

SHORT TERM SCIENTIFIC MISSION (STSM) SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

Action number: CA15206 Payments for Ecosystem Services (Forests for Water)

STSM title: W-for-W PES schemes: experience in Austria

STSM start and end date: 18/02/2019 to 01/03/2019

Grantee name: Khrystyna Vasylyshyn, Institute of Ecological Economics and Management, Ukrainian National Forestry University, Lviv, Ukraine

Host: Ao. Univ. Prof. Dipl.-Ing. Dr. Eduard Hochbichler and DI Dr. Roland Koeck, University of Natural Resources and Applied Life Science, Vienna, Austria, Department of Forest and Soil Sciences, Institute of Silviculture.

PURPOSE OF THE STSM:

The aim of the STSM was to identify woodlands for water payments for ecosystem services (W-for-W PES) schemes in Austria. We also analysed the public policy and current situation of the PES in Austria, reviewed the information collected on public PES schemes related to woodlands and water in Austria and the Best Management Practices within forested drinking water protected areas. The following combination of scientific methods and approaches such as consultations and interviews with host scientists, literature reviews and analysis of collected data were used in order to achieve the aim.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMs

The short term scientific mission at the Department of Forest- and Soil Sciences, Institute of Silviculture, University of Natural Resources and Applied Life Science (Universität für Bodenkultur), Vienna, Austria lasted for two weeks. The first week was used for detailed PESFOR-W's literature reviews and analysis of W-for-W PES case studies in Austria as well the Best Management Practices within forested drinking water protected areas. In all cases the implementation of Best Management Practices is facilitated through PES schemes. The second part of STSM was dedicated to (i) collection of key data, including financial and socio-economic information on W-for-W PES schemes in Austria; and (ii) preparation of the scientific report.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

1. Legal and policy framework in Austria

The Austrian Federal Water Act is the main legal instrument for the protection and sustainable use of the country's water resources. According to this Act, groundwater property is tied to land ownership. At the same time, it stipulates a profound social attachment of this property right. For each and every withdrawal going beyond private household and economic needs, approval is needed. Obligations to water pollution

abatement are applicable irrespective of property rights. Water suppliers can achieve the water-right for abstraction of water resources, despite the fact that they are not land-owners.

In addition to the Federal Water Act, there exist a variety of other legal and policy instruments¹ which aim at protecting the groundwater resources, such as the Austrian Agri-Environmental Program (ÖPUL, Österreichisches Programm für eine umweltorientierte Landwirtschaft) promoting an agriculture compatible with the requirements of the protection of the environment, or the ordinance for rural development (Verordnung "Ländliche Entwicklung"). The Austrian legal and policy framework is guided by the following general principles: (i) prevention instead of rehabilitation and (ii) voluntary instead of mandatory approaches.

Additionally, provisions regarding groundwater resources are included in the forest laws. The basic forest related legislation is contained in the Federal Forest Act of 1975. It also foresees the protection of groundwater resources. According to § 5 of the Federal Forest Act, the Austrian Federal Forest Inc. (Aktiengesellschaft zur Fortführung des Betriebes "Österreichische Bundesforste"), which is established by the Act, has to serve the purpose of conserving and protecting the drinking water resources. Also forest owners are obliged to properly and sustainably manage their forest. They are not allowed to clear-cut the forest in a way that affects the water household or the forest soil significantly or permanently and must re-afforest clear-cut areas within a timeframe of five years.²

In Austria the groundwater resources are divided into public and private water bodies, § 1 Federal Water Act. The ownership of forests, like the ownership of groundwater, can be public or private. The majority of the Austrian forests are in private hands (ca. 80%).³

As the Federal Water Act stipulates that direct or indirect impacts on the groundwater constitution require a permit, forest owners might also be obliged to apply for such a license, if certain run-offs of their forest areas influence the groundwater quality. However, correct silvicultural practices are presumed not to have an impact on the groundwater unless the contrary is proven. Therefore, as long as the forest owner acts in compliance with relevant regulations, such as those on the use of chemicals, fertilizers, and forest management, they are not required to obtain a groundwater use permit, § 32 of the Federal Water Act.

