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Master thesis

**Innovation analysis of LEADER projects on non-wood forest  
products in the United Kingdom and Sweden**

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## **Preface**

This thesis is written for completion of the Master's Degree Programme in European Forestry. The MScEF is co-organized by a consortium of seven European universities: University of Eastern Finland in Joensuu, SLU in Sweden, University of Freiburg in Germany, BOKU in Austria, Wageningen University in Netherlands, AgroParisTech-ENGREF in France and University of Lleida in Spain. During the first year I attended courses at all 7 universities and the second year I completed at BOKU University in Vienna. Therefore, I am writing the thesis at the Department of Economics and Social Sciences, Institute of Forest, Environmental and Natural Resource Policy at BOKU and European Forest Institute Central-East European Regional Office (EFICEEC).

This study is written in the frame of the StarTree project, which is a pan-European research project aiming in supporting the sustainable exploitation of forest resources for rural development. StarTree has a goal to highlight how non-wood forest products (NWFP) and multi- purpose trees (MPT) can improve and diversify local economies in rural areas. This project brings together relevant research organisations and small and medium-sized enterprises dealing with NWFPs and MPTs in Europe in order to accelerate and provide the transfer of research to the market.

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Finally I would like to thank my parents for endless love and support.

## List of Abbreviations

NWFPS Non-Wood Forest Products

NWFSS Non-Wood Forest Services

LEADER Liaison Entre Actions de Développement de l'Économie Rurale

LAG Local Action Group

EU European Union

EC European Commission

ENRD European Network for Rural Development

FDA United States Food and Drug Administration

DG AGRI Directorate-General for Agriculture and Rural Development

EHIA European Herbal Infusions Association

EHA Environmental Health Agency in Wales

HACCP Hazard Analysis and Critical Control Points

UWIC University of Wales Institute, Cardiff

GAHP Guidelines for Good Agricultural and Hygiene Practices

GDP Gross Domestic Product

CAP Common Agricultural Policy

EAGF European Agricultural Guarantee Fund

EAFRD European Agricultural Fund for Rural Development

ELARD European LEADER Association for Rural Development

SEK Swedish Crown

SLU Swedish University of Agricultural Sciences

FS Food Safety Management Systems

UNECE United Nations Economic Commission for Europe

m Million

b Billion

£ Pound sterling

€ Euro

## **Abstract**

*This study addresses the factors that influence innovative projects (companies) on non-wood forest products in Sweden and the United Kingdom. The subjects of interest are projects supported by the EU LEADER instrument during the period 2007-2013. Accordingly, LEADER is the central matter of the study. Using the LEADER database, contacting the LEADER Action Groups and professionals dealing with NWFPs, successful projects have been identified in both countries. Subsequently, interviews were conducted with project managers and Leader Action Groups officers in order to acquire relevant data regarding aspects of innovative process of the projects and LEADER implementing in respective areas. The methodological design includes systemic innovation approach analysis of chosen projects. This analysis is applied in three case studies of NWFPs companies with the aim to disclose the key factors that have led to their success. The findings show that stakeholders' education plays a significant role in the success of innovative businesses due to providing necessary knowledge for production processes, marketing, fulfilling legal issues and applying creativity. Also, the LEADER policy tool provides vital support for the development of NWFPs projects in terms of finances, advises, network building and stakeholders' education.*

Keywords: Non-wood forest products (NWFPs), LEADER instrument, innovation, Sweden, UK

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# 1 Introduction

## 1.1 Rationale and objectives

The importance of non-wood forest products increased in the last decade in European countries and therefore timber is no longer the only forest product which is competitive on the market. In favor of this Hellstadius (2011) expressed that: 'Forests are more than trees and a study made by Mattsson and Chuan-Zhong (1993) indicated that the non-timber value accounted for a considerable portion of the total forest value'. The decreasing price of wood products, the rising demand for environmentally friendly products, and the rural development policies are the main driving factors of growing interest in non-wood forest products and services in Europe (Nisskanen et al. 2007).

Sustainable harvesting of mushrooms, berries, medical herbs, moss and other NWFPs not only contribute significantly to national economic but also to maintaining local culture and tradition. Nevertheless, the importance of NWFPs has not been recognized enough in Europe, especially compared to the production of timber. This study deals with entrepreneurship related to NWFPs in Sweden and the United Kingdom and thus contributes to increasing awareness of the importance of these alternative forest products and promotes sustainable use. Innovative projects on NWFPs are the focus of this paper-as innovation is vital for viable business. Innovation is considered a core factor for economic growth, competitiveness and employment according to economic research and this is significant for all industries, sectors and economies including forestry and rural areas (Rametsteiner & Weiss 2006). In order to decrease competition with timber production and to generally improve the marketability within the forestry sector, innovative NWFPs solutions have great potential. Sweden and UK are both economically developed and yet utilization and significance of forests and NWFPs are different. National policies and government support differs as well in this regard. However, since these countries are members of the European Union, there are some common policies implemented in both. One such policy is LEADER (Liaison Entre Actions de Développement de l'Économie Rurale). This policy promotes sustainable development in European rural areas addressing economic, social and environmental concerns. It is an innovative approach with a goal to build local capabilities and to find out the new ways of meeting the needs of rural communities (EC 2013). It has been used within the EU since 1991 and has so far proved to be a successful method which involves cooperation between non-profit, public and private sector, for sustainable development of rural areas (Swedish Board of Agriculture 2010). LEADER is an EU level policy which supports innovative projects in forestry and that is the main reason why it is analyzed in this thesis. Therefore, successful LEADER applications related to non-wood forest products in Sweden and UK are discovered and analyzed in this paper. The core of this study are projects on NWFPs such as berries, mushrooms, nuts, medical plants and other products

used for different crafts, rather than services such as hunting, conservation, tourism and recreation. This is because the NWFPs are significantly less covered in European scientific literature, comparing to NWFSs.

The final goal of this study is to promote the importance of NWFPs in the economic, social and cultural regard. Also, the aim is to disclose and present the various ways of using of these products that can be applied in other countries as well. Thus, two research questions are proposed and serve as a guideline for this thesis:

- 1) What are important factors for the success of innovative projects on NWFPs in UK and Sweden?
- 2) What is the role of the EU LEADER approach in these projects?

## **1.2 Non-wood forest products: definition and classification**

FAO (1995) defines NWFPs as goods of biological origin other than wood, as well as services derived from forests and allied land uses. Furthermore, FAO (2006) states that: 'NWFP may be gathered from the wild, or produced in forest plantations, agro forestry schemes and from trees outside forests. Regarding NWFPs, many new and practically interchangeable terms have been created: by-products of forests, minor forest products, non-timber forest products, non-wood goods and benefits, non-wood goods and services, other forest products, secondary forest products, special forest products and a multitude of definitions proposed, all covering different aspects, species and products according to the focus of work of the respective author or organization'.

This study focuses on products such as berries, mushrooms, herbals for medicine etc. and has omitted services from forests (such as recreation, tourism etc.). Herein, products implies: 'commodities of tangible materials, often perishable goods, removed from the forest to supply existing or potential customers/markets and services' (Niskanen et al. 2007).

According to a DG Agri study report (2008) NWFPs can be classified as food products, materials and manufacturing products, health and care products, decorative and aesthetic products, environmental products and landscape and garden products. More detailed division can be seen below in the Table 1. Innovative projects related to these products supported by LEADER are the subject of this study.

Table 1: Classification of NWFPs

Food Products	Materials & Manufacturing Products	Health & Care Products	Decorative & Aesthetic Products	Environmental Products	Landscape & Garden Products
berries	adhesives	aromatherapy	Christmas tree	biofuels	landscape trees
beverages,	alcohol	oils	cone crafts	biopesticides	shrubs
essential oils	candles	cosmetics	bark crafts	recycled pr.	wildflowers
flavouring	cloth	drugs	carvings		grasses
agents	dyes	essential oils	floral		mulches
herbs &	essential oils	herbal health	arrangements		soil
spices	fragrances	pr.	wreaths		amendments
honey	incense	nutraceutials	garlands,		
maple syrup	lignosulfonates	perfumes and	swags		
sugar	resin	fragrances	natural		
taffy & butter	specialty wood pr.	pet care pr.	dyes		
mushrooms	stuffing material	shampoos			
seeds	thread & rope	soaps			
teas	turpentine				
vegetables					

DG AGRI 2008 (Adopted from CMRN 1999)

### 1.3 Non-wood forest sector in UK and Sweden

Interest in mushroom picking had fluctuations in British food history. Synthia Bertelsen (2013) finds British culture- ‘mycofobic’ in her book ‘Mushroom a global history’. However, she stated that foraging for mushrooms increased in popularity in the late twentieth century in UK ‘as people sought a sense of return to the land and food free from the taint of industrial agriculture’. Interest increased again at the beginning of the 1990s, due to the highly successful Channel 4 TV series, Mushroom Magic (The Association of British Fungus Group 2013). Nevertheless, the popularity dropped down dramatically after the famous poisoning which occurred in 2008 when the author of the book ‘Horse Whisperer’ Nicholas Evans and his family accidentally ate deadly webcaps, thinking they were cepes, and had to have kidneys transplant afterwards (Bertelsen 2013).

Mushroom picking has been tradition for at least 100 years in Sweden (Nagasaka 2013; Ingemarson & Nylund 2009; Colby 1988). An interesting fact revealed by Kardell (1980) suggests that Swedes started to use mushrooms when the urbanization (1840-1920) begun (Hellstadius 2011). That habit came from France and was accepted by Swedish nobility but not from village people (Kardell 1980; Stryamets at al. 2012). As berries are concerned, in the second half of the 19th century, when the railroads were set up, the berries became economically valuable for people in rural areas since they could transport and sell the berries at city markets (Hellstadius

2011; Kardell 1980; Pettersson 2001). By the end of the 19<sup>th</sup> century sugar became available and harvesting berries increased due to the possibility to preserve the products (Kardell 1980). Yet, rapidly rising standard and urbanisation caused a decline of berry picking for economical benefits, which then became mainly recreational in Sweden (Kardell 1980). Wild berries and mushrooms are major NWFPs in this Scandinavian country (Nagasaka 2013). Swedish forestland covers about 67 % of the total land area in Sweden (Rydberg 2001) and produces about 1000 million liters of berries and 3600 million liters of mushrooms each year (Hellstadius 2011; Kardell 1980). However, only a small share of the yearly production, about 10%, is actually harvested (Kardell 1980). The study of Hellstadius (2011) shows that the highest proportion (95-100 %) of Swedes that utilize self-picked berries or mushrooms, at least once a year, live in mountainous regions of the country or in the county of Stockholm. He also found out that using berries and mushrooms in households positively correlate with age and access to a summer cottage, which indicates that older people and those with summer cottages are more likely to harvest these forest products.

**Table 2: The most commercialised NWFPs in UK, 2005**

NWFP	Key species	Quantity in tones	Value in £ thousands (€ thousands)
Christmas trees	<i>Picea abies</i> , <i>Pinus</i> sp.	6.5 million trees	52 000 (71144)
Foliage and moss	<i>Hypnum</i> , <i>Sphagnum</i> , etc	45	4 100 (56094)
Venison	<i>Cervus</i> <i>elaphus</i> , <i>Capreolus</i> <i>capreolus</i>	3 500	3 500 (47885)
Honey		200	1 200 (16417)
Mushrooms	<i>Boletus</i> , <i>Cantharellus</i> , etc	50	375 (513)
Elderflowers	<i>Sambucus</i> <i>nigra</i>	100	260 (356)
Tree seed		13	150 (205)
Nettles	<i>Urtica dioica</i>	2.5	22 (30)
Yew clippings	<i>Taxus baccata</i>	15	5 (7)
Bilberries	<i>Vaccinium</i> <i>Myrtillus</i>	4	4 (5)

Source: Forestry Commission UK, 2010

At the moment, the most profitable NWFPs in the UK are Christmas trees, followed by foliage, moss and venison. Table 2 shows the ten most important marketed NWFPs from the forests in the UK, with estimated marketable quantities and values for 2005 (Forestry Commission UK 2010). According to the British Christmas Tree Growers Association (2005), the UK production of Christmas trees increased from £2.5 million (€3.42m) in 1990 to £6.5 million (€8.89m) in

2004. Considering wild woodland food, fungi are the most prominent in the UK, chanterelle, cep, hedgehog mushroom, winter chanterelle, saffron, milkcap and wood blewit are mainly harvested, and also mushrooms growing on wood substrate (Collier et al. 2004). According to market source, the value of the UK market for wild mushrooms is about €6m (Collier et al. 2004). In spite of these figures and the fact that mushrooms grow abundantly in Great Britain, this natural ‘bounty’ has been highly ignored in this country (Fungi Forays 2014). A Welsh gourmet mushroom company has estimated that fungi can bring fine income, where at small woodland area of five ha turnover can reach €30,000 within three years of establishment (Collier et al. 2004; Wicklow Uplands Council 2002).

Four companies dealing with wild mushrooms in Scotland had a collective income of £1m (€1.37m) in 2002 and the same value is estimated for black economy and some for personal consumption as well (Collier et al. 2004).

The most economically significant and popular berry species in Finland, Sweden and Norway are cowberry (*Vaccinium vitis-idaea*), bilberry (*V. myrtillus*), cloudberry (*Rubus chamaemorus*) and raspberry (*R. idaeus*); however, bilberry takes the first place in Sweden (Metla 2014). Three mushroom species are considered to be the best edible mushrooms in Nordic countries: the ceps (*Boletus edulis*, *Suillus luteus*) and chanterelles (*Cantharellus cibarius*)(Metla 2014).

It is estimated that between 10 000 and 20 000 tons of berries are commercially harvested in Sweden per year, which is approximately 2-4% of total production of wild berries in Swedish forests (Nagasaka 2013; Jonsson & Uddstål 2002). No matter the ‘Free access’ policy, income from sales more than SEK 5000 (€534) berries per person is taxable in Sweden (Metla 2014). The annual yield of Swedish berries (cowberry, bilberry and cloudberry) has been calculated to be 485 million tons (Metla 2014).

Collier et al. (2004) found that there has been an increase in demand for specific forest products in the UK market including willow (*Salix*), blackthorn (*Prunus spinosa*) and hazel (*Corylus avellana*) foliage. The Irish and UK market for foliage is estimated to be worth about €145m (Collier et al. 2004).

**Table 3: EU consumption of cut flowers and foliage, 1997 – 2003**

	1997	1998	1999	2003
	Million €			
<b>Germany</b>	3,082	3,105	3,146	3,693
<b>Italy</b>	1,773	1,867	2,025	2,704
<b>France</b>	1,710	1,801	1,825	2,485
<b>UK</b>	1,442	1,602	1,795	2,324
<b>Spain</b>	591	651	1,117	990
<b>Netherlands</b>	488	499	511	593

Table 3: EU consumption of cut flowers and foliage, 1997 – 2003 (continued)

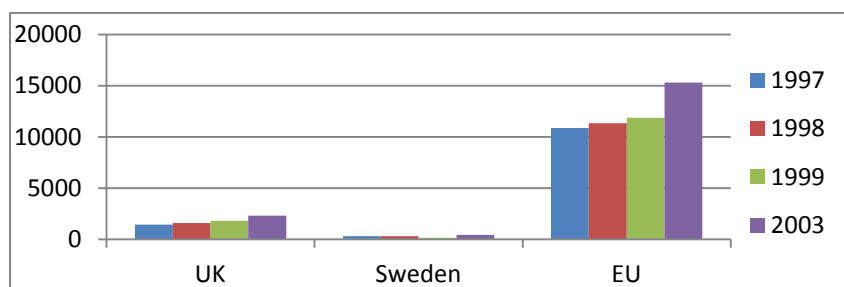
	1997	1998	1999	2003
	Million €			
<b>Belgium and Luxembourg</b>	393	405	409	533
<b>Austria</b>	369	371	359	486
<b>Sweden</b>	299	309	162	427
<b>Denmark</b>	193	198	195	304
<b>Finland</b>	198	196	189	245
<b>Greece</b>	144	140	153	212
<b>Portugal</b>	121	131	139	219
<b>Ireland</b>	60	73	92	111
<b>EU</b>	10,864	11,350	11,891	15,327

Source: Collier et al. 2004 and Centre for the Promotion of Imports from Developing Countries (2001, 2003)

Notes: Figures for 1999 are estimates and 2003 is a prognosis by the Flower Council of Holland (1999)

From Table 3 above, the constant increase in the demand for foliage is noticeable, and could be better seen in the case of the UK, Sweden and the EU as a whole in Figure 1 (Collier et al. 2004) below:

Figure 1: Consumption of cut flowers and foliage in UK, Sweden and EU in millions of Euros, 1997– 2003



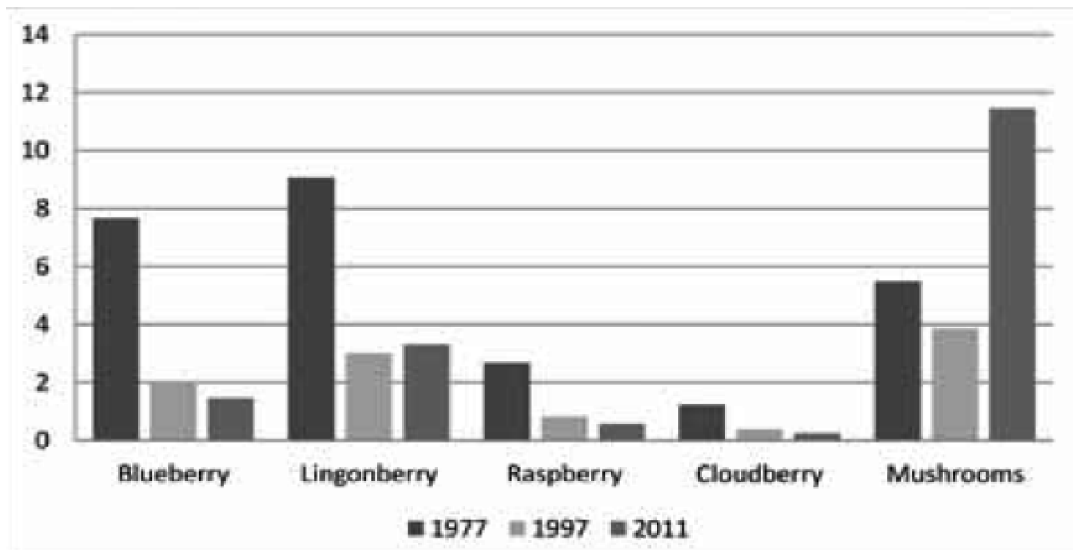
Source: Collier et al. 2004

In addition to commercial NWFPs from the Table 3, considerable amounts of blackberries (*Rubus* sp.) are harvested for non-commercial purposes in UK, but no precise estimates are retrievable (Forestry Commission UK 2010). Plenty of wild blackberries are still available in August and September, though hundreds of thousands of miles of British hedgerows have been cut down during the last fifty years (Self-sufficient UK 2010). The herbal medicine market in the UK was estimated to be worth £72.7m (€99.46m) and grew at 14% per year in the period 1996 to 2000 (Collier et al. 2004). When forest services are considered-recreation, conservation and heritage values, provided income of £17.9 millions (€24.49m) in 2005 (Forestry Commission UK 2010).

