



Reference: K281-0800

## **Subject: "Notification – Biofuels and Biodiversity"**

**Submission by Switzerland**

**2 November 2011**

**Agricultural biodiversity: biofuels and biodiversity. Experiences and results from assessments of the impacts of biofuel production and use on biodiversity and impacts on biodiversity that affect related socioeconomic conditions**

**Ref.: SCBD/STTM/JM/DCO/76500 - NOTIFICATION No. 2011-121**

**General remark concerning the title:** There is some ambiguity on the thematic area. The discussion on biofuels in Nagoya has recognized the fact that there are multiple effects of production and consumption of biofuels on our environment, e.g. regarding rural livelihoods, land-use changes, climate change, desertification and biodiversity. Therefore, Switzerland supports the view that the biofuel discussion should be undertaken at the level of ecosystems, taking the ecosystem approach.

In line with that, the COP-10 Decision X/37 has correctly referred to this issue as a separate topic "Biofuels and biodiversity" whereas the previous Decision IX/2 had taken a more focused approach by including it under "Agricultural biodiversity: biofuels and biodiversity".

### **1 Introduction and Swiss approach to the issue of biofuels**

**Sustainable development** is one of Switzerland's basic principles anchored in the Federal Constitution (art. 73). Since 1997, the Federal Council has operated a Sustainable Development Strategy as the basis for performing its constitutional task of sustainable development in Switzerland. In this context, the federal government is looking for ways to chart a path to a «2000 Watt society»<sup>1</sup>, to promote renewable energies and new and less energy-intensive ways of life and business. It is considered that biofuels will not play a significant role in achieving this aim.

The principle of sustainable development is also reflected in the **Biomass Strategy** that was elaborated by the Swiss Federal Office of Energy SFOE, Federal Office for Agriculture FOAG, Federal Office for Spatial Development ARE and the Federal Office for the Environment FOEN<sup>2</sup>. The Biomass Strategy recognises the importance of biomass as a fundamental resource sustaining livelihoods in terms of food, feed, raw material and energy. Amongst others, the strategy stipulates that domestic biomass production contributes to securing a high degree of supply, that the surfaces of arable land necessary for biomass production - especially in terms of food and feed - shall not diminish, and that the production of biomass should contribute to the long-term conservation of biodiversity.

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<sup>1</sup> Swiss Federal Council, Sustainable Development Strategy: Guidelines and Action Plan 2008–2011, Report of 16 April 2008

<sup>2</sup> Biomassestrategie Schweiz – BFE, BLW, ARE und BAFU; Stand am 23.03.2009: <http://www.news-service.admin.ch/NSBSubscriber/message/attachments/15396.pdf>

Principles for the use of biomass for energy was further detailed in the **Strategy for use of biomass for energy in Switzerland**<sup>3</sup>:

- I. The full energy potential of biomass shall be used sustainably;
- II. A positive ecological balance shall be achieved without additional safety hazards;
- III. Reduction of greenhouse gas emissions;
- IV. Maximal substitution of non-renewable energy sources;
- V. Provision of high quality energy;
- VI. Use of synergies;
- VII. Corporate social responsibility;
- VIII. Prevention of loss of arable land;
- IX. Adaptation of legal framework;
- X. Development of technologies.

At the international level, Switzerland supports the **development of internationally accepted standards** for biofuels with a view of harmonising national initiatives (e.g. sustainability criteria for biofuels, certification schemes), based on full life cycle assessments and in order to avoid pressures on biodiversity and to assure food security. Switzerland approves a moderate promotion of biofuel production as long as such standards are complied with.

The Swiss Federal Council was invited to participate in the development of internationally accepted standards and recognizes the significance of such standards as important tools for sustainable biofuels production.

#### **NGO position**

NGOs advocate a strong legislation and stringent standards to secure the sustainability of biofuel production and consumption. The general position could be summarised as follows: biofuels need to report a significant environmental and socio-economic benefit to be exploited.