Finally, it is important to mention that the Federal Ministry for Sustainability and Tourism can (Bundesministerium für Nachhaltigkeit und Tourismus, BMNT), under certain conditions, develop framework regulations for certain (ground-)water areas by which dedicate the water, for example, to a special purpose, or limit the issuance of water permits. Additionally, according to § 32 Para. 2 of the Federal Water Act, the states can adopt ordinances relating to the declaration and management of water protection areas. Those groundwater areas as well as water protection areas can, of course, be established on forested land. Each decreed water protection zone or water protection sanctuary has its specific regulatory framework, BMNT is coordinating the legal formation process together with provincial and regional authorities and the related water suppliers.

2. PES schemes in the country

The implementation of W-for-W PES in Austria is in some cases in the starting phase. There were identified several main public W-for-W PES schemes in Austria. In all cases the implementation of Best Management Practices (BMPs) is facilitated through PES schemes. One of such BMPs is limitation of clear-cuts. The clear-cutting technique as silvicultural concept is currently still applied in many forest areas on the planet, also in Austria. In some European countries like e.g. Slovenia, clear-cuts are forbidden. In Austria within the water protection forests of the city of Vienna, clear-cutting is forbidden since more than 30 years.⁴

As alternative in accordance with requirements of drinking water protection small gap-cuts or group-selection-cuts with the diameter of one tree-length or in exceptional cases of one and a half tree lengths can be applied. Those are also described as "small clear-cuts", but still conform to the requirements within Drinking Water Protected Areas (DWPA). Huge clear-cuts, which exceed 0.3 ha, never should be applied within DWPA, as they cause already negative effects like strong mineralization processes and a profound destabilization of the remaining forest stand. For flatland forest ecosystems or on flat forest sites it is possible to cut small gaps with up to 0.3 ha extension, but at steep mountainous forest sites the small gap cuts should be as small as possible, ranging up to only 600-1200 m² maximum.⁵

The city of Vienna has a long tradition in application of PES scheme, in this case it is land acquisition. For more than one hundred years the city has been buying land within the karstic alpine drinking water

¹ Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (2003): Nachhaltige Wasserpolitik in Österreich.

² Greiber, T. et al. (2009). Final report study on the Economic value of groundwater and biodiversity in European forests.

³ Pelkonen, P., Pitkänen, A., Schmidt, P., Oesten, G., Piuksi P. and Rojas, E. (2000): Forestry in Changing Societies in Europe. Study Book Part II: Country Reports.

⁴ Anonymous 2001. Grundsätze zur Bewirtschaftung der Quellschutzwälder der Stadt Wien. MA 49, Forstamt und Landwirtschaftsbetriebe der Stadt Wien, MA 31, Wiener Wasser.

⁵ Koeck, R., Hochbichler, E. (2014). Appendix WP 4: Recommendations for Adaptive Management Concepts – Best Practices for Forest Ecosystems in Mountains and Flatlands.

protection zone (1000 km²) in order to decide on its own about land-use management concepts and measures in accordance with drinking water protection requirements. This form of PES scheme was identified by water suppliers as the most effective one in terms of drinking water supply security.

Another case study is the drinking water protection area (DWPA) of Waidhofen/Ybbs. The main target of this PES scheme is to reduce risks with regard to water quality. The Pilot Action is a part of Interreg project PROLINE-CE and is led by Austrian Federal Ministry of Sustainability and Tourism. The whole area of the Pilot Action Waidhofen/Ybbs covers 1086 ha. The whole DWPA was decreed as drinking water protection sanctuary in 2018. More than 78 % (851.3 ha) of the drinking water protection zone are covered with forests, where in most of the cases forestry is carried out. Also dolomite stone quarries cover a relatively huge area (18.7 ha).⁶ The PES scheme is based on contracts between the water works of the city of Waidhofen/Ybbs and the forest land owners. The contracts are set for 10 years duration and a prolongation is intended and easy to achieve. It has to be highlighted that forest owners would not receive any PES if they just comply with the laws. The payments will be paid to forest land owners annually through the municipal government, if they apply specifically defined Best Management Practices (BMPs). The amount of payments that landowners will receive is estimated around 40.000 Euro per year. The effectiveness of this PES scheme cannot be rated at the moment as it is currently in a starting phase of implementation.