It is estimated that consumptive activities such as hunting, fishing and gathering wild food are decreasing in Sweden today (Hellstadius 2011; Pouta et al. 2006; Rydberg 2001) while non-

consumptive activities (e.g. recreation) seems to increase (Hellstadius 2011; Sievänen et al. 2004). Regarding forest goods, Lindhagen & Bladh (2012) conducted a research which revealed that 'the proportion of the respondents who have picked wild berries to be consumed in their own household decreased from about 64 % in 1977 to 40 % in 1997 and 42 % in 2011. For mushrooming, an opposite trend is obvious where the proportion of respondents gathering mushrooms has increased from about 38 % in 1977 and 1997 to about 53 % in 2011'. The results of the study are shown in Figure2 below.

**Figure 2: Mean values of the quantity of wild berries and mushrooms for consumption in their own household during the last picking season (estimated values in liters)**



Source: Lindhagen & Bladh (2012)

#### 1.4 The LEADER instrument 2007-2013 (an overview)

LEADER is the abbreviation for "Liaison Entre Actions de Développement de l'Économie Rurale", which translated from French language means: 'Links between the rural economy and development actions'. This EU initiative was first proposed in 1990 and 'it was an innovative and relatively small programme targeted towards declining areas with GDP significantly below the EU average' (Carnegie UK Trust 2010). Since then, the LEADER has been delivered in a number of different stages starting from LEADER I (1991-1993) which was an experimental phase (EC 2013). Due to the success of LEADER I, the next programming period LEADER II (1994-1999) was much larger (Carnegie UK Trust 2010). The LEADER+ (2000-2006) 'quickly expanded to cover all types of rural areas' because of promising results of the LEADER II (EC 2013). Finally, in its fourth programming period (2007-2013) LEADER was mainstreamed 'as an integral part of the EU's rural development policy, covering 2402 rural territories across the Member States'

(EC 2013). This study analyzes innovative projects in the UK and Sweden for NWFPs supported by the LEADER (2007-2013). LEADER, as a method of rural development has been applied in the UK since 1990 (Carnegie UK Trust 2010) and in Sweden since 1996 (Swedish Board of Agriculture 2010).

LEADER (2007-2013) is an initiative within the EU Rural Development Policy (EC 2013), also known as the second pillar of the Common Agricultural Policy (CAP) and 'helps the rural areas of the EU to meet the wide range of challenges and opportunities that face them in the 21st century' (EC 2014). CAP is financed by the EU general budget through two funds: The European Agricultural Guarantee Fund (EAGF), which is focused on direct payments to farmers and measures regulating or supporting agricultural markets (pillar 1); and the European Agricultural Fund for Rural Development (EAFRD), which finances the EU contribution to rural development programmes (pillar 2) (EC 2014). Accordingly, EAFRD is funding the LEADER. Approximately 50% of the total EU budget is annually allocated to the CAP (National Assembly Wales 2007). EAFRD has been dedicated a budget of €96.3 billion (for the period 2007-2013), or 20 % of the funds allocated to the CAP (Europa 2012). EAFRD assigned €6.1b to LEADER in aforementioned programming period (EC 2014).

Rural Development Policy, and thus EAFRD Regulation focuses on four axes (themes) under which money can be spent, with the minimum amounts for each provided in brackets:

→ Axis 1 Improving competitiveness of farming and forestry (10%)

→ Axis 2 Environment and countryside (25%)

→ Axis 3 Improving quality of life and diversification of the rural economy (10%)

→ Axis 4 Each programme must have a 'LEADER' element for implementation of bottom-up local development initiatives. The Axis 4 has to be delivered through the other three axes (5%) (Assembly Wales 2007).

'Bottom-up' means that 'local actors participate in decision-making about the strategy and in the selection of the priorities to be pursued in their local area' (ELARD 2015). In other words, local stakeholders are encouraged to take an active role in decision-making regarding their community development.

As before 2007, each member country had to set up its own Rural Development Programme which specifically allocates where the funds will be spent and on which measures during the period 2007-2013 (EC 2008).

LEADER financially supports the innovative projects in EU rural areas but also deals with the social, ecological and economic issues. There are seven key features which summarize the



LEADER approach: 1) Networking; 2) Area-based, local development strategies; 3) Bottom-up elaboration and implementation of strategies; 4) Local public-private partnerships: Local Action Groups; 5) Integrated and multi-sectoral actions; 6) Innovation; and 7) Cooperation (EC 2008).

LEADER is implemented through Local Action Groups (LAGs) - public-private partnerships in each LEADER region of the EU countries. These regions are determined by Rural Development Programmes of each Member Country. Main decisions on projects and funding allocation are made by the LAGs.

In the 2007-2013 programming period Leader becomes integrated in all national/regional Rural Development Programmes (EC 2013).

One of the objectives of LEADER is to encourage local people to take an active role in creating a future for their own community. This kind of policy tool proved to be very successful in helping local stakeholders to recognize local resources, organize its sustainable use and create new job opportunities.

## **1.5 The LEADER instrument 2007-2013 in UK and Sweden**

Within the UK: Wales, England, Northern Ireland and Scotland prepared individual Rural Development Plans (RDPs) for the period 2007-2013, which was combined to form the UK National Strategy Plan (NSP) (National Assembly Wales 2007). The Welsh Rural Development allocation for 2007-2013 was €1.3b (ENRD (1) 2010). The Rural Development Programme of Sweden for the period of 2007-2013 included measures with the aim to achieve ecologically, economically and socially sustainable development in rural Sweden where funding came from two sources: the European Agricultural Fund for Rural Development (43%) and public Swedish financing (57%)(UN, 2010). Rural Development Programme (2007-2013) fund comprised €5.7b spread by 4 axes (ENRD (2) 2010). This fund consists of national/regional fund, private fund and EAFRD.

According to National Assembly Wales (2007), the focus of the axes is as follows:

→ Axis 1 Funding a Process and Marketing Grant Scheme; Quality Food Scheme; Farming Connect and Farming Advisory Service; Supplying Chain Efficiency.

→ Axis 2 The agri-environmental measures funded by the RDPW 2000-2006 continued through to 2008 such as Tir Gofal and the Less Favoured Areas scheme Tir Mynydd. A stakeholder group reviewed all of the measures available by the end of 2007 and the conclusions were implemented from 2009.

→ Axis 3 and 4 which focused on bottom up local rural development- was delivered via Local Partnerships and Groups selected via competition. Applications to the Assembly Government should have been submitted by the end of March 2007.

Total allocation for LEADER in Wales for the period 2007-2013 was €48.4m which comprised funds for private, public and EAFRD (ENRD (1) 2010).

The Swedish Government organized the Rural Development Plan (2007-2013) in this manner:

→ Axis 1 Improving the competitiveness of the agricultural and forestry sector, reindeer husbandry, and food production and processing, all based on sustainable use of natural resources.

→ Axis 2 Preserving and improving an attractive landscape and thriving countryside, as well as to facilitate transitions to efficient and sustainable production with lower environmental impact towards efficient attainment of EU and Swedish environmental objectives.

→ Axis 3 Facilitating greater diversification of the rural economy, promoting higher employment and quality of life for rural residents and ensuring sustainable use of the combined resources of the countryside.

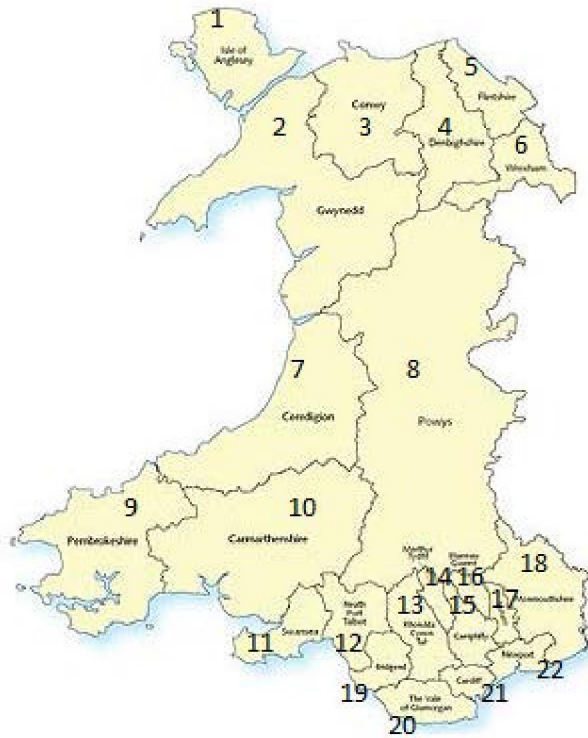
→ Axis 4 Promoting efficient implementation of the Rural Development Programme through community backing, involvement and partnership. This axis is concerned with the application of the Leader method and was mainly focused on Axis 3 measures and initiatives, but also the aspects which were applicable to Axis 1 and Axis 2. Approximately 7 % of the total Rural Development programme budget was allocated to Leader-based operations.

The four axes through which Rural Development Plan has been applied is set by EU and adopted by each EU member country according to their priorities.

In total, SEK 3.2 billion (€0.34b) has been provided to 63 LEADER areas in Sweden, where SEK 2.4 billion (€0.26b) was from the public fund and EAFRD, while SEK 0.8 billion (€0.09b) has been provided by local private financiers (Swedish Board of Agriculture 2010).

There are 22 single-tier principal areas in Wales. However, there are 18 LAGs where some principle areas are merged in terms of the implementation of Axis 4 projects. Namely, Denbighshire's and Flintshire's LAG is rural development agency Cadwyn Clwyd. Cardiff, Blaenau Gwent and Newport are not classified in Rural Development Plan Axis 3 or 4.

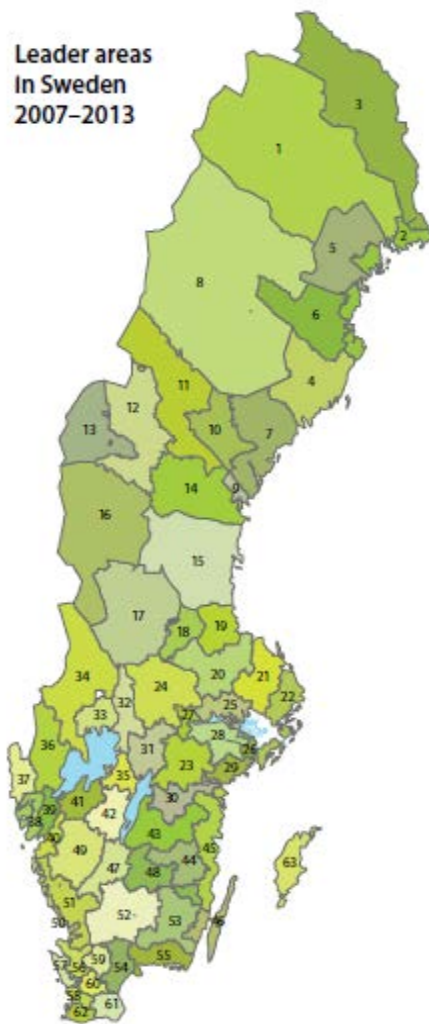
Figure3: Regions in Wales



Source: Welsh Government (2014)

The LAG organization and administration in Wales is usually part of the Local Council, but can be also organized through the local agency, partnership, private company or another body given authorization to implement the LEADER approach. In such a way, the LAG is not organized as in Scotland, England and Sweden, where the Local Action Groups usually have a website and can be directly contacted by locals. The LAG groups in Wales often have websites but they are not branded as LAG websites, or they form part of the relevant Council websites. In Wales, members of rural communities usually search for support from their local council and the council forwards their request to the organization responsible for the LAG if it is not based within the Council. Although the LAGs throughout the Wales have different structures, according to Carnegie UK Trust (2010) there are some prerequisites each LAG has to fulfill: i) LAGs have to be based on a four way representative split: public, private, community and voluntary sectors; ii) the stated aim is to engage grassroots communities and to encourage the generation of new innovative ways to sustain rural development in Wales in the longer term. The scheme guidance for Axes 3 and 4 in the Rural Development Plan stressed that priority will be given to innovative processes, products and approaches both in terms of sectors and geographical regions (Carnegie UK Trust 2010).

Figure4: LEADER regions in Sweden (2007-2013)



There were 63 LEADER regions or LAGs in Sweden in the programming period 2007-2013 (EC 2014).

The partnership in LAG (Local Action Group) involves the public sector, private sector and the non-profit sector (Swedish Board of Agriculture 2009). Director General of the Swedish Board of Agriculture, Mats Persson (2010) finds that each LAG has its own priorities in Sweden from- the climate, entrepreneurship, value-added processing and adventure tourism to youth participation and changing attitudes.

Persson (2010) stated that the overall goal of LEADER is: 'to promote entrepreneurship, growth and employment as well as creating attractive countryside regions with a high environmental ambition'.

Source: Swedish Board of Agriculture (2009)

## 2 Theoretical framework

### 2.1 Innovation and innovation analysis

Innovation is ‘a matter of producing new knowledge or combining existing elements of knowledge in new ways’ (Edquist 2005). Leonard and Swap (1999) find that: ‘Innovation is the embodiment, combination, and/or synthesis of knowledge in novel, relevant, valued new products, processes, or services.’ Generally, the innovation refers to the introduction of novelties to the market (Rametsteiner *et al.* 2005; Weiss *et al.* 2011).

Since economists have recognized that innovation is the main impetus for economic progress around 20 years ago, policy makers expressed concern over the issue, which resulted in the adoption of innovation policies on national and the EU level (Weiss 2011). One such policy that supports innovative projects in rural areas of Europe is LEADER and was first launched in 1991. LEADER is one of the main EU level initiatives which support innovations in forestry and therefore in NWFPs. Weiss (2011) underlines that innovation in forestry and forest-based industries is as important as in other sectors in order to maintain the competitiveness on the market.

According to J. Schumpeter- the initiator of the introduction of innovation in economic studies (Godin 2008), there are five types of innovation: 1) new products; 2) new methods of production; 3) new sources of supply; 4) the exploitation of new markets; and 5) new ways to organize business (Schumpeter 1912; Weiss 2014). Edquist (2005) finds difference between *product* and *process* innovation, where product innovation is a new (or better) material goods, also new intangible services, while process innovation is a new way of producing goods and services (Edquist 2005). Besides the new technologies, innovations are also new business models or new marketing methods which enhance the business (Weiss *et al.* 2011).

Schumpeter (1912) initially held that entrepreneur has a central role in the innovation process and later he claimed that this role has a great company (Schumpeter 1942; Godin 2008). Yet, there are other numerous factors that affect the innovation process. Consequently, the study of innovations faces challenge due to multiple processes involved in the creation and implementation of novelties (Weiss 2011). There are several different levels in innovation process analyzing: linear, systemic, national, regional and sectoral model (approach) (Weiss 2014). In order to explicitly present the innovation process of the successful companies dealing with NWFPs, I applied Systems of Innovation Approach in the analysis of the case studies. The SI approach is first introduced in science by Freeman (1987), Lundvall (1992) and Nelson (1993) (Edquist 2001). This approach encompasses all the important aspects that have a role in the

innovation process. SI approach refers to all relevant economic, social, political, organizational, institutional and other factors that influence the development, diffusion and use of innovations (Edquist 2005). Edquist (2005) finds that the strength of SI approach is that 'employs historical and evolutionary perspective, which makes the notion of optimality irrelevant'. According to Edquist (2005), the main parts of the Systems of Innovation are *institutions* and *organizations* and the central focus is *learning process*. He explains the *institutions* as 'the rules of the game' laws, norms, routines that affect the innovation process and *organizations* as 'players or actors' which could be competitors, customers, suppliers, universities, government bodies etc. Since the innovation is the production of a new knowledge, thus the *learning process* is of vital relevance in studying innovation process. Weiss and Rametsteiner (2005) add that *interactions* between actors and institutions are relevant in the innovation process. Overall, the main aspects of systemic approach innovation analyzing are:

- Actors (organizations)
- Institutions
- Interactions
- Knowledge and learning

These four aspects are used as structural framework in successful NWFPs projects case studies writing in the 4<sup>th</sup> chapter.

In the following, these aspects are discussed on the basis of scientific literature dealing with innovations in NWFPs.

## **2.2 Innovations in forestry and NWFPs**

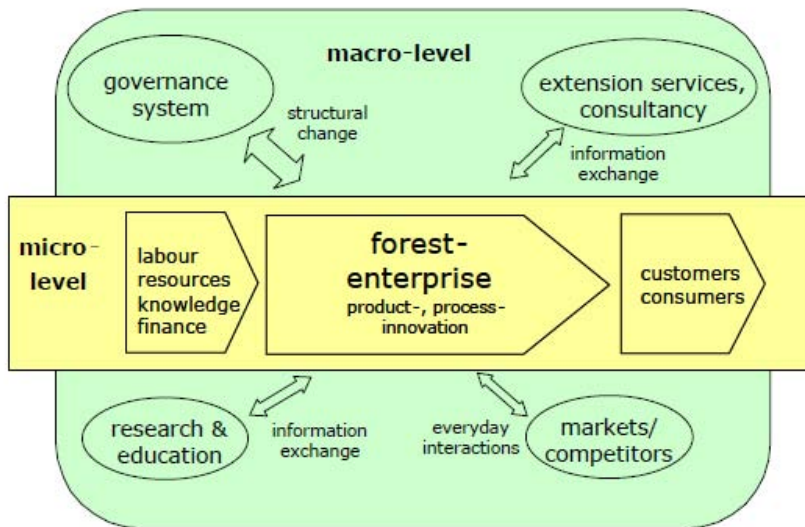
### **2.2.1 Actors**

Weiss (2011) finds that there are various actors in sectoral innovation systems, such as companies, governmental and non-governmental actors. However, he adds that small companies differ from large ones regarding structure, management and organization and this fact is often disregarded in policy and research.