Central claims of NGOs include:

- Assessment of sustainability based on full lifecycle assessment<sup>4</sup>;
- Biofuel production does not affect food security<sup>5</sup>
- Elaboration of guidelines for selected products (e.g. palm oil, cellulose) and sectors (e.g. banking)<sup>6</sup>
- Conservation of «High Conservation Value Forests», «High Carbon Value Forests» and «Peatlands» must be secured<sup>7</sup>

#### **Position of the scientific community**<sup>8, 9</sup>

Production and consumption of biofuels are to be examined against the background of trade-offs between reducing greenhouse gas emissions and lowest possible environmental impacts including

<sup>3</sup> Strategie für die energetische Nutzung von Biomasse in der Schweiz- Bundesamt für Energie, Version 2.0 vom 28.09.2010. [http://www.bfe.admin.ch/php/modules/publikationen/stream.php?extlang=de&name=de\\_697939464.pdf&endung=Strategie%20%FCr%20die%20energetische%20Nutzung%20von%20Biomasse%20in%20der%20Schweiz](http://www.bfe.admin.ch/php/modules/publikationen/stream.php?extlang=de&name=de_697939464.pdf&endung=Strategie%20%FCr%20die%20energetische%20Nutzung%20von%20Biomasse%20in%20der%20Schweiz)

<sup>4</sup> VCS:

[http://www.verkehrsclub.ch/index.php?eID=tx\\_nawsecuredl&u=0&file=/uploads/tx\\_frpredakdata/Stellungnahme\\_VCS\\_Agrotreibstoffe\\_def.pdf&t=1313505693&hash=61417b162ee4956c84a6ffc6982c49b2](http://www.verkehrsclub.ch/index.php?eID=tx_nawsecuredl&u=0&file=/uploads/tx_frpredakdata/Stellungnahme_VCS_Agrotreibstoffe_def.pdf&t=1313505693&hash=61417b162ee4956c84a6ffc6982c49b2)

<sup>5</sup> WWF: [http://assets.wwf.ch/downloads/anhorung\\_agrotreibstoffe\\_wwf.pdf](http://assets.wwf.ch/downloads/anhorung_agrotreibstoffe_wwf.pdf); VCS:

[http://www.verkehrsclub.ch/index.php?eID=tx\\_nawsecuredl&u=0&file=/uploads/tx\\_frpredakdata/Stellungnahme\\_VCS\\_Agrotreibstoffe\\_def.pdf&t=1313505693&hash=61417b162ee4956c84a6ffc6982c49b2](http://www.verkehrsclub.ch/index.php?eID=tx_nawsecuredl&u=0&file=/uploads/tx_frpredakdata/Stellungnahme_VCS_Agrotreibstoffe_def.pdf&t=1313505693&hash=61417b162ee4956c84a6ffc6982c49b2)

<sup>6</sup> Greenpeace: [http://www.greenpeace.org/switzerland/de/News\\_Stories/Magazin/Schweizer-Banken-auf-dem-Holzweg/#a4](http://www.greenpeace.org/switzerland/de/News_Stories/Magazin/Schweizer-Banken-auf-dem-Holzweg/#a4); → Greenpeace unterstützt 'Brot statt Agrotreibstoffe!', <http://www.agrotreibstoffe.ch/de/ueber-uns/>

<sup>7</sup> Greenpeace: [http://www.greenpeace.org/switzerland/de/News\\_Stories/Magazin/Schweizer-Banken-auf-dem-Holzweg/#a4](http://www.greenpeace.org/switzerland/de/News_Stories/Magazin/Schweizer-Banken-auf-dem-Holzweg/#a4)

<sup>8</sup> Biodiversité et climat – Conflits et synergies au niveau des mesures (2008). Prise de position de l'Académie suisse des sciences naturelles (SCNAT). [http://www.biodiversity.ch/f/publications/position\\_papers/index.php](http://www.biodiversity.ch/f/publications/position_papers/index.php)

<sup>9</sup> Stellungnahme zum Entwurf der Treibstoff-Ökobilanzverordnung (TrÖbiV) 15.8.2008. Swiss Academies of Sciences, Bern

biodiversity, using full life cycle assessments. Regarding biofuel production the scientific community advocates:

