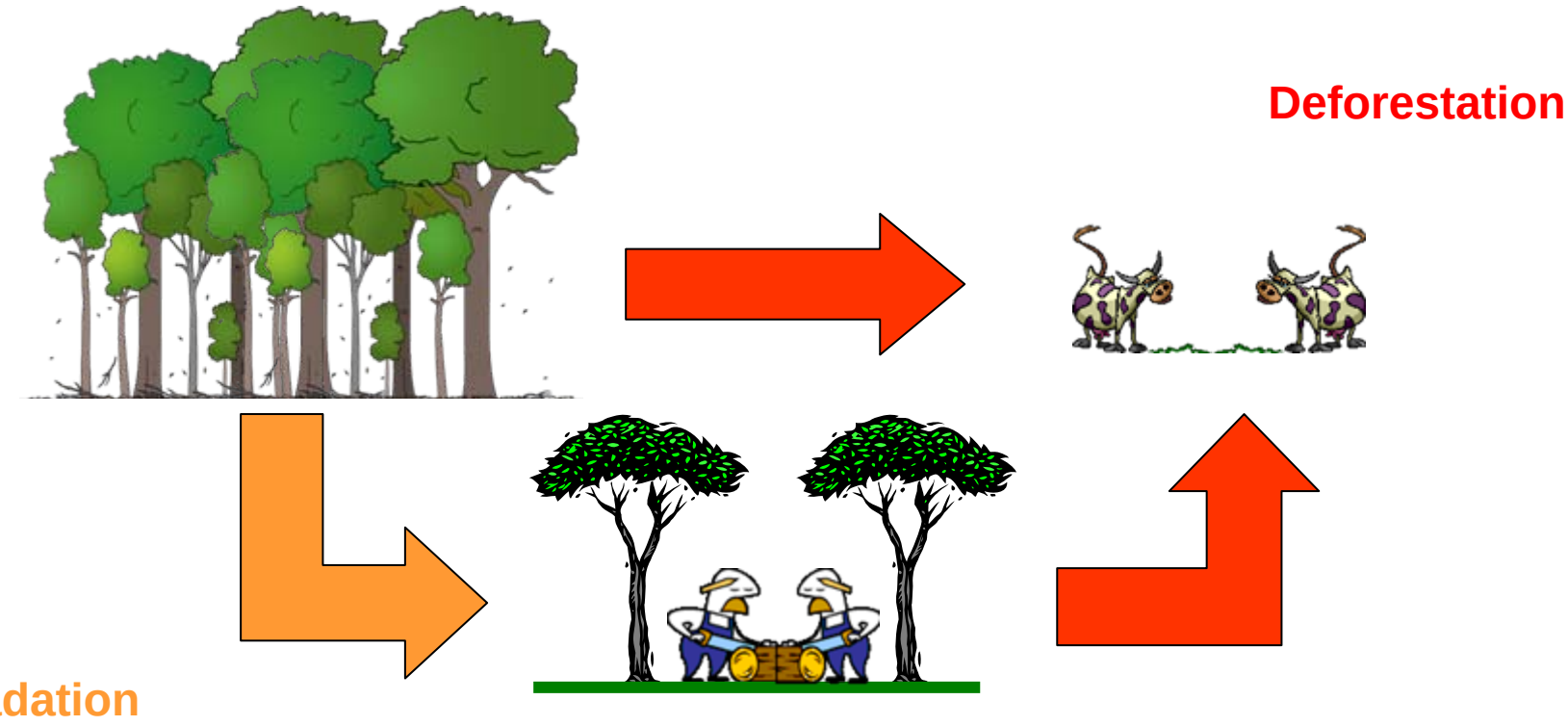


DEFINITIONS

- Deforestation is change from forest land to another land use

- Degradation is a net carbon loss in forest land remaining forest land ensuing at national level



Note: the forest land remaining forest land area is the forest area not subject to land-use changes since the start of the reference period

Carbon stock change due to deforestation

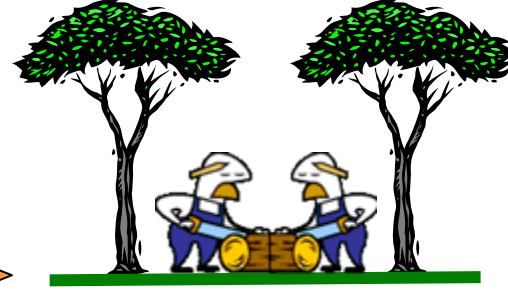
Deforestation is accounted as difference between carbon stocks in forest land converted to another land use at two following point in time (e.g. 0 & 1):

