

Extended abstract No. 60

PEATLAND MANAGEMENT IN GERMANY: EU-SUBSIDIES AND RESTORATION STRATEGIES

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KEYWORDS: EU-agri-environmental policies, peatland and mire restoration, paludiculture

INTRODUCTION

More than 95% of the peatlands in Germany are drained and degraded ecologically. Most of these peatlands were drained in order to expand agricultural areas. Drained peatlands are important emitters of greenhouse gases (especially CO₂) and water dissolvable nutrients (Jensen *et al.*, 2011). In recent years, the importance of peatland protection has been recognised by the federal states of Germany and thus several peatland restoration and rewetting projects have been carried out. In other cases, EU-subsidies have been granted in order to encourage more sustainable management practices. Most of these projects are based on EU-agri-environmental policies.

In this paper, selected EU-agri-environmental policies in Germany are described, compared, and analysed. According to the German constitution, there is no general nature protection policy, i.e. the federal states (“Bundesländer”) all have their own nature protection policies and programs.

The results of this evaluation are one basis for creating an “optimal” subsidy directive for peatland restoration, rewetting, and management. Furthermore, a new and sustainable way of agricultural usage of peatland, the so called paludiculture, shall be introduced. Paludiculture is a peat preservative, productive use of peatland. For example, reed and other typical plants are harvested and further used either as building material or as feedstock for biogas plants or kilns. In Germany, paludicultures can only be found upon nature protection sites so far.

However, economically and ecologically sound incentives shall be identified to promote the introduction of paludicultures.

MATERIALS AND METHODS

In the paper, the federal states Mecklenburg Western-Pomerania, Brandenburg, Schleswig-Holstein, Lower Saxony, and Bavaria and their respective peatland protection programs are

described. The results are based upon a literature review of the above mentioned programs and upon statistical, administrative data.

RESULTS

Most of the German peatlands can be found in Northern Germany (78%) and in Bavaria (20%). The total peatland area is estimated about 1,419,000 ha (Jensen *et al.*, 2011).

Mecklenburg Western-Pomerania

Peatlands cover approx. 290,000 ha of the area of the federal state Mecklenburg Western-Pomerania, which is 12 % of the land area. Thus, Mecklenburg Western-Pomerania is the German federal state with the highest share of peatland. Fens make up most of the peatland. In former times, especially in socialist times, most of these fens were drained in order to expand the agricultural area. Nowadays, only 3% of the peatlands are in an almost natural state (Kowatsch, 2007).

After the German Reunification, Mecklenburg Western-Pomerania became one of Germany's leading federal states in relation to peatland protection and rewetting projects. In 1995, the state parliament decided on the importance of peatland protection and thus passed a scientific concept to protect and restore fens (Kowatsch, 2007). Based on this scientific concept, a so called "Peatland Protection Concept" ("Konzept zum Schutz und zur Nutzung der Moore") was published by the state parliament in 2000.

From 2000 to 2008, this long-term concept was put into practice and all in all, a peatland area of approx. 14,000 ha was rewetted (Permien and Ziebarth, 2009). These rewetting projects were financed by the EU, the German government and Mecklenburg Western-Pomerania (MLUV, 2009). Until 2006, 44 restoration projects were granted and 9,000 ha of peatland were rewetted. The subsidies added up to a total of 23.6 million € (Kowatsch, 2007). Hence, approx. 2,622 € per ha were spent on average for peatland restoration activities from 2000 to 2006, i.e. approx. 374.60 € per ha peatland and per year.

Due to consolidation of some EU-agri-environmental policies, e.g. the Water Frame Directive and the NATURA 2000 program, the state parliament passed an amendment to the "Peatland Protection Concept" in 2009 (Permien and Ziebarth, 2009). Changes in the CAP have also been influencing rewetting projects since 2005 (MLUV, 2009; Permien and Ziebarth, 2009). Since direct payments can be granted for grassland, less peatland area is offered for rewetting projects (MLUV, 2009). Currently, rewetting and restoration projects are carried out mainly on agricultural land which is not cultivated any more. These areas are bought for example by the "Landgesellschaft Mecklenburg-Vorpommern", a non-profit corporation (Landgraf, 2010). New concepts have to be introduced in order to combine a sustainable and peatland-protecting agriculture and land use with additional income possibilities for farmers and local businesses. Paludiculture could fill this gap.

The second "Peatland Protection Concept" will run until 2020 and it is based upon voluntariness, i.e. no landowner shall be dispossessed (Permien and Ziebarth, 2009; Landgraf, 2010). Approx. twelve million € per year are granted by the state parliament, some of these grants are co-financed by EU-programs. Furthermore, so called "MoorFutures" shall finance rewetting projects in future (MLUV, 2009; Permien and Ziebarth, 2009). These "MoorFutures" are shares which can be bought by private people and by companies as voluntary verified emission certificates. They are a simplified way to value ecosystem services.

