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Non-timber innovations: How to innovate in side-activities of forestry – Case study Styria, Austria

Nichtholz-Innovationen: Über Innovationen in forstlichen Nebentätigkeiten, Fallstudie Steiermark, Österreich

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Summary

Since non-timber forest products (NTFP) are usually associated with side-activities of forestry, their development is often neglected by companies and innovation systems. Their real value, however, is underestimated and interesting innovative examples of marketed NTFP exist. Our article thus asks: How do innovations happen in a situation where there is very limited institutional innovation support, and how could non-timber innovations be fostered? This is studied in the regional case study of the Austrian province Styria in which the role of policies and actors in innovation processes is ex-

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amined. We find that support for non-timber products is given from several sectoral innovation systems, including forestry, agriculture and nature conservation. Their influence, however, is limited as in none of them NTFP are in their specific focus but only recognised on the side. Non-timber innovations are typically generated from bottom-up in small, regional and often cross-sectoral "ad-hoc" networks. Effective diffusion of innovations is only reached through institutional innovations such as the formation of producers' associations. The best model for fostering innovations in NTFP would be "top-down support for bottom-up innovations". The article documents two successful examples for this model where the institutional system was able to give substantial and systemic support to local creativity and capacities, namely the forest-oriented LEADER-Region "Zirbenland" and the Styrian Nature Parks Association.

Zusammenfassung

Da Nichtholzprodukte (NHP) üblicherweise mit forstlichen Nebentätigkeiten assoziiert werden, wird deren tatsächlicher Wert oft unterschätzt und NHP werden von Forstbetrieben und relevanten Innovationssystemen wenig beachtet. Da in der Praxis aber interessante und innovative Beispiele zu finden sind, stellen wir folgende Frage: Wie laufen Innovationen in einem solcherart ungünstigen Umfeld ab und wie können sie besser unterstützt werden? Zur Beantwortung untersuchen wir anhand der regionalen Fallstudie Steiermark die Rolle von innovationsrelevanten Akteuren und politischen Programmen in entsprechenden Innovationsprozessen. Es zeigt sich, dass die Entwicklung von Nichtholzprodukten von unterschiedlichen Innovationssystemen (Forstwirtschaft, Landwirtschaft, Naturschutz) unterstützt werden, wobei deren Einfluss aber sehr begrenzt ist, da keines dieser Innovationssysteme auf diese Produkte fokussiert. Nichtholzinnovationen entstehen typischerweise in kleinen, regionalen und vielfach sektorübergreifenden Netzwerken, die sich ad-hoc im Einzelfall bilden. Eine wirksame Verbreitung von Innovationen wird aber nur durch institutionelle Innovationen erreicht, etwa als Zusammenschluss der Produzenten. Als bestes Modell für die Förderung von Nichtholz-Innovationen erscheint eine „zentrale Unterstützung von dezentralen Innovationen" oder die „Unterstützung von oben für Innovationen von unten". Der Artikel dokumentiert zwei Beispiele, in welchen lokale Ressourcen und Kreativität erfolgreich durch das institutionelle System unterstützt wurden. Diese sind die forstlich orientierte LEADER-Region „Zirbenland" und der „Verein Steirische Naturparke".

1. Introduction

Non-timber forest products (NTFP) are often presented as a potentially promising but neglected business field of forest holdings (Lawrence, 2009). As forestry understands

itself as being oriented towards timber production, NTFP are often termed „minor" or „secondary forest products". Forest laws often talk of „by-products" or "side-products" of forestry, and research projects on NTFP markets are oriented towards "niche markets" (Mantau et al., 2001) or even "non-market goods" (Mavsar et al., 2008). Much more often than of a business field, non-timber products and services are talked of as ecosystem services and they are assumed as being provided in the "wake" of regular timber production. NTFP are then dealt with from a welfare economics perspective as „forest ecosystem services", as part of „total economic value" or as an element of „quality of life" or „well-being". In view of the broad range of market sectors that are concerned – including food and beverage, medicinal, pharmaceutical and chemical products as well as craft and decoration – a generalisation is, of course, very difficult. Except for a few products such as cork or mushrooms in some Mediterranean countries, it is certainly the typical case that forest holdings and forest industry and policy actors focus on the production of timber and do see other products as side-, by-, or minor products (Weiss and Rametsteiner, 2005; Vacik et al, 2014). As a result, the field of non-timber products and related business opportunities is hardly visible and recognized, although their potential seems to be bigger than often thought (Vacik and Wolfslehner, 2009). Following this, the basic reasons and challenges behind the fact that these latent opportunities of NTFP are often neglected, are found with regard to two issues, marketability and innovation. First, there is a limited marketability of many forest products and services, which is sometimes connected to an often existing public good character of such products (Mantau et al., 2001; Mavsar et al., 2008) as well as to a weak competitiveness against cheaper imports or against cultivated products originating from plantations. Second, on top of this challenge, there is also a limited attention of established sectoral innovation systems, thus providing only limited support of or acting even as barriers against their development (Rametsteiner et al., 2005; Weiss et al., 2011). In primary sectors such as forestry, innovation efforts are typically directed towards rationalisation and less towards diversification or higher value products (Breschi and Malerba, 1997; Hansen et al., 2014; Hirsch-Kreinsen and Jacobson, 2008). Barriers may arise when established actors direct the support measures of innovation systems towards self-interested sectoral innovations and fight other interest groups or products (Buttoud et al., 2011). Regional innovation systems may be better suited to support that kind of innovations (Asheim, B.T. and L. Coenen, 2005).

