Working Session 1:

Introduction to spatial analysis for REDD+ planning at the provincial level in Viet Nam

Ha Noi, 16 – 27 June 2014

Working Session technical session plans

PART 2: Identifying potential zones for a REDD+ action - Maintaining existing forests (continued)

Now that the carbon layer is ready to use and the analysis extent constrained to cover the maximum area possible for the broad REDD+ action ***maintaining existing forests, with a focus on natural forest,*** *the additional factors can be brought into the analysis.*

2C: Identify datasets which show other benefits from the action

When REDD+ prevents the loss or degradation of forest, this will result in multiple benefits in addition to protecting or enhancing carbon stocks. These include ecosystem-based benefits, such as conservation of biodiversity, water regulation, soil conservation, timber supply, forest foods and other non-timber forest products.

In the first instance, we will look at factors that could show **potential additional benefits** from any REDD+ action (i.e. not just limited to the action of maintaining existing forests.) This information may contribute to a decision on the prioritization of zones or sites for interventions that support the maintenance of natural forest.

The first step is to identify:

- What are the potential additional benefits that could be gained?
  Are there spatial data available to enable them to be included in spatial analysis?

Dataset considerations

Data at the scale of the area of interest, e.g. national-level or provincial-level, can be more suitable than regional or global datasets for a number of reasons. They may comply with national standards (e.g. on forest definition), reflect national or sub-national priorities, and are less likely to have undergone large-scale extrapolations. However, finer-scale datasets may not necessarily be more accurate or up-to-date than coarser-scale datasets. Also, data at the scale of the area of interest may be scarce. Where this is the case, it is helpful to review existing regional and global databases to assess their potential relevance to this work.

All data that are considered for use in the analyses should first be checked for suitability. This depends on the date range of the dataset, its completeness, accuracy as well as appropriateness to the spatial scale of the work (see Box 1).

Box 1: Assessing the suitability of data

- How old is the data? Is it the latest version available?
- How well does it reflect the current situation in the country?
- How does the resolution compare to that of other datasets used?
- Is the data politically sensitive? Has its use been approved by the government?
- Has the data owner or provider granted permission for its use for this purpose?

It is important to understand the potential limitations of each dataset and interpret results with care.

Compiling all the datasets that are considered relevant can be time-intensive, especially as they are likely to be hosted in different institutions (for example government agencies, NGOs, research institutions) and data license agreements may be required to ensure the data can be used for this purpose. Box 2 summarises some useful considerations for the data compilation phase.

Box 2: Data sourcing considerations

- Review datasets as they become available, and in good time before making a final output.
- Is the content as expected?
- Do they have the right format?
- Do they need processing before they can be used in the analyses?
- Do permissions need to be organised?
- Can data be shared with all parties?
- Good documentation of data sources and terms of use is essential and will save a lot of time during the production of the final outputs. Be careful to keep track of the meta-data.

Good data documentation, despite being time-consuming, is an essential part of this task as it will help to understand data limitations and use restrictions and facilitate the production of outputs, for which the full citation for each dataset will be necessary. A data registry can be as simple as a spreadsheet created in Microsoft Excel.

Analysis map projection: VN-2000 / UTM zone 48N

PROJCS["VN-2000 / UTM zone 48N",GEOGCS["VN-2000",DATUM["D_",SPHEROID["WGS_1984",6378137,298.257223563]],PRIMEM["Greenwich",0],UNIT["Degree",0.0174532925199433295]],PROJECTION["Transverse_Mercator"],PARAMETER["latitude_of_origin",0],PARAMETER["central_meridian",105],PARAMETER["scale_factor",0.9996],PARAMETER["false_easting",500000],PARAMETER["false_northing",0],UNIT["Meter",1]]

I) Importance for biodiversity

Discussion and technical activities

Objective: Identification and preparation of datasets which show areas of importance for biodiversity

DISCUSSION AND EXPLORATION OF DATA FOR LOOKING BIODIVERSITY BENEFITS

Input datasets:

- *IUCN species extent of occurrence polygons: -*
  Can be combined to produce species richness maps
  It is fairly straightforward to produce subsets containing only e.g. threatened, endemic, forest dependent species, nationally protected species

- *Mean abundance of original species relative to pristine*

IUCN range data illustrates the potential distribution of species richness (as it is generous regarding the potential range for individual species); Mean Species Abundance offers an estimate of how biodiversity has been affected by land-use change – but not how biodiversity itself varies from place to place. So together these maps can be combined to estimate how important a location is for biodiversity (in terms of richness at least) and how intact it is.

Note: Modelling of Mean Species Abundance will not be taught in these working sessions but previous modelling work has been undertaken for Viet Nam - see http://www.globio.info/publications/102-biodiversity-assessment-and-modeling-review-and-potential-application-in-vietnam

- *Important Bird Areas (IBAs) / Key Biodiversity Areas (KBAs)*

Important Bird Areas (IBAs) are sites that are significant for the long-term viability of naturally occurring bird populations. The sites are identified on the basis of the bird numbers and species complements that they hold, and are selected such that, taken together, they form a network throughout the species' biogeographic distributions. (See http://www.birdlife.org/datazone/site for more information)

Key Biodiversity Areas (KBAs) are sites of global significance for the conservation of biodiversity and are identified nationally based on internationally agreed criteria of "vulnerability" (the presence of threatened species) and "irreplaceability" (the overall importance of a site for achieving conservation of individual threatened species – e.g. a significant proportion of the global population of given species occurs within a site). KBAs extend the Important Bird Area (IBA) concept to other taxonomic groups. All IBAs are KBAs, but some KBAs are not IBAs (i.e. they are significant for the conservation of other taxa, but not birds).
(See http://www.birdlife.org/datazone/sowb/casestudy/88 for further information.)