- Biodiversity consideration to be integrated into the certification schemes that are currently being developed;
- Potential synergies between climate change mitigation and biodiversity conservation be integrated into new certification schemes, thus providing a comprehensive decision-making support;
- No production in the buffer zones surrounding protected areas;
- Mandatory ecological and social minimum standards.
- Biofuel production does not affect food security and prevents land substitution effects

### **Private sector position**

A consolidated position of the private sector for biofuels is not available. An assessment conducted by Bank Sarasin Sustainability Research ("Renewable Energies 2010") reports that the most important challenge for biofuels is the question of environmental benefit<sup>10</sup>. First-generation biofuels in particular are in direct competition with food production and are forcing food prices to increase. The biofuel industry is therefore promoting the development of environmentally friendly and socially compatible technologies of the second and third generation. Related research and private investments depend however heavily on the development of crude oil prices, state taxes and subsidies in the energy sector.

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[http://www.sarasin.ch/internet/iech/en/index\\_iech/about\\_us\\_iech/media\\_iech/news\\_iech.htm?reference=110624&checksum=D9898BEA99CB1BB05C4BF2DA62BCFFF](http://www.sarasin.ch/internet/iech/en/index_iech/about_us_iech/media_iech/news_iech.htm?reference=110624&checksum=D9898BEA99CB1BB05C4BF2DA62BCFFF); zitiert in der Zeitschrift Market (<http://www.market.ch/de/finance/details/article/nachhaltigkeitsresearch-der-bank-sarasin-ungechwise-zukunft-fuer-biokraftstoffe.html>)

## 2 Biofuel production in Switzerland

The share of biofuels (Biodiesel, Bioethanol and Plant oil/waste oil<sup>11</sup>) in Switzerland in the overall energy consumption in Switzerland was only 0.05 % in 2010. Biodiesel is the most important biofuel produced in Switzerland. According to the Biofuels Platform Switzerland, there are currently less than 10 companies that produce Biodiesel . With the closing of the only factory in 2008, no bioethanol is produced in Switzerland at present. The production in Switzerland is mainly based on biological waste material.

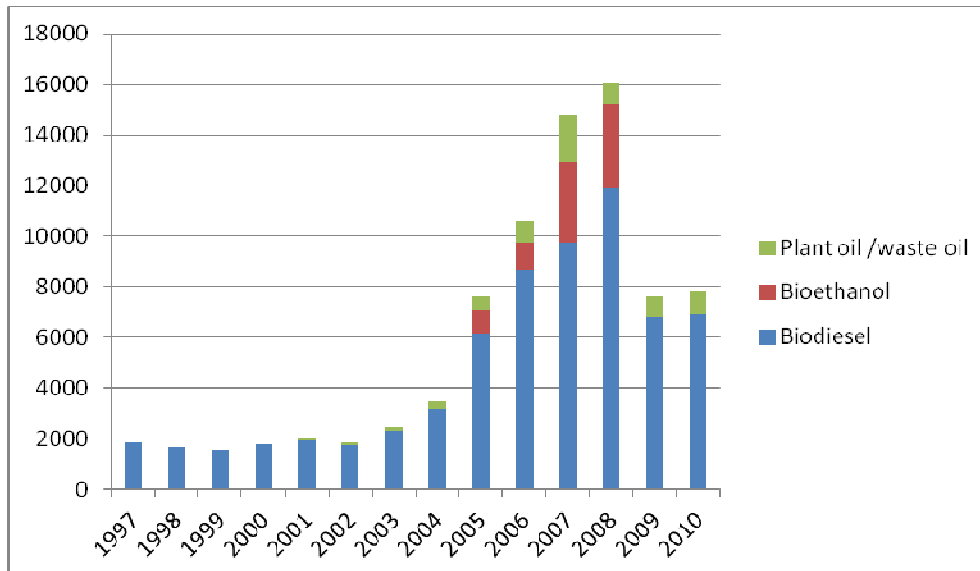


Figure 1: Biofuel production in Switzerland, in 1000l at 15°C, Overall energy statistics, Swiss Federal Office of Energy SFOE. The only bioethanol factory in Switzerland closed in 2008.