Δ Carbon stock = (DL Carbon Stock at Time 1) - (DL Carbon Stock at Time 0)

DL = Forest Land converted to another land use

Thus the emission reduction is accounted as difference between net change in carbon stocks at reference and assessment period

Carbon stock change due to Forest degradation



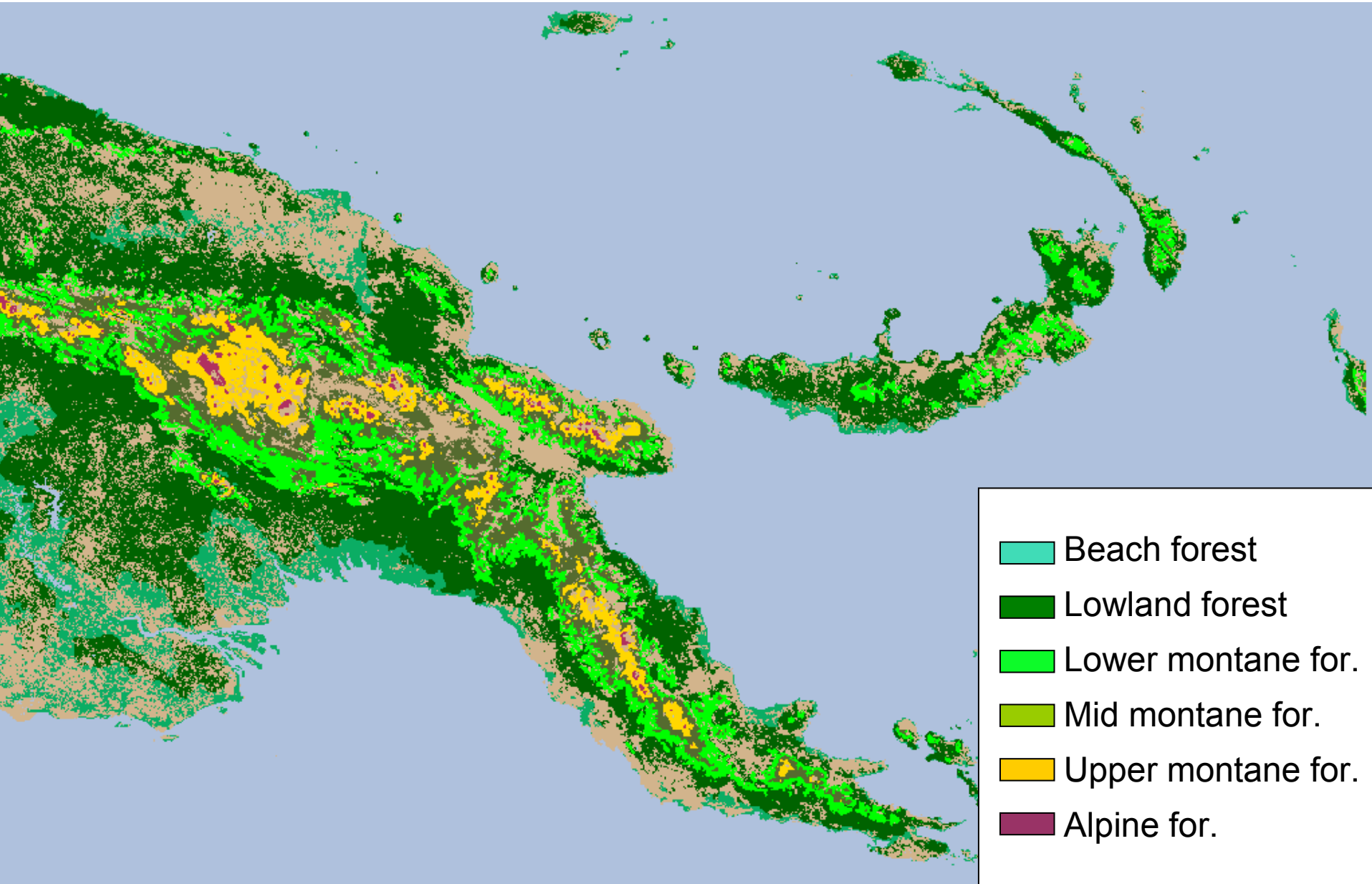
Degradation is accounted as difference between the forest carbon stocks in forest land remaining forest land at two following point in time (e.g. 0 & 1):

