Rogiers Nele, Fedele Giacomo, Volz Richard
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Afforestations in Switzerland as reported under the Kyoto Protocol Art. 3.3

1 Introduction

Activity data Article 3.3 (Afforestation and Deforestation) and Article 3.4 (Forest Management) of the Kyoto Protocol are derived from the Swiss Land-Use statistic AREA (SFSO 2009). The AREA-survey identifies afforestations through a specific land-use (LU) category. AREA accounts only the conversions which can clearly be attributed as direct human-induced from aerial photographs (i.e. through planting). All areas with this AREA land-use category have been assigned to the combination categories afforestation (CC11) for reporting under UNFCCC (FOEN 2010). In addition to the condition to be direct-human induced, areas converted to forest should also fulfil the minimum criteria (area, crown cover, potential to achieve minimum tree height) for Forest as defined under the Kyoto Protocol. For illustrating purposes, two examples of Kyoto Afforestations are illustrated by showing a series of aerial photos from the AREA surveys 1, 2 and 3.

2 AREA Land-Use changes from non-forest land to forest land and Afforestations under the Kyoto Protocol Art. 3.3

The Swiss definitions of Afforestations and Forests under the Kyoto Protocol are defined in Switzerland's Initial Report (FOEN 2006h):
- **Afforestation** is the conversion to forest of an area not fulfilling the definition of forest for a period of at least 50 years if the conversion is a direct human-induced activity. Natural forest regeneration due to abandonment of land is not considered to be a direct human-induced activity.
- **Forest** is a minimum area of land of 0.0625 ha with crown cover of at least 20% and a minimum width of 25 m. The minimum height of the dominant trees must be 3 m or have the potential to reach 3 m at maturity in situ.

Activity data for the activity Afforestation under the Kyoto Protocol are based on the land-use category "afforestation" (LU302; for a detailed description see SFSO 2006) with any land-cover category (LC) on which trees can be planted. The congruence of Land use category 302 with any suitable land cover category leads to the combination category afforestation (CC11) in the land-use change matrix for greenhouse gas reporting (see combination matrix in FOEN 2007f and FOEN 2010d). For each point a land-use (LU) and a land-cover (LC) category is assigned and the minimum values for area and tree cover are checked (SFSO 2006a, FOEN 2010d).

By considering both AREA LC and LU categories, it is guaranteed that the areas reported under Afforestation do fulfil the requirements of the Swiss definition for Afforestation and Forest under the Kyoto Protocol (FOEN 2006h):
- The AREA LU category "afforestation" (LU302) only includes sample points which were not classified as forest in the previous survey and which were converted to forest through a direct human-induced intervention such as planting or seeding (SFSO 2006) and
- all AREA LC categories based on their occurrence in combination with LU302, have the potential to meet the definition of Forest.

A specific characteristic of human-induced afforestations is that a specific area is regenerated simultaneously following a geometric pattern. Natural regenerations, in contrast, do not present such homogeneous geometrical or demographical distribution pattern of the young trees (< 3m). Therefore, these AREA afforestations (CC11) can easily be identified during the interpretation of the aerial photographs.

In Switzerland, the larger area of conversion to forest land occur on abandoned grassland where trees grow without human intervention (FOEN 2010). However these areas are not accounted for as Afforestations under the Kyoto Protocol because Switzerland does not consider conversions due to natural regeneration as direct human-induced (see the above mentioned Swiss definition of "Afforestations").

3   References

FOEN 2006h: Switzerland's Initial Report under Article 7, paragraph 4 of the Kyoto Protocol. Federal Office for the Environment, Bern. Including the Update following the UNFCCC review (FCCC/IRR/2007/CHE).
http://www.environment-switzerland.ch/climatereporting/03211/index.html?lang=en

FOEN 2007f: Definition der Kombinationskategorien (CC) für die LULUCF-Berichterstattung auf der Basis der AREA-Landnutzungs- und Landbedeckungskategorien. Internes Dokument, Version 2 vom 30.05.2007. [Definition of combination categories (CC) for LULUCF reporting based on AREA land-use/land-cover categories. Internal document, version 2 as of 30.05.2007.] Federal Office for the Environment, Bern.
http://www.environment-switzerland.ch/climatereporting/00545/01913/index.html?lang=en