In order to understand the impact of the commercialization of the NWFPs, it is necessary to know-who are the actors of 'production-to-consumption process' (Belcher 1998; Belcher & Schreckenber 2006). Niskanen et al. (2007) emphasize that: 'knowledge in the subject of the product, skills in the delivery of services or business activities (such as marketing), and trust between actors, are fundamental to successful innovation regarding NWFPs'. Furthermore,

involvement of both private and public sector interests highly affects the success in innovations (Niskanen et al. 2007).

Figure 5 Actors in Sectoral Innovation Systems of Forestry



Source: Weiss and Rametsteiner (2005)

The figure 4, developed by Weiss and Rametsteiner (2005), shows that actors in innovation systems can be observed on micro level where central focus is the company, while macro level has broader focus.

In addition, Phillips (2014) believes that gender diversity creates information, opinion and perspective diversity too, which is an excellent platform for the innovation. Business professors Cristian Deszö of the University of Maryland and David Ross of Columbia University studied the effect of gender diversity on the top firms in Standard & Poor's Composite 1500 list and found out that the 'female representation in top management leads to an increase of \$42 million in firm value' through 1992-2006 (Phillips 2014). They also found that companies that focused more on innovation gained greater profit when women were part of the top leadership ranks.

### 2.2.2 Institutions

Institutions have an important role in the innovation process by providing information and thus reduce uncertainties; by managing the conflicts and cooperation; and by providing the



pecuniary and the non-pecuniary incentives (Edquist & Johnson 1997; Weiss & Rametsteiner 2005).

Schreckenberget al. (2006) finds that the NWFPs are usually overlooked in national policies due to exclusively focusing on local project level in an attempt to affect the commercialization. However, there are several reasons that influence policy makers at EU level to promote NWFP: sustainable rural development, diversification of agricultural and forestry production and controlling the abandonment of forests (Cesaro et al. 1995). Yet, Slee (2011) finds that policy instruments, such as subsidies, can hinder innovation because they create stability which causes absence of creativity as a response to arising problem. This is not the case with the LEADER policy, which is described by Feliciano et al. (2011) as the policy with the main goal to produce innovative solutions and provide strong cooperation between different sectors. It is one of the main areas of innovation in European policy regarding rural development (Slee 2011). Nevertheless, the most important policies related to forestry (regional and rural development policies, innovation policies and sectoral policies), do not all have significant influence on the innovations in the sector and those which do have, are applied through 'traditional linear thinking' instead of systemic approaches (Rametsteiner & Weiss 2006; Weiss et al. 2010; Weiss et al. 2011). Policy makers responsible for forestry in Central Europe highlighted the significance of innovations for the future prospects of the sector, however 'current innovation support is piecemeal, fractioned and often not coordinated' (Rametsteiner & Weiss 2006).

Concerning the implementation of LEADER approach in EU, there are some LEADER groups with good connection to the forest sector, but evidently many groups omitted forestry from the projects (Weiss et al. 2011). The main reason for this was probably the lack of information of forestry entrepreneurs about the instrument (Weiss et al. 2011). Pérez (2000) finds LEADER programme very significant in promoting Rural Development Policy in Spain and increasing awareness of importance of rural areas dynamics, yet he expressed that LEADER was not so successful in encouraging innovative projects. This statement refers to a LEADER II programming period implemented from 1994-1999. The next programming period was LEADER + from 2000-2006 as a program for innovative strategies for rural development and it supported quite small number of projects related to forestry in Austria, Finland, Portugal and Scotland, comparing to other projects in these countries (Feliciano et al. 2011). The Leader+ promoted innovations in new products, processes and specially it supported the new network development and it had an effect of employment in rural areas, but disregarded creation of new markets (Feliciano et al. 2011). Scott (2004) stated that the main characteristic of LEADER II programme in Northern Ireland was building networks in local economy and creating the ability to cooperate and coordinate across public, private sector and communities. Scott (2004) also notes that the negative aspect of the LEADER was the pressure due to deadlines of the project



which resulted in reduced ability of communities to explore pathways for local development and greater community participation. In Finland, LEADER is seen as very successful and especially in the last programming period 2007-2013, where has been created of almost 700 new businesses, new jobs equal to some 950 man-years, and 860 village development, landscaping or environmental plans (Lakkapää 2014).

### **2.2.3 Interactions**

Networks creation between NWFPs and services producers (nature-based small, medium and even large companies and from other sectors as well) can be excellent strategy with good economic outcome (Maso at al. 2011). In fact, Weiss and Rametstainer (2005) find that cross-sectoral interaction is of special importance in NWFPs and NWFSs development as 'these mostly do not belong to traditional forestry activities but have rather affinities to other sector or societal groups'. Moreover, Vaughan et al. (2013) argues that social networks can be useful for overcoming the gaps in communication-by organizing landowner groups and volunteer monitoring. He also finds that asynchronous networking by mobile technologies may be the best option as far as NWFPs are concerned.

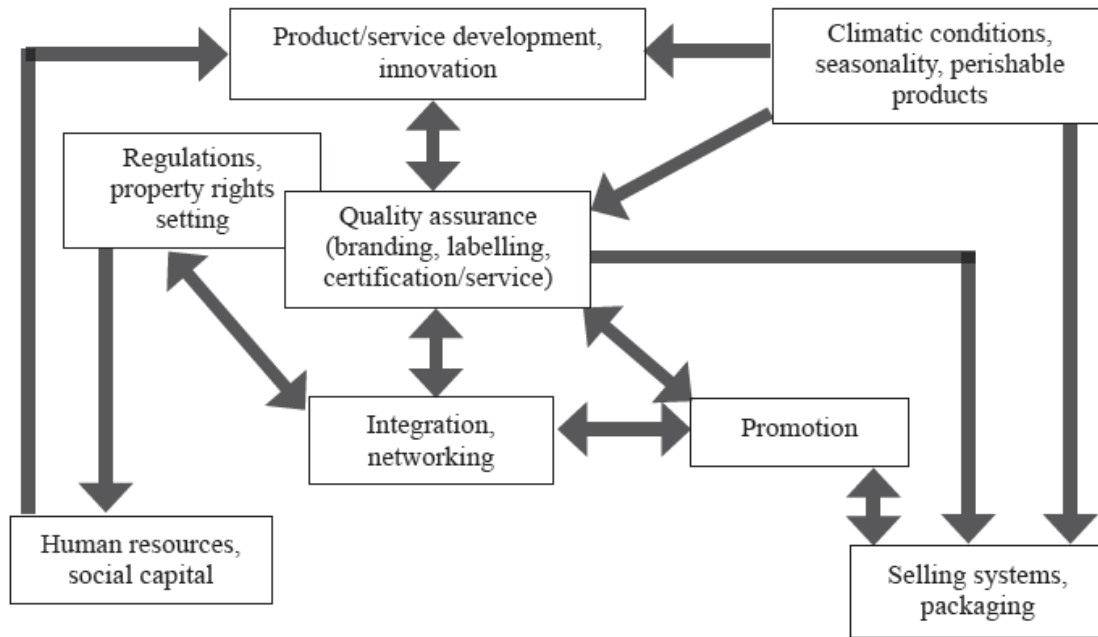
Slee (2011) finds that the strong associations of forest owners are solution for small size, which creates a good field for innovation. Collaboration through market cooperatives in order to supply the main market has to be planned along with the development of new products to meet future demands (Belcher & Schreckenber 2006). There is a good example in Virginia, where the forest farmers formed a network in order to conduct the research on viability of growing native medicinal herbs in the Appalachian forest understory (Vaughan 2011; Vaughan et al. 2013). Pierce *et al.* (2003) also notes that 'some forward thinking industries' are investing in building direct partnerships with communities in Brazil with the aim to establish reliable and sustainable sources of raw material.

### **2.2.4 Knowledge and learning process**

Rametsteiner & Weiss (2006) find that the most important factor for innovation activities is the 'access to information on possible innovation ideas'. Niskanen et al. (2007) underlines that resources such as knowledge and skill, as well as physical and monetary resources are critical for successful innovation in NWFPs and NWFSs. Cesaro et al. (1995) stresses that problems related to trading with NWFPs should be solved through market research, promotion of marketing information systems and commercial know-how. Atuahene-Gima & Evangelista (2000) agree in this regard stating that: 'If innovative products are to be successful, marketing, research and the development need to play influential roles in innovative activities'.

Furthermore, Bagchi-Sen (2001) adds that market research has greater relevance for business development and problem solving in innovative than in non-innovative companies.

Figure 6: Marketing development strategies in NWFPs and services



Source: Niskanen et al. (2007)

Marketing development strategies in NWFPs and NWFSs are shown in the Figure 6. Herein, Niskanen et al. (2007) find that human resources and social capital are scarce in rural areas and recruiting qualified staff might be a difficult task, but necessary for stabilization of local business. Particularly this might be a problem for small companies that typically have limited capacity to undertake all actions necessary for a viable business due to lack of knowledge or personnel, and it stresses the need for participation in the networks in order to obtain relevant information and improve the production (Maso et al. 2011). Hence, if traditional knowledge is needed in harvesting techniques, finding qualified staff might be a problem (Niskanen et al. 2007). Schreckenber (2006) also believes that traditional knowledge of a product can be very significant for understanding the needs of the community and the ability to successfully commercialize NWFPs.

### 2.2.5 Conclusion

Weiss and Rametsteiner (2005) argue that entrepreneur is not the only one responsible for innovativeness of the company. In fact, for successful business is important to have good

cooperation in all parts of the value chain and all actors equally supported (Belcher & Schreckenberg 2006).

Niskanen et al. (2007) stresses that knowledge and skills; natural resources; financial resources; and man-made infrastructure are vital for innovation in forest sector.

In regards to institutional support, Schreckenberg et al. (2006) finds that forestry is not supported enough by national policies. Nevertheless, there are some significant policies, such as LEADER, which aims to secure sustainability in rural areas by supporting innovation, encouraging networking, developing international co-operation, working across sectors in an integrated way etc. (Carnegie UK Trust 2010). However, it is important that forest owners are well introduced into the LEADER program and its potential to provide support to rural development projects (Feliciano et al. 2011).

In order to overcome many obstacles in business in NWFPs, it is preferred to producers and processors to collaborate with 'socially minded' entrepreneurs, also to recognize the need for constant innovation and the external support for overcoming different hindrances such as legislative constraints, unpredictable quality and quantity of NWFPs and insufficient market information (Schreckenberg et al. 2006). Commercialization of NWFPs is more challenging than in other businesses, since it requires long-term multidisciplinary approach which includes ensuring support to technical and social aspects of national resource management and also having idea how markets work on the local and international level (Belcher & Schreckenberg 2006).

### **2.3 Analytical concept of the study**

I applied the above mentioned and explained analytical methods in writing the case studies. Overall, in order to gain consistency in all case studies, I analyzed the following aspects in each of the three selected case studies: 1) actors (organizations); 2) institutions; 3) interactions; and 4) knowledge and learning. However, regarding institutions, I have devoted special attention to the LEADER instrument because it supported all three projects that are the matter of analysis of this study. Therefore, LEADER represents one of the most important institutions and its role in analyzed projects (companies) has been explained in detail along with the Leader Action Groups (bodies which implement the LEADER in certain area. Before the analysis, in the background of the project (company), I have the aim to reveal the attributes that preceded the development of ideas for starting the innovative business. Finally, another facet arose during the interviewing with the managers of successful projects - future aspects, which show visions and plans of the chosen companies (projects) for the future.

## 3 Material and Methods

### 3.1 Study areas

Two study areas have been chosen for this thesis: Sweden and United Kingdom. These two countries are selected due to great difference in forest cover, availability and importance of NWFPs, policies regarding forestry and NWFPs, culture and tradition in general. Nevertheless, both countries are members of the European Union and some common policies are applied, such as the Common Agricultural Policy. An important tool of this policy is the LEADER instrument, which supports innovative projects in forestry and thus in NWFPs at the EU level. After the search for NWFP projects in UK, I only found cases in Wales and no cases in Scotland and England. However, there is the possibility that there are cases in Scotland and England as well, but not visible in the online database. Consequently, some facts related to forests and forest policies in Sweden and Wales will be listed in the following lines.

#### 3.1.1 Sweden

Sweden has an area of 450 000 km<sup>2</sup> (174 000 m<sup>2</sup>) and length of 1 600 km, which is approximately the same distance from the southern tip of the country to southern Italy (Boreal forest 2014).

This Scandinavian country has the second largest afforested area in Europe (after Russia) with 27 million hectares of forests and approximately 66 % of forest cover (Nordic Forestry 2013). As the largest part of the country belongs to Boreal region, Swedish forests are dominated by spruce and pine tree species (SLU 2014). Regarding the ownership, forests are mainly privately owned (51%), wherein forest companies own 25 %, while state-owned forests and other public forms of ownership take 24% (Örlander 2013).

Swedish forest policy is based on cooperation between the state and forest owners, with the aim to attain sustainable forestry (Nordic forestry 2013). Environment conservation, cultural and social interests are as important factor as timber production in Swedish forest legislation (Nordic forestry 2013). The access to forests in Sweden is regulated by *The Right of Public Access*. According to this policy, everybody can freely enter into countryside (and forests) in Sweden, but with responsibilities not to damage nature and wildlife and disturb landowners and other people enjoying the nature (Swedish Forest Agency 2013). Picking flowers, berries and mushrooms in the countryside is allowed, but picking protected plants is not (Swedish Environmental Protection Agency 2014). There is also exception in NWFPs free collecting in Swedish woods. For instance-truffles, which are recently discovered on the island of Gotland

are property of the land owner, since they grow underground (Plogander 2010) and cannot be harvested by anyone else. According to UNECE & FAO (2004), it is not allowed to take branches, bark and leaves from growing trees in Sweden.

### **3.1.2 Wales**

Forest cover of Wales is only 14 % which puts this country in a group of the least afforested countries in Europe (Welsh Assembly Government 2009). There are 287 400 ha of forest in Wales, where 126 700 ha is public and 160 700 ha is privately owned.

According to UNECE & FAO (2004), the access to countryside in England and Wales is regulated by the Countryside and Rights of Way Act (2000) and this policy allows access to the 'open country' (mainly mountain, moor land and heath) and forests, 'which are on common land either publicly or privately owned, and to forests that can be dedicated under the terms of the Act as access land'. The access is also regulated by the Law of Property Act (1925), the Commons Act (1899) and the National Parks and Access to the Countryside Act (1949). The Forestry Act (1967) does not include specific regulations concerning public access to forests (UNECE & FAO 2004).

Natural Resources Wales is bound by law to review maps of Open Country and Registered Common Land at least every ten years, and the latest map has been updated in September 2014 (Natural Resources Wales 2014).

Forestry Act (1967) does not include regulations regarding the use of non-wood forest products, but Forestry Commission (2002) states that mushroom picking on public land is allowed for personal use and commercial use 'can be licensed if this is compatible with sustainable management' along with gathering other NWFPs (UNECE & FAO 2004).

## **3.2 Identifying the LEADER projects related to NWFPs**

Search for the relevant projects was carried out through three sources. The first source is the website of the European Commission, the second is the website of the Ministry of Agriculture of Wales and Sweden and the third source is contacting professionals from the UK and Sweden who deal with NWFPs.

The first source was the list of the individual LEADER projects in the database of Local Action Groups (LAGs) on the website of European Commission, DG Agriculture and Rural Development. An overview of the LAGs database was available in the section *The European*

*Network for Rural Development (ENRD)*. These groups are clustered by countries where they are formed and the list of LAGs is arranged in alphabetical order. In this study, LAGs of United Kingdom and Sweden were considered. There were registered 108 LAG groups in the UK and 63 groups in Sweden. Search for relevant projects was carried out within each LAG. Majority of surveyed groups from both countries had detailed information, contact addresses and website to find out. Scottish and Swedish LAG websites contained a list of supported projects which are described briefly. Here I had the opportunity to see if there are projects related to NWFPs. Subsequently, I identified one such project in Sweden and none in Scotland. However, the Welsh LAGs are mainly created within the local council websites or some other public organization and I was not able to find a list of the supported projects.

Since I was not successful in finding any NWFP projects in Scotland and Wales and found only one in Sweden in the previous step, I sent an email inquiry to all LAGs in Wales, Scotland and Sweden to the email addresses listed on the European Commission website. The emails consisted of question whether the LAG supported some projects related to NWFPs such as berries, mushrooms, medical herbs, moss, bark or other forest products for crafts production etc. in the last LEADER programming period 2007-2013. Out of 18 LAGs in Wales, only six answered and one had a positive response, stating that there are two projects related to NWFPs. One project is related to organizing a bush-craft festival in Bridgent. Another one is similar and related to forest education and making a bush-craft in Bridgent as well. Out of 20 LAGs in Scotland, seven responded to my questionnaire and none had a positive response. Out of 63 LAGs in Sweden whom I contacted, 19 responded on my email inquiry. Only one LAG sent positive response stating that they have supported one project related to NWFPs. This Local Action Group is from the Island of Gotland and the project is dealing with developing truffle industry in this region. It was the LAG with a project that I have already identified in the previous step.

As the result of the previous step was very modest and only a few projects were found, I continued the search through other sources. The second source was the website of Ministry of Agriculture of Sweden and UK. I used this source with the aim to find additional information on LEADER implementation in these countries, about LAG organization and supported projects related to NWFPs. Consequently, I found the report containing information about all LAG areas on the webpage of Ministry of Agriculture of Sweden. There is a short description and websites of each LAG in this report. Those websites which were not available in the previous source were observed in this step and I found two more NWFP projects. These projects are related to 1) identification of forms of collaboration for the picking, processing and sale of wild mushrooms; and 2) improving processing of raw material from berries in order to produce wine. Regarding Wales and Scotland, I found the map of LAGs in the Ministry of Agriculture website of both countries (Rural Development webpage). Similarly as with Swedish cases, I found some

additional websites of LAGs and reviewed its projects. Even in this step, no NWFP projects are found in Scottish, Welsh or English LAGs.

The third source regarding Sweden was contacting SLU University and the researchers dealing with the NWFPs. I received some information from Nataliya Stryamets in this respect, but she could not provide me any information regarding supported LEADER projects. Considering the United Kingdom, the professionals who participate in the 'StarTree' project were contacted by email. Maria Wilding, the coordinator of the Llais y Goedwig case study, provided me valuable information on two projects on NWFPs supported by LEADER. She has found two projects related to NWFPs: Fine Pluck supported by LEADER in Powys (Glasu) and Out to Learn Willow, supported by LEADER in Vale of Glamorgan. Both of these projects were chosen as the most interesting and thus selected as cases for my thesis. Later, Maria Wilding organized the meeting and interviews with owners of those two Welsh companies.