Δ Carbon stock = (FL Carbon Stock at Time 1) - (FL Carbon Stock at Time 0)

FL = Forest Land remaining Forest Land

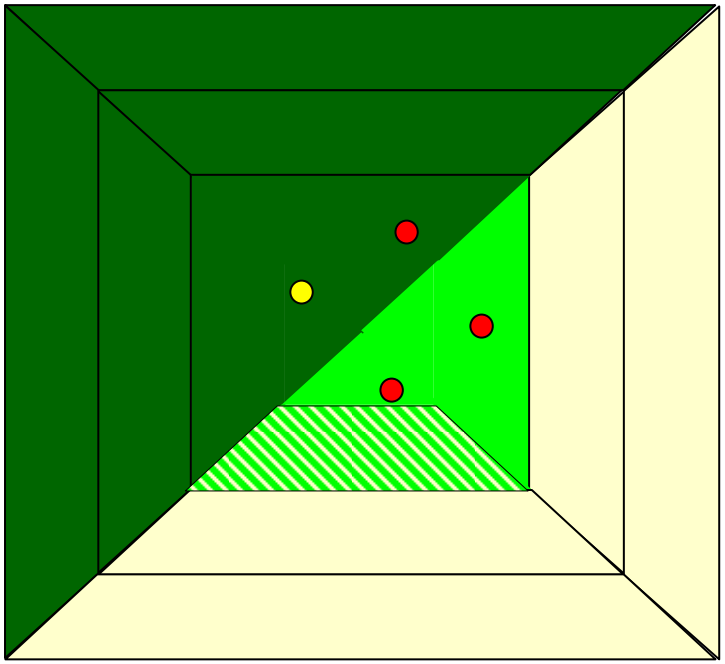
Thus the emission reduction is accounted as difference between net change in carbon stocks at reference and assessment period

PNG preliminary forest stratification



LEGEND

In the following slides concepts will also be presented through graphical objects, please take few seconds to comprehend the legend