Furthermore, we have found another public W-for-W PES scheme functioning in Austria. The Water Association of the Salzburg Basin (Wasserverband Salzburger Becken, WSB) which was founded in 1976 is responsible for supplying its members with drinking water of high quality. Its mandate comprises extracting and disseminating drinking water, developing and maintaining installations, managing its groundwater utility, and securing the water supply in case of emergency.

The drinking water used by the WSB stems from the "Taugl" groundwater body which was made accessible in 2004 through the development of the groundwater utility Taugl. The WSB has obtained a permit to abstract 150 l/s from this groundwater body. The permit is given under the condition that the groundwater model on which it is based will be updated on a yearly basis taking into account the collected quantitative and qualitative groundwater data.

In order to ensure the drinking water supply of the region and consequently the protection of the Taugl groundwater body, a payment for ecosystem services scheme is in place. This PES scheme is mandatory according to the Austrian Water Act. Its legal basis is in § 34 of the Austrian Federal Water Act which introduces the legal instrument of declaring water sanctuaries (Wasserschongebiete). § 34 entitles water suppliers to demand the declaration of water sanctuaries, if this is necessary to protect a groundwater body which serves for the general water supply.⁷

The main stakeholders in this PES scheme are the provincial State Governor (through the Directorate for Agriculture and Forestry) who designates the water sanctuary and thus builds the overall framework for the scheme, the farm and forest land owners who provide the forest ecosystem services, and the customers of the local water suppliers who benefit from the services and in the end fund the compensation payments. The Water Association of the Salzburg Basin and its members serve only as intermediaries who link the respective parties.⁸

The water sanctuary Taugl is 100 km² large and affects around 250 agricultural and forestry enterprises. From 1999 until 2006, the WSB paid a total amount of 1.548.750,27 EUR (in average 193.593,78/a EUR) for the compensation of 250 land owners under prohibition of use of certain pesticides.⁹ The money spent by WSB is collected from its members (the local water suppliers) who again charge their customers. In this case study, the effectiveness of the described PES scheme is not questioned.

Hence in Austria legal protection and sustainable use of the country's water resources is secured by the Austrian Federal Water Act, specifically decreed water protection or sanctuary zones and the Austrian Agri-Environmental Programme (ÖPUL). The protection of the area around groundwater resources, which are used for public water supply, is ensured by the declaration of water protection sanctuaries or water protection zones. Such declarations introduce mandatory arrangements between the water suppliers and forest owners who face restrictions regarding their allowed forest management practices. The funds to compensate the land owners in the water sanctuary areas or water protection areas are driven from the water price. ÖPUL is already part of the integrated water management plans. The following figure shows the structure of payments for services rendered in the framework of the Agri-environmental Measure by source of funds over time. So the most part around 50 percent of compensations for services is financed by the EU funds, another – by the Austrian Federal funds, Provincial funds and the water prize of the specific water suppliers.

The ÖPUL programme can already be rated as high level environmental effective, many species were and

⁶ Koeck, R. (2017). D.T2.1.4 Descriptive documentation of pilot actions and related issues (PA1.2).

⁷ Oberleitner, F. (2005): Judikatur zum Wasserrechtsgesetz in Leitsatzform: Überblick von 1870 bis einschließlich 2004.

⁸ Greiber, T. et al. (2009). Final report study on the Economic value of groundwater and biodiversity in European forests.

⁹ Wasserverband Salzburger Becken (2007): Geschäftsbericht 2006, at

<http://www.umweltschutzanlagen.at/media/pdf/pdf25.pdf?PHPSESSID=552b5f26059312a7658bed179134e033>.

are protected through it in Austria.

Also the EU plays an important role in the funding for the development of PES schemes for forests and water in Austria and its Rural Development Programme (RDP) provides financial support for biodiversity conservation or other environmental issues, which can be considered as a PES scheme. For example, RDP of Austria in 2007-2013 includes such measures connected with PFES: Measure 122 – Improving the economic value of forests (42.18 million EUR); Measure 221 – First afforestation of agricultural land (1.58 million EUR); Measure 224 – NATURA 2000 payments – Forest land (0.16 million EUR); Measure 225 – Forest-Environmental Payments (0.13 million EUR); Measure 226 – Restoring forestry potential and introducing preventive measures (109.31 million EUR). The biggest number of subsidies was paid for restoring forestry potential and introducing preventive measures – 109.31 million EUR¹⁰.