Finally, regarding all sources of information, I identified four projects in Wales and no projects in Scotland and England. Two projects out of these four are selected for innovation analysis: Fine Pluck-dealing with genuine Welsh tea producing and Out to Learn Willow- holding courses in traditional willow weaving. These projects were chosen due to their interesting, innovative idea which can be applied anywhere else in Europe and due to greater availability of information regarding these projects than the other two. Fine Pluck is dealing with genuine Welsh herbal tea producing with no mechanization and creating unique tea blends. Out to Learn Willow's major activities are-willow weaving courses and work-shops, creating willow sculptures and living willow textures.

Considering all sources of information, only three projects on NWFPs were identified in Sweden. These projects are related to: 1) berries; 2) mushrooms; and 3) truffles. Since truffle production is a novelty in the whole of Scandinavia and because the LAGs of the other two projects did not show interest to cooperate, I selected the project-Truffles of Sweden from all Swedish projects.

The Table 5 shows the number of projects related to forestry, NWFPs and NWFSs supported by LEADER, which was found during the research I conducted. Therefore, these figures relate only to the projects that I have found. It is possible that there are more, but not visible in the online database.

**Table 5: LEADER projects in UK and Sweden**

	No of LAG	Projects related to Forestry management	Projects relates to NWFSs	Projects related to NWFPs	Funding from LEADER awarded to these projects
<b>UK</b>	108	14	14	4	£179 877 (€251 670)
<b>Sweden</b>	63	8	7	3	SEK 4 189 478 (€451 811)



All LEADER (2007-2013) projects related to forestry in the UK and Sweden, which were found in the research are listed and described in Appendix 1 and Appendix 2.

### 3.3 Methods of data collection

After the most prominent projects on NWFPs from UK and Sweden were chosen, the interviews were held with project holders (managers) and LAG representatives in August 2014. Two projects are chosen from Wales in UK: *Fine Pluck* and *Out to Learn Willow* and one from Sweden: *Truffles of Sweden*. Regarding the Fine Pluck project, I conducted the interview with Bruce and Sara Stanley- the owners of the company and Sarah Jones- Business Innovation and Cultural Heritage Project Officer from Glasu agency which supported Fine Pluck and which implements the LEADER in Powys. In order to collect relevant information concerning Out to Learn Willow project, I conducted the interview with Clare Revera-one of the founders of Out to Learn Willow and Nicola Sumner-Smith-Senior Rural Regeneration Officer at Planning and Transportation Services of Vale of Glamorgan Council, which implements the LEADER in this region. Finally, in order to acquire the data regarding Truffles of Sweden, I carried out the interview with Susanne Welin-Berger and Olof Thomsson who are actively involved in this project. Susanne is the president of Truffle Growers Association and Olof, Susanne's husband, is an active member of this association. Truffle Growers Association received LEADER (2007-2013) support and its main activity is developing and improving truffle industry on the island of Gotland in Sweden.

The questionnaires for the owners of companies comprised qualitative open-ended questions which covered aspects of innovative process of the project. These aspects (as previously explained in the chapter *Theoretical framework*) are: actors, institutions, interactions and knowledge and learning. Thus, the questions were related to: 1) products of their company 2) actors and interactions in the development and production 3) the role of the LEADER policy and other institutions and 4) sources of knowledge. During the interviews with the stakeholders, some additional factors have been posed such as 5) background of the project 6) future prospects. The questionnaire for the LAG representatives was related to: 1) the arrangement of the LEADER in their region and the country 2) the most important prerequisites for obtaining the grant 3) granted projects related to NWFPs and 4) the reason behind the small number of supported projects related to NWFPs.

The interviews with stakeholders were conducted in person. Further on, case studies are written for each project. The case studies follow Systemic Innovation Approach for the analyses of projects, as explained in the 2<sup>nd</sup> chapter *Theoretical framework*.



Additionally, I used literature, newspaper articles and website of the companies and other organizations that are involved.

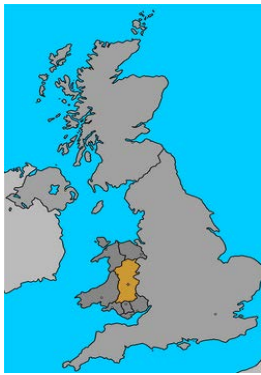
## 4 Results

### 4.1 Fine Pluck

#### 4.1.1 Introduction

Fine Pluck is a small-scale company situated in the countryside of Powys County in Middle Wales, which deals with innovative herbal tea production. The company uses only the plants which grow well in the local area and creates tea packages which always consist of a blend of three different herbs.

Figure7: Powys County in Wales



Powys is a county of east-central and by far the largest county in Wales. It is characterized by a rugged landscape of valleys and mountains, including most of Brecon Beacons National Park, and the entire historic counties of Montgomeryshire and Radnorshire, most of Brecknockshire, and the southern edge of Denbighshire (Encyclopaedia Britannica 2013). The organisation Visit Mid Wales (2012) describes Powys demography issues: 'A sparsely distributed population means that the Powys countryside is largely unspoilt, and due to the large area that it covers, it is also very diverse'.

Source: Luventicus (2014)

Herbs for the Fine Pluck's tea producing are mainly picked in the Cambrian mountain farm in Wales but also come from the area close to the farm. The unique characteristic of the production process is that the herbs are plucked exclusively by hand. Some herbs are native to the area, but all are grown within the surroundings of the house of the Fine Pluck owners. The tea is only locally grown, thus creating the new Welsh brand. Bruce Stanley (founder of Fine Pluck together with his wife Sara Stanley) exerts that the tea they produce is the only exclusively Welsh tea on the market.

The main products of Fine Pluck are the packets of around twenty servings of tea. Each of their packet is a blend of three different plants and they use around 16-17 different plants in those blends. Tea packets could be ordered online but Fine Pluck sells it mainly in bulk to local food shops or cafeterias.

Another innovative product is a poster 'Free teas' which shows 42 herbs growing in Wales which can be plucked for tea. The poster also contains advices about foraging each plant. The company as well holds courses and workshops in foraging and tea growing, processing and blending.

Unlike to other tea producers in UK, Fine Pluck doesn't use mechanization for plants harvesting and all herbs used for tea making are manually picked. 'This means we're able to select only the best fresh ingredients' this company states on its website. This is the nature-friendly tenet of Fine Pluck which distinguishes them from other brands on the market.

The owner of the company stated in the interview that Fine Pluck applies 'permaculture' principles in the business design which is another novelty. An expression 'Permaculture' is created in 1978 by two Australians: Bill Mollison and David Holmgren (Organic gardening 2014). Creators defined permaculture as 'integrated, evolving system of perennial or self-perpetuating plant and animal species useful to man' (Holmgren 2014). The final purpose of Permaculture is to develop surrounding site to such a state that can provide food, shelter, fuel, and entertainment and thus fulfill all the needs of the inhabitants (Organic gardening 2014). The system has 12 design and ethics principles: 1) observe and interact; 2) catch and store energy; 3) obtain a yield; 4) apply self regulation and accept feedback; 5) use and value renewable resources and services; 6) produce no waste; 7) design from patterns to details; 8) integrate rather than segregate; 9) use small and slow solutions; 10) use and value diversity; 11) use edges and value the marginal; and 12) creatively use and respond to change (Permaculture principles 2014).

#### **4.1.2 Background of the company**

Bruce and Sara Stanley are the founders and owners of Fine Pluck. Sara is food technologist and Bruce is graphic designer originally, but has more recently been a creative project manager, life coach and permaculture designer. Sara teaches at cookery schools and has other numerous roles in a food industry. Since 2009, when they moved to Wales they both lead foraging courses at food festivals and at bushcraft schools to the groups of interested adults. Here they use ingredients found along the way and tell various stories about plant use. Bruce Stanley stated in the interview that foraging brings together spending time in the natural environment and learning about wild foods, which his wife Sara and he favor very much. Whilst reading available literature about foraging, the owners of Fine Pluck realized that tea production was a missing aspect and they thought about writing a book about it. They were also aware that there is a gap in the market regarding the tea production. Also, the owners realized that the tea drinking is overlooked in dietary habits, though it's very important aspect (Fine Pluck blog 2011). At this point they were not thinking about producing tea themselves yet. However, they later realized that there are few acres of land around their house which could be well used. Bruce Stanley emphasized in the interview that they finally decided to do something they are passionate about with the available land. It is written in Fine Pluck's blog (2011) that the idea to start the business with wild teas came from three directions: 'a passion, a place and a purpose.' The

main inspiration and the purpose for setting up the business with tea production the owners found in 'permaculture' principles. 'We tend to apply permaculture ethics on the way we use our land', Bruce Stanley explains. Therefore, the owners found a purpose in their planned business: to save carbon foot prints by growing tea in Wales instead of importing it from distant countries. Giving a good example to others by growing herbs for the tea according to organic principles, was also one of the aims of Fine Pluck owners (Fine Pluck blog 2011). 'We think that tea, grown in the UK is better for our food security, for the planet and for our spirit', Bruce Stanley expressed in Fine Pluck's blog (2011).

#### 4.1.3 Actors and their roles

Fine Pluck engages a number of actors in the business. The following list includes important institutional and public stakeholders along with their roles in Fine Pluck's business:

##### *Institutional actors*

- Bruce and Sara Stanley (The main actors as the owners and founders of Fine Pluck).
- Three local cafes (Cafes which have Fine Pluck's teas on the menu).
- Seven local health food shops (Shops which sell Fine Pluck's teas).
- Local chefs (Professional cooks who use Fine Pluck's blends in their specialties).
- Taste testers (Individuals who help the owners to discover new tastes by trying different blends that Fine Pluck created and giving comments on it).
- Local herb suppliers (Local people who supply Fine Pluck with some herbs).

##### *Public actors*

- Glasu (the agency which implements LEADER programme in Powys region had an important role as a financier and advisor of Fine Pluck at the initial phase).
- EHIA (European Herbal Infusions Association which provided scientific technical and legal information about tea infusions production).
- EHA (Environmental Health Agency in Wales demanded some some documents as proof of food safety from Fine Pluck).
- PFAF (Plants for a Future, website that provides information on ecologically sustainable horticulture).
- UWIC (The owners sought some advises related to tea packing at the University of Wales Institute in Cardiff).
- Katie Pressdee (Food Technologist at UWIC, provided some advices to Fine Pluck regarding tea packing).

#### 4.1.4 Institutions and their roles

The following list includes important institutions and their roles in the Fine Pluck business:

- LEADER (EU initiative, provided funding and advises for Fine Pluck's business through Glasu Agency).
- GAHP (The owners followed the Guidelines for Good Agricultural and Hygiene Practices in order to produce safe products).
- HACCP (The owners had to apply the principles of Hazard Analysis and Critical Control Points).
- FS (Food Safety Management Systems is based on HACCP).

#### 4.1.5 Interactions

In general, business development of Fine Pluck neither had many actors nor much cooperation. In fact, there was no cooperation whatsoever with other companies with similar products. The owners find that it was unnecessary as their own knowledge could provide them enough information to be successful entrepreneurs. Also, they don't have an ambition to become great company and prefer to develop slowly and thus network development is not particularly needed. However, Fine Pluck had to fulfill a numerous legislative measures related to food security, and thus many institutions and government actors related to this issue are involved in the business development of this company.

The cooperation which was extremely important for Fine Pluck is the one they had with Glasu agency which implements LEADER and which provided them support for the business. They received support from Glasu in terms of funding and advising at the initial phase. Because it implements the LEADER, Glasu is particularly important actor. Glasu is a local partnership of public, private and voluntary/community organizations and its main aim is to support a sustainable future for people in Powys (Glasu, 2011). This organization is a part of Powys Rural Partnership set up in 2000 which is responsible for managing the Rural Development Plan in Powys and therefore represents LAG for this region. Glasu supports the business projects with funding or different information providing.

Glasu noted on their website that they give the priority to the projects that fit within Axis 3 and Axis 4 of Rural Development Programme of Wales:

Axis 3 – Improving the quality of life in rural areas and diversifying the rural economy

Axis 4 – Developing the LEADER approach. This supports people who have ideas they would like to develop at the grassroots level and assists in community involvement and development.

Considering the amount of LEADER funding allocation, Sara Jones, Business Innovation and Cultural Heritage Project Officer from Glasu, stated that it depends on many factors, but usually the full requested amount is provided for the project. If the LAG is not confident concerning the practicalities of the project, then the feasibility study is carried out. Projects valued at over £5000 must be assessed at full LAG meetings and this process and subsequent allocation of funds takes longer than the assessment of projects valued below this value. Glasu advertises their services via links with other organizations such as Menter a Busnes and Farming Connect and also by organizing workshops and having promotional stands at different shows. However, Fine Pluck owners have found Glasu through the short web search. Though, they were initially under the impression that the funding was purely through Glasu, and only realized later that the funding came through LEADER and was administered by Glasu.

When asked about projects related to forestry that had been supported, Glasu have records of a few related to furniture making and the only one related to NWFP which is Fine Pluck. Sara Jones believes that the lack of projects related to NWFPs lies in the insufficient supply of wild berries or mushrooms in Powys to set up the business out of it. Local people tend to pick it for themselves and blackberries, strawberries and mushroom harvesting is traditional in the area.

Sarah Jones stated that the most important prerequisites for projects in order to receive funding are: innovation, hiring other people, sustainability and benefiting the county by attracting visitors through tourism. Regarding this, Fine Pluck fulfilled prerequisites such as innovation and sustainability, but also they plan to engage other people to harvest wild plants for them. Also, they are willing to pay other for planting, maintaining and harvesting of certain plants such as fennel for instance. As one of the goals of Glasu is to support innovative projects in Powys rural area, it was not easy for them to find many. Fine Pluck is the only one related to NWFP in Powys region supported by LEADER (Glasu) in programming period (2007-2013).

The owners expressed that the support from Glasu (LEADER) was extremely important for starting their business. Bruce Stanley underlined in the interview that the support Fine Pluck received from Glasu (LEADER) was vital for their business development. He added that they possibly wouldn't have started with the business at all or would probably have had much smaller volume of production without this support. Fine Pluck had some difficulties with water quality, as it did not meet the food regulations standards. Even though they do not use any water in the products whatsoever, it is important for water which is used for cleaning to be of impeccable quality. As already mentioned, the LEADER provided funding for water filtration system. Funding and some advices were the only category of support Fine Pluck received from LEADER (Glasu). This company found that they did not need any kind of network or cooperation development initiated from LEADER, as their goal is to remain small scale producers. Also, the owners did not need the exchange of knowledge with some other similar producers as they did

not lack the expertise in the field of their business. However, since Fine Pluck is the only company producing the genuine Welsh tea in Powys region and in a whole Wales as well, sharing information about tea producing was a benefit for Glasu too. Fine Pluck shared with Glasu 'transferable information' which can be applied on other project.

The owners of Fine Pluck stated in the interview that their company received in total approximately 3000€ from LEADER. Out of it, 1500€ (1878 €) is provided for water filtration system. Some funding from LEADER was also provided for some technical infrastructure and the time Fine Pluck owners had to spend for project development. Under 'time' the owners consider their working hours since there was no need to engage other experts (one of them is a graphic designer and the other is a food technologist). Green house, which is used for tea drying, is half financed by LEADER and half by the owners. In general, half of the money invested in the whole project the owners provided from its own budget. In total, a few thousands of British Pounds is invested in company. But they also emphasized that they invested their knowledge as well.

Furthermore, the company received relevant support from EHIA (European Herbal Infusions Association), in terms of information. The owners followed the inventory of herbs suitable for use in teas, which they found on the EHIA website. Fine Pluck used Guidelines for Good Agricultural and Hygiene Practices (GAHP) for raw materials used for herbal infusions which are also taken from EHIA website. The authorities responsible for food safety, the Environmental Health Agency in Wales (EHA), requested the documents proving that Fine Pluck products are completely safe and again, EHIA provided valuable information on microbiological limits of safe herbal tea infusions. This was not needed only on the beginning of the production, but Fine Pluck has to undertake tests every year and report to the local Council Environmental Health Agency. Before Fine Pluck started with production, they had a visit from Environmental Health Officer who gave them advises about the necessary measures that must be taken in order to ensure proper production (Stanley & Stanley (1) 2012). The officer pointed out that all principles of HACCP must be applied as the Food Safety Management System is based on it. HACCP is abbreviation of Hazard Analysis and Critical Control Points, 'a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product' (FDA 2014). Regarding information on the use of plants and special precautions for certain categories of users, the owners found it on the website 'Plants for the future'. Fine Pluck also received advices from Katie Pressdee, a Food Technologist at UWIC (University of Wales Institute, Cardiff) regarding preserving stock by vacuuming before packing (Bruce & Sara Stanley (1) 2012).

During the development of different blends, Fine Pluck engaged taste testers to help them to discover interesting flavors, and finally decide which ones will go on the market. Regarding customers and distribution- Fine Pluck supplies three local cafes and their tea sells for a slightly higher price per cup than some other teas. The owners explain this as fair as their tea is special and genuine. Approximately seven local health food shops sell Fine Pluck's tea packets. Some local chefs use the blends of herbs created by Fine Pluck in the specialties such as flavored risotto and desert syrups (Stanley & Stanley (2) 2012), which is rather unusual application of the tea company innovation.

Fine Pluck planned to engage other people to produce tea herbs for them and earn some income this way, but the company faced the lack of interest from locals to cooperate for mutual benefit. For instance, this company offers others to grow fennel, which is self seeding plant, and even are willing to pay for maintaining during the year and for final harvesting as well. Although the response is minimal currently, the owners still hope to raise the interest of village inhabitants to grow tea for them in the future. They have other ideas to encourage people to use their land sustainably and create an income.

#### **4.1.6 Knowledge and learning**

The owners already had a strong knowledge base when Fine Pluck was founded. Bruce Stanley's background in graphic design contributed to design of the website, package of the products and advertizing. Sara Stanley's knowledge in food technology was important in the production phase. Both of the owners grow up in the countryside which provided good background knowledge for planting. Particularly Sara Stanley was already very knowledgeable about wild plants and her background in the food industry was also important in this regard. The owners of Fine Pluck read many books about tea producing and took a few courses in foraging to add to their existing knowledge. 'Finally, the moment came when our knowledge was beginning to overtake', Sara said.

Accordingly, all the knowledge that the owners are applying in their business came from four sources: 1) universities that the owners completed (Food Technology and Graphic Design); 2) traditional knowledge of planting and wild herbs they have acquired while growing up in the countryside; 3) books about foraging; and 4) foraging courses. The two more sources, that are to be applied as well during the development of business are 5) 'learning by doing', which refers to knowledge gained from experience in business; and 6) the knowledge from research they are continuously conducting.