In Austria, innovations in non-timber products or services have often been developed without specific support from single policy fields or, in other words, "between" established innovation systems (Kubeczko et al., 2006). Instead of sectoral, regional innovation systems or regional development policies may rather play important roles; examples include the development of the very successful biomass-based district heating plants (Weiss, 2004) and recreational services of forests (Weiss et al., 2007).

Non-timber forest products are neither in the focus of national or regional innovation policies nor of forest sectoral policies, an appraisal which is confirmed also for other European countries (Ludvig, Tahvanainen et al., 2016). Relevant policy measures that

may be utilised are related to regional or rural development programmes. Their aims are to develop new (sustainable) products and markets in order to counteract emigration from rural areas, increase attractiveness of the regions by creating or securing job opportunities and to enhance cooperation within the rural population through networking to support knowledge transfer. Appropriate institutional support becomes a central question if non-timber innovations should get a chance to develop and diffuse (Ludvig, Corradini et al., 2016). The EU LEADER programme is well suited because of its innovation orientation and because of its bottom-up working method. The LEADER instrument, however, has not been strongly used within forestry throughout Europe (Feliciano et al., 2011).

This paper starts from the observation of a limited innovation system support and aims to analyse in an empirical example what this unfortunate institutional environment means for innovations in the field of non-timber products. Our research question thus reads as follows: How do innovations happen in a situation where there is very limited institutional innovation support, and how could non-timber innovations be fostered?

2. Methodology

In order to answer our research question, this study applies an innovation system approach as described above and chooses the region of Styria (Austria) as an empirical case study (Yin, 2009). The methodological approach to study the role of sectoral and regional innovation systems in supporting forest sector innovations has been developed over years and applied in several studies, including forestry innovations in central Europe (Rametsteiner et al., 2005) and a comparison of five regional forestry clusters across Europe (Weiss et al., forthcoming-a).

2.1. Case study: Styria, Austria

Austria is a predominantly alpine Central European country with an area of 83,871 km² situated in the Central European climatic zone (moderate, humid). Styria is the second largest province out of nine federal states in Austria with an area of 16.401 km², situated in the south-eastern region of the country and influenced by illyric, pannonian and sub-alpine climate. Around 1.2 Mio. inhabitants are spread across 13 districts with a strong conglomeration in the capitol of Graz and its surroundings where approximately 33 % of total inhabitants are located (Statistics Austria, 2011).

In the last decades there have been massive structural changes in the agricultural and forestry sector in Austria in general (e.g. decrease in traditional family holdings, increase in sideliners/part-time farmers and "new" forest owners). In 2010 the number of forest holdings in Styria, which is continuously decreasing since the end of the 1990s,

was around 39.000 providing employment for nearly 96.000 people (Statistics Styria, 2013). Timber production is the main production goal of forest enterprises and has helped to develop a strong timber industry. NTFP have been of high relevance historically (e.g. resin tapping, leaf and litter collection) with some traditional uses that are still important today (e.g. hunting, fishing, gravel digging). New modes of utilization that often strongly relate to forest services emerge additionally, for instance: i) protection against natural hazards, ii) kerbing of drinking water, iii) horse-back riding, or iv) mountain biking (Rametsteineret al., 2005). Nevertheless, NTFP are being reinvigorated recently – and this holds true for small-scale forest owners as well as for bigger forest enterprises. Vacik and Wolfslehner (2009) estimated the value of marketed forest-related NTFP and services in Austria for the year 2005 to nearly 220 Mio. €, comprising 43 % of total value (i.e. 95 Mio. €) for NTFP and 57 % (i.e. 125 Mio. €) for services. Although the income from NTFP is still low compared to that generated by timber production (i.e. 770 Mio. €), there seem to be high latent potentials for Austrian forestry (Vacik et al, 2014). As the majority of forest properties in Styria belong to rural areas it can be assumed that this may trigger an array of positive effects for regional development, taking into account that product diversification has the potential to increase labour opportunities and to provide new ways of income generation.