INTACT FOREST LAND

NON-INTACT FOREST LAND

OTHER LAND USE

CHANGE IN CARBON STOCK

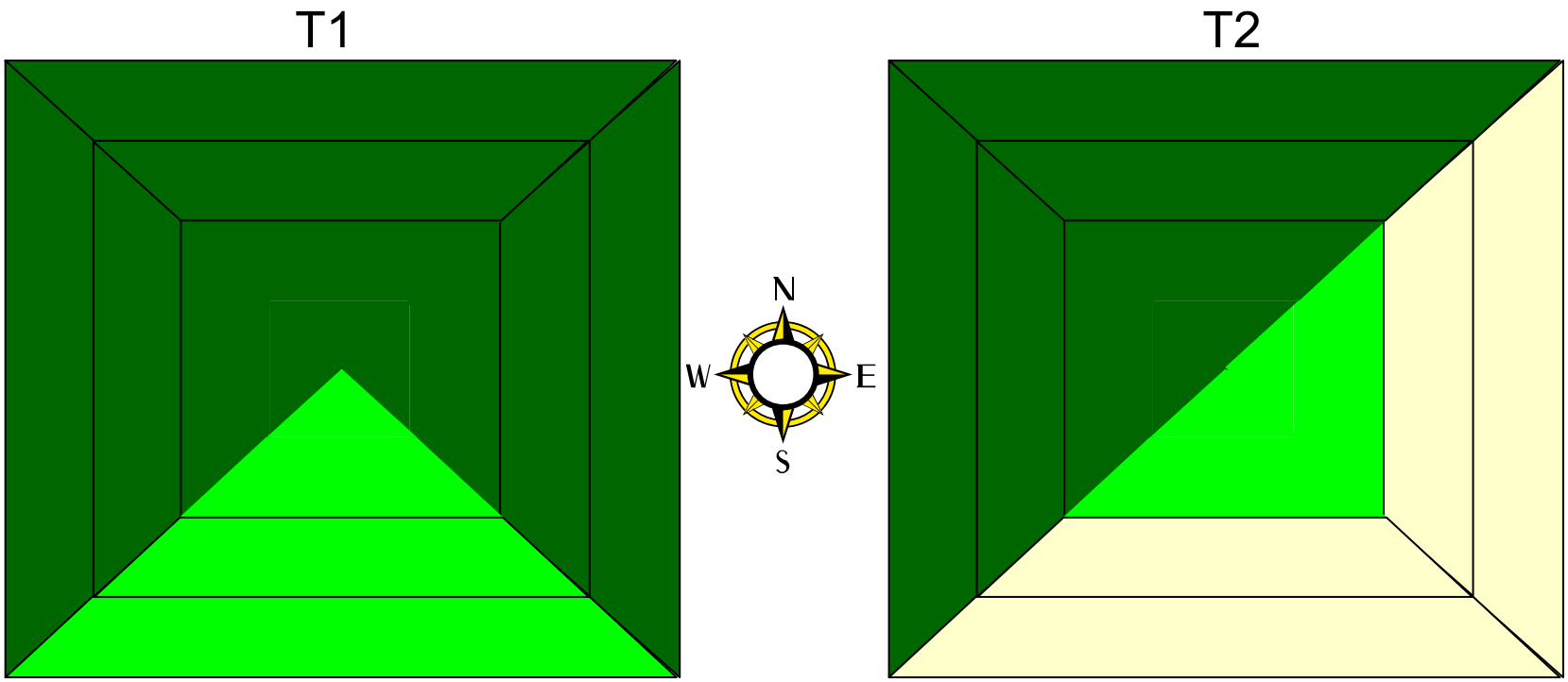
SAMPLING PLOT

NEW SAMPLING PLOT

- Intact forest land is used as synonymous of undisturbed, primary, un-managed forest land
- Non-intact forest land is used as synonymous of human disturbed, secondary, managed forest land

Activity data to be reported under REDD

in the **REFERENCE PERIOD**



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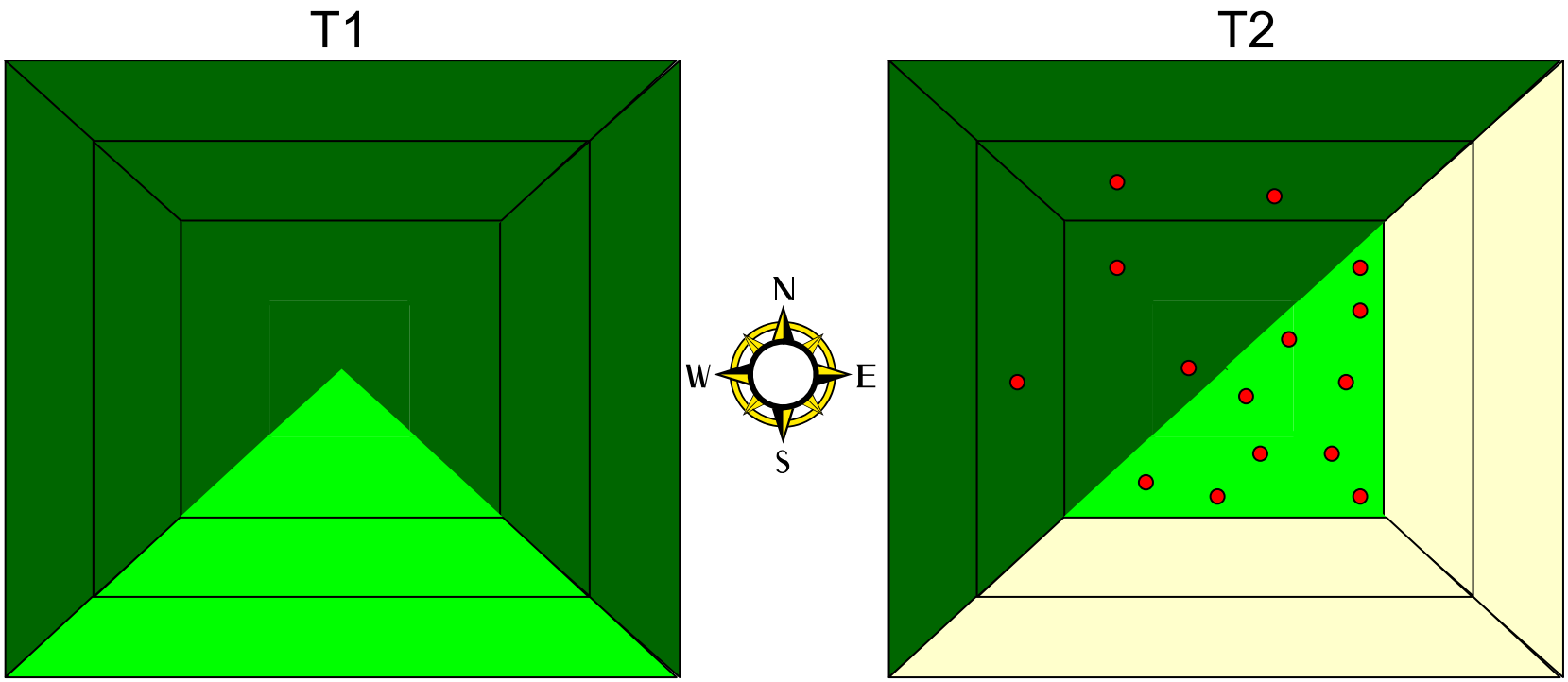
- deforestation of non-intact forest land in the southern sector
- deforestation of intact forest land in the eastern sector
- degradation* from intact to non-intact forest land in the eastern sector