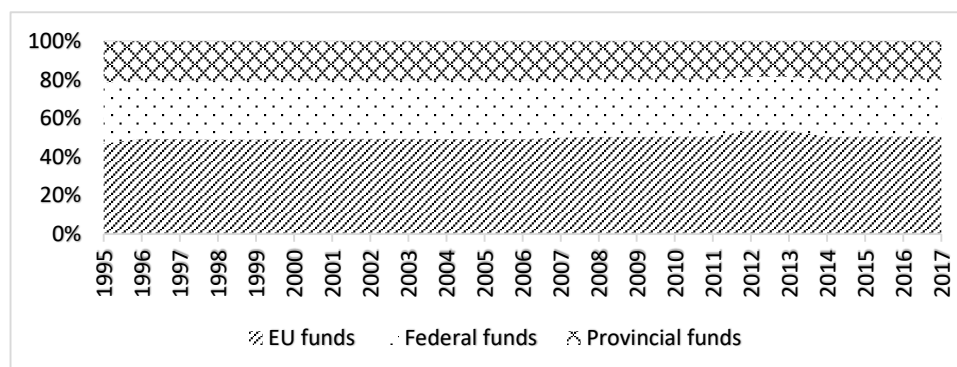


Figure 1. The structure of payments for services rendered in the framework of the Agri-environmental Measure by source of funds over time*

*Source: BMNT

The implementation of new RDP of Austria 2014 – 2020 includes measures connected with W-for-W objectives. Although, there aren't measures directly focused on W-for-W PES, following measures support actions that are indirectly targeted to improving water management, increasing the water capacity of the area and water retention: Measure 8 – Investments for forests (13.75 million EUR) including Sub-measure 8.1 – Afforestation and creation of woodlands (0.17 million EUR), Sub-measure 8.5 – Reinforcement of environmental value of forest ecosystems (12.82 million EUR), Measure 12 – Natura 2000 and Water Framework Directive payments provides compensation payment for Natura 2000 forest areas (0.03 million EUR); Measure 15 – Payments for Forest-environmental and climate services and forest conservation (0.02 million EUR).¹¹ As follows RDP is a strong funding option for the development of PES schemes for forests and water in Austria.

Conclusions

The research of W-for-W PES schemes in Austria allowed to draw the following conclusions:

In Austria legal protection and sustainable use of the country's water resources are secured by e.g. the Austrian Federal Water Act, the legally decreed water protection and water sanctuary zones and the Austrian Agri-Environmental Programme (ÖPUL).

Although there is a long-lasting tradition of PES in Austria, the compensation of environmental services has become increasingly important. The implementation of W-for-W PES in Austria is in some cases in the starting phase. In Austria, some public or government-financed W-for-W PES schemes were identified: (i) Waidhofen/Ybbs drinking water protection zone, (ii) the city of Vienna drinking water sanctuary zone with land acquisition as PES scheme and (iii) Taugl groundwater body. Due to the public nature of drinking water supply in Austria (in most of the cases run by the municipalities), private or user-financed PES schemes are found impossible to exist. That is why there exist predominantly public PES schemes. In all cases the implementation of BMPs is facilitated through PES schemes. One of such BMPs is limitation of clear-cuts. The effectiveness of Waidhofen/Ybbs drinking water protection zone cannot be rated at the moment as it is in a starting phase.

Besides these national schemes, the Rural Development Programme and the Austrian Agri-Environmental Programme (ÖPUL) also provide financial support for biodiversity conservation or other environmental issues and contain measures that can be considered as PES scheme. The ÖPUL programme can already be rated as high level environmental effectiveness as many species were and are protected through it in Austria.

¹⁰ Green Report 2017, at www.gruener-bericht.at.

¹¹ Green Report 2017, at www.gruener-bericht.at.

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