2.2. Material and methods

The methods used include document analyses, questionnaires and interviews. Documents on and from relevant organisations and policies that are important for supporting innovation processes in the field of non-timber forest products in the region of Styria have been qualitatively analysed. The documents have been screened in order to determine their relevance regarding NTFP innovations, including their respective aims, measures and activities. A questionnaire has been sent in 2014 to 19 potentially relevant public and private sector organisations with a response rate of five, who explicitly considered the theme relevant for them and answered. The other actors explicitly or implicitly considered themselves not relevant for this topic. Semi-structured face-to-face interviews have been conducted with central innovation system actors and with innovators in specific innovation case studies between 2014 and 2015. Analysis questions include from which administrational levels the relevant support policies are and from which sectors, and what are the goals and measures applied. Besides of financial support mechanisms, the analysis specifically considers research and development, education, training and information activities related to non-timber forest products. In addition, in-depth analyses of innovation processes in selected innovation examples from the region were conducted. These embedded enterprise-level case studies include the following products: game meat, Christmas trees, mountain pine essential oils, chestnuts, mushrooms, herbs and forest fruits. Some of the included cases are supported by policy programmes, marketing organisations and/or labels, for example, the LEADER+ programme, Nature Park Specialities, the Styrian Christmas tree asso-

ciation, Urlaub am Bauernhof (farm holidays) and Genussregion Österreich (Region of Delight Austria). The analyses include the role of actors with regard to information, financing and coordination within the innovation processes in these examples. The analyses have been conducted as part of the European research project StarTree, between 2014 and 2016.

3. Results

3.1. Characteristics of non-timber forest products in Styria, their markets and institutional framework conditions

The NTFP portfolio produced in Styrian forests covers a wide range of species from three taxonomic kingdoms including plants, animals and fungi. Apart from forest related services, which often act as a key driver for the marketing of NTFP, the most relevant product categories in terms of economics are Christmas trees, honey, game meat and forest reproductive materials (Vacik and Wolfslehner, 2009).

The main types of products NTFP are used for include food stuff, beverages and decorative items, as identified by an expert consultation on relevant taxa (i.e. single named entities), and mainly reflect a variety of traditional use forms (e.g. mushrooms, schnapps, trophies). However, various innovative approaches have emerged recently, spanning from new products out of Swiss Stone pine (Pinus cembra) to new ways of marketing game meat, guided tours, or the revival of traditional knowledge applied for the medical use of plant- or animal-based raw material.

The majority of NTFP are niche products and are subject to local or regional trade, with only some of them being distributed at national level. The share of NTFP that are internationally traded seems to be negligible, at all for NTFP that originate from Styria. Increasing activity with respect to embedded products (i.e. NTFP as an intrinsic part of a marketed service) can be recognized in the region, typical examples being homemade products marketed together with farm holidays or guided tours or similar.

Most prominent NTFP, including several game species (e.g. Cervus elaphus, Sus scrofa), wild mushrooms (e.g. Cantarellus cibarius, Boletus edulis) and berries (e.g. Vaccinium myrtillus, Rubus fruticosus), are usually harvested in the wild and thus originate from semi-natural forests. Christmas tree production is commonly executed on plantations and dominated by a single tree species (i.e. Abies nordmanniana). The number of forest owners who focus on NTFP production, either by inclusion of relevant tree species or by particular silvicultural practices, is negligible. Harvesting of NTFP is executed manually and mostly by coincidence, as they are not actively managed.

In Styria, the main legal acts in force which deal with forests are the Forest Act (Forstge-

setz, 1975, on national level) and the Hunting Law (on provincial level). Besides, there are no specific laws for NTFP. Game is specifically regulated in the Styrian Hunting Law (Steirisches Jagdgesetz, 1986).

In Austria, public access to forests for recreational purpose is legally acknowledged (Forest Act, 1975, Article 33) although public access is granted by law only for walking and it may be subject to certain restrictions. The right for recreational access includes picking of mushrooms or other forest fruits for personal use as long as the forest owner does not explicitly prohibit it.