The owners of the Fine Pluck continue to enrich the knowledge, mainly by doing research on their own project. Their aim is to create new blends and thus new flavors of tea, which requires



both creativity and skill. Another goal is to use the land in the most suitable way, and therefore they monitor how particular herbs are growing on certain sites in order to discover which conditions plants prefer and experiment with planting many different herbs and bushes in order to discover the new possibilities and maximize the potential of their land. Furthermore, in order to improve the soil quality and conditions for plant growing, the owners plant some nitrogen fixing species and some trees and shrubs as windbreak.

Bruce Stanley mentioned in the interview that being able to get a grant also depends on education. He added that they 'knew to say right things and make it all look 'incredible' and how to appear to the grant provider due to their previous experience.

The traditional knowledge contributed to knowing wild plants and planting technique, but contemporary knowledge added to drying herbs in glass house with fans on electricity. There is also a plan to use solar panels, which would be highly modernized sustainable production.

Finally, the types of knowledge that are applied in Fine Pluck's business could be categorized as both traditional and contemporary. Regarding this, Sara Stanley expressed that in their innovative business development the contemporary knowledge was more important than traditional one.

#### **4.1.7 Future prospects**

Fine Pluck is a rather unusual small company as it doesn't have the vision to increase the production and profit significantly. Large-scale production is not in the interests of the owners because if they would have to work in a 'large factory with aluminum tables' they would thereby lose the inspiration which according to them is very important for their business. Fine Pluck company underlines that they first of all sell an idea and not just a product. They are very open about the way they produce and are willing to share it with others. Fine Pluck aims at keeping the profit on the level which would provide them to stay in the business and develop slowly. However, they prefer to increase the interest of the people in doing similar business as they do. The owners believe that implementation of alike ventures project wouldn't be too demanding in their community or elsewhere. Fine Pluck is not concerned with threat that they will lose the customers this way because they produce quite extraordinary tea blends, with three different herb species in each package. For each blending they do a lot of testing and apply creativity, skill and enthusiasm, which results in unique products. The other producers would have a lot of space to express their own creativity as well. The owners think that competition would not be a threat as they have customers who produce their own tea but still buy Fine Pluck's.

The main cost of the tea production is the electricity for drying the herbs. However, the owners plan to connect a solar panel to the green house to provide the electricity for drying so the company can become completely sustainable and energy independent producer.

Fine Pluck considers that innovative and creative products are the key to survival on the market and at the same time inspire others to follow their steps.

#### **4.1.8 Conclusion**

Fine Pluck is very innovative small company, producing new blends of tea developed by the owners with a great commitment and enthusiasm. Tea producing has deep roots in a history of human kind, especially in British history, but obviously there is a still place for innovation. Besides being successful entrepreneurs, the owners are actively encouraging other people to grow their own herbs for tea and experiment with flavors.

As the United Kingdom is famous after importing great amounts of exotic tea (Black, Green tea etc.), thus Fine Pluck gives an idea that there is no need to import so much tea when the ingredients can be found and grown in the country. Another important point in this regard is saving carbon foot prints with decreasing import of food from distant countries.

A strong educational background of the owners which includes both traditional and contemporary knowledge, along with many years of experience created solid base for the innovative business development.

Fine Pluck is not an example of the company which generates great income and profit. It is rather a good example to others in their region, country or elsewhere in the World. However, by applying their franchise for free (following their example) and starting with such a business, would possible improve the economic situation in local area, generate new jobs and more innovative ideas. The further benefits that are recognized by the owners are improving environmental conditions and life style in general.

Also, this company proves that being successful in food industry doesn't necessarily require participating in food festivals and other events in order to advertize their products. Fine Pluck finds that society is not well introduced in value of local product (comparing to imported ones) and they don't endeavor in imposing their opinion and good quality products to others. Instead, they believe that good quality will speak for themselves and customers will find them rather.

Finally, Fine Pluck started the business with relatively small investment of approximately 5000 €. Half of the amount was provided by LEADER and half from the owners' budget. In addition to funding, Fine Pluck received advices regarding legal issues related to food security from this EU

initiative. The LEADER support was very significant for the business development in initial phase as it solved difficulties with water quality-which was a major obstacle for Fine Pluck.

Fine Pluck's successful business shows that it is not always necessary to invest much in the company and that is achievable to be successful entrepreneur primarily with thoughtful innovative business operations.

## 4.2 Out to Learn Willow

### 4.2.1 Introduction

Out to Learn Willow is a small company, based in south Wales, in Ogmore-by-Sea, Vale of Glamorgan, dealing with willow weaving. The region is situated south-west of Cardiff (the capitol of Wales) and characterized by small agricultural villages and towns, coastal villages and the large seaside resort and industrial docks of Barry at the eastern end of the sea (Uk polling report 2014).

Figure8: The map of Wales and Vale of Glamorgan



Source: Wales Holliday Home Rentals, 2014

Out to Learn Willow provides a wide range of workshops and willow courses such as making traditional crafts from willow, dried willow weaving and also planting a living willow structure. The target groups are: primary schools, secondary schools, community groups, youth services, other voluntary and statutory agencies, as it is stated on the webpage of this company. Generally, any community member can be engaged in the projects or courses on offer. Out to learn willow deals with projects on community level but also they are offering bespoke design service that can reach customers out of the community. Working shops run through a whole year, where in the summer they practice making crafts with dry willow branches and during the winter- the living willow structures making, such as domes, tunnels and arbours are on the schedule.

The main activity of Out to Learn Willow is teaching willow weaving, as the main turnover of the company comes from it. They also produce traditional baskets and other willow crafts which can be specially ordered. Quite innovative products are willow sculptures of animals, which require special skills and creativity. The market of the company is mainly local and one of the owners expressed that she prefers if it remains that way. The founders of the company asserted that the most innovative in their business are workshops as 'no one in region is doing it in the same way' and they are always trying to improve it and make more interesting.

Sustainable business and production of material for crafting is the main guideline of Out to Learn Willow. This company has founded willow plantations which are sources of material for their business. These 'willow beds' belong to the local community. The production is completely sustainable since rotation period is around 30 years, as Clare Revera stated in the interview. There is no need to destroy a whole tree during harvesting. In fact the same tree can be used productively for 30 years. This way the company is afforesting a small area in the Vale of Glamorgan, which has a positive ecological impact and there is no need to exploit the other willow forests in the surrounding area. In addition to above mentioned sustainable use of willow branches, the company is applying brilliant idea in maintenance of plantations. They are using recyclable cover over the soil in order to disable weed development and spreading. This way they are saving the time and the money which would be spend for weed fight and also the fuel which would be used for mower and the transport to the plantation. The cover also prevents water losses and drying out of the soil and thus positively affects growth of the willow trees. There are no expenses for planting either, just exchange of services with local people. As for the question of free branches harvesting from the locals, it relies on trust. Out to Learn Willow also offers the opportunity to people who live nearby to help them with planting and in return they are allowed to harvest some branches for their own use. Apart from this, the company runs willow cultivation courses which leads to more afforesting promotion in the region.

Mel Bastier and Clare Revera are the founders of Out to Learn Willow. They run courses throughout the year sharing their skills and knowledge of diverse traditional crafts of willow weaving and basketry.

#### **4.2.2 Background of the project**

Willow basket crafting has a long history and tradition in Wales dating back to the Iron Age, being an inspiration for Celtic art and broadly used in agriculture, fishing, transport and domestic purposes (Westwaleswillows 2000). M. E. Jones (1978) stated in her book that 'the industrialisation of Wales came late and as a consequence Welsh craftsmen, based as they

were on a rural community, have a long unbroken tradition which has often continued into the present day'. In the past, the producing crafts from willow branches had mainly practical purpose unlike nowadays. Today, courses of willow waving are offered all over the Wales. There is continued interest in this activity as it enables people to spend time outdoors, learn an interesting hobby and preserve tradition at the same time.

The history of Out to Learn Willow started about a decade ago when Clare won 3000€ at the competition at school where she was a teacher. She was thinking how to invest that money, as it should be something on the school grounds. Finally, she decided to invest this winning in the willow weaving courses, since it was something that she was very interested to learn. The impetuses that have led to this decision are preserving tradition and creatively spending time outdoors after a 'bustle' in the classroom. Regarding this, Clare wrote on the topic- '*Why do schools need willow structures?*' on Creative Star Learning Company website that: 'Willow weaving is an ancient traditional rural craft which must be preserved' (Creative Star Learning Company 2010). She also added that there are plenty of benefits of working outdoors for children and teachers such as: 'freedom, space, fresh air, exercise, motivation, enthusiasm, learning to respect the environment, practical skill development etc' (Creative Star Learning Company 2010). First, she introduced it to school and few years later- in 2006, she started a business with Mel Bastier as there were no companies offering the services in South Wales at the time. They have been working nine years together since. It was a part time job at the beginning for both of them and now, when they are successful enough, it became a full time job.

#### **4.2.3 Actors and their roles**

There are numerous and various stakeholders in the Out to Learn Willow business. The following list includes *private* and *public* actors, along with their role in the Welsh willow weaving company business:

##### *Private actors*

- Mel Bastier and Clare Revera (the founders and the owners of Out to Learn Willow).
- Professionals (professional weavers who attend Out to Learn courses and workshops in order to improve the skill).
- Teachers from Devon (The owners acquired initial knowledge about weaving on courses in Devon).
- Joe Hogan (the teacher from Ireland whose weaving courses Clare Revera attended).

### *Public actors*

- Primary and secondary schools (children from these schools often attend Out to Learn Willow courses).
- Community groups (the groups which attend Out to Learn Willow courses or workshops).
- Therapeutic groups (the groups which attend Out to Learn Willow courses or workshops).
- Social welfare groups (the groups which attend Out to Learn Willow courses or workshops).
- Teachers from the Schumacher College in Dartington (the owners of Out to Learn Willow attended weaving courses of these teachers in order to improve the skill).
- National Botanic Garden (the owners of Out to Learn Willow hold courses there).
- Willow Festival (the owners run workshops on this festival).
- Vale of Glamorgan Local Council (Out to Learn Willow cooperate with the council by holding workshops on the events organized by Local Council).
- Creative Rural Communities (LAG of Vale of Glamorgan which granted financial support to Out to Learn Willow).
- Local community (Out to Learn Willow plant small willow plantations on the land which belongs to local community).
- Welsh Basketmakers South Wales Group (the owners of Out to Learn Willow are one of the initiators and members of this group).
- Welsh Basketmakers Group (Out to Learn Willow is a member of this group).

#### **4.2.4 Institutions and their roles**

The following institutions are involved in Out to Learn willow business:

- LEADER (EU initiative, provided funding for Out to Learn Willow business through organization Creative Communities which are within Local Council).
- Local Council initiatives for cultural heritage preserving (Out to Learn Willow holds workshops in a frame of these initiatives).

#### **4.2.5 Interactions**

Mel and Clare are the founders and the owners of Out to Learn Willow. They cooperate with quite many institutions and organizations. Courses and workshops are held in some primary and secondary schools, with community groups, therapeutic groups with mental disorders,

sight and hearing difficulties, homeless people and all other kinds of categories who are interested to learn willow weaving. They also work with professionals and participate in different projects. Out to Learn Willow strives to increase cooperation with different organizations and to participate in various projects and events in order to advertize their services and exchange the knowledge.

The owners gained the knowledge of weaving at several different courses. First, they learned this skill on courses in Devon. After, they enhanced existent knowledge by attending courses at several different teachers such as Joe Hogan from Ireland and the teachers from the Schumacher College in Dartington.

Out to Learn Willow company is the member and the main initiator of Welsh Basketmakers South Wales Group. This group is formed in 2009 by new basketmakers and gathers all enthusiasts of willow weaving once per month (Welsh basketmakers, 2013). It is stated on the blog of the group that the meetings are very informal and welcomes anybody interesting in basketry. Also, Out to Learn Willow is a member of Welsh Basketmakers group.

Mel and Clare run courses in National Botanic Garden of Wales in Carmarthen and their work can be seen there in the willow playground in the form of beautiful woven willow raised beds. Out to Learn Willow holds workshops on the Willow Festival which is organized in June in Llanidloes. Out to Learn Willow made the traditional Welsh baskets which are used for Prince Charls wedding in 2005 and again, they were asked to make a replica of the Queen's Coronation Crown for the Physic Garden in Cowbridge to celebrate the Queen's Jubilee in 2012.

Other venues for their courses include: Heritage Coast Centre, Southerndown; All Saints Church, Southerndown; St Fagans National History Museum, Cardiff; Kenfig National Nature Reserve, Porthcawl; Parc Slip Nature Reserve, Tondu, Bridgend (Love the Vale 2014).

Vale of Glamorgan Local Council has a great role in the Out to Learn Willow project. The owners of Out the Learn Willow contacted the local council in order to find out about possible funding for their business and thus discovered the LEADER. The company received LEADER funding contacting the council which forwarded their request to Creative Rural Communities, the organization within the council dealing with the Rural Development and represents LAG in Vale of Glamorgan region. The initial funding was for promotion and marketing of the company and to support them to try new initiatives such as a residential course for people to make willow coffins. The funding for Rural Development (and among it the LEADER funding) is allocated by Welsh government to different areas, as says Nicola Sumner-Smith, Senior Rural Regeneration Officer of Planning and Transportation Services of Vale of Glamorgan Council. Each area was asked to apply for specific types of projects which can be funded, due to the broad range of types that may be supported. Therefore, Vale of Glamorgan council applied for tourism,

community development, costal activities and business support, as the main subjects to be focused on. The council organized the body which was responsible for Rural Regeneration Initiative: Creative Rural Communities, which was inter alia in charge for LEADER implementation in the area, and Nicola Sumner-Smith is engaged in the work of this organization too. She added that further on, LEADER funding has to be given more local character, where Local Action Group is formed in the region of Vale of Glamorgan, as a Creative Rural Communities. LAG is ultimately deciding which project will receive funding even though it sometimes consult the council and ask for the feasibility study performing of certain project before funding allocation. Creative Rural Communities are responsible to attract people to apply for project support or to participate in the projects (schemes) organized by the council. Thus, funding can be distributed to individual projects, but also to the public once as long as they contribute to the rural development and target activities (schemes) of the region. The LAG assists the Council (Creative Rural Communities) in this regard with the aim of advertizing the funding offer to the whole community and then allocate funding on equitable and fair basis, Nicola Sumner-Smith stated. Advertizing is done through social media, local journals, leaflets, local council website etc. Council is even organizes meetings with local people and has discussions on how funding should be distributed. The common features that all funded projects should have are innovation, engaging other people and having long term prospects. As already mentioned, the local council does not give final say on which project will be funded or how much sources will be granted, that is LAGs (Creative Rural Communities) role, but Nicola noted that she sometimes participate as a consultant there. LAG also gives feedback to the council in order to improve all the process. Apart for funding, it is possible to apply for other types of support such as consulting about limitations, permissions, costs and possibilities for business development. Some locals were asking for help to learn what is necessary to set up their project, how to advertize the business and organize websites. The Council usually refers them to other agencies that will provide the best information for their concerns. Networking development is another service that is provided, and especially if some similar projects apply for funding, council connects them. Nicola argues that these kinds of support are sometimes as valuable as funding. According to Chappell (2014), Vale of Glamorgan Council invested £1,075,000 in 57 projects in the region.

The owners of Out the Learn Willow contacted the local council in order to find out about possible funding for their business and thus discovered the LEADER. The support Out to Learn Willow received from LEADER was very useful and helped them to make one step further in the business. One of the owners stated that it was not crucial for their company, it rather accelerated the development. As the business was running for five years already when they received the grant, they were successful and stable at the time. Out to Learn Willow just needed some additional financial support for some equipment and tables purchasing and LEADER provided it to them. With this support Out to Learn Willow was able to move from part



time to full time job. Without this help, the company would surely continue with progress, but just in much slower manner probably, Clare believes.

Generally, the owners of Out to Learn Willow are satisfied with support they received from EU funding. Clare Revera finds that the only small difficulty for this company is the short time frame of funding, where LEADER supports only until the end of the funding programme and then the entrepreneurs are left with their own recourse. Luckily, the company remained in contact with local council and thus stayed informed about other future funding opportunities.

Overall, apart from LEADER, Out to Learn Willow did not receive any other grant neither credit. The other investments were provided solely from the owners' own budget.

After the support from this organization terminated, Out to Learn Willow continued the cooperation with the local council, participating in their initiatives for cultural heritage preserving and contributing to cultural development of community. These initiatives are usually some events where local people are invited to participate in different work-shops, festivals etc. Out to Learn Willow holds work-shops for free, but expenses are covered by the local council.

#### **4.2.6 Knowledge and learning**

One of the founders of Out to learn Willow, Clare Revera, used to work as a school teacher and another founder, Mel Bastier is a graphic designer. These skills undoubtedly contributed to business development, where pedagogic attitude is important part of teaching children to weave different crafts. Mel Bastier's designer skills are specially needed for living willow features and sculptures. However, Clare expressed in the interview that both of them are very creative. She also added that Mel have good background in Internet Technologies and social networking which helped them in a business advertizing. The owners regularly update Out to Learn Willow website, blog and social network pages and share the information on their activities and events online. Apart from working as a teacher, Clare has experience with marketing and she underlined in the interview that she is very knowledgeable in this field. She finally added that all of those skills that they have were quite sufficient for successful business.

The owners of the Out to Learn Willow learned willow weaving by attending several courses with three different teachers and practicing by themselves at home as well. Initial knowledge they acquired from teachers in Devon. Later on, in 2010 they traveled to North-West Ireland and learned weaving from skillful teacher Joe Hogan (Out to Learn Willow blog 2010). In 2013 Clare Revera attended 3 courses at the Schumacher College in Dartington, Devon as well (Out to Learn Willow blog 2010). Apparently, constant upgrading of the education and skills is very important part of the Out to Learn Willow business.

Clare mentioned in the interview that she once organized a project at school where she used to work, where biodiversity has been explored and compared between willow bed and grass. The result showed 300 % more biodiversity (different insects and birds) on willow bed (plantation) than on the grass. Thus, in the background of Out to Learn Willow there is research which showed possible favorable effects of small willow plantations on local biodiversity. Clare underlined that this finding has great importance for their work, as they are interested in ecological and economical sustainability of their business and giving good example to others. They have a unique opportunity to educate children about sustainable production of material, showing them willow beds (willow plantations) which are used for many years and each year giving more branches. Also, Clare did some research by herself about willow and hazel growing in Northern Europe and found out that the species they use for weaving are native to Wales and have been used generations before but not necessarily in a sustainable manner.