This data could be retrieved from historical satellite earth observation data since 1990

* *(forest land remaining forest land)*

Carbon stock data to be reported under REDD

in the **REFERENCE PERIOD**



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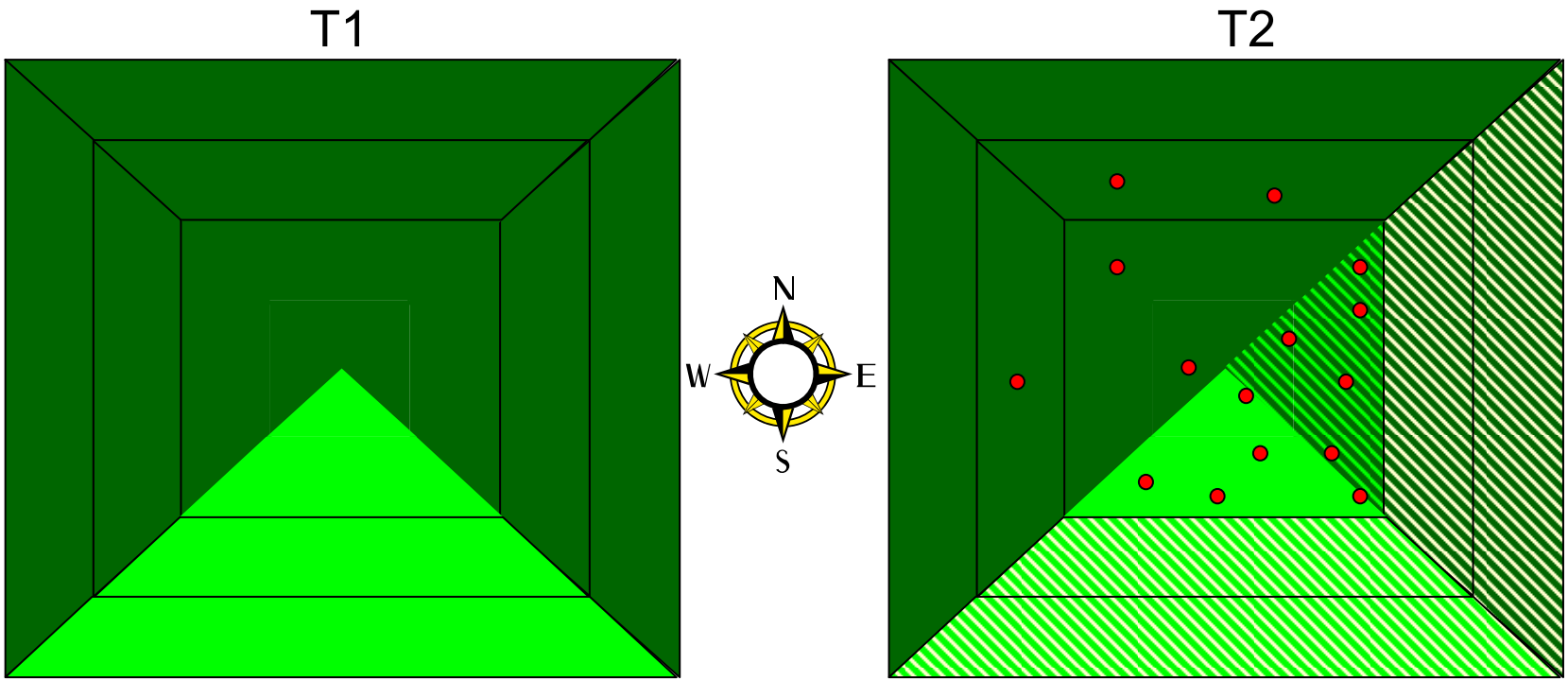
For countries which do not have national historical data on forest carbon stock, they will have to collect them before the beginning of the first assessment period. Each main forest types will be subdivided in two categories: intact and non-intact. For each main forest type two field sampling designs will be established: one for the intact and one for the non-intact forest land. Each sampling design should ensure carbon stock estimations with 5~10 % of uncertainty at 95 % CI.