In Styria (and Austria in general) a distinction is made between use for self-consumption and commercial use of NTFPs. The Austrian Forest Act allows the collection of NTFP such as fruits, seeds, mushrooms, twigs, earth or other soil constituents in small quantities. Collection of mushrooms is legally restricted by quantity (2 kg/day/person) and collection of fruits/seeds is related to the intent of the pickers. Any commercial utilisation of these products, as well as conducting or participating in collection events, is subject to the consent of the forest owner, and is subject to a penalty when done without permission (Forest Act §174). The owner is by law allowed to exclude others from any use of NTFP or to give out licences, although this is rarely implemented.

3.2. Role of innovation in NTFP development

Non-timber products are generally poorly developed, with some exemptions that may be seen in the production and marketing of Christmas trees where the majority of the domestic market is supplied by own production, and a few food products for which small markets exist, including game meat, honey, and liquor or jam from forest berries or fruits. Swiss stone pine (*Pinus cembra*) or rowan and service tree (*Sorbus spp.*) products are specific examples which are marketed.

A common characteristic which illustrates the poor development level is the semi-professional and small-scale production, meaning that it is often home-made jam, liquor, soap, etc., produced and marketed by farmers or other small producers on farmers' markets or directly from their farms or homes. In the whole field of NTFP, only a few larger producers or trading companies exist in Styria. Direct marketing by farmers is a typical business model which implies a number of tax advantages for the producers when they do it as part of their farming business. Once the business becomes the main economic activity and builds on additional employees, these incentives are lost. An institutional hindrance can also be seen in the often weak connection between producers and land-owners as the collectors/producers are not necessarily the land-owners but there are often no formal contracts.

Emerging fields which are carried by small innovations include a renewed interest in

traditional food or health products, including, for instance, chestnut (Castanea sativa), resin or herbs. Another trend seems to be what could be termed "embedded products" which are combined with experiential or tourism services. Recreational services that are directly or indirectly related to non-timber products are quite well developed in Styria, for example forest pedagogics. Tourism services such as guided tours or farm holidays are sometimes related to forest products or activities, e.g. to wild herbs, berry or mushroom picking. It is expected that all of these activities that connect to new societal demands and values have high potential in the future. The central challenge in these cases is to bring together rural and urban spheres and thinking.

3.3. Innovation policies

According to the cross-sectoral nature of NTFP, a range of policies and organisations may become relevant for supporting innovations, from public and private spheres and from various market sectors. When looking at public policies, we screened sectoral policies beyond forestry and included various innovation and development policies in our analysis. The most relevant policy documents are given in Table 1.

Table 1: Policy programmes relevant for supporting innovation in NTFP in Styria

Tabelle 1: Politische Programme, die für Innovationsförderung bei Nichtholzprodukten relevant sind

Policy field	**Document Name**	**Type of document**	**Year of issue**	**level of the policy programme**
Forestry	Federal Forest Act 1975 *(Forstgesetz 1975)*	Legal act	1975/2013	National
	Austrian Forest Dialogue *(Österreichischer Walddialog)*	Policy programme	2006	National
Hunting	Styrian Hunting Act *(Steirisches Jagdgesetz)*	Legal act	1986	Regional
Regional development	National Strategic Framework Plan STRAT.AT 2007-2013 and 2014-2020 *(Nationale Strategie STRAT.AT)*	Policy programme	2007/2014	EU/National
	European Territorial Cooperation INTERACT *(Europäische Territoriale Zusammenarbeit)*	Policy programme	2014	EU level
Rural development	Austrian Programmes for Rural Development 2007-2013 and 2014-2020 *(Österreichisches Programm für die Entwicklung des Ländlichen Raums)*	Policy programme	2007/2014	EU/National
	LEADER – Regions "Land of the Swiss Stone Pine" *(Zirbenland)* and "WoodWorld Murau" *(Holzwelt Murau)*	Policy programme	2007	EU/Local
	Rural/countryside development/local agenda21 *(Landentwicklung)*	Policy programme	Since 1996	Regional
Agriculture	Region of Delight Austria *(Genussregion Österreich)* and Region of Delight "Game from Gesäuse" *(Genuss Region Gesäuse Wild)*	Policy programme / Product Label	2003/2008	National/Local
	Farmers' direct marketing association *(Gutes vom Bauernhof)*, Farm Holidays *(Urlaub am Bauernhof)*, Domestic Christmas trees (Heimische Christbäume)	Agricultural Associations	1990s	National/ Regional
Nature Conservation /Tourism	Nature Parks Austria/Styria *(Naturparke Österreich/Steiermark)*,	Association	1996	National/ Regional
	National Park Gesäuse *(Nationalpark Gesäuse)*	Policy programme	2002	National/Local
Innovation	Wood Cluster Styria Ltd. *(Holzcluster Steiermark)*	Cluster programme	2001	Regional

