

## Short Term Scientific Mission Report

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**STSM Reference:** FACESMAP – COST Action FP1201

**STSM Title:** Comparative assessment of innovative approaches and innovation behaviour of forest owners and contractor firms in forestry in the partner countries

**Host institution:** Institute of Forest, Environmental and Natural Resources Policy, University of Natural Resources and Life Sciences, BOKU, Vienna

**Host:** Dipl.-Ing. Dr. Gerhard Weiss

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### Report Contents:

1. Introduction
2. Purpose of the visit
3. Description of the work carried out during the visit
4. Description of the main results obtained
5. Future collaboration with host institution
6. Foreseen article resulting or to result from the STSM
7. References

## **1. Introduction**

Innovations are vital to economic growth and development. The OECD (2005) defines innovation in its Oslo Manual as “the implementation of a new or significantly improved product (good or service), or process, new marketing method, or a new organisational method in business practices, workplace organisation or external relations.” The minimum requirement for an innovation is that the product, process, marketing method or organisational method have to be new to the firm or significantly improved (RAMETSTEINER, WEISS, 2004).

JARSKÝ (2014) distinguishes four main types of innovation – product, process, marketing and organisational innovations – which are further sub-divided. Institutional innovation as a separate category was added by WEISS ET AL. (2010). Institutional innovations may include new or adaptation of existing organizations, new or significantly modified rules as laid down in laws, decrees or policies as well as new or significantly modified procedures in developing and implementing policies (WEISS ET AL., 2010).

The aim of my dissertation thesis is to analyse innovation behavior and innovation potential of contractor firms in Slovak forestry, in the first place in the area of timber harvesting and transport. My work is connected to similar research of forest owners of projects INNOFORCE, IPOLES and Centre of Excellence II – Completing of Center of Excellence: Adaptive Forest Ecosystems, which deals with the development of science and improving knowledge needed for enhance the sustainability of the forest sector.

The theoretical part of the thesis is based on innovation theory and theory of innovation systems. There is a growing consensus in the innovation system literature that innovations are the result of the institutional process (NELSON, WINTER, 1977). The ability of contractor firms to generate innovations currently depends on the ability of firms to work and interact as a part of the system (LUNDVALL ET AL., 2001, EDQUIST, 2001). The basic functions of that innovation system in the forestry service sector are cooperation between the various actors, exchange of information and reducing uncertainty, management of conflict and risk, creating new innovations, and their dissemination and use (EDQUIST, JOHNSON, 1997, DOSI, 1998).

Analysis of innovation behaviour is based on research in firms drawn from a database of enterprises. The information sources will be provided by people responsible for their management, by filling out a prepared questionnaire. Innovations potential will be assessed by case studies, which will contain interviews with the innovators and the best practice innovations. These represent the best practices and methods that reliably lead to the best results of the possible alternatives. I focused on successful types of implemented innovations with considerable market potential.

The expected results will represent the recommendations for innovation policy in forestry. The importance and benefits of these measures will be in creating conditions for improving the innovation and entrepreneurial activity in forestry.

### **Market of forestry services in Slovakia**

In recent years, the overriding role of forestry is associated with the provision of a wide range of services. These services are provided by contractor firms in the market of forestry services which is relatively new and young, originated about 20 years ago. The restitution process of returning of forest property and restructuring of state-owned enterprises can be considered as a main impulse for the creation of this sector. The community of forestry contractors' consists of more than 21 000 business entities, 95 % of them are micro enterprises, that don't own and use forest lands, but only provide and ensure the full range of forestry services. It includes mainly timber harvesting, skidding, transport, wood handling, silviculture and forest protection.

In the Slovak Republic most of the contractor firms is situated in regions of Prešov and Banská Bystrica. This is connected to the fact, that these regions are characterised by the largest forest area in Slovakia. The fewest number of enterprises is present in the regions of Nitra, Trnava and Bratislava. This can also be attributed to the total area of forest land, which is the lowest in these regions of Slovakia (ŠTĚRBOVÁ ET AL., 2010).

My preliminary research results show that only cca 35 % of firms implemented innovations during the last three years. The types of innovations which were successful can be divided into four categories: products, services, technological and organizational innovations. Technological, respectively process innovations have the biggest share on the successful innovations (48 %). We can conclude that the innovation activity of firms was focused on the acquisition of new machinery and technical equipment, because current mechanization don't meet the needs of development of modern technology and has got a negative impact on the environment. Innovations provide a competitive advantage, because environmental factors play an important role in the selection of supplier. It is quite obvious that firms with modern technologies are able to obtain employment contracts (PALUŠ ET AL., 2011).

## **2. Purpose of the visit**

The main goal of STSM was to compare the innovative approaches and innovation behaviour of forest owners and contractor firms in forestry in the partner countries. The topic of STSM was related to new private forest ownership and new management approaches and this was particularly

related to the WG2 of the COST Action FP 1201 FACESMAP. The work and objective of WG2 is to explore innovative management approaches for new forest owner types. Another objective was to develop the research plan for my PhD thesis that investigates innovations in forestry and also to improve my skills and knowledge about research methods, policy analysis and structuring paper for high rating journals.