## 3 Biofuel imports to Switzerland

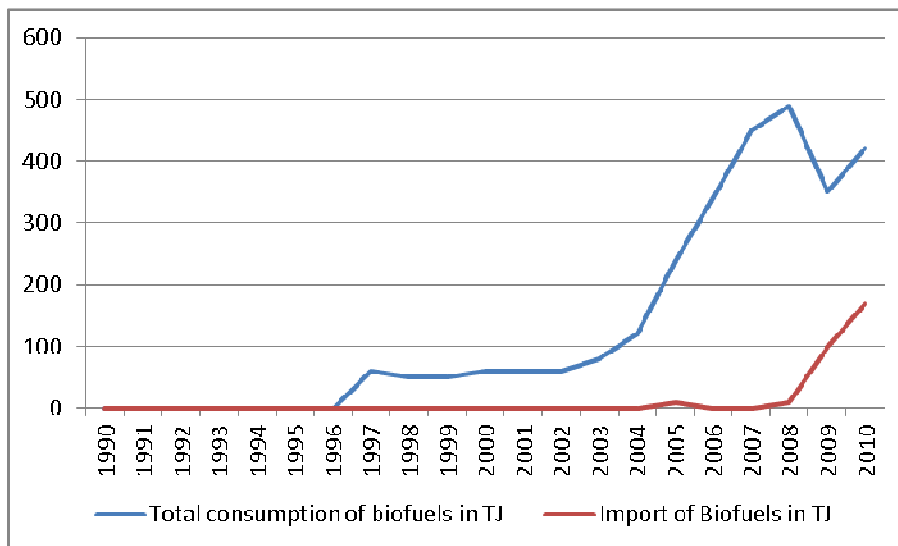


Figure 2: Biofuel consumption in Switzerland, Swiss Overall energy statistics 2010, Swiss Federal Office of Energy SFOE

<sup>11</sup> Biogas plays an important role in the Swiss biofuel market, but is not imported. We focus this paper on fluid biofuels.

Imports constitute a minor share of biofuel consumption in Switzerland. However imports of biofuels have significantly increased since 2008, mainly due to the increase in bioethanol imports substituting the closure of the only domestic factory. In terms of volume, the import of biodiesel (2.3 mio l. in 2010) amounts to slightly less than bioethanol (2.5 mio l. in 2010).

Currently, the consumption of biofuels in Switzerland is increasing. In 2020, biofuels had a share of 0.05% of the total Swiss energy consumption, this was an increase of 7.3% from 2009. Switzerland imported 170 TJ of Biofuels in 2010, 100 TJ in 2009 and 10 TJ in 2008<sup>12</sup>.

## 4 Legal basis

### **Federal Act on Energy** (1998, SR 730.0, last revised 2011)

- Energy has to be used economically and rationally (art. 3, para 1(a));
- Renewable energy has to be promoted (art 3 para 1(b)).

### **Mineral Oil Tax Law** (1996, SR 641.61, last revised 2008)<sup>13</sup>

The most important aspects of the law include (cf. art. 12b):

- Tax reduction for fuels produced from renewable feedstocks: Fuels from renewable feedstocks are exempt from the mineral oil tax, provided that they prove they have a positive aggregate environmental impact and are produced under socially acceptable conditions.
- Proof of positive aggregate environmental impact: The Federal Council defines minimum requirements for proof of a positive aggregate environmental impact (cf. Mineral Oil Tax Ordinance (MinOTO)).
- Neutrality of revenues: The measures taken should not have any impact on the Confederation's revenues. The loss of revenue caused by the tax-exempt status of biofuels are offset by a higher taxation of gasoline. In order to ensure the neutrality of revenues, the tax rate applicable to gasoline is adjusted periodically to changing quantities subject to tax. The tax rate is adjusted every 1 to 2 years by the Federal Council.

