eurostat

LUCAS 2009
(Land Use / Cover Area Frame Survey)

M2 - Quality Assurance

1.1. Quality assurance

In order to provide good quality statistics on land cover and use, special attention has been devoted to the production process to ensure that the resulting data satisfy customer requirements in a systematic and reliable way.

Therefore quality assurance has been a crucial component during all the phases of the survey. In this respect the following actions have been put in place:

- Different actors/level of controls
  A hierarchical structure has been set up. Depending on the countries, it can include up to 5 levels of control (Surveyor, Supervisor, Central Office, External Quality Control, Eurostat). At each step data are checked before being forwarded to the further one.

- Various training steps
  The various roles/actors received specific training. The Central Offices and project managers received training directly from Eurostat in Luxembourg. They organized training sessions in their own countries based on the detailed documentation issued by Eurostat.
  A FAQ list has been continuously updated and circulated to support the various actors and provide additional training on specific issues.

- Continuous monitoring of the work
  Follow-up missions were carried out in the first weeks of the survey in all the countries. Detailed reports were delivered to Eurostat on a weekly basis and quick feedback provided when needed. A continuous help-desk was assured by the LUCAS team and by the JRC-soil team to the contractors.

- Independent data quality check
  Data quality check was performed by an external company on 40% of the points.
  Both automatic and manual controls were applied.
  The main manual controls consisted of the following:
  - Checking whether data are:
    - compliant with LUCAS instructions and rules;
    - without formal errors;
    - without obvious content errors.
  - Comparing 2009 data with 2006 ones (where available)
  - Checking transect;
  - Checking GPS tracks;
  - Checking the quality of the photos and anonymizing them where needed.

- Standardization and computerization of the main phases of the data management
  The LUCAS data collection process has the aim of collecting raw micro-data (e.g. tabular data, pictures and GPS tracks) at geo-referenced points belonging to a representative sample. The volume of these datasets is quite considerable and requires specific tools to manage transmission, editing, storage, etc.
  Due to these specificities, the standardization and computerization of the phases of the LUCAS data production process was reinforced in 2008/2009. An ad-hoc IT tool, named Data Management Tool (DMT in the following), has been developed.

1.5.1 The Data Management Tool

A very important IT technological innovation introduced in 2008 is represented by the Data Management Tool. This tool provides support in all the phases of the survey with the following main modules:

1. Point management: Data Entry Tool (supervised data entry, consistency and ranges check);
2. Data Import (sent forward by one step lower level or sent backward by one step higher level);
3. Data export;
4. Point assignment;
5. Report builder;
6. Language choice.

The supervised data entry module reproduces strictly the field form (see Document C2-FieldForm) used by the LUCAS surveyors to register data in the field. It guides the surveyor in the data editing indicating the next field that needs to be filled in, the modalities that are coherent with the ones already inserted and so on. It also includes a list of on-line ranges, consistency checks and other automatic controls. If, editing data, surveyor violates one of these rules, DMT provides a warning message informing about the problem. These checks are also run while importing or exporting data. The data workflow among the various actors, managed by the DMT, is presented in Annex 1. Further development of this IT tool will be considered for future Lucas surveys.

Quality Control Workflow