There are several EU-level programmes, the European Territorial Cooperation for cross-border cooperation, the National Strategic Framework Plan with a regional development focus and the Austrian Programme for Rural Development under the EU Common Agricultural Policy which also includes the LEADER instrument. LEADER is of specific importance as it is thematically open and explicitly focused on innovation

support in rural areas. In the period 1999-2015 there have been two LEADER regions in Styria which specifically focus on forest and trees, "Zirbenland – Land of the Stone Pine" and "Holzwelt Murau - Wood World Murau". While Wood World Murau aims to foster the use of wood, Zirbenland fosters cooperation and development around both wood and non-wood products from the local characteristic tree "Zirbe" (Swiss stone pine, *Pinus cembra*). The region of Zirbenland is innovative in terms of wood and related products and gains profile through regional marketing, awareness raising and networking activities. They have developed new forms of use of Swiss stone pine products in the food and non-food sectors, for instance, promoting health and wellness effects of the wood, needles and cones of this specific tree species. The provincial regional/rural development programme Landentwicklung has rather limited relevance.

The Austrian Forest Act and the Styrian Hunting Law regulate forest and wildlife management and have rather indirect effects on innovation. The Forest Act provides for several subsidies to improve the economic, ecological and social value of the Austrian forests but with a rather limited scope on innovation support.

A few agricultural associations are relevant, such as the direct marketing association on farm specialities ("Gutes vom Bauernhof") and the Austrian farm holidays association "Urlaub am Bauernhof". These specific associations under the umbrella of the Chamber of Agriculture offer important services such as joint marketing and information exchange. The only forestry-specific is the Styrian association of Christmas tree producers which offers support and advice, joint acquisition as well as a label for the marketing of Styrian Christmas trees ("Steirischer Christbaum").

"Region of Delight" is a direct marketing instrument, initiated by the Federal Agricultural Ministry and implemented in cooperation with the Chambers of Agriculture, which emphasizes the importance of regional specialties and thus contributes to attractive and future-oriented regions. One of the 17 gourmet regions in Styria is an example of a forest product: "Gesäuse Wild" is producing high quality game meat. It is located in the National Park area Gesäuse and combines tourism and marketing of local products.

With the aim of a sustainable rural development and applying an integrated nature conservation approach, nature conservation policies may contribute to the development of NTFP. The Austrian Nature Parks are active in developing forest products such as liquors, jam and herbal products. Their aims are to preserve characteristic cultural landscape types through a sustainable use of local resources and to strengthen the local and regional economy by integrated land management and adding new values to traditional land uses. They promote local specialities by their label "Naturpark-Spe-

zialitäten" (Nature Park Specialities) and offer educational services with local products embedded, e.g. guided tours, educational trails or "cooking from the meadow".

The Styrian Wood Cluster was launched under the provincial innovation programme and may contribute to non-timber innovations, however, its current strategic plan focuses on timber only. The cluster manages also the Wood Innovation Centre Zeltweg (Holzinnovationszentrum Zeltweg) which supported the LEADER region Zirbenland.

Case analysis: LEADER-Region Zirbenland

The LEADER region Zirbenland was formed by 12 municipalities in Upper Styria with the aim to focus rural development process around wood, in particular the wood of the rare Swiss Stone Pine which is typical for the region. The region was formerly part of another larger wood-oriented LEADER region ("Holzwelt Murau") and the group of municipalities had initiated already earlier a local wood-focused innovation centre ("Holzinnovationszentrum"). The crucial event to form an own region came together with a large regional exhibition ("ZirbenLand & ZukunftsGeist") in the frame of which it became clear how strong a potential of creative actors exists in the region.

In the frame of the LEADER period 2007 to 2014, the LEADER region Zirbenland invested around 6 Mio. € from LEADER itself and mobilised another 7 Mio. € from other funding sources, mostly around projects connected with the Swiss Stone Pine. Besides the use of timber, they also developed non-timber products, first of all its essential pine needle oil as well as touristic activities. The management initiated numerous cooperations, including research partners and regional actors from various sectors. A central activity was a scientific study on the pine needle oil with the University Graz, the realisation of a pine needle oil distillery in the region, a specific online shop and the creation of a range of products from this essential oil, including health, personal care and food products. At the same time a tourism marketing campaign was initiated and led to a rise of touristic overnight stays of 30%. Although the majority of activities and budget are in the field of wood, tourism and other economic sectors, the public awareness centres more on the non-timber forest products around the pine.