Carbon stock changes to be reported under REDD

in the **REFERENCE PERIOD**



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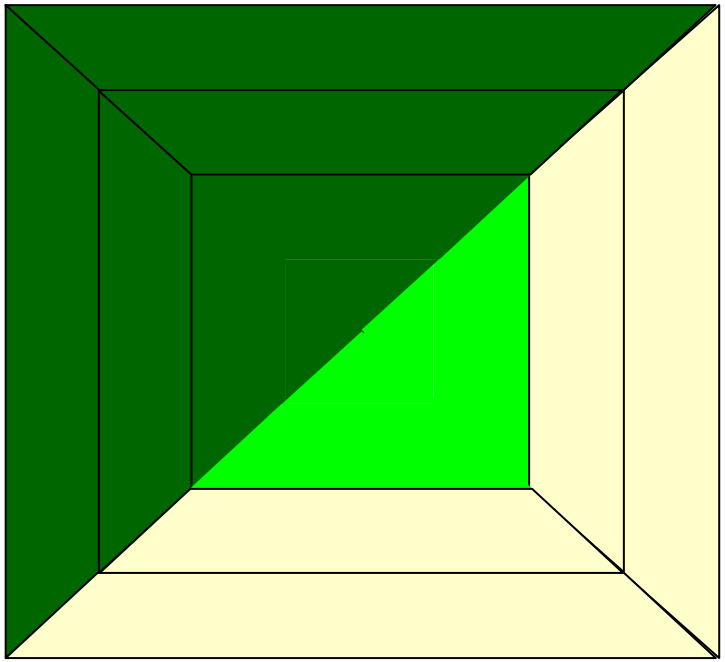
- carbon stock changes from deforestation of non-intact forest land in the southern sector
- carbon stock changes from deforestation of intact forest land in the eastern sector
- carbon stock changes from forest degradation in the eastern sector