### **Mineral Oil Tax Ordinance** (SR 641.611, last revised 2008)<sup>14</sup>

The most important aspects of the ordinance include (cf. art. 19a – 19h):

- Ecological minimum requirements: There are three ecological minimum requirements that must be met in order to qualify for tax exemption:
  - fuels from renewable feedstocks must generate at least 40% less greenhouse gas emissions (from cultivation of raw materials till end use) compared to the life cycle emissions of petrol
  - fuels from renewable feedstocks must not harm the environment significantly more (from cultivation of raw materials till end use) than petrol and
  - the cultivation of raw materials must not endanger tropical forest preservation and biological diversity.
- Social minimum requirements: The cultivation of raw materials and the production of biofuel must respected the social regulations applicable in the producing country. However, the ILO fundamental conventions must be respected in every case.
- Waste and residues: biofuels obtained from residues or wastes from agricultural or forestry production or processing are presumed to fulfil the ecological minimum requirements conditions if they were produced according to the state of the art.
- Biofuels from palm oil, soybeans or cereals are presumed not to fulfil the above conditions, but the applicant can provide evidence to prove that they do.

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<sup>12</sup> Swiss Overall energy statistics 2010, Swiss Federal Office of Energy SFOE

<sup>13</sup> Source: [http://www.admin.ch/ch/f/rs/c641\\_61.html](http://www.admin.ch/ch/f/rs/c641_61.html) (French only)

<sup>14</sup> Source: [http://www.admin.ch/ch/f/rs/c641\\_611.html](http://www.admin.ch/ch/f/rs/c641_611.html) (French only)

**Biofuels Life Cycle Assessment Ordinance (BLCAO)**<sup>15</sup> The BLCAO defines how an applicant must prove the positive aggregate environmental impact of fuels from renewable feedstocks so as to be granted tax relief in accordance with Article 19a paragraph 1 MinOTO. The most important aspects of the ordinance include:

- The burden of proof lies with the producer or importer to provide information on the type, description and quality of fuel, the entire process of fuel production, from cultivation of raw materials to the distribution of fuel to the consumers, and their impact on tropical forests and biodiversity.
- The BLCAO provides for the recognition of equivalence of relevant third country regulations or recognised national or international standards, thus potentially relieving imported biofuels from duplicative proof requirements.
- Based on the provided information, the FOEN to establishes the aggregate environmental impact of the product through life cycle assessment (LCA). Information provided by the applicant is balanced against impact data in ecoinvent and other equivalent databases based on the ecological scarcity method or other equivalent methods.
- The FOEN may demand, in doubtful cases, that independent third parties verify and confirm the accuracy of the information.

## 5 Measures to support the sustainable production of imported biofuels

As described above, Switzerland has implemented a tax relief procedure for Swiss importers and producers of biofuels (1.7.2008) who comply with a set of ecological and social criteria (Mineral Oil Tax Ordinance MinOTO; Biofuels Life Cycle Assessment Ordinance BLCAO, 15 April 2009). Applicants need to submit an official form to the Directorate General of Customs. The application is subsequently being evaluated by the Federal Office for the Environment (ecological aspects) and the State Secretariat for Economic Affairs (social aspects).

A parliamentary initiative intends to tighten criteria for tax relief or to introduce market constraints for biofuels with the view to avoid negative direct and indirect effects such as jeopardizing food security, local livelihoods and the sustainable use of forests. This work has currently been put on hold.

### Evaluation of the environmental impact of the entire production chain of fuels made from biomass used in Switzerland

The Swiss Federal Laboratories for Materials Science and Technology EMPA conducted a life cycle analysis (LCA) of various biofuels (i.e. bioethanol, biomethanol, biodiesel and biogas). The study shows that most biofuels struggle to minimize both greenhouse gasses (GHG emissions) and environmental impacts. A number of biofuels have a potential to reduce GHG emissions. However, most of these supply paths show greater impacts than petrol for various other environmental indicators.