Figure 1: Swiss Mountain Pine product range from LEADER Region Zirbenland (source: I. Zivojinovic)

Abbildung 1: Zirbenproduktpalette aus der LEADER-Region Zirbenland (Quelle: I. Zivojinovic)

Activities in the LEADER frame are mainly cooperation projects and information services. The following themes were covered: i) wood innovations for wood processing companies in the region, ii) energy innovations with biomass district heating plants, pilot projects and start-ups, iii) research, training and education cooperations in a "learning region", iv) pine products development and marketing, v) developing potential uses of the essential oil, vi) tourism marketing, and vii) cultural archaeological projects.

This case illustrates nicely a successful application of the LEADER method and how it can be useful for NTFP. Its innovation and bottom-up principles together with the strategic and systemic approaches are the strengths which have been fully applied here. Thus the success factors can be seen in first, the provision of not only subsidies but also personnel capacities for networking and information, and second, the flexibility and openness of the instruments towards local resources, actors and initiatives.

3.4. Innovation actors

The relevant innovation actors are often related to public policies, for instance, as being the implementing organisations, or sectoral interest groups. In certain cases, the organisations are specifically formed under a programme, for instance, in the case of associations, national parks, nature parks or LEADER regions. In the following, relevant organisations are presented according to their actor type (Table 2).

Table 2: Innovation-relevant actors in the field of NTFP in Styria

Tabelle 2: Innovationsrelevante Akteure im Bereich von Nichtholzprodukten in der Steiermark

Type of actor	**Name (English translation)**
R&D and innovation support organisations	Asamer-Handler & Co (member of ÖAR Regional Consulting Ltd.)
	Styrian government, Department for land-use planning and regional development
	Styrian government, Department for agriculture and rural development
	LEADER – Region Land of the Stone Pine / Regional Development Association Land of the Stone Pine
	LEADER – Region Wood World Murau
	LEADER – Region Southern Styria
	Rural network association / LEADER network
	Wood Cluster Styria Ltd. and Wood Innovation Centre (HIZ)
	Joanneum Research Ltd.
	Forest + Culture Network
Interest groups	Association of Styrian Forest Land Owners
	Styrian Chamber of Agriculture
	Styrian Forest Association
	Nature Parks Styria association
	Styrian Farm Holidays network
	Styrian association of direct marketing "Goodies from the farm gate"
	Association of Styrian Christmas tree producers
	Chestnut initiative
	Styrian hunters association
	Beekeepers association
Education and training organisations	Forestry College Bruck/Mur
	Forestry training centre Pichl, of the Styrian Chamber of Agriculture
	Agricultural vocational schools *Grottenhof-Hardt, Silberberg and Raumberg-Gumpenstein*
	University of Natural Resources and Life Sciences, Vienna
Public administration	Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management
	Styrian Forest Authority
	Styrian Hunting Authority

Research, development and innovation support actors are a quite diverse set of public and private organisations, whereby research is rather limited but regional or rural development has an important role. The LEADER network and regions are prominent,

together with a few consulting companies which are most often directly linked to the LEADER management. Education and training organisations are usually semi-public actors from the field of forestry and agriculture. It seems that forestry vocational training has the ability to react to new trends and demands very flexibly as their programmes include specific courses on old forest-working skills which are not commercially relevant any more (e.g., traditional wooden fences or shingles, medicinal herbs), various non-commercial themes (e.g., bird watching, caring for ants) and new trends and skills (e.g., wood gasification, hand-made cosmetics, wilderness education, green care). Their activities are often not only education as such but also awareness raising or networking. An example is the chestnut initiative (ARGE Zukunft Edelkastanie) which organises training and knowledge exchange among chestnut growers and is supported by agricultural schools in Styria. This initiative had a great impact on the development of new chestnut plantations and a flourishing local market.