FOEN 2010: Switzerland's Greenhouse Gas Inventory 1990–2008: National Inventory Report, CRF tables, Kyoto Protocol LULUCF table 2008, SEF and SIAR tables from the National Registry. Submission of 15 April 2010 under the United Nations Framework Convention on Climate Change and under the Kyoto Protocol. Federal Office for the Environment, Bern.
http://www.environment-switzerland.ch/climatereporting/00545/10195/index.html?lang=en

FOEN 2010d: Deforestation in Switzerland as reported under The Kyoto Protocol Art. 3.3. Federal Office for the Environment, Bern.

SFSO 2006a: Arealstatistik 2004/09 - Kategorienkatalog. Bodenbedeckung, Bodennutzung. Sektion Geoinformatik, Swiss Federal Statistical Office, Neuchâtel.
http://www.environment-switzerland.ch/climatereporting/00545/01913/index.html?lang=en

4   Annexes

Two examples of Afforestations under the Kyoto Protocol are illustrated in Annex 1 by showing a series of aerial photos from the AREA surveys 1, 2 and 3.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of the Environment,
Transport, Energy and Communications DETEC

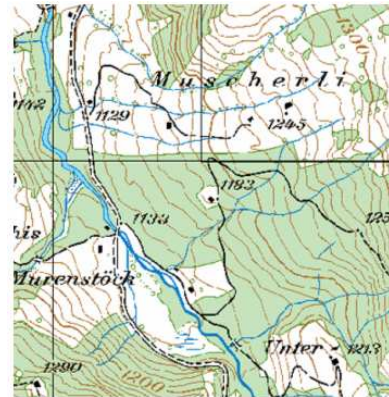**Federal Office for the Environment FOEN**

Annex 1

Afforestations according to Kyoto Protocol 3.3

Example 1

- **Situation**
  An area converted to forest is identified as a KP Afforestation if it has not been forest before and is converted to forest land by a direct human-induced activity

- **Reasoning**
  The conversion can be identified as direct human-induced because a large area on a big slope shows a regular planting pattern

- **AREA pictures**
  1980: Grassland (CC31)
  1992: Afforestation (CC11)
  2004: Prod. Forest (CC12)
         kept as A under KP

LK 1:25'000

1980   242-21 (CC31)

1992   302-31 (CC11)

2004   301-41 (CC12)

Example 2

- **Situation**

  An area converted to forest is identified as a KP Afforestation if it has not been forest before and is conver-ted to forest land by a direct human-induced activity
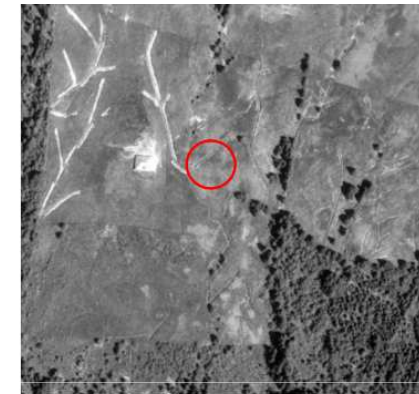
- **Reasoning**

  The conversion can be ident-ified as direct human-induced because a large area shows a regular planting pattern

- **AREA pictures**

  1980: Grassland (CC31)
  1992: Afforestation (CC11)
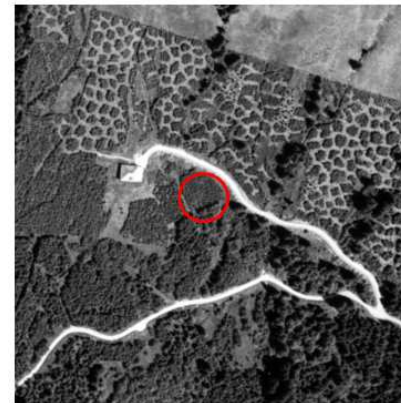 2004: Prod. Forest (CC12)
        kept as A under KP

LK 1:25'000

1980   242-21 (CC31)

1992   302-31 (CC11)

2004   301-41 (CC12)