Climate Change Mitigation by Biomass – Core Statements in a Special Report prepared by the German Federal Advisory Council (SRU)

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Introduction

In May 2007, the German Federal Advisory Council on the Environment (Sachverständigenrat für Umweltfragen – SRU) published a special report on the potential impacts of an increased demand for biomass production in Germany. The report highlighted both the threats and opportunities in regards to climate change mitigation, agriculture, and nature conservation, providing an overview of current trends and developments in Germany's biomass and bioenergy sector. While the general objective of providing alternatives to fossil fuels to reduce global warming was being welcomed by the SRU, the council also requested more scientific research in the field of comprehensive life cycle assessments to better understand the true greenhouse gas emissions savings of biofuels and in regards to the impact on natural resources, protected species and the recreational value of agricultural landscapes.

Motivation for the Report

Germany's current bioenergy policy – in line with European policies – grants farmers financial incentives (subsidies) for the production of bioenergy crops. When the report was initialized in late 2006, this policy already provided as a catalyst for (locally) dramatic changes in terms of crop rotation, land allocation and prices. Several studies revealed scenarios that gave the impression that investments in the bioenergy sector would solve all problems in the agricultural sector and of rural areas. Unlimited growth scenarios also raised concerns about a lack of concurrence between energy, climate change and conservation policies throughout Europe. While in the meantime, more realistic objectives seem to replace euphoria, current developments show a need for a more strategically planned policy approach, taking all risks and opportunities in account.

Impacts of Increased Biomass Production

The SRU quickly realized that current advancements in the bioenergy sector outrun research capabilities to ensure a careful evaluation of long-term positive and negative side effects. This situation poses a problem as the basis for SRU report has to be sound scientific data. Despite the lack of monitoring and the availability data, three core issues in regards to effects generated by an increased production of bioenergy crops were identified:

1. Socio-economic impacts: Due to the high demand for arable land – aggravated by higher world market prices for foods – lease rates for arable land have significantly increased in various areas in Germany over the past year. This development could pose a negative effect all over the agricultural sector, potentially impact small and medium farms.
2. Ecological impacts (domestically): The high demand for bioenergy crops, coupled with the current development of world market prices, has led to a trend of re-intensification of agricultural practices. This could result in higher loads of fertilizer (specifically N-fertilizers) and pesticides, threatening the achievement of objectives required by other EU laws such as the Water

Framework Directive (WFD). Additionally, current data indicate show an increased pressure on grasslands in Natura 2000 sites as these are ploughed for agricultural use. Agri-environmental measures are no longer competitive. The temporary suspension of obligatory set-asides adds additional pressure on conservation issues.

3. Ecological impacts (globally): The increased demand, propelled by the EU's ambitious goals in the biofuel sector, will require the import of biomass in the near future. The globalization of the market will not only lead to an increased competition between domestic and international producers, but also to the question of fair standards in all senses. In order not to offset climate change mitigaton objectives and to ensure equal production terms for all farmers, a framework (such as a certification similar to other products such as timber) for the sustainable production of biomass will be necessary before e.g. the creation of palm oil plantations in Southeast Asia leads to the destruction of old-growth rain forests.

Strategies and Solutions

In order to address current issues and problems, the SRU proposed a multi-layered policy approach on a federal and European level. This catalogue of measures includes the setting of priorities (climate change mitigation as the guiding principle for bioenergy policy), embedded in an integrated approach to the development of energy strategies, and the adaptation of funding instruments. As a long-term perspective, the SRU strongly voiced for the expansion of existing emissions trading schemes and their introduction at the primary trade level, thus ensuring climate change mitigation through the most cost-efficient means. In consequence, all energy sources, including renewables, would be exposed to a fair competition for the highest efficiency. A prerequisite for such a system though would be the introduction of comprehensive life cycle assessments to create equal conditions throughout the production level.

Literature

SACHVERSTÄNDIGENRAT FÜR UMWELTFRAGEN (SRU) (2007): Klimaschutz durch Biomasse. Sondergutachten. Berlin.