- ***Other biodiversity datasets?***

Other biodiversity related datasets may be available at the national, provincial or even local level (for example, datasets maintained by particular protected areas, NGOs or researchers working on site- or species-based biodiversity conservation, lists of species that have special protection under law).

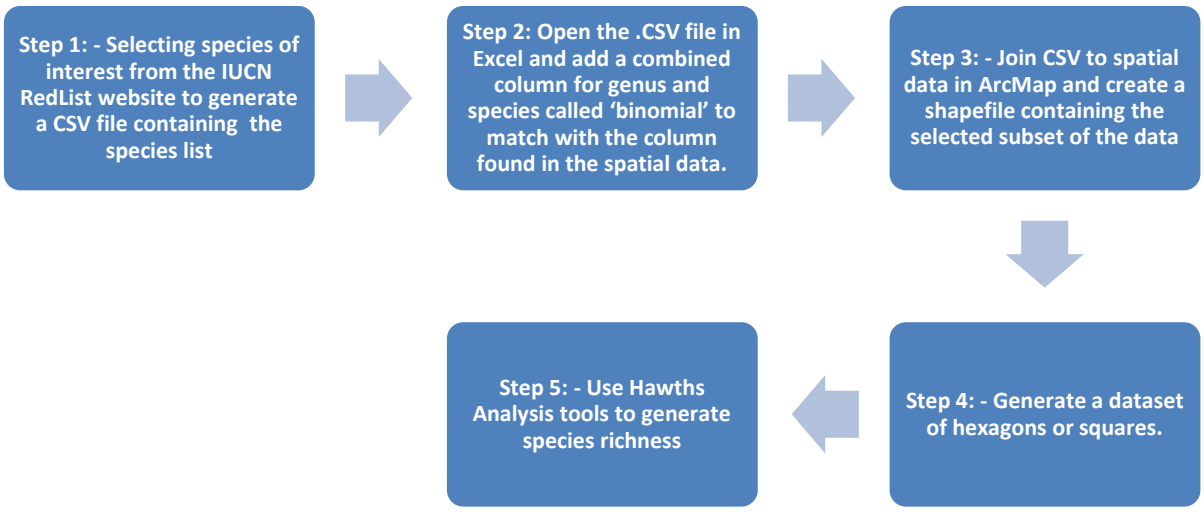
Step 3: Prepare biodiversity datasets ready for analysis

Although there are a range of possible datasets related to biodiversity, as discussed above, for the purposes of this exercise, we will be preparing and using the following biodiversity layers:

- Threatened species richness (threatened species range data downloaded from the IUCN Redlist website and processed as below)
- Key Biodiversity areas (downloaded from Birdlife International for Viet Nam and clipped to Lao Cai)

When working at the provincial level in the future, it is important to remember that a) other biodiversity datasets are available, and b) that the most appropriate data for the context is chosen.

Overview of main processing of preparing the IUCN species extent of occurrence data to produce a richness map



In case participants already have knowledge of creating richness maps, we will already have generated some richness prior to the working session.

Annex 1 to Tutorial 2c contains full technical processes for obtaining information on threatened species and generating species richness maps from IUCN species extent of occurrence data

II) Importance for ecosystem services

Discussion and Technical activities

Objective: Identification and preparation of datasets which show importance for ecosystem services

DISCUSSION AND EXPLORATION OF DATA FOR LOOKING AT ECOSYSTEM SERVICE BENEFITS

There are a number of different types of ecosystem services data that can be presented spatially, and a number of approaches that can be used to generate these map layers. Below are some examples of ecosystem services datasets. Not all of these datasets may be readily available and accessible in the planning location.

- Soil erosion control
  - **WaterWorld** is an approach for generating information on water-related ecosystem services in the landscape, and can also be used to run simple scenarios to identify the impacts of forest loss
  - **Importance of forests for limiting soil erosion risk using a multi-criteria additive approach** (See Annex2) for technical details
  - **Importance of forest for soil/water conservation using the Viet Nam Forest Functions dataset:** Examine the datasets (i.e. input layers and intermediate steps) used for determining forest categories (Protection, Production, SUF), particularly those related to soil erosion control

- Other water resources layers
  - Location of reservoirs, drinking water sources and hydropower dams
  - Location of wetlands

- Protection from natural hazards
  - Soil erosion risk (as above)
  - Coastal protection (e.g. mangrove forests, coastal wetlands/estuaries) and sea level rise projections

- Timber supply:
  - Location of production forests
  - Location of wood processing facilities
  - Distribution of key timber species

- NTFPs
  - Forests managed for community resources (e.g. NTFPs, fuelwood)
  - Distribution/abundance of NTFPs species
  - Distribution of certain key NTFPs, e.g. bamboo

Although there may be several approaches available for exploring ecosystem services spatially, for the purposes of this exercise, we will be preparing and using the following layers:

- Hydrological services outputs from WaterWorld analysis of Lao Cai (using the online WaterWorld tool)
- 1 x provisioning ecosystem service (e.g. timber supply, bamboo) (using forest type/management category data)

When working at the provincial level in the future, it is important to remember that a) other ecosystem services datasets are available, and b) that the most appropriate data for the context is chosen.