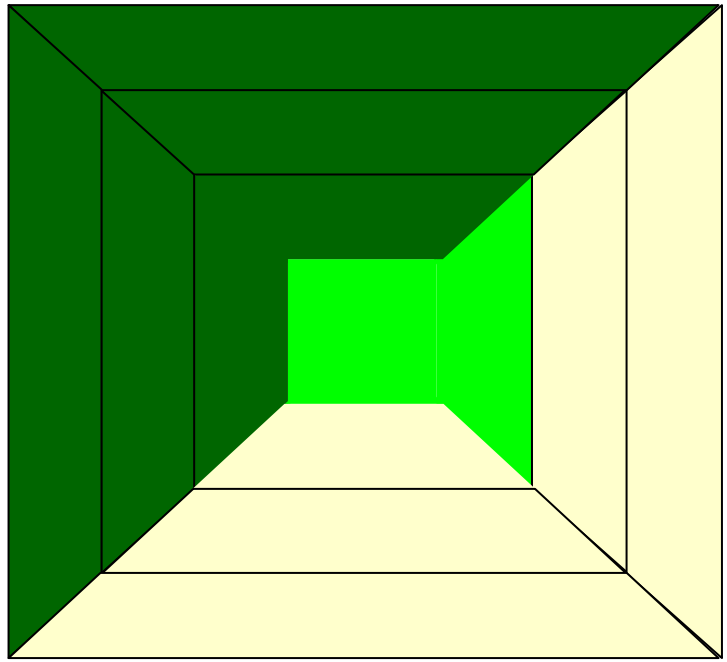
Activity data to be reported under REDD

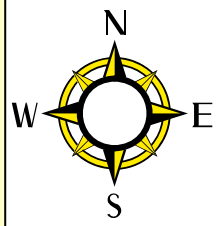
in the **ASSESSMENT PERIOD**

T2



T3





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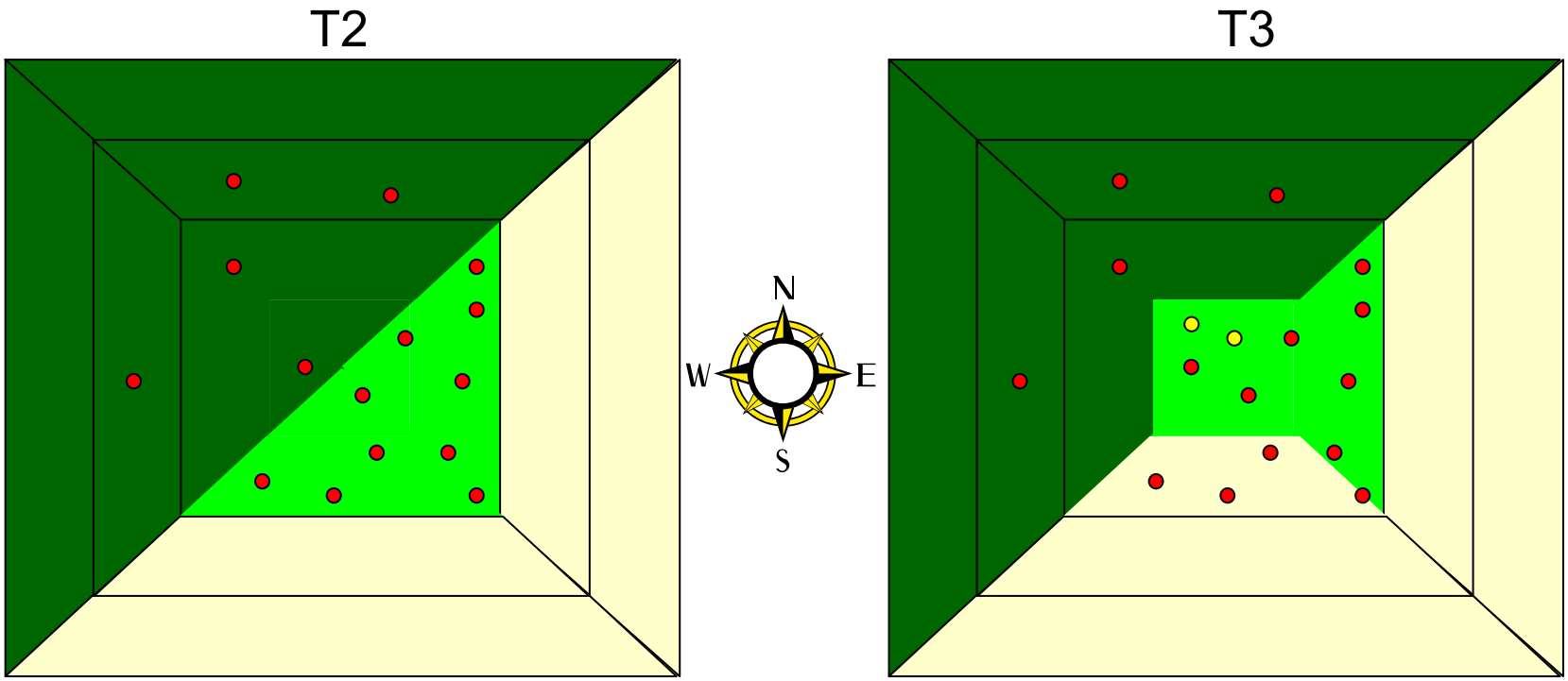
- deforestation of non-intact forest land in the southern sector
- degradation* from intact to non-intact forest land in the northern and western sectors