Overall, traditional and contemporary knowledge is both important in Out to Learn Willow business. Traditional skills of willow weaving prevail in their courses and work-shops in making baskets, coffins and other crafts from vicar. However, contemporary knowledge is also applied in willow sculptures making and in advertizing of the company.

#### **4.2.7 Future prospects**

Out to Learn Willow plans to increase the number of customers and other organizations in their future work. At the same time this company will tend to add the innovative accent to their products and keep the quality on high level.

#### **4.2.8 Conclusion**

Out to Learn Willow is a small but very successful company. The main products are willow weaving courses, but they also make various sculptures and living willow forms. The most striking fact about them is that they succeed to bring together traditional and new concepts of wicker producing. Out to Learn Willow gathers all generations and share the enthusiasm for one of the most important crafts of the Welsh heritage while giving the innovative mark to their work. Clare Revera describes willow weaving as 'incredibly therapeutic' and outdoor willow structures as very pleasant ornaments for gardens. Also, spending time in the natural environment, learning something new and being creative is another advantage of Out to Learn Willow which makes them popular in the area and in the whole of Wales as well.

The LEADER support was very important for accelerating the development of Out to Learn Willow. The EU initiative provided fund for some equipment purchasing and network developing and thus helped this company to shift from part-time to full-time job.

The education of the owners was the most important role for the success. Both owners have diverse professional backgrounds and each skill gives advantage to their business. However, in order to have a progress, the owners believe that constant knowledge upgrading and adding innovative aspects is the most important. Therefore, they bring new ideas to their courses and workshops and thus increase the interest of local people to attend it and also to prevent it from monotony. Also, Clare Revera underlined that personal engagement is also very important for success. Nevertheless, some other factors can be of great benefit such as LEADER support that they received two times in last 10 years, but she exerted that most of the business depends on the owners themselves and that is why they must be 'proactive'.

### **4.3 Truffles of Sweden**

#### **4.3.1 Introduction**

*Truffles of Sweden* is a project that deals with the development of truffle industry on the island of Gotland in Sweden. Production of truffles introduced new products and services on the island of Gotland and the whole country. It can be said that the Gotland's truffles are novelty in the entire of Scandinavia.

Truffles form mycorrhizal association with the roots of specific trees and its fruiting bodies grow underground (MSSF 2000). Truffle fungi form symbiotic interaction with the roots of trees, such as oak, poplar, willow and hazel (Mello et al. 2006; Harley & Smith 1983) and some shrubs, such as *Cistus sp.* (Mello et al. 2006; Fontana & Giovannetti 1978–79). Famous truffle destinations in Europe are mainly in the Mediterranean area. The black truffle is usually associated with France, Italy and Spain but recently it can also be harvested in Sweden, on the island of Gotland in the Baltic Sea (Plogander 2010). The presence of 'black diamond' on this island was first recorded in 1978, however, its distribution and abundance on Gotland suggests that it existed there for a much longer period (Wedén 2004). There is no tradition in eating and searching for truffles in Sweden and it must be a reason, in addition to its underground fruit bodies, why these fungi are discovered so late in here (Wedén & Danell 1998). Since the research conducted by University of Uppsala at the beginning of 21<sup>st</sup> century discovered that there are plenty of wild truffles all over the Gotland, the business with these edible fungi is increasing.

Figure9: Gotland Island in the middle of the Baltic Sea



Gotland is the greatest Swedish island and is situated in the Baltic Sea, 90 km off the south-eastern Swedish coast. The main industries on Gotland are: Agriculture, Food Production and Tourism. Although the half of the island is under the forest cover, forestry is not particularly developed due to unfavorable soil properties for trees growth and the dry climate. As I found out from the local people, trees grow very slow on Gotland and thus the wood is very hard and suitable for high quality luxury furniture.

Source: Human Flower Project, 2010

When first discovered, truffles were regarded as endangered species in here, but now successfully cultivated by truffle growers (Plogander 2010). Wedén (2004) found that the most of the black truffle (*Tuber aestivum*) sites on Gotland are covered by semi-open deciduous forest meadows over 300 hundred years already. The reduction of forest meadows on the greatest Swedish island was 97% in a period 1700-2000 (Croneborg 2001; Länsstyresen i Gotlands län 2002 & Wedén 2004) what seriously threatened the existence of truffles. This is a consequence of the 20<sup>th</sup> century trend in Sweden in replacing oak trees with conifers (Ståål 1994 and Wedén, 2004). Wedén (2004) recorded that the typical site of truffles has a long continuity of host plants, a shaded but still open character and host trees were mainly oak species (*Quercus robur*), hazel (*Corylus avellana*) and on some places hawthorn (*Crataegus sp.*).

The main product of the Truffles of Sweden project is fresh truffle. This kind of product is mainly sold to truffle wholesalers, who then sell it to the restaurants or local stores. However, approximately one third of all harvest-are small pieces of truffle which are not of the best quality and cannot be sold as fresh ones. These pieces are used as ingredients of numerous different truffle products such as truffle salt, truffles marinated in whiskey, Tryffioly (spread with truffles), French macaroon with truffles and whiskey (the cookie), butter, mayonnaise and cheese with truffles etc. After cleaning of fresh truffles, the leftovers are spread on the top of the soil in order to have a new growth from spores. This is an example of sustainable production where each part of harvested fungi is used.

The price of fresh truffles in the store is about 10 SEK per gram or 10.000 SEK per kg (€1070 /kg). Regarding the international market, fresh truffles are exported to Norway. More distant export is still a challenge to producers due to volatile nature of these fungi.

An interesting fact is that the majority of land owners, truffle hunters, processors and other persons involved in business with truffles on Gotland- are women (Tryffel of Sweden 2010).

#### 4.3.2 Background of the project

The idea to develop the truffles project was initiated by Professor Eric Danell from the University of Uppsala. Consequently, the research that was conducted in 1998 revealed that there is a much greater quantity of these precious underground mushrooms on the island of Gotland, than it was thought before (Gotland Truffle Association 2009). The research was performed by then Phd student Christina Wedén and Eric Danell-the supervisor. At the beginning, Christina Wedén organized blind tests which are conducted by French experts who showed that Gotlandic black truffles are of the same quality as the French ones (Plogander 2010). Right after in 1999, 10 experimental black truffle orchards were founded with 240 seedlings of oak and hazel brought from French nurseries (Wedén 2004). These trees were Gotlandic provenances and also inoculated with truffles from Gotland. In the following two years, another 3000 seedlings were planted on the greatest Swedish island due to rise of interest among landowners in truffle cultivation (Wedén 2004). Later on in 2004, four orchards were inoculated with a red truffle (*Tuber rufum*), which is native to Gotland.

After the establishment of orchards, Gotland Truffle Association was founded in 2000, as a body for the exchange of information regarding truffle growing. Ever since, it is seriously devoted to the truffle industry development (Project Leader Gotland 2010). In order to improve the business with truffles on the island, the association applied for LEADER support in 2008.

#### 4.3.3 Actors and their roles

The following actors are involved in the Truffles of Sweden project:

##### *Private actors*

- Susanne Velin-Berger (President of Truffle Growers Association, co-owner of the private company Östergarn Tryffel, owner of truffle orchards, involved in Truffle Co-operative, Truffle Academy, Gotland Truffle festival work, The Main Food Town 2013 prize events organizing).
- Olof Thompsson (active member of Truffle Growers Association, co-owner of the private company Östergarn Tryffel, owner of truffle orchards, truffle hunter and dealer).
- Truffle company (Östergarn Tryffel, company owned by Olof Thompsson and Susanne Velin-Berger, which deals with fresh truffle selling).

- Landowners (People who own the land where wild and cultivated truffle grow).
- Gotlandic club for dogs breeding (Lagotto Romagnolo klubben, club which deals with breeding of dogs for truffle hunting).
- Local stores (Stores from city of Visby, which sell products with truffles).
- Restaurants on Gotland and all over Sweden (Restaurants which buy truffles from Gotland and serve specialties with truffles).
- Chef Karl Van Jankvist (Chef from Gotland which is involved in Truffles of Gotland project).
- Truffle growers from France and Italy (Truffle Growers Association is learning from these truffle growers).

#### *Public actors*

- Professor Eric Danell (Professor from University of Uppsala who first got the idea that research on truffles should be conducted on Gotland).
- Phd student Christina Wedén (Then Phd student who conducted the research regarding truffles under the supervision of Prof. Eric Danell).
- Swedish University of Agricultural Sciences, Uppsala (Christina Wedén studied at this university at the Department of Forest Mycology and Pathology).
- University College of Gotland, Visby (University which cooperated with University of Uppsala on research of truffles).
- Truffle Growers Association (Gotlands tryffelodlarförening, the association which applied for LEADER support and which is responsible for many activities in truffle industry development).
- Truffle cooperative (Tryffel of Sweden, cooperative which strives to organize one market of truffle products on Gotland).
- Centre for Practical Food Technology (LivsTek, the institute which conducted some research on truffles).
- Tourist Association on Gotland (This association cooperates with truffle growers and organizes truffle safaris for tourists).
- Truffle Academy (Academy organized by local government).
- Gotland Truffle Festival (Festival which takes place each year in November on Gotland, after the truffle harvest).
- Swedbank (The bank which provided funding for plantings inoculated with truffle fungi for truffle orchards establishing).
- Cecilia Schelin Seidegård (The president of the Gotland Truffle Academy and Governor of Gotland).

#### 4.3.4 Institutions

The following institutions are involved in the Truffles of Sweden project:

- LEADER (EU initiative which provided support to Truffles of Sweden through LAG Gotland)
- Swedbank's Alfa Savings Foundation (Alfa sparbanksstiftelsen, foundation which provided funding through Swedbank)
- Gotland The Main Food Town 2013 prize (Gotland Matlandethuvudstad 2013, national prize that is awarded to Gotland as the best place for food in Sweden in 2013)

#### 4.3.5 Interactions

Truffle of Sweden shows a very complex and diverse cooperation between many actors and institutions from the project initiation up to the present day. In this project, the whole new industry is developing, since truffles are a novelty in the whole of Scandinavia. New knowledge platform has already been formed and is yet to be complemented in the following years. Therefore, the education centers (Universities, Institutes etc.) play significant role in this project. Also, truffles growers from France and Italy are important source of information for Truffles of Gotland. Great number of food producing companies is cooperating with Truffles of Gotland and also truffle whole-sellers distribute Gotlandic truffles to whole Sweden and Norway. Hence, the LEADER initiative provided considerable support to this project in terms of funding and advising. President of Truffle Growers Association-Susanne Velin-Berger asserted that the aim of Truffles of Sweden project is to increase collaboration with other companies on Gotland, Sweden and even abroad. Also, she stated that they endeavor to become member of European truffle associations which gather the best truffle growers, in order to receive and exchange the knowledge.

The main role in truffle project initiation had the research conducted by Christina Wedén at University in Uppsala. The supervisor of Wedén's work, Professor Eric Danell, who has extensive knowledge in the field of mycology, advised her to take the topic of truffles of Gotland. Thus, Wedén started a PhD project in 1999 at the Department of Forest Mycology and Pathology, Swedish University of Agricultural Sciences, Uppsala in collaboration with the University College of Gotland, Visby (Wedén et al. 2001; Samils 2002). Hence, then PhD student C. Wedén and her supervisor Eric Danell, were the most important actors in initiating innovative process of the truffle production on Gotland. As the aim of the research was to discover if the black truffle (*Tuber aestivum*) can be cultivated on the island, many experimental orchards were planted first. Soon after 3000 commercial ones were founded as well. Another research on processing



of truffles was then carried in LivsTek (Centre for Practical Food Technology) in Gotland (Wedén 2004).

Consequently, right after the truffle cultivation, the Truffle Growers Association (Gotlands tryffelodlarförening) was found in 2000 and the truffle cooperative-Tryffel of Sweden as well. The membership is not exclusively reserved for land owners, anybody interested in truffle growing can become the member of the association. The head of the Truffle Growers Association is Susanne Velin-Berger. An active role in this association has Olof Thompsson too, Susannes husband. Both of them are as well working in the truffle cooperative Tryffel of Sweden and also founded their own- Östergarn Tryffel company. Most of the truffle products on Gotland are sold through Tryffel of Sweden. This cooperative is founded with a goal to provide one face of the market for truffle industry of Gotland, which is beneficial for everyone involved in this industry. Susanne Velin-Berger and Olof Thompsson have their own truffle orchard and two truffle hunting dogs. Truffle Growers Association is the organization which applied for LEADER support and its main goal is to work on the development of truffle industry on Gotland. The association makes an effort to educate all producers and improve the quality of the entire production of truffles to the top level. Since there is no tradition related to truffles in Sweden whatsoever, and thus some land owners sell truffles which do not meet the criteria of quality. Therefore, they jeopardize the reputation of other producers. Great challenge is to raise awareness of the local people about the essence of growing, recognizing the characteristic scent and estimating the values of truffles.

LEADER Action Group Gotland gave an important support to the development of the truffle industry. The LAG Gotland is referred to as a non-profit organization and LEADER is implemented through this organization. Around 36,000 people live in the Leader Gotland area, which comprises Gotland Municipality excluding the town of Visby (Swedish Board of Agriculture 2010). As it is stated in the LEADER annual report the priorities of this LAG are as follows:

- 1) Improving agricultural and forestry competitiveness
- 2) Improving the environment and rural land areas
- 3) Improving the quality of life, widening the business base and promoting the development of the rural economy

The Truffles of Sweden project received support in two LEADER programming periods: LEADER+ 2000-2006 and LEADER programme 2007-2013.

The Truffle Growers Association (GotlandsTryffelodlarförening) applied for LEADER support in 2008 with four main goals: a) to take a holistic approach and support the development of the



truffle industry different areas; b) to develop more partnerships between different groups engaged in truffle business -truffle association, landowners and business owners in complementary areas; c) to raise awareness around truffles in more Gotlanders both young and elderly; and d) to start to organize more events regarding truffles at the beginning of the truffle season. Truffle Growers Association stressed the need to develop cooperation with small businesses and also European companies.

Olof Thompsson stated that LEADER support was of great benefit for the association and the entire truffle industry on Gotland. Without it, certainly wouldn't be as developed as it is now. This support was multilateral, in the form of funding, network and marketing developing and education providing. LEADER provided support for Gotland's chefs training in truffle specialties preparing and bringing the researchers from Hungary and United States to teach them about truffle growing. International contact developing was also supported, where some members of association went to Italy to learn about truffle business. They also visited the international festivals and then shared the experience with other members of association. Susanne Velin-Berger, the president of Truffle Growers Association, stated that there would be only a few truffle products in the assortment without LEADER support and not as many as they have it at the moment.

Truffle project received 163 244 € from the whole fund, where about 125 000 € are from EAFRD and the rest is from Swedish public fund. As funding period terminated before the truffle project is finished, not all amount is used. About 100 000 SEK (approx. 11 000 €) is finally lost due to the delay of the project completion.

**Table 6: The LEADER truffle project (2007-2013) estimated costs**

Expenses	Description	Estimated amount
<b>Investments</b>	Purchase of two microscope and the purchase of truffles wash	38 000 SEK (4.149 EUR)
<b>Other expenses</b>	Cost of purchased services from the lab, designers, research institutes, educators, business advisors, costs of ads and journals hits Travel expenses for obtaining of knowledge from other countries and other regions in Sweden as well as trips for marketing testing	1.457.000 SEK (159.095 EUR)
<b>Indirect costs</b>		0
<b>Total actual costs</b>		1.495.000 SEK (163.244 EUR)

Gotland Truffle Association, 2008

Apart from LEADER, the development of the truffle industry was supported by the local bank's foundation-Swedbank's Alfa Savings Foundation (Alfa sparbanksstiftelsen), where around 20 000€ were provided for truffle seedlings at the project initiation. Orchard initiation was funded but management and the ownership was on the landowners side (Wedén 2004). The price per Gotland provenance seedling inoculated with truffles from Gotland ordered from France was about 10 € (Samils 2002).

Greatest Swedish island was rewarded The Main Food Town 2013 prize (Gotland Matlandethuvudstad 2013). Throughout the 2013 year, numerous activities related to the promotion of the local food are organized, where among other happenings truffle hunting and truffle market took place. Susan-Velin Berger had an important role in organization of these events as well.

There are several stores in the down town of the capitol of Gotland, city of Visby, which order truffle products from Tryffle of Sweden and sell it together with other genuine Gotlandic products.

Recently, Olof Thompsson has founded the company Östergarn Tryffel together with his wife Susanne, as he explained in the interview, but he still stayed active in Tryffel of Sweden. He is working as a truffle dealer where he buys fresh truffles from the landowners or he is searching for wild truffles with his own dog on the private land and then sells cleaned fresh edible fungi to the restaurants. In such a way landowners take 30 % of profits. The restaurants on Gotland and all over the Sweden buy fresh truffles from Gotlandic producers and offer delicious menus with truffle dishes. Gotlandic chef Karl Van Jankvist is an important actor in promoting Gotlandic truffles to other chefs and the restaurants in Sweden. Van Jankvist and Christina Wedén took truffles from Gotland to France on blind testing where the experts concluded that these are as good as French Burgundy black truffles or even slightly better.

In addition to the cultivation, truffle industry demands breeding and training dogs (Project Leader Gotland 2010). Training dogs is an important part of the truffle industry and that is the role of the Gotlandic club-Lagotto Romagnoloklubben. Some land owners train dogs by themselves as well. There are about 50 trained dogs on the island at the moment and around 10-15 people are working as truffle hunters. The association has for many years organized Truffle Weekend events, where the truffle dog competition was taking place under the supervision of Italian referees. After the competition, the dinner with truffle products has been served. Recently, this event is brought up to a higher level where it is named into Truffle Academy. Seminars about truffle growing and food specialties preparing are held in there. The president of the Truffle Academy is Cecilia Schelin Seidegård, who is also a Governor of Gotland. Another local event related to truffles is-Gotland Truffle Festival and it was first held in November 2014.

Tourist Association has cooperation with some landowners in Djurgarden on Gotland and organizes truffle safaris. After hunt, some courses about truffles are held and finally some delicious dishes with truffles are prepared in the restaurants of the hotels. Truffle Growers Association is too busy with above mentioned activities and still doesn't have focus on safaris, but it is a possible in the future if they expand the capacity, and if truffle orchards give much yield, Olof Thompsson believes.

The business with truffles on Gotland involves a lot of activities and actors but no one is having full time job in truffle industry so far. All of these activities mentioned above are part time jobs and in order to provide enough earnings, these actors are mainly working in other fields as well.