The host institution - Institute of Forest, Environmental and Natural Resources Policy is one of the leading institutions dealing with innovation research in the field of forestry in central Europe. Host Dipl.-Ing. Dr. Gerhard Weiss is senior researcher in the field of forest policy, dealing among others with innovation in the forest sector. He studies cases of successful innovations, issue of fostering and hindering factors in the innovation process, and how can innovation processes be supported by policy and forest agencies.

During STSM I focused on the collection, exchange and analysis of information and research results relevant to my PhD thesis and collection, description and analysis of examples for practical solutions of innovations, too. I also paid attention to issue of awareness and access of owners to information, advice and support of innovations at the institutional level, and how could this be improved. Completing the STSM at the host institution had extended my knowledge about innovations in general and in forestry. The information gained during the STSM I will implement in my PhD dissertation "Innovation behaviour and innovation potential of contractor firms in Slovak forestry". STSM also fosters future collaboration with the host institution.

### **3. Description of the work carried out during the visit**

The STSM dealt with innovative and new management approaches in forestry. In addition; the STSM was focused on the collection, description and analysis of relevant information. During the two weeks STSM the following activities were completed:

- a) Literature search and review – I focused on the theory of innovations, forest management approaches, concepts adequate for different ownership types and innovative approaches and also on the screening and collecting of innovative research results and information from case studies in forestry. Also, I searched and studied the relevant information associated with the qualitative and quantitative research methods. For the purpose of this review I was allowed to access to the online library of BOKU where I found the most recent research books and articles. I also visited the Institute library that is very well equipped with recent articles and books. I used it for reading of books and articles mainly about innovations in general.

- b) Participation on the lecture of the course Innovations for Sustainable Forest Management – The aim of this course is to address the role of innovation in economic development in general and in sustainable forest management in particular as well as the necessary skills and tools in innovation management. During the lecture I had a chance to gain a lot of useful information about innovations, innovation system, innovative research and case studies.
- c) Regular meetings, discussions and consultations - In general, during this visit I had a unique opportunity to meet experienced people with a lot of knowledge and to learn from them. I worked mainly with my host Dipl.-Ing. Dr. Gerhard Weiss. We had several meetings and consultations focused on issue of innovations, innovative research of forest owners in central Europe and the most of the time we consulted about my PhD thesis. He suggested some very interesting articles for reading and analysis that extended my knowledge and skills. During discussions he gave me a lot of useful advices and ideas associated with improving my own research and dissertation. He also purposed me the cooperation with Macedonian PhD student Vladimir Stojanovski. The topic of his dissertation is similar to my thesis, it deals with Forest related start-ups and innovation in forestry in Macedonia. Together, we have started to prepare materials for scientific publication which deals with the issue of innovating in traditional sector.
- d) Preparing proposal structure of the article – I have worked on a proposed structure for the purpose of the article “Comparative analysis of innovation processes of harvesting firms in Slovakia and Macedonia”. I also consulted this proposed structure with my host Dr. Weiss and with Vladimir Stojanovski. An output of this discussion is a draft version of the article.

#### **4. Description of the main results obtained**

The result of the STSM is improving of my practical and theoretical knowledge and skills. During the STSM, the appropriate literature was reviewed. I gained a lot of new, interesting, relevant and useful information in the field of innovation in general and in the forestry sector. My skills about research methods, policy analysis and structuring paper for high rating journals were improved, too. During meetings and consultations with Dr. Weiss we found several ideas for development of a research plan for my PhD thesis. One of the main results of my visit is a creation of the draft version of paper “Comparative analysis of innovation processes of harvesting firms in Slovakia and Macedonia”.

## **5. Future collaboration with host institution**

The collaboration with Dr. Gerhard Weiss continues within the mentioned scientific article. In that regard, Dr. Weiss from the host institution will be one of the coauthors of this paper. Also, we discussed about possibilities to add a few case studies from my research to The Forest Policy and Innovation Database of the European Forest Institute Central-East European Regional Office in order to extend this database with interesting innovation cases in contractor firms in Slovakia.

Furthermore, my visit gave the opportunity to consolidate the cooperation between the Institute of Forest, Environmental and Natural Resources Policy in Vienna and Technical University in Zvolen, in agreement with the intents of Cost Action FP1201.

## **6. Foreseen article resulting or to result from the STSM**

Together with Dr. Gerhard Weiss and Vladimir Stojanovski, we work on the article “Comparative analysis of innovation processes of harvesting firms in Slovakia and Macedonia”. The aim of the paper is to analyze and compare innovation processes of contractor firms in Slovak and Macedonian forestry, with the focus on harvesting enterprises on the basis of case studies. We plan to publish it in some internationally recognized and peer reviewed research journal.

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