The relevant interest groups are primarily from the forestry and agricultural field as the producers of NTFP are mostly farmers. Within the framework and with the support of the Chamber of Agriculture, a number of specific associations provide important support for Christmas tree producers, direct marketers and farm holiday providers. Although farmers primarily market agricultural goods, some of them also have forest products such as forest berry jams or mushrooms in their portfolio, usually in addition to their main products. Forest products have some relevance also for farm holidays as home made products are a specific asset of those touristic activities and the farm holidays organisation uses that in marketing. It is especially the Chamber of Agriculture which is relevant and active because their members are farmers. In comparison, the Association of Styrian Forest Land Owners is not actively promoting NTFP because larger forest holdings see less business opportunities in this field but rather a conflict potential (e.g. with other pickers).

Case example: Nature Park Specialities

The Austrian Nature Parks have an interest in maintaining traditional forms of land use and offer support for producers of products from the Nature Parks with the label "Nature Park Specialities" which was developed in the Association of Austrian Nature Parks and which currently includes agricultural and handcrafted food products. As some Nature Parks are strongly shaped by woodland, the idea arose to develop wild forest products in the frame of the label. Examples are cowberries [*Vaccinium vitis-idaea*], rowanberries [*Sorbus aucuparia*] and blackthorn [*Prunus spinosa*] which are made into jams, chutneys or schnapps, other examples are wild honey, oils with herbal extracts, essential oils (Swiss pine [*Pinus cembra*], spruce [*Picea spp*]) and various bouquets garnis (partly of wild harvested material), which find a use as teas or bath additives. The producers are in most cases smallholders who process and merchandise directly on their farms, at farmers' markets, to regional food retailers and also through service points of the Nature Parks.

Figure 2: Rowan tree in Nature Park Almenland (source: Naturpark Almenland)

Abbildung 2: Vogelbeere im Naturpark Almenland (Quelle: Naturpark Almenland)

A possibility to implement the idea was found in the framework of the European FP7 research project StarTree and in the form of action research which was implemented by the regional development consultant M. Asamer-Handler. After presenting the idea and possibility to the 48 Austrian Nature Parks, three Parks were interested to join, each with their own specific focus. Those initiatives started from the specific situations and interests of each Park and developed their own specific activities. The following two initiatives were in Styria:

1. Project "Colourful hedges and edges of woods": In the Nature Park Almenland, there existed already an initiative to promote the planting of certain local trees and shrubs such as rowanberry and blackthorn in private gardens in order to replace exotic species. In the project, this idea shall be expanded to planting the colourful trees at forest edges as the fruits can be used by farmers and small processors of the region for producing rowanberry Schnapps and other products. At the same time, the project shall make the landscape (even more) attractive and thus serve tourism.

2. Business plan for a merchandising enterprise: In the Nature Park Südsteiermark, two options for establishing a merchandising and promoting business for the local "Nature Park Specialities" were assessed in the frame of a business plan. Currently, 25 producers market their products under the label, one third being wild forest products, especially herbs. This enterprise was intended to serve as a hub for combining the scattered production. From the two options i) of establishing an own shop with an assortment of products with a long shelf life (jams, syrups, liquors, herbal teas, etc.) targeting at tourists, and ii) to supply local shops, hotels, restaurants and wineries with a variety of durable products on special shelves, the first was eventually selected because a suitable locality was available and a carrier was found to run it.

In this case example it is interesting that the initiative comes from outside the sector, namely from nature conservation which aims at an integrated sustainable development of the rural cultural landscape in the Nature Park areas. With this external impulse and the accompanied support, the local resources, traditions and creativity are bundled into innovative activities and product development. With a fairly restricted budget but a well-directed support quite significant outputs have been achieved in terms of business activities and regional value added. The success factors lie in the institutional support by the Nature Parks Association, an external consultant, and an international research project on the one side, and in the applied bottom-up approach of the consulting service on the other.

4. Discussion and conclusions

4.1. Innovation support

How are innovations in NTFP supported by innovation systems? We learn that – although the products go far beyond the forestry sector – it is still the forestry, agricultural and rural development policies which seem most relevant for non-timber innovations. Their influence, however, is limited as NTFP are not in their specific focus. The precondition for their relevance lies in their innovation-orientation and in their openness across product types and activities. We furthermore see that the relevance of policies strongly goes along with a regional or local level of implementation: it is regional level initiatives within larger level frameworks (e.g., agricultural associations of the Chamber of Agriculture) or locally or regionally implemented (national or EU) policies (e.g., LEADER regions) which have the greatest relevance.