#### **4.3.6 Knowledge and learning**

Behind the initiation of Truffles of Sweden stands a strong research background as professor and a Phd student from the University of Uppsala discovered the truffles on Gotland and thus started the whole story of Truffles of Sweden.

The actors of truffle industry development- Susanne Susanne Velin-Berger and Olof Thompsson both hold degree in Agricultural Sciences obtained at the University of Uppsala. Olof Thompsson reached Phd level in Environmental Systems Analysis and believes that his scientific way of thinking helped him in problem solving in project with truffles but also in other ones he is involved with. His engineering part of education certainly contributed to design of truffle washing device. Olof Thompsson realized that truffle wash is very much time consuming and in order to be more efficient in production he designed a washing machine. Initially, he thought that such a device already exists, but eventually learned from French and Italian producers that it is still done manually there. Thus, truffle innovative project brought up the new invention as well.

Right after the Truffle Growers Association was founded, the members took some courses about truffle harvesting and searching with dogs. Association also organized the trip to France with the aim to visit truffle growers, wild truffle hunters and famous chefs there and learn from their experience. Some research on truffles is done in Centre for Practical Food Technology (LivsTek) on Gotland. However, Olof asserted in the interview that the most knowledge about truffles they gained from Christina Wedén- former Phd student who conducted research on truffles on Gotland for her Phd thesis.

The association is attending seminars about research on truffle growing every second year and this way keeps the information updated. Also, they organize meetings on Gotland and try to gather all truffle growers and introduce them into truffle aroma recognizing. Susanne stated

that they are constantly doing the research in order to improve the quality of truffle products, to keep original aroma and preserve the products during the transport.

Quite a lot of knowledge is gained during the time and being over decade in this business, Olof Thompson agrees. Here is an example of 'learning by doing' as another source of knowledge. It is particularly important as the truffle industry on Gotland is a pioneer in a whole Scandinavia.

Overall, contemporary knowledge dominates in the development of Truffle of Sweden project. Although the members of Truffle Growers Association consulted truffle growers from Italy and France who apply many centuries long traditional knowledge, Scandinavia has different climate and no tradition nor in harvesting neither in consuming truffles. Therefore, Truffle Growers Association relies mainly on knowledge from own research and experience.

Regarding organizing issues in development of truffle industry, Susanne have one of the most responsible roles as the president of Truffle Growers Association. She is also actively involved in work of cooperative- Tryffel of Sweden. She previously worked in Leader Action Group of Gotland and undoubtedly this experience contributed to organizing skills, advertizing truffle projects and introducing it to the market, that she is applying in development of truffle industry at the moment. Susanne's and Olof's university degrees in Agricultural sciences certainly had a stake when it comes to research, planting, growing and maintaining of truffles.

#### **4.3.7 Future aspects**

One of the greatest challenges of truffle industry on Gotland is to develop a strong market. The Truffle Growers Association is investing a lot of effort in this regard. Yet, they are aware that it will take a lot of time and work since the market is very small at the moment. Susanne Velin-Berger stated that certain amount of truffles is necessary in order to stay on the market. Gotland gives approximately 700kg of truffles per year and that is the bottom line to remain competitive on the market. Having idea that only 5 g of truffles are used for one portion per person, this is a serious amount, but still not enough to be a strong competitor on the market.

Much time is devoted to wash the truffles and the association is trying to invest in a truffle washing machine to reduce the time, Susanne stated. Also, another obstacle they want to overcome is exporting on longer distances without fear that the product will lose the quality and thus they are consulting other wholesalers in order to learn how to preserve goods. Association puts much effort into researching and testing ways how to keep the natural aroma in the product. Their aim is to produce only natural products with no artificial aroma and so far it is a great challenge. In addition to these goals, Association is trying to increase the number of companies which use truffles in their products.

A head of the Truffle Growers Association underscored that they have to deliver safe products and meet customer expectations in order to straighten their brand.

Truffle orchards planted 12 years ago are still not fruiting, which rise concerns among the land owners. Olof Thompsson explained that this was an expecting consequence due to negligence of orchards. It takes a lot of work in order to maintain it and the majority of landowners, and Olof Thompsson himself, do not have enough time to mow the grass and weeds regularly, which is extremely important. Also, the ph of the soil plays an important role for the growth of truffles and must be very basic, around 8.5. This requires adding lime in the soil with a low ph. The experimental orchards planted by Christina Wedén, gave truffles after 6 years only due to optimal conditions provided. Therefore, Olof exerted that they have to make an effort to maintain orchards with more commitment in the future.

#### **4.3.8 Conclusion**

The Truffles of Sweden is a project which deals with the development of truffle industry on the island of Gotland. Sweden's largest island is the only place where truffles are commercialized in the whole of Scandinavia. Besides fresh truffles, there are also many innovative truffle products on the market (truffles in whiskey, macaroons with truffles, cheese with truffles etc.). The industry has started in 2000 and since develops slowly but steadily. The vital role in the launch of truffle industry had research conducted at the University of Uppsala, which revealed that the island of Gotland hosts truffles.

This project has developed a very diverse networks and cooperation with many sectors. This includes research centers, food companies, truffle growers from other countries, land owners from Gotland, stores, restaurants etc. and aims to expand cooperation in the future. The managers of Truffles of Sweden find it important in order to exchange knowledge, improve quality of products and business in general.

The education background of the Truffle Growers Association members, their dedication to business development, constant willingness to improve knowledge of truffle production has created a strong know-how environment and platform for a successful business. The special significance here had formal research conducted at universities and learning from experience, because it is a new branch of industry in Sweden. An important role in accelerating the business development had LEADER, which has provided substantial support to Truffles of Sweden in terms of financing, advice, network development and education.

However, there is much work ahead of the whole truffle industry on Gotland and many obstacles need to be overcome such as low education of individual land owners regarding

truffle harvesting and selling. Also, the truffle industry managers have much yet to learn, for instance-how to pack fresh truffles for the export and keep the original aroma in products. Therefore, Truffles of Sweden plans to invest in research in order to overcome these impediments. Also, Truffles Growers Association tends to involve more people in the truffle business and develop better advertizing to promote truffle products.

Yet, the truffle industry offers many business opportunities and space for innovation in various fields, such as food industry, tourism and recreation. Wedén (2004) stated that black truffle can bring apart from economical and cultural benefits, also biological ones by preserving old management of forest meadow growing on the island of Gotland. This is a sustainable project with no apparent negative impacts on the environment. In contrary, more than 3000 planted seedlings of native tree species can bring only ecological benefits to the island of Gotland.

## 5 Discussion

### 5.1 The reason behind a small number of supported NWFP projects

One insight of this study on the role of LEADER in NWFPs development is that—at least in two countries of this study—LEADER (2007-2013) supported only few relevant projects. Overall, a relatively small number of LAGs answered on the email inquiry and those who did mainly gave negative responses. Also, the research of LAG websites gave very discouraging results. The reason behind this might be—the LEADER (2007-2013) programming period termination and starting the new one (2014-2020) but with different LAGs organization. Here is the example of the Vale of Glamorgan region LAG which supported Out to Learn Willow, where this region is declared as no longer ‘predominant rural area’ in the programming period 2014-2020 (Chappell 2014).

A likely reason why so few projects on NWFPs are supported by LEADER in UK and Sweden are the absence of innovativeness, long term prospect and engagement of larger number of the actors in the company. Majority of the emailed LAG members from UK expressed that they are not certain why exactly NWFPs are insufficiently represented among LEADER projects, because this policy doesn’t have so detailed targets. Yet, they believe that the reasons are either that the project did not fit the frame of above mention prerequisites or business activities with NWFPs are not common in the area. The member of the Vale of Glamorgan council in Wales expressed that the company Out to Learn Willow, which is dealing with handcrafts from wicker, received support from LEADER because it fitted in the coastal heritage promotion project, which was one of the LAGs preconditions. Company Fine Pluck from Powys region, which produces genuine Welsh tea, also received EU grant and the owner stated that it occurred due to their innovative idea and the absence of competition. He expressed that the LAG had difficulties to find any other innovative projects in the rural area. Hence, the allocation of support was lucky circumstance, the owner trust. Therefore, the LEADER support to NWFPs in Wales happened randomly as none of LAGs targeted these products. Also, another reason may be micophobia due to famous cases of poisoning in UK and absence of interest to plant commercial NWFPs.

As Sweden is concerned, the LAG Gotland or other emailed LAGs did not have the answer to the phenomenon of low number of supported NWFP projects. They expressed that the people in the area pick berries and mushrooms for their own consumption mainly. However, one of the managers of Truffles of Sweden finds that there is a low interest in NWFPs business development in general, due to poorly paid and very hard nature of harvesting of berries and mushrooms. Another reason which probably causes the low number of projects in NWFPs is ‘the right of public access’ which seems an excellent solution for recreation, but not for the

business with NWFPs. The Free Access Right seems to be an impeding factor and Swedish people find it unjust to make profit of other people resources. Here applies the statement of Pierce et al. (2003) that the social complexity of NTFP operations is considered as more difficult to overcome than the ecological complexity. Hellstadius (2011) and Sievänen et al. (2004) pointed out that non-consumptive activities such as recreation are more dominant than consumptive such as berry harvesting for commercial purposes in Sweden. According to research, mushroom picking is not traditional in Sweden and correlate to a small percentage of older, educated categories of consumers (Lindhagen & Bladh 2012; Hellstadius 2011).

## 5.2 Background of the projects

Regarding the Welsh cases, the businesses are developed from activities that they 'very much like to do', which inspires them and what used to be kind of 'refuge' from their regular jobs. Hence, in these two cases, hobby developed into a serious business. The owners of both companies find that enthusiasm and passion are the most important prerequisites for success. Also, they added that it was important to be 'proactive' as the majority of the business depends on themselves. In the background of Truffles of Gotland stands research which discovered plenty of truffles on the Island of Gotland. Sudden business opportunity has been created for stakeholders in development of truffle industry and they used it. However, Susanne and Olof (managers of the Truffles of Sweden) are showing great enthusiasm and engagement from the very beginning of the idea, with the main goal to raise the quality of the Gotlandic products from truffles to the top level.

All stakeholders of the three case studies had other jobs while they were founding their own companies, the owners of Fine Pluck and Out to Learn Willow did not have financial problems, they could develop slowly and without pressure. Even today, both Fine Pluck owners and most of stakeholders in Truffles of Gotland project- still have the business as a part time job. It takes many years to reach full time job, such Out to Learn Willow achieved. Also, none of all three companies (projects) had income generation as the main impetus. Even Truffles of Gotland primarily strives to increase the quality of their products.

In the background of the Welsh projects (Out to Learn Willow and Fine Pluck) is also the fact that willow forests and wild herbs for tea are native to the area and successfully grow due to favourable climatic conditions. The development of Truffles of Sweden is a bit specific as the main resource is only recently discovered and immediately launched the whole truffle industry. However, due to characteristics of vegetation and soil on Gotland Island, professor Danell from the University of Uppsala began to suspect that this land might host the truffles, and he was right.



The willow waving craft production has a long historical background in Wales, but truffle production is completely new in Sweden. Swedish innovative case of truffle production has no roots in tradition at all and the main trigger for the idea of this project is the result of research. The research conducted on the island of Gotland created a new opportunity in sustainable forest resource use, founding of new orchards for truffle production and the whole truffle industry.

### **5.3 Actors**

All three projects have shown many diverse actors in their businesses. However, Fine Pluck involved many actors in the initiation of the company, but not later when business had developed. Apart from the owners of the companies, important actors in Fine Pluck case are local food shops and cafeterias which sell or serve their teas. In contrary, Out to Learn Willow and Truffles of Sweden constantly increase the number of actors in their business, with the aim to achieve progress. Relevant actors for Out to Learn, Willow business are public organizations (schools, community groups, festivals, botanic garden, local council etc.) who they cooperate with and within whose activities, this company holds classes or workshops. For instance, when local council organizes events for local heritage promotion, Out to Learn Willow usually holds work-shops in traditional willow weaving. Truffles of Sweden involve local food shops which sell their products and also many restaurants all over the Sweden which serve food with truffles from Gotland. Also they cooperate with other local food producers which make products with truffles (truffles cheese or chocolate with truffles etc.). Regarding their services, they involve tourist association which organizes truffle safari, but here are also engaged land owners who possess the land where truffle safari takes place. Dog breeding club which train dogs for truffle hunting has an important role as well. Apart from these actors, many organizations for education and individual experts have stake in research that Truffles of Gotland are constantly conducting in order to improve their business and to create new knowledge platform of truffle producing. These are University of Uppsala, University Gotland and food Technology institute on Gotland.

A particularly important actor in each case was the LAG which implements LEADER in the regions where these projects take place. A vital role in the development of Fine Pluck's business had Glasu agency which implements LEADER in Powys area in Wales and which helped them to solve technical problems and provided some funding. As for the Welsh tea producers, extremely important actors in business development for Welsh willow weaving company and Swedish truffle producers were LAGs from their own regions- Creative Communities in Vale of Glamorgan and LEADER Gotland in Island of Gotland. This fact proves that is very conducive for

rural areas development to have a body such as LEADER Action Group, to support local businesses.

Comparing to Out to Learn Willow and Truffles of Sweden, Fine Pluck has a small number of actors in their business activities. They do not participate in any associations, partnerships or form other type of collaboration with actors in the same sector. Also, they did not need to engage experts in any phase of their business development. Many scientists argue that cooperation between companies is vital for success of the business. For instance Maso et al. (2011) finds that small companies usually have limited capability to undertake all actions necessary for viable business due to lack in knowledge or staff resource, which emphasizes the need for participation in networks in order to receive relevant information and improve production. Fine Pluck shows that there are exceptions in this respect. Their own knowledge, expertise and information available on the internet provided them independence in the business. In contrary, Out to Learn Willow and Truffles of Sweden have cooperation with many actors from the same branch, they are members of associations and in general much more actors are involved in their businesses than in Fine Pluck's. Also, they are constantly increasing the number of actors and interactions in the business and find it particularly important for the progress and success.

Each case has considerable participation of public and private actors in each phase of innovation process. This result confirms that involvement of both private and public sector interests highly affects successful innovations (Niskanen et al. 2007).

Company Truffles of Sweden on Gotland stated that the majority of stakeholders in truffle industry are women. Considering Welsh companies, one is engaging only women and other both, man and woman. In two projects, entrepreneurs were married couples. This ratio somewhat confirms statement of Phillips (2014) that gender diversity creates information, opinion and perspective diversity too, which is an excellent platform for the innovation.

## **5.4 Institutions**

Regarding Fine Pluck, apart from LEADER, many institutions related to food security had a stake in business development, which is expected when it comes to introducing of food to the market. Fine Pluck has to submit some reports to Environmental Health Agency, which prove that their products are safe. The owners are obliged to do so each year and not just at the beginning of production. In order to achieve it, they used information from GAHP (Guidelines for Good Agricultural and Hygiene Practices). Also Fine Pluck had to satisfy prerequisites of HACCP (Hazard Analysis and Critical Control Points) and FS (Food Safety Management Systems).

In contrary, Out to Learn Willow has a few institutions involved in their business, and these are organized by local council and are related to promotion of local cultural heritage. Truffles of Gotland also received some funding prior to LEADER's support from Swedbank's Alfa Savings Foundation (Alfa sparbanksstiftelsen) at the initiation of truffle industry on Gotland. This funding covered plantings for truffle orchard founding. Gotland Island was awarded The Main Food Town 2013 prize (Gotland Matlandethuvudstad 2013) which was very significant for advertizing of truffle products as these were served on the events that were organized throughout the 2013 due to this prize winning on Gotland.

Initiatives such as LEADER and similar state or local funding have undoubtedly positive effect and help the companies in rural areas to start, improve and increase the business. To recall, EU LEADER approach (2017-2013) supported each project which is the subject of analysis in this study. All projects received funding and some advises and Swedish project received in addition some educational courses organized by LEADER. According to all interviewed companies, LEADER had extremely important role in the initiation or improvement of the business through funding or technical, educational and advertising support. Also, LEADER accelerated the business development and created the connections that are relevant for networking and collaboration. However, the funding was the most important support for all projects. Regarding Fine Pluck, LEADER funded water filtration system which was a great problem for this company to start the business. The owners of the company expressed that they possibly wouldn't start with tea producing at all, without this help and thus they find LEADER support as 'vital' for their company's start up. In the case of Out to Learn Willow, LEADER did not play crucial role, as the owners expressed, but rather helped to shift from part time to full time job and significantly accelerate the business development. LEADER provided funding for some equipment for this company and developed some connections that are significant for advertising in the business. Considering Truffles of Sweden, the support from LEADER was multiple and very significant. Olof Thomppson, the member of Truffle Growers Association and Tryffel of Sweden cooperative expressed that Leader support was very significant and without it the volume and diversity of Gotlandic truffle products would be much smaller. Similarly as for the Out to Learn Willow, LEADER accelerated the development of the business of the Swedish case as well. Funding was provided for purchasing of two microscopes and the financing of truffles washing machine; costs of services from the lab, designers, research institutes, educators, business advisors, costs of ads and journals hits; travel expenses for obtaining of knowledge from other countries and other regions in Sweden as well as trips for marketing testing. Also, LEADER provided some network development with other truffle experts and growers and organized some courses for education of stakeholders in truffle industry development.

However, apart from positive aspect of LEADER, there are also some drawbacks. Managers of Out to Learn Willow and Truffles of Sweden agreed that enabling support only until the project

deadline-is shortcoming of LEADER. Clay (1992) argues that the drawback of the development of NWFP projects is 'the fact that the development of a new product requires at least 5-10 years and a significant investment of resources'. Accordingly, innovative NWFPs projects require support in a longer turn. Swedish project did not manage to finish a project within a timeframe and thus the funding was terminated without possibility to extend it. Out to Learn Willow owners found it stressful being left suddenly with no further support. This can be characterized as a lack of flexibility in the LEADER support though the business development most of the time has unexpected occasions which demand postponing of the deadlines. Also, organizing some kind of 'alumni' networks of companies which already received a help from LEADER might help the ones which are newly granted, to cope with possible difficulties when the support terminates. Furthermore, seeking for funding is mainly done through the local council in Wales, which then forwards the information about the availability of support and pointers to the LAG. Yet, the LAGs are hardly directly achievable. There is no LEADER website in Wales such is in Scotland, England and Sweden. A website has great power for LEADER promotion and showing a chronology and description of supported cases where interested applicants can learn much about application process and even get in contact with other companies which already received a grant.

The Carnegie UK (Trust 2010) stated in favor of LEADER: 'The benefits that a bottom-up, integrated approach to rural development can bring with relatively little resources are significant'. This statement is approved by both Welsh cases, where the support they received from LEADER was only few thousands of Pounds, but the benefit that companies and their communities had of it- is very significant.

