Sentinel landscapes Baseline- Methodological overview
Version 22 August 2013

Objective

The sentinel landscape framework has been developed to meet two very different objectives. Firstly, it is to collect a set of standardized variables, both socio-economic as well as biophysical to assess the relationship between livelihoods and land health in forested landscapes, which have been exposed to various forms of land-use change.

The data will be used to do a landscape comparative study to answer following research questions:

1. What are the institutional settings that favor the utilisation of forest resources in ways which result in more equitable sharing of benefits?
2. What are the factors that induce people to value the ecosystem services of trees and manage the landscape to provide them?
3. What are the conditions that allow farmers to significantly capitalize on tree products and benefit from them?

For this purposes village level data will be linked with land health indicators. The derived land health indicators allow to assess the status of the land and the vegetation for the time of sampling, but also to model what they used to be 10 to 15 years ago. For each village a trajectory of change can therefore be constructed. The overall objective is to see whether villages with different landscape trajectories differ with respect to their livelihood factors.

The second objective is to collect baseline data for CRP6 on peoples livelihood, cropping systems and utilization of tree

and forest resources for monitoring purposes. For this purpose a household instrument was developed with a strong emphasis on livelihood, food security and social visibility accompanied by a farm level tree and crop inventory.

Site selection

For each sentinel landscape teams provide a geographic boundary to the method group. The method group randomizes between 10-15 potential 10x10 km² sentinel sites to represent both the variation in tree cover as well as a variation in tree cover changed (as estimated over a 10 year time period) within the landscape.

Out of these potential sites the sentinel landscape team, together with partners select 4 final sites.
For Nicaragua/Honduras and Burkina Faso/Mali the final site selection was driven mainly by dominate drivers of change.

With one of the objectives of the sentinel landscape theme being to establish a baseline for CRP6, preference should be given to those sites where no current interventions are undertaken or are planned.

Work Flow

The Baseline sampling methodology consists of 4 parts. The tree/ farm inventory is not conducted in the same budget year as the other 3 parts of the sampling framework as it based on the results of the first 3 parts.

1. Land Degradation Surveillance Framework (year 1)
2. Village level baselines (year 1)
3. Household surveys (year 1)
4. Tree inventories on a cohort of farms from the household survey (year 2)

Land Degradation Surveillance framework

Field biophysical surveys will be carried out with the collection methods prescribed by the extended LDSF.

The extended LDSF exist of core modules for

- Soil Sampling
- Vegetation Sampling
- Species assessment
- Landform and land cover classification

For each sentinel site 160x2x16=320 standard soil samples are collected, as per the field guide. These are to be shipped to Nairobi to be analysed in the soil spectral lab.

For the Species assessment a botanist with local tree and shrub species knowledge is needed!

Village level baseline

The number of villages and household selected for each sentinel site is depending on

- Accessibility of the villages (costs of logistics)
- Total number of villages within and around the sentinel site
- Total population within and around the sentinel site

If possible a minimum of 10 villages should be randomly selected for each sentinel site. The villages should not have overlapping agricultural lands, but can be utilsing the same woodland/forest.

Villages should be located within a 30x30 km^2 radios based on the center of the LDSF site. A minimum of 5 villages should be within the core sentinel site (10x10 km^2) to ensure that we have a collocation of both biophysical and socio-economic samples.

For sentinel sites that do not have any villages within the 10x10 km², villages that are using woodlands/forests within the sentinel site need to be identified. From these a subsample of 10 randomly selected villages should be sampled. Villages should be stratified based on:

- Distance to main road (distance from market)
- Ethnic groups (migratory vs. resident villages)
- Distance from forest[1] edge

The same goes for villages. Here we need to stratify based on the distance from the forest edge and distance to the main roads.

Household survey

For the household surveys a representative sample is randomly selected from each of the villages sampled in the village level survey. It would be good if we can cover about 25 –30% of the households. To ensure a randomized samples it is advisable to get a list of all households from the village heads prior to sampling. Acknowledging that men and women have different roles and different viewpoints in a household and in the community we would like you to ensure that you have an equal representation of woman and man respondents. Your random household sample will include a range of household types. For those households were you have a male household head with one or more wives, please ensure that in 50% of the households you interview the male household head, whereas in the other 50% you ask the household head permission to interview his wife or one of his wives.

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[1] We are following the IFRI definition of a forest, whereby a forest is defined as a total surface area of at least 0.5 hectares containing woody vegetation exploited by at least three separate households and governed overall by the same legal structure.

Village level surveys and biophysical surveys should be conducted at the same time. It is also recommended that some of the biophysical team members participate in the village level surveys and vice versa.

For the village level survey an experienced social scientist with good facilitation skills is needed!

The main information we would like to get at the village level are:
- Demographics
- Formal and informal institutions
- Use, access, governance and management of trees and tree products
- Access to markets & structure of the markets available
  o Number of vendors and types of vendors; number of commodities and types of commodities; functional groupings; prices of traded agricultural and forest products
- Collective action
- Social mobility within the village
  o Locally defined stages of Progress

For the Village level following instruments are used:

1) Revised IFRI village level instruments:
   a. Forest Form (Version 7.12.13)
   b. Settlement Form (Version 7.12.13)
   c. Association Form (Version 7.12.13)
   d. Product Form (Version 7.12.13)
2) The Stages of Progress Methodology (Krishna et al., 2006)
   a. Protocol SPM
3) Local market inventory
   a. Protocol LMI

Household level baseline

The main information we would like to get at the household level are:

- Demographic
    - Household composition
    - Education (basic questions)
    - Migration
- Livelihood
    - Housing, water, Sanitation
    - Assets
    - Income
    - Main livelihood activities
- Remittance
- Credit
- Food security
    - Food consumption & composition
    - Food scarcity
- Social visibility
    - Social networks
    - Informal safety nets
- Use of Natural Resources
- Welfare
    - Coping mechanisms
    - Mobility of the household along the poverty ladder
- Anthropometry

Tree inventory/farm inventory

For a subset of households a complete tree on farm inventory will be conducted. The tree inventory will be conducted by visiting all plots of a household with a member of the household. The tree inventory includes species names, uses, management, growth parameters, location in the plot. In addition the enumerator will check the land-use activities

on the plot and will do a quick assessment of the field management together with the household member.

For the tree/farm inventory we would like to select a subset of the households sampled. The subset will be selected based on the results of the LDSF as well as the household survey. Data collected will be used to assess whether there are differences with respect to productivity between farms that have a high tree density within and around the farm versus farms that have a low tree diversity.