When looking at the relevant actors, their sectoral allocation is confirmed: forestry training schools, agricultural interest groups and LEADER regions´ organisations are the most prominent ones. Many other major policies or actors from the forestry or agricultural field, however, do not have NTFP specifically in their focus: The main forestry policies, education curricula or research programmes hardly touch on them and with the exception of the Christmas trees association and the chestnut initiative, the agricultural actors have no specific awareness on products with a forest or wildland origin. Although we have found a number of policy programmes and actors which are relevant for NTFP, for the most part they do not focus on or explicitly include the forest products – these are only implicitly part of their scope. The reported case studies of the LEADER region and the Nature Park Specialities are among the rare exceptional examples.

An interesting issue is the position of the forest land owners' organisations. As they primarily represent larger forest holdings (i.e. property size >200 ha), they find themselves in an ambivalent role. Although a number of forest companies in Austria quite

actively pursue non-traditional non-timber activities such as various tourism, sports or other recreational activities as well as renting out land or buildings, for many land owners non-timber activities rather mean conflicts as these are often done by other users. They are therefore hesitant with promoting such opportunities which are rather used by others than the land owners. NTFP are in fact often collected in forests without specific contracts between the pickers and the land owners. Hunting and game is an exception for hunting being a traditional forestry activity and there are always strict contracts between land-owners and hunters. In fact, many conflicts that are related to tourism or NTFP are with the hunters. Land-owners then support the hunters since they are paying for their contracts.

4.2. Institutional barriers

Besides of the supporting policies, it is difficult to determine institutional barriers because they are not so visible. An indirect barrier is found in the fact that non-timber forest products are a side-activity of any relevant sectors which leads to a "blindness" of the institutional system towards these products: a lack of statistics, specific research, education and training programmes and focussed support structures are the result. The Styrian wood cluster organisation, for instance, does not explicitly include those products into their activities. Together with a general lack of effective innovation support in the forestry sector (Rametsteiner et al. 2005), this neglect of NTFP adds to what can be called a "double blindness" of the institutional system towards the development of NTFP. The cross-sectoral characteristics of many of these products seem to be furthermore the reason for direct barriers because of a competition between the involved sectors – forestry, agriculture and nature conservation (Buttoud et al., 2011). The forestry sector seems to be hesitant in supporting activities which may benefit other groups than the land owners – these products are often for the benefit of processing companies, conservationists or the general public.

4.3. Bottom-up innovations

As a result, it can be said that there is no "one" sectoral innovation system supporting non-timber products but support is given through certain programmes from several sectoral innovation systems, including forestry (Christmas trees), agriculture (LEADER, Farm Holidays, chestnuts and the Regions of Delight) and nature conservation (Nature Park Specialities). For none of them, "non-timber forest products" are a central or significant field of activity as such which implies that no specific knowledge, instruments or promotion activities are developed and that it is not easy for interested innovators to receive support. This is only achieved, once they reach a certain institutionalisation such as with the Christmas tree association, chestnuts initiative or the LEADER region "Zirbenland" which as a whole took the Zirbe (Swiss Mountain Pine) as a trademark symbol. Non-timber innovations are typically generated from bottom-up in small, regional and often cross-sectoral "ad-hoc" networks (Kubeczko et al., 2006).

The range of Styrian examples show that despite of the lack of specific sectoral innovation systems, the institutional system still has certain structures that are able to offer support – if they are open and flexible enough to pick-up emerging demands from practice. They also show that for establishing new products beyond single firms, the innovators often have to institutionalise themselves through which the innovations gain an institutional dimension (Ludvig, Corradini et al., 2016).

The two detailed examples analysed in this paper are show-case examples where the institutional system was able to give substantial and systemic support to local creativity and capacities. Both, the product development in the Nature Park Specialities and the regional strategy development in the Zirbenland LEADER region combined a structured and expert-led process with an active involvement of local actors' needs and views. With this it becomes the ideal regional innovation system as described in Asheim's "regionally networked innovation systems" (Asheim, 1998), or Cooke's "networked regional innovation system" (Cooke, 1998).

4.4. Need for flexibility and openness in innovation support

When actors and support organisations are grouped according to types of organisations, most actors in Styria belong to interest groups, innovation support organisations and to research, education and training organisations. They are mostly regional level organisations. This observation goes along with the fact that the products are often of specific regional relevance. An important policy implication thus is that sectoral support programmes should provide for sufficient leeway to flexibly adapt to local products or other local specific needs, if not specifically focusing on new approaches and innovations as such. In order to gain more ideal type examples in the form of Asheim's "regionally networked innovation systems" as described in the two cases the model for innovation support could be regarded "top-down support for bottom-up innovations". This conclusion is supported by further case studies from other European countries, studied in the same research project (Weiss et al., forthcoming-b).

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