Apart from institutions that directly affected the business of these 3 cases or NWFP projects in general, there are some institutions that might have indirect influence as well, such as some governmental initiatives. Five years ago the Swedish Minister for Rural Affairs proposed his vision of Sweden as 'The new culinary nation', creating the idea with the aim of making Sweden the best country for food by 2020 (Try Swedish, 2014). Therefore, there are many actions supporting this initiative and government is investing in promotion of it. This creates great opportunity for the truffle project on Gotland, as truffles are luxury food and rather 'scarce' resource in Europe and completely new on Scandinavia. Regarding the other NWFPs, this is exceptional possibility for development of this sector, which has a great potential. Berries and mushrooms grow abundantly in Sweden. Though, some obstacles have to be overcome in order to develop berries and mushrooms industry. As already discussed, 'public access right' is not offering opportunity for setting up the business with berries and mushrooms. This is seen according to the public opinion as misusing of this generous right. Possibly, with some changes on this policy which might include some aspects of cooperation between pickers and landowners, the compromise might be achieved.

Welsh government is promoting heritage, culture and traditional values preserving in contrary to Swedish, which is more 'open' to innovations. Most of the LAGs in Wales expressed that one of the priority requirements of projects is to preserve national heritage and tradition. On other hand, the first requirement of each LAG is innovation (as it is case in all LAGs around EU). This creates rather contrary demands for entrepreneurs, but on the case of Fine Pluck and Out to Learn Willow it's proven to be possible. Products of these companies are traditional with some new and original aspects as well.

Generally, according to the opinion of stakeholders of Welsh companies and Swedish truffle project, there is enough support in their areas for businesses in NWFPs.

## 5.5 Interactions

All the cases demonstrate cross-sectoral cooperation, where apart from NWFPs they engage other sectors as well. This cross-sectoral interaction is of particular significance in NWFPs and NWFSs development as 'these mostly do not belong to traditional forestry activities but have rather affinities to other sector or societal groups' (Weiss and Rametstainer 2005). Fine Pluck engages food technology, culinary, trade, hospitality and education sector. Out to Learn Willow engage education, handicraft, health therapy, entertainment sector and Truffles of Sweden cooperate with tourism, education, culinary, trade, catering and food technology sector.

Swedish project on truffles showed great endeavor in expanding contacts outside the country as well as finding ways to better promote the product and exports, while Welsh companies did not show great interest neither to export their products nor to establish cooperation with foreign companies. 'Acting locally' is their preference and aim. Here is an example of successful businesses without necessity to extend cooperation on national or international level. In fact, Fine Pluck did not demonstrate the need for cooperation development with other companies in the area whatsoever after the introduction of project to the market. However, this company felt confident with this way of business management as they offer quite unique products to the customers. In contrary, other two companies have already achieved diverse cooperation with other similar companies with the aim to receive or exchange the knowledge (Out to Learn Willow case) or build partnerships (Truffles of Sweden case). The explanation of this exception could be found in the fact that Fine Pluck is young company, just a few years in a business, while the other companies operate around ten years already. The owners of Fine Pluck stated that their company did not face any impediments in business so far and that their good knowledge base is enough for further progress. It would be preferable to conduct the research again in ten years and see if this strategy was viable. Network cooperation provides in addition

to the exchange of knowledge, the experience exchange as well. This aspect is particularly important in overcoming unexpected difficulties which may arise in a course of business.

Statement of Belcher & Schreckenber (2006) that collaboration through market cooperatives in order to supply the main markets has to be planned along with development of new products, with the goal to meet future demand- is entirely implemented in project Truffles of Sweden. As this project is successfully dealing with the development of truffle industry, at the beginning, Tryffel of Sweden Cooperative has been founded with the goal to provide 'one face of the market' to all truffle products on Gotland.

## **5.6 Knowledge and learning**

The stakeholders of project development of each case are highly educated, which certainly had significant contribution to the success of the business. Education was essential in terms of project feasibility and marketing. For instance, Fine Pluck did not need to engage any professionals during the project development as the owner's background allowed them to do all by themselves and thus save a lot of money and time. Similarly, Out to Learn Willow demonstrated skillfulness in many fields important for business development such as marketing, social networking, graphic design, willow planting etc. In a case of Truffles from Gotland, education background was particularly strong which enabled stakeholders to develop the truffle industry, broad collaboration with many other companies on Gotland, Truffle Festival and Academy.

The owners of Welsh companies underlined that the rich and diverse knowledge from previous jobs and in the field of their business was both important for the success. They also asserted that the financial or other support from government matters significantly, but the main driving and creative force of successful business are themselves and their knowledge. Particularly, support (such as LEADER) usually lasts a certain period and after, the entrepreneurs are left on their own resources and skills. In order to be successful, they must primarily rely on their own engagement.

Both Welsh companies conducted research and found a gap in the market, regarding willow weaving courses and tea producing, prior starting of their businesses. This is very important point which indicates whether certain products and services are needed in the area. Each project performed some kind of research and constantly performs it in order to reveal possibilities to improve the business. In addition, all companies are upgrading their knowledge during the development of the business by taking courses in a certain field which might improve their operations. It can be concluded that constant learning process is necessary for success and progress in innovative NWFPs business.

Stakeholders of all three companies think that certain level of knowledge is necessary in order to find a support and to apply for it. The owners of Fine Pluck and Out to Learn Willow expressed that they knew, according to their previous experiences, that there is some funding probably available from Government and thus, they found LAGs in their areas after short web search. In addition, Bruce Stanley exerted that he had excellent knowledge regarding applying for funding and finds it particularly important. Clare Revera from Out to Learn Willow pleaded similar and noted that it is important to be 'proactive' in this respect. Susanne Velin-Berger from Truffles of Sweden used to work in LAG and thus, her awareness about LEADER comes as no surprise. Yet, she listed in the interview a number of other available funding resources in Sweden and Gotland.

According to the cases from UK and Sweden, education had a crucial role in adding the innovative accent to traditional (Fine Pluck, Out to Learn Willow) or non-traditional NWFP projects (Truffles of Gotland).

## 5 Conclusion

According to the case studies from Wales and Sweden, different factors have initiated the innovative process of those projects. In Wales- preserving tradition played an important role in willow crafting and the permaculture principles inspired genuine tea production, while in Gotland the research was responsible for the idea of truffle production development. The common feature of all successful projects is a high educational level of the owners. Apart from the university degree they hold, all of them took additional courses to further specialize in the field of their business. Thus, education seems to be particularly important aspect in the project development and along with enthusiasm gives a solid platform for a successful business in non-wood forest products, judging by these case studies. Actually, managers of all the projects continued to add to their existing knowledge by attending courses, reading books and doing research in order to improve the business. Another type of knowledge and the central aspect of all cases is 'learning from experience' as all the projects are offering innovative products. This is especially meaningful for the Truffle of Sweden case as they are pioneers in whole Scandinavia regarding truffles growing and introducing to the market.

Each case has shown clear purpose of their businesses, creativity and a vision for the future. The Welsh companies which practically developed the business from hobby expressed that is very important to like the job in order to be successful. The Swedish case has shown great enthusiasm as well and an endeavor to develop the truffle industry to the top level.

Complex interactions, collaboration development and engagement of many actors from different sectors were crucial for the Welsh willow weaving company and for the Swedish truffle project. In contrast, the Welsh tea producer-Fine Pluck does not show much network development tendency and still manages to operate successfully. The reasons for this lay in a rich and diverse education and expertise of the owners which enabled them to work very independently and in their non-expansive business strategy.

The LEADER (2017-2013) instrument had an important role in the business development in each interviewed company and thus undoubtedly contributed to the rural development of the area. This EU initiative provided funding and advice to all projects and thus accelerated the business development of Out to Learn Willow and Truffles of Sweden project, while it helped in the initiating phase of the Fine Pluck. Providing education and network development to Truffles of Sweden was another type of support from this EU initiative. However, the funding was the most significant form of support of LEADER to all studied cases. Welsh cases received financial support only from LEADER, while other expenses are covered from the owners' budget. The Swedish case received only one funding in addition to LEADER.



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## Appendix 1: Projects supported by LEADER (2007-2013) in UK

Name of the local group and area	Name of the project	Related to forestry	NWF services	NWF products	Category of NWF product	Grant £	Note
ARC North West (Northern Ireland) www.archnorthwest.com	Oakfire adventures <a href="http://www.oakfireadventure.com">www.oakfireadventure.com</a>		+		Recreation, Tourism (Adventure)	49,309.94	Paintball
	Arborcareni www.arborcareni.com	+				24,237.42	Firewood processing
	Camowen Green Firewood Processing	+				8,177.50	Firewood selling
Argyll and the Islands (Scotland) www.argyllandtheislandsleader.org.uk	Argyll Farm Woodland Collaboration – Kintyre Pilot	+				-	Feasibility study
	Forest Amenity Study		+		Recreation, Tourism	9,000	Development of forest
	Atlantic Hazel Awareness Raising Project	+					Improvement of the management of Atlantic hazel woods
	Bird Viewing Hide – Holy Loch, Cowal		+		Tourism	11,540	
	Working Farm Woodlands	+				2,725	Feasibility study
Argyll Native Woodlands		+		Eco Tourism	41,272	Promotion, workshops, skill training	

## Appendix 1: Projects supported by LEADER (2007-2013) in UK (continued)

Name of the local group and area	Name of the project	Related to forestry	NWF services	NWF products	Category of NWF product	Grant £	Note
<b>Cairngorms (Scotland)</b> <a href="http://www.cairngorms-leader.org">www.cairngorms-leader.org</a>	Woodland Project	+				7,000	Purchase and development of woodland
	Milton Loch Community Woodland		+		Education, ecology	900	Increasing biodiversity, education
	Cairngorms Forest School		+		Education	47,000	Delivering forest school to every primary school
	Journeys in Nature		+		Recreation, Tourism	4,322.50	-
	Grantown Forest School		+		Education	5,000	Outdoor class room, bush craft activities
<b>Central Warwickshire (England)</b> <a href="http://www.warwickshireleader.net">www.warwickshireleader.net</a>	Horse Logging in Oakley Wood	+				12,500	-
<b>Coast, Wolds, Wetlands and Waterways (England)</b> <a href="http://www.ruralprogrammeseastyorks-hire.co.uk">www.ruralprogrammeseastyorks-hire.co.uk</a>	W&SEHRP – Community Woodland Project	+	+		Ecology, environment, Economic benefit	46,500	Creation and development of woodlands
<b>Rural Aberdeenshire (Scotland)</b> <a href="http://www.aberdeenshireleader.org">www.aberdeenshireleader.org</a>	Woodhead & Windyhills Community Woodland Enhancement	+			education	6,566	To improve accessibility to community woodland, undertake biological surveys and promote the woodland for both community and educational use.
<b>Highland (Scotland)</b> <a href="http://www.highlandleader.com">www.highlandleader.com</a>	Isle of Eigg Heritage Trust	+				4,243.50	Wood Fuel/Products Feasibility Study for the Isle of Eigg
	Laide & Aultbea Community Woodland	+				4,260.50	Purchasing equipment for safe timber extracting
	Sleat Community Trust	+				1,000	Purchasing and developing forest for community

## Appendix 1: Projects supported by LEADER (2007-2013) in UK (continued)

Name of the local group and area	Name of the project	Related to forestry	NWF services	NWF products	Category of NWF product	Grant £	Note
<b>North Pennine Dales (England)</b> <a href="http://www.northpenninedaleleader.com">www.northpenninedaleleader.com</a>	Pennine biomass	+				-	Purchasing vehicle for wood chips transport
	North Pennine Dales Woodfuel Supply Development	+				-	Technical support in the field of wood fuel supply processing and sourcing
	Forest Education Initiative Co-ordinator, North East		+			15,000	The project will enable greater access to woodlands within communities by developing partnerships with both private and public bodies
<b>Brigent (Wales)</b>	Bush waka		+	+	Entertainment and craft with bush branches	-	Organizing the first Bridgent's bush craft festival
	Woodland education project		+	+	Education	-	Providing nine primary schools in Bridgent with the opportunity to come in small groups to learn outside of the classroom environment
<b>Vales of Glamorgan (Wales)</b>	Out to Learn Willow			+		-	Improving business of the company which hold courses in willow weaving, living willow structures and willow sculptures
<b>Powys (Wales)</b>	Fine Pluck			+		-	Developing business with production of genuine Welsh tea from wild herbs
<b>Forth Valley and Lomond (Scotland)</b>	Natural Trossachs		+		Tourism	2,048	Developing an ecotourism business, which also has links to the local community
	Mains Farm Wigwams		+		Recreation, tourism	10,000	Building a mountain bike facility. It will include tracks for beginners and children, plus obstacles for more advanced riders; and aims to provide a new experience for existing visitors, attract new visitors and will be open to the local community

## Appendix 1: Projects supported by LEADER (2007-2013) in UK (continued)

Name of the local group and area	Name of the project	Related to forestry	NWF services	NWF products	Category of NWF product	Grant £	Note
<b>LEADER Innse Gall (Scotland)</b>	Langass Community Woodland Project	+	+		Tourism, recreation, raising environmental awareness		Developing the Langass Woodland Site by creating new paths and trails that are easily accessible, creating a vehicle track for enabling the extraction of timber, piloting a social enterprise, providing new seating areas, interpretation panels and marketing material and building a storage hut to create a work area in the forest.
<b>Scottish Borders (Scotland)</b>	Woodland Volunteering and Youth Training Project	+			Education	45,780	Providing training and practical experience in woodland management for unemployed young people which will enhance their employment potential in the rural skills sector. It will also develop and support volunteering opportunities for youth and interested individuals in community woodlands in the Scottish Borders
	Woodland Work Experience	+				54,625	This projects supports former woodland trainees and volunteers, providing paid work which utilises their new skills
<b>Tyne Esk</b>	Fast Tracking Forest School / Kindergarten		+		Education	£6,450	Funding was awarded to purchase equipment, outdoor clothing and provide training for the Forest School/Kindergarten , an approach to outdoor education benefitting to children health and wellbeing through enhanced physical activity and through its focus on small achievable tasks in a quality environment (woodland).

## Appendix 2: Projects supported by LEADER (2007-2013) in Sweden

LAG name Website	Project name	Related to forestry	NWFP services	NWFP products	Topic	Funding from LEADER(SEK)	Note
<b>3sam</b> <a href="http://www.3sam.eu">www.3sam.eu</a>	Forest Destination Älggårdsberget	+			Education	-	To preserve and disseminate knowledge about traditional forestry
	Start gas 1.	+			Forestry/Agri culture	-	Intends to increase the competitiveness of agriculture and forestry
<b>Lappland</b> <a href="http://www.leaderlappland.se">www.leaderlappland.se</a>	Wild mushrooms			+	Mushrooms	-	Identification of forms of collaboration for the picking, processing and sale of wild mushroom quality
<b>Terra et Mare</b> <a href="http://www.terraetmare.se">www.terraetmare.se</a>	Plantations to plank	+			Education	617. 266	Information adolescence about forestry and forests and possible job opportunity in the area
<b>Västra Småland</b> <a href="http://www.leadervastrasmaland.se">www.leadervastrasmaland.se</a>	From Plant to Plank	+			Education	206.570	Increase interest and awareness of the forest as a resource and as a future labour to the children in 4-5
	Game Feed in conjunction Operation	+			Game management	31.500	Looking for various ways to reduce grazing pressure on mainly pine
<b>Östra Skaraborg</b> <a href="http://www.leaderskaraborg.se">www.leaderskaraborg.se</a>	WEST Skaraborgsgatan Furets allaktiveringsom råde		+		Culture, history, recreation, conservation	33.655	Developing Furets forest
<b>Gotland</b>	Utveckling av Tryffelnäringen			+	Truffles	1.495.000	Development of truffle industry on Gotland
	Gotland Skog & Miljö	+			Forest management	895.431	Contributing to improving forest management

## Appendix 2: Projects supported by LEADER (2007-2013) in Sweden (continued)

LAG name Website	Project name	Related to forestry	NWFP services	NWFP products	Topic	Funding from LEADER(SEK)	Note
MittSkåne <a href="http://www.leaderskane.se/mittskane">www.leaderskane.se/mittskane</a>	Agroforestry i MittSkåne	+			Agroforestry	256.625	The goals are to cooperate with landowners to develop agroforestry systems tailored to each individual's circumstances, use these agroforestry systems as case studies for method development, training and dissemination of knowledge and to investigate how the Swedish authorities will handle the payment in connection with agroforestry project
	Natural food inspiration from the lake and forest		+		Hunting and fishing	36.747	The aim is to increase our understanding of hunting and fishing importance for MittSkåne countryside and to encourage consumers and possibly wholesalers to buy ingredients from local producers
	Hiking area Mittskåne		+		Hiking	708.000	Project aims to make visible joints and recreation areas in Mittskåne, and to make them more accessible by developing a guidebook and create a website that features hiking trails that go through the beautiful MittSkåne nature and culture in a thorough and compelling manner

## Appendix 2: Projects supported by LEADER (2007-2013) in Sweden (continued)

LAG name Website	Project name	Related to forestry	NWFP services	NWFP products	Topic	Funding from LEADER(SEK)	Note
<b>Växtlust</b> <a href="http://www.vaxtlust.se">www.vaxtlust.se</a>	Well-being Trail		+		Recreation	-	Signed trail is a result of the international "Forest Project – Network of Densely Wooded Regions In Europe" organised by Leader Växtlust
<b>Närheten</b> <a href="http://www.narheten.se">www.narheten.se</a>	Checkar för konkurrenskr aftigt jord- och skogsbruk	+			Forestry and agriculture	20.000	Enhancing the competitiveness of agriculture and forestry, for example by strengthening the infrastructure and broadband deployment in rural areas
	Transnational hunting		+		Hunting	-	The project aims to increase the skills and topics related to hunting and wildlife management in three areas of the two countries and create a transnational network for continued exchange of experience
<b>URNära</b> <a href="http://www.urnara.se">www.urnara.se</a>	Large stone		+		Tourism, hiking, history	205.000	The project intends to reconstruct walking trails that highlight and reflect Over Boda Mountain area's unique history from the Stone Age to the present day, as well as natural birdlife and fishing
	Norrländska wineries (Nordmalings fjärden)				Berries	300.950	The project aims to create better conditions for increased processing of the northern forest berries raw material. The focus will be on advancing knowledge in the environmental procedures in the production of berry wine as a final product.
<b>Halland</b>	Wild boar			+	Wild game	-	Use the boar as a resource in different ways