These data would be retrieved from satellite earth observation data

* *(forest land remaining as forest land)*

Carbon stock data to be reported under REDD

in the **ASSESSMENT PERIOD**



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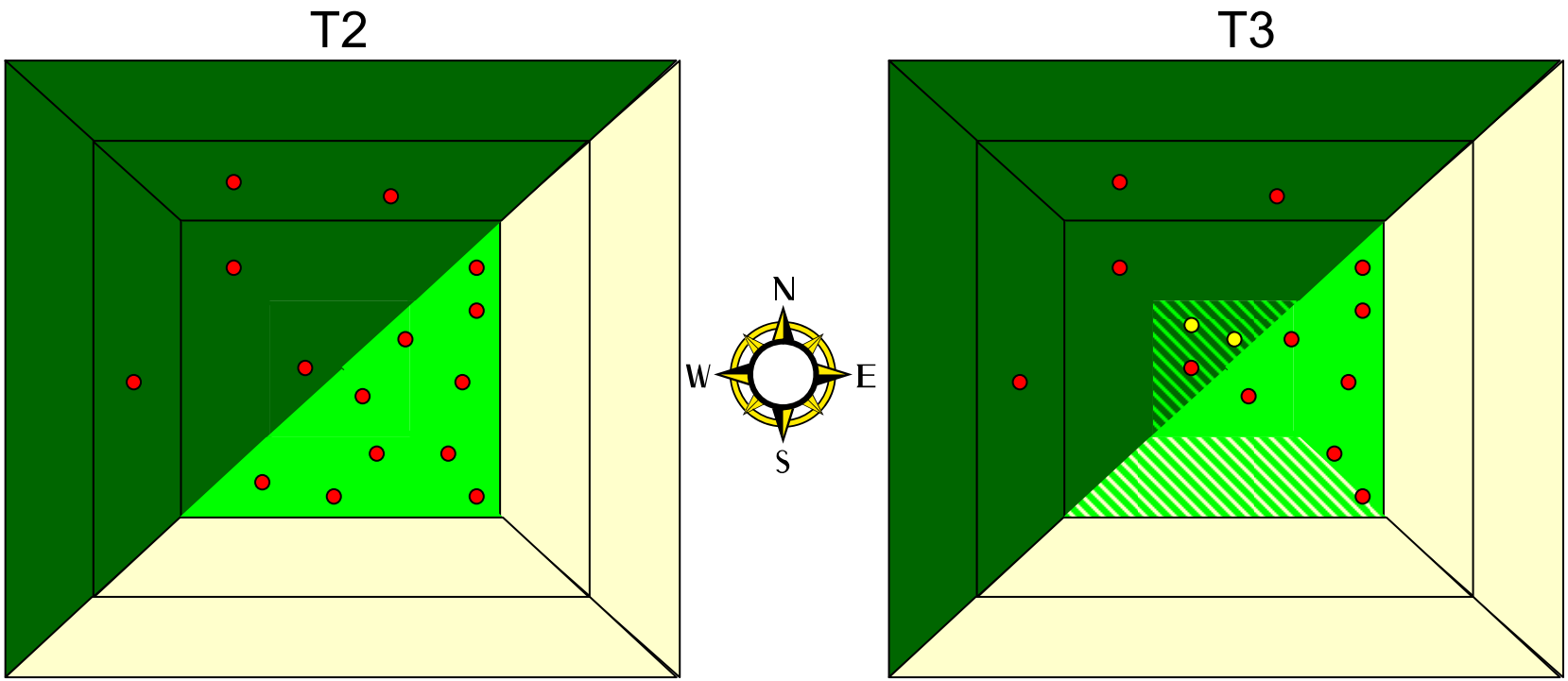
Each main forest types will be subdivided in two categories: intact and non-intact. For each main forest type two field sampling designs will be established one for the intact and one for the non-intact forest land. Sampling measurements will be realized at the beginning and at the end of the assessment period. At the end of the assessment period (T3) the non-intact forest land sampling design will be revised. The sampling design should ensure carbon stock estimations with 5~10 % of uncertainty at 95 % CI.

Carbon stock changes to be reported under REDD

in the **ASSESSMENT PERIOD**



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- carbon stock changes from deforestation of non-intact forest in the southern sector
- carbon stock changes from forest degradation in the western and northern sectors
- carbon stock changes from non-intact forest land remaining forest land in the eastern sector

Methodological Highlights

- Activity data will be collected through a monitoring system based on satellite data (IPCC approach 3). A sampling approach will be used for the reference period, and a wall-to-wall approach for the assessment period

- Data on forest carbon pool will be collected through a national field survey system (national forest inventory) with a sampling design stratified according to forest types and forest management (IPCC tier 2 and 3)

- Degradation is defined as net carbon loss in forest land remaining forest land at national level

- For the reference period, forest degradation will be assessed only as result of the variation from intact forest land to non-intact forest land. The carbon stock change will result from the area loss of intact versus non-intact forest land multiplied for the difference in the per unit average carbon stock between intact and non-intact forest land.

- For the assessment period, forest degradation will be assessed as variation from intact forest land to non-intact forest land and as carbon loss in non-intact forest land remaining forest land. In the last case the carbon stock changes will result from the non-intact forest land area remaining forest land multiplied for the difference in the per unit average carbon stock that will result from the sampling at the beginning (T2) and the end (T3) of the assessment period.

- The fact that the carbon stock changes from forest degradation will be assessed in two different ways (variation form intact to non-intact forest land for the reference period and variation from intact to secondary forest land plus loss of carbon stock in non-intact forest) will not consist a major problem as the emission from forest degradation in the reference period will be underestimated and thus it will result as a conservative threshold for assessing future net emission reduction