### The Roundtable on Sustainable Biofuels<sup>16</sup>

The Roundtable on Sustainable Biofuels (RSB) is an international initiative coordinated by the Energy Center at EPF in Lausanne that brings together farmers, companies, non-governmental organizations, experts, governments, and inter-governmental agencies concerned with ensuring the sustainability of biofuels production and processing.

In an open and transparent multi-stakeholder process, the RSB has developed a standard with a set of sustainability principles and criteria including a third-party certification system which is applicable to any type of feedstock worldwide. The RSB certification scheme has been recognised by the European Union as a voluntary control systems that certify the sustainability of biofuels.

### Biofuel sustainability assessment tools and GHG calculator

Supported by the Swiss State Secretariat for Economic Affairs (SECO), researchers at Empa together with the Technical University in Berlin (HTW) have developed an online tool to quickly assess the

<sup>15</sup> Source : <http://www.admin.ch/ch/e/rs/6/641.611.21.en.pdf>

<sup>16</sup> [www.rsb.org](http://www.rsb.org)

sustainability of biofuel production (Sustainability Quick Check for Biofuels, SQCB). The tool is freely available on the internet<sup>17</sup> and can be used by any interested party who wishes to perform lifecycle GHG calculations and assess environmental impacts of biofuels. The tool doesn't include biodiversity criteria. --> doesn't cover biodiversity criteria

Another online tool was developed by the Roundtable on Sustainable Biofuels (RSB), also in collaboration with Empa and the HTW to assess the sustainability of biofuel production according to the RSB Standard and other regulations, including the EU Renewable Energy Directive (EU RED).<sup>18</sup> The RSB Tool allows users to perform a self-assessment against the 12 RSB Principles & Criteria and a self-risk assessment. In addition, the online tool also calculates GHG emissions of biofuels for each lifecycle production step, from farming to final fuel distribution, and this calculation can be done according to various methodologies, including the RSB's own methodology and the EU RED methodology.

- **Global Bioenergy Partnership (GBEP)**

GBEP was established to implement the commitments taken by the G8 in the 2005 Gleneagles Plan of Action to support "biomass and biofuels deployment, particularly in developing countries where biomass use is prevalent". As a member, Switzerland has been involved in the GBEP Task Force on Sustainability which aim is to develop science-based benchmarks and indicators for sustainable biofuel production. As such, a set of 23 indicators was developed under the three pillars "Environment", "Social" and "Economic". This work should be completed by end of 2011.

### **General environmental objectives for agriculture<sup>19</sup>**

The Federal Office for the Environment (FOEN) and the Federal Office for Agriculture (FOAG) jointly identified a set of general environmental objectives for agriculture. The objectives are based on existing legal requirements as reflected in various acts, ordinances, international treaties and decisions of the Federal Council.

The general objectives are organised according to the following priorities: biodiversity and landscape, climate and air, water, and soil. An overview of the agriculture-related environmental objectives is provided in Appendix II of Switzerland's fourth national report to the CBD.

### **High Nature Value Farmland Regions in Switzerland<sup>20</sup>**

A study commissioned by WWF Switzerland and SVS / Birdlife Switzerland identifies the High Nature Value Farmland Regions in Switzerland (HNV regions). However, the impact of biofuel production on HNV regions has so far not been investigated.

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<sup>17</sup> <http://www.sqcb.org>

<sup>18</sup> <http://buiprojekte.f2.htw-berlin.de:1339/>

<sup>19</sup> OFEV et OFAG 2008: Objectifs environnementaux pour l'agriculture. A partir de bases légales existantes. Connaissance de l'environnement n°0820. Office fédéral de l'environnement, Berne: 221 p. (download: pdf, 6584 kB, <http://www.bafu.admin.ch/publikationen/publikation/00097/index.html?lang=fr, languages: fr, de>)

<sup>20</sup> [http://assets.wwf.ch/downloads/die\\_landwirtschaftlichen\\_regionen\\_der\\_schweiz\\_mit\\_hohem\\_naturwert\\_1.pdf](http://assets.wwf.ch/downloads/die_landwirtschaftlichen_regionen_der_schweiz_mit_hohem_naturwert_1.pdf)