Brandenburg

Approx. 8 % of the federal state's area is covered by peatland, which is approx. 210,000 ha (Röhl, 2005; Landgraf, 2010). As in Mecklenburg Western-Pomerania, most of these peatlands were drained in former times, especially in socialist times (Landgraf, 2010). Compared to Mecklenburg Western-Pomerania, the federal state Brandenburg lacks a comparable "Peatland Protection Concept", compulsive policies, and financially strong project executing organisations. Thus, no big rewetting projects have been carried out yet (Landgraf, 2010). Only a few small rewetting and restoration projects have been put into practice since the beginning of the 1990s. Overall, 3,000 ha of peatland were rewetted which is a small amount compared to other peatland-rich federal states (Landgraf, 2010).

A remarkably high amount (75 %) of the peatland-area in Brandenburg is used as agricultural land; almost 65 % of the total grassland lies upon fens and on half-bogs. However, rewetting and restoration projects have been carried out only upon almost natural peatlands and upon continental raised bogs (Landgraf, 2010).

Schleswig-Holstein

Peatlands and peat deposits make up almost 10% of the total area of Schleswig-Holstein, which can be further subdivided into 8% fens and 2% bogs (Röhl, 2005; Trepel, 2009).

In Schleswig-Holstein, the first nature protection areas were established in 1938. Since the beginning of the 1980s, bogs have been restored and moreover, a bog protection program was passed in 2008. In addition, a fen protection program was introduced in 2002. The focus of the latter is on nutrient retention (Trepel, 2009). Almost one-third of the fen area (32,000 ha) shall be restored by means of this ambitious program (Landgraf, 2010). Fen-rewetting projects, land acquisition, and allocation are financed by the federal state Schleswig-Holstein itself and can receive a promotion in the range of 90% up to 100%. Approx. 880,000 € per year are granted for rewetting projects, but these payments also include projects to restore watercourses (Kowatsch, 2007). Hence, only 27.50 € per ha peatland and per year are paid for fen-rewetting projects.

Lower Saxony

Most of the total peatland area in Germany can be found in Lower Saxony, namely 4,300 km². Furthermore, Lower Saxony also has the highest amount of bogs in Germany (Kowatsch, 2007). Currently, there is only one program to protect bogs, but none to protect fens. A particularity in Lower Saxony is the peat cutting, which is guaranteed upon 28,000 ha bogland until 2050 (Landgraf, 2010). Thus, the bog protection program intends both the restoration after peat cutting and the protection of bogland (Caspers and Schmatzler, 2009). This program was introduced in 1981, augmented in 1986, and a third level was added in 1994 (Kowatsch, 2007; Caspers and Schmatzler, 2009). It is financed by means of the federal state Lower Saxony and until 2005, approx. 28 million € were spent (Kowatsch, 2007).

Bavaria

The state area of Bavaria was originally covered by 3% peatland. Nowadays, almost 95% of the Bavarian peatlands are drained, thus only 5% can be regarded as in a natural state (Bayerisches Landesamt für Umwelt, 2009). The first restoration projects were carried out in the 1970s and 1980s and focused on bogs (Wagner and Wagner, 2005). In 2005, a peatland development concept (“Moorentwicklungskonzept [MEK]”) was introduced, which aims at peatland protection (Ringler and Dingler, 2005; Landgraf, 2010). This peatland development concept can be considered as a framework concept only and thus it is not based upon a certain EU-supported program (Ringler and Dingler, 2005; Kowatsch, 2007). Therefore, peatland restoration projects are financed by general means of nature protection and water policy (Kowatsch, 2007).

CONCLUSION

The five German federal states Mecklenburg Western-Pomerania, Brandenburg, Schleswig-Holstein, Lower Saxony, and Bavaria have each developed different peatland protection and rewetting strategies. It can be concluded, that the strategy of Mecklenburg Western-Pomerania is a very ambitious one. But still a lot of effort has to be put into creating ecologically and economically sound subsidy directives, rewetting, and management strategies. The introduction of the Renewable Energy Act (“Erneuerbare Energien Gesetz [EEG]”) in 2000 restrained peatland rewetting projects since it was more economical to use peatlands as agricultural area. Paludiculture could be a solution to combine an agricultural, but sustainable usage of peatlands with the aims of nature protection activities. Thus, subsidy directives have to be augmented in relation to paludicultures.

ACKNOWLEDGMENTS

The presentation bases on a project which is part of the joint research project “VIP-Vorpommern Initiative Paludiculture”. VIP aims at introducing sustainable ways of wet peat-

land management and farming (= paludiculture) in the Eastern part of Mecklenburg Western-Pomerania and elsewhere.

We thank the German Federal Ministry of Education and